

**INVESTIGATING THE COMPLEXITY OF POPULATION HEALTH:  
INTERGENERATIONAL CHANGES IN SOCIO-ECONOMIC AND  
HEALTH STATUS IN JAMMU AND KASHMIR, 1989-2014**

Thesis submitted to Jawaharlal Nehru University  
in fulfillment of the requirements for the  
award of the Degree of

**DOCTOR OF PHILOSOPHY**

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3<sup>rd</sup> February, 2021


**DECLARATION**

I hereby declare that the thesis entitled '**Investigating the Complexity of Population Health: Intergenerational Changes in Socio-Economic and Health Status in Jammu and Kashmir, 1989-2014**' submitted to Jawaharlal Nehru University for the award of the Degree of Doctor of Philosophy (Ph.D) is my original work. This thesis has not been submitted for any other degree of this University or any other University.

  
Tanveer Ahmad Dar

**CERTIFICATE**

We recommend that this thesis be placed before the examiners for evaluation for the award of the Degree of Doctor of Philosophy.

  
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## Dedication

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*This thesis is dedicated to the farmers of my state who despite being exposed to multiple vulnerabilities have drastically changed the socio-economic landscape of the state during a period witnessed by pervasive conflict. Their annual produce has become a pillar to the state's economy. Their struggles and aspirations for progress have resulted in better health outcomes for their families and the state at large.*

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## List of Abbreviations

AAY	<i>Antodaya Anna Yojana</i>		
ANC	<i>Antenatal Care</i>		
APDP	Association of Parent of Disappeared Persons		
APL	<i>Above poverty line</i>		
ARI	<i>Acute Respiratory Infection</i>		
ASER	<i>Annual Status of Education Report</i>		
BCG	<i>Bacille Calmette Guerin</i>		
BPL	<i>Below Poverty Line</i>		
BMI	<i>Body Mass Index</i>		
cm	<i>Centimetre</i>		
CDC	<i>US Centers for Disease Control and Prevention</i>		
CBHI	<i>Central Bureau of Health Intelligence</i>		
CPI-AL	<i>Consumer Price Index for Agricultural Labourers</i>		
DLHS	<i>District Level Household &amp; Facility Survey</i>		
DPT	<i>Diphtheria, Pertussis and Tetanus</i>		
FGD	<i>Focused Group Discussion</i>		
GDP	<i>Gross Domestic Product</i>		
GDP/c	<i>Gross Domestic Product per Capita</i>		
GHI	<i>Global Hunger Index</i>		
HH	<i>Household</i>		
ICDS	<i>Integrated Child Development Services</i>		
IHDI	<i>Inequality-adjusted Human Development Index</i>		
IAY	<i>Indira Awas Yojana</i>		
IMR	<i>Infant Mortality Rate</i>		
IIPS	<i>International Institute for Population Sciences</i>		
ICF	<i>Inner City Fund</i>		
J&K	<i>Jammu and Kashmir</i>		
km	<i>Kilometre</i>		
kcal	<i>Kilocalorie</i>		

KCC	<i>Kisan Credit Card</i>	
kg	<i>Kilogram</i>	
LPG	<i>Liquefied Petroleum Gas</i>	
MDM	<i>Mid Day Meal</i>	
MDMS	<i>Mid Day Meal Scheme</i>	
MGNREGA	<i>Mahatma Gandhi National Rural Employment Guarantee Act</i>	
mm	<i>Millimetre</i>	
MPHIL	<i>Master of Philosophy</i>	
MSF	<i>Medecins Sans Frontieres</i>	
NPHH	<i>Non-priority Household</i>	
NFSA	<i>National Food security Act</i>	
N.D/n.d	<i>No Date</i>	
NFHS	<i>National Family Health Survey</i>	
NGO	<i>Non Governmental Organization</i>	
NRHM	<i>National Rural Health Mission</i>	
NSSO	<i>National Sample Survey Office</i>	
NNMB	<i>National Nutrition Monitoring Bureau</i>	
NCHS	<i>US National Center for Health Statistics</i>	
OBC	<i>Other Backward Class</i>	
OOP	<i>Out of Pocket</i>	
PHE	<i>Public Health Engineering</i>	
PHH	<i>Priority Household</i>	
PDP	<i>People's Democratic Party</i>	
PDS	<i>Public Distribution System</i>	
PMAY	<i>Pradhan Mantri Awas Yojana</i>	
PhD	<i>Doctor of Philosophy</i>	
PNC	<i>Postnatal Care</i>	
RGI	<i>Registrar General of India</i>	
SLI	<i>Standard of Living Index</i>	
SE	<i>Socio-Economic</i>	
SD	<i>Standard Deviation</i>	
ST	<i>Scheduled Tribe</i>	

SC	<i>Scheduled Caste</i>	
sq.	<i>Square</i>	
SRS	<i>Sample Registration System</i>	
SPSS	<i>Statistical Package for Social Sciences</i>	
SSI	<i>Small Scale Industrial Units</i>	
TV	<i>Television</i>	
U5MR	<i>Under Five Mortality Rate</i>	
UK	<i>United Kingdom</i>	
UNDP	<i>United Nations Development Programme</i>	
US	<i>United States</i>	
UT	<i>Union Territory</i>	
WHO	<i>World Health Organization</i>	



# Introduction

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Health and illness are not equally distributed through the populations across countries, communities, social and economic groups, gender, regions and religions despite the significant improvements in health status over the past century. A huge body of research has pointed to the socio-economic inequalities as causes of health inequalities across and within nations. Situations of mass conflict and violence have exacerbated inequalities as well as limited the positive impacts of socio-economic development on health. This is evident in the indicators of health and nutritional status of populations and their sub-groups.

The rising inequalities in illness and socio-economic conditions (and consequently food intakes) have also led to inequalities in the nutritional indicators thereby perpetuating a cycle of further unequal health status and socio-economic disparities. As a result, the changes experienced by different societies in their nutritional status over time reflect a diverse picture. Most western countries have experienced a significant intergenerational increase in heights over the last one and half century. However, such secular increases have mostly been absent or marginal in developing countries, some of which have even witnessed reversals in mean height –reverse secular trends (Garn, 1987). Any positive secular or generational change that has occurred in developing countries has been restricted to particular ethnic or tribal groups or to the social and economic elite (Garn, 1987).

Health and nutritional status data from India also shows that significant inequalities exist between socio-economic groups and regions. This is revealed by the findings of large-scale surveys such as those of the National Sample Survey Office (NSSO), National Nutrition Monitoring Bureau (NNMB) and National Family Health Survey (NFHS), as well as by micro level studies. These disparities are a reflection of the inequalities existing in the working and living conditions as well as access to resources between poor and rich; the scheduled castes and tribes (SCs/STs) and higher castes; and between women and men. The long-term data trends reveal that there has been minimal improvement in nutritional status despite the fact that India has seen a high level of economic growth after 1990. The average height of men and women in India still falls short of NCHS values, indicating that it may take many more decades to reach its

growth potential (Mamidi et al. 2011). The secular trends in heights in India over time especially a comparison of pre- and post-1990s period, which represent different phases of economic growth and policy regimes, have not received much attention.

On the other hand, the state of Jammu and Kashmir (J&K) provides an interesting and unusual example of witnessing significant positive socio-economic changes in the last three decades despite experiencing a pervasive political conflict and violence which began in 1989. The proportion of people as living under the official poverty line have sharply declined in J&K from 25.17 % in 1993-94 to 5.40% in 2004-05 –least poverty in any state of India then. The poverty at all-India level reduced from 35.97% to 27.50% during this time (Govt. of J&K, 2008b). The data also points to a better picture of health and nutritional status for J&K than all-India, despite the huge impact of conflict on the state's economy. Infant mortality and proportion of children who are stunted or underweight have decreased at a faster rate in J&K than all-India in between 1998-99 and 2015-16 as shown by NFHS data (see NFHS-2 & NFHS-4 reports). These are important indicators of child health and also determinants to adult health. Such developments have also resulted in significant increases in mean heights among J&K men, an indication of long-term access to diet and improved health. The heights have increased at much faster and consistent rate in J&K than other states of India in the last three decades prior to 2005-06, 15 years of which have been a conflict period in the state. This achieves more significance as it happened when some of the states saw a decline in mean heights over this period (Mamidi et al. 2011).

The seemingly paradoxical improvements in J&K, having occurred despite the presence of political conflict in the state for the last 30 years, raise questions about complexity of the determinants of population health under such conditions. An examination of how these changes unfolded could provide deeper insights to contribute to the existing discussion on determinants of population health especially in the context of political conflicts. It is in this context that the present study focused on examining the improvements in health status and the contributory socio-economic changes that have been experienced in J&K over the twenty-five year period from 1989 to 2014 with focus on the pathways and processes that have led to these changes.

The study conceptualized that ‘conflict’ may impact ‘health status’ in different ways and may transmit through economic changes, increasing stress, worsening of public provisioning of services, decline in employment opportunities, and possibly through micro-level processes of change in social organization. But the presence of ‘conflict’ may not necessarily result in the deterioration of health outcomes and the developments in health would result from a balance between conflict-related effects and the overall changes in socio-economic conditions in the society during this period. That is why there are experiences of both improved health status as well as deteriorating health status during conflict times across the world. The impact of conflict is likely to follow different trajectories depending on the social organization, provisioning of services, social cohesion and support, access to resources and opportunities, public spending, etc

It was therefore assumed, based on the analysis of macro-data that the changes in socio-economic conditions are more pronounced in a positive direction in J&K than the negative effects of conflict, and that is the reason why significant improvements in health and nutritional status have occurred in J&K in the last three decades. That brought forth the importance of pathways and processes that have led to these important socio-economic changes despite the presence of conflict in the state. The role of public policy and government programmes also assumes significance in such a change. The experiences from some parts of the world have shown that public investments and improved access to welfare provisions during war time have led to improvements in health outcomes. However, this hypothesis about the socio-economic changes and improvements in health status in J&K needed to be examined further which formed the main part of the study. The study also assumed that the impact of conflict is likely to be differential on diverse socio-economic groups with upper classes enjoying greater resources to cope with any impact and lower classes at the disadvantage. The aggregated data at state-level is likely to cover up the inequalities that may exist as well as any differential improvements across socio-economic groups. Such issues were given consideration and the study has examined how the changes in socio-economic conditions as well as health and nutrition status have affected lower socio-economic groups in J&K over time.

To be able to examine improvements in health status over time, absence or presence of illness cannot qualify as objective indicators of health status because ‘health’ is not just absence of

illness in a broader view. In order to understand health at population levels, investigating broader health measures becomes desirable. Therefore, the study used ‘mean height’ as a summary indicator of health and nutrition status, which reflected long term access to food intake and improved health. ‘*Height*’ has been a widely used indicator to understand population health and in particular to understand the developments in health over time. The study looked at the ‘intergenerational changes’ in ‘adult heights’ to assess the impact of socio-economic changes on health and nutrition over time.

The study relied on using both primary and secondary sources of data. It included reviewing of literature and analyzing the data from macro-surveys and official reports as well as undertaking an empirical study in a village in Kashmir region of J&K for primary data collection. The primary study formed a major part of the study and examined the dynamics of social and economic changes as well as intergenerational developments in health and nutrition status over the study period. It also analyzed the factors responsible for such changes in a wider historical and social context, linking micro and macro level data for both the health status and its determinants. The study also explored the disparities in health and nutrition status along the lines of caste, ethnicity, class and gender.

The study found that significant improvements have occurred in the study village with respect to basic household amenities and assets, durables, housing and educational attainments in the last two and half decades between 1990 and 2016. The study showed that such improvements in socio-economic conditions were driven largely by changes in agricultural land use and access to government jobs. The cultivation of apple and walnuts as main crops in the village, replacing paddy and maize, have brought significant incomes to the farmers. Such higher incomes from farming are likely to have a significant impact on reducing the poverty in the village and would also leave some cash available with farmers to invest into household assets and amenities to improve their living conditions. As agricultural land was owned by most households in the village (95% owned land), such transformation in cultivation patterns was widespread and impactful. The data has shown that 65.8% of the total farm incomes came from the apple cultivated post 1990 (because of acreage under it) suggesting that the apple cultivation post 1990 has actually led to increased incomes to the village.

On the other hand, the study found that the government jobs constituted almost one fifth (19.4%) of total livelihoods reported by all households and 38% households had at least one family member who had a government job assuring them regular incomes. The ‘horticulture incomes’ and ‘government jobs’ were not only substantiating the livelihoods of farmers and/or those holding government jobs but also emerged as significant sources of bringing money to the village and through a trickledown effect created opportunities for local businesses to thrive and also demand for labour. Therefore, these boosted livelihoods in the entire village.

The study has also shown that despite the fact that the physical mobility was hindered at times due to conflict, the access to health services has remained relatively better in J&K than India as a whole. Public distribution system (PDS) has been universal and fairly functional in ensuring most of the households have access to subsidized rations. A larger proportion of households in J&K have electricity connections and use piped drinking water. The accessibility to functional services is also a means of social protection for many especially those who are poor and may also impact the poverty levels positively by helping people to save some money which otherwise had to be spend in absence of such programmes.

The study found that such improvements in socio-economic conditions and better access to public health services have resulted in significant increases in ‘mean heights’ of adults over the last two decades. The younger age-groups were found to be taller than older-age groups among both men and women, indicating a secular increase in heights over a generation and the rate with which heights have increased is also dramatic, matching international standards.

However, together with the significant improvements in socio-economic conditions the study also finds that the inequalities have widened and this limits the benefits of such change, especially for the subgroups—scheduled tribes, deprived castes, lower economic groups and women. Not surprisingly, the study showed that the improvements in the health and nutrition status that have occurred in the last three decades have also been unequal across socio-economic groups. The differences in the mean heights between different socio-economic groups have increased over the time and are a reflection of the increasing inequalities in the socio-economic conditions between rich and poor socio-economic groups.

A detailed analysis of the findings of the study is presented in the six chapters of this thesis. The first chapter primarily provides an analysis of the macro-data related to the research questions as well as a broader conceptual framework to understand determinants of health focusing on the linkages of socio-economic factors and health outcomes. It also looks at the experiences of health and nutritional improvements in diverse political conflict situations. The second chapter underlines the study design and methodology adopted for the study. The third chapter analyses the socio-economic profile of Anantnag district and Khiram village, in which the study was conducted. The fourth and fifth chapters broadly explore all the three research questions and provide a critical analysis of data collected from the village study and attempt to examine the socio-economic changes and the corresponding improvements in the nutritional status experienced by the people during the period from 1989 to 2016, as well as look at the disparities along the lines of caste, gender and economic groups. The sixth and last chapter presents a discussion on the findings of the study related to socio-economic and health status in Kashmir in the context of conflict and future prospects of research into related issues.

The study, thus, contributes to the ongoing discussion about the trends in health and nutrition status in contemporary times and the processes and pathways by which changes occur, with a specific narrative from Jammu & Kashmir. It reveals the complexity of population health that includes positive trends as the dominant trajectory, and yet with limitations and unintended consequences such as increasing inequalities and an epidemiological transition to new disease patterns. It also suggests that these negative consequences could have been minimised by other possible pathways of socio-economic development. Despite the conflict situation, changes in economic activities supported by political and administrative actions and public provisioning of services have significantly improved the health and nutrition status of the population, indicating the possibility of mitigating the social impact of conflict, and yet the social and psychological impacts of conflict and increasing inequalities on health are likely and need further investigation.

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# **Chapter 1: Socio-Economic and Health Status in J&K**

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## **1.1. Introduction: Social Determinants of Health**

What determines health status of populations has been debated for a long time. But a dichotomy exists within and across the varied political and academic positions. This dichotomy reflects ideological divisions on whether the larger societal structure or individual action is the root cause of inequality, destitution and ill health and what kind of and to what extent state action is required. Health status of the populations has certainly improved over time but on unequal basis. Health and illness are not equally distributed through the populations across countries, communities, social groups, gender, regions and religions. The literature also indicates that some of the communities have experienced worsening of health over time. What explains these inequalities in health has been examined by many scholars, and is a very relevant question to ask. The other important questions of relevance are examining the status and interrelation of health, nutrition, and access to health services and investigating into the factors that affect them. There is also evidence that despite political conflict in some societies their health has improved. To explain these trajectories of health across different contexts, the determinants of health are examined.

Evidence from many sources has indicated that social and economic conditions including inequalities in society are associated with health outcomes. The linkages between socio-economic factors and health were strongly demonstrated by McKeown's work in 1966. McKeown highlighted the influence of socio-economic determinants on public health that went beyond medicine. He claimed the improvements in health and decline in mortality in England and Wales over the centuries was due to the improvements in the material conditions and food availability. The decline in mortality had started significantly since mid-19<sup>th</sup> century, much before the discovery of antibiotics or chemotherapies or immunization programmes (McKeown and Lowe, 1966). Szreter (1992) observed that it was not just the rising standard of living and nutritional intake as was suggested by McKeown which significantly contributed to mortality decline in England and Wales during the 19<sup>th</sup> century. He argued that the epidemiological evidence suggests that the preventive public health measures (including sanitation and clean water supply) played a most decisive and important role in eradicating many diseases which contributed significantly to the mortality decline in England and Wales during the 19<sup>th</sup> century (Szreter, 1992). McKeown's work has influenced

public health discourse and research to a greater extent and led to further examination of the linkages between environment, illness and health (Nayar, 2007). Since this influential work, socio-economic inequalities are increasingly being established as causes of ill health and health inequalities across and within nations and agreed upon by scholars and governments (Giddens, 2004).

The 'Black Report' (DHSS, 1980) and 'Saving Lives: Our Healthier Nation' report (Department of Health, 1999) commissioned by Government of United Kingdom highlighted diverse influences of social, economic, environment and cultural factors on health and suggested measures to bridge the health inequalities. One of the important initiatives that have strongly highlighted social gradients in health has been the long-term Whitehall studies of British civil servants. These studies have examined the influences of work, home and community on health and their findings remain highly relevant to the present discourse on social inequalities in health. The Whitehall study-I in 1967 showed that those who were in highest employment grades had longer lives than those in lower grades. The Whitehall study-II, conducted after twenty years of first study, indicated a similar social gradient in morbidity across a range of different diseases including heart disease, some cancers, chronic lung disease, gastrointestinal disease, depression, suicide, sickness absence, back pain and general feelings of ill health. In order to explain these associations, the Whitehall-II study concluded that 'the way work is organized, the work climate, social influences outside work, influences from early life' and some of health behaviors have shaped the social gradient in health, thereby pointing to larger inequalities in society as determinants (Ferrie, 2004, p.4). The setting up of 'Commission on Social Determinants of Health' by WHO and the 'Millennium Development Goals' by the United Nations brought attention on linkages between socio-economic determinants and health in global public health policy (Nayar, 2007).

Marmot (1999) raised an important question, "if the social environment is an important cause of ill health, this is likely to be manifested as social inequalities in health"(p.10). The fact that the inequalities in health are along the lines of social stratification is therefore evidence of the underlying importance of the social environment in inequalities in health (Marmot, 1999). Marmot also noted that two important evidences have come from migrant studies and time trends. They have demonstrated the importance of environment, people's disease pattern changes with people changing their environment or moving up in the living standards



(Marmot, 1999). Marmot (1999) also argued that the genetic inclination to illness of populations cannot change significantly over shorter periods, but the research has shown the disease rates do change. Further, the fact that the social gradient in disease pattern in many cases has significantly changed over a period of one to two decades cannot be accounted for either due to change in genetic predispositions or shift of individuals between classes (see for instance Drever et al. 1996 cited in Marmot, 1999).

The inequalities in health also do not arise simply from inequalities in health care. Mackenbach et al. (1989) stated that there are inequalities in the onset of new diseases which can't be explained from differential access to health care, as well as there are inequalities in mortalities arising out of diseases which are not amenable to medical intervention (cited in Marmot, 1999). But it is to be appreciated that inaccessibility to effective health care is likely to sustain morbidity and increase suffering (Marmot 1999), and will have implications on socio-economic conditions as well.

Marmot (1999) also explained that it is important to understand that social environment is not inchoate but can be characterized and its linkages with health can be examined. Different scholars have looked into the specific factors and pathways through which these socio-economic conditions (or social environment) affect health. Their work has strengthened the evidence on the linkages between social environment and health. Wadsworth (1999) provides an 'early life perspective' and notes that malnutrition and infection are major risk factors in early life. They are associated with poor socioeconomic conditions and have significant implications on the children's survival and development, thereby, on adult health. This also means that the family circumstances set the trajectories into adulthood (Wadsworth, 1999). Kuh and Wadsworth (1989) have found evidence from a longitudinal data set that the rising socio-economic conditions of fathers was associated with increase in height of their children as compared with other children whose fathers didn't experience any such change (Wadsworth, 1999). Wadsworth (1999) argued that the personal social capital of individuals including parent's socio-economic conditions, education and self-esteem, family cohesiveness and area of residence are important factors in determining the pathways to adulthood. What Wadsworth highlighted was the importance of socio-economic and psychosocial circumstances during early life (childhood) which becomes a determinant for adult health.

The 'life course perspective' provides another dimension and demonstrates that the social inequalities in health are a result of advantages and disadvantages, which are accumulated through structured nature of social processes (Blane, 1999). Blane (1999) explains this by arguing that there is a continuity of social circumstances from parental social class to social conditions during childhood and adolescents, and subsequently determine socio-economic position during adulthood. Even a number of smaller differences produce a chain of disadvantages over time. To support this argument, Blane exemplifies the influence of social circumstances of parents on birth weight of children; the influence of social circumstances of childhood and adolescents on adult health (Blane, 1999). A number of research studies have shown how childhood circumstances influence adult health. The British Birth Cohort studies revealed that the health of adulthood is determined by childhood circumstances. Blane noted that the 1958 British Cohort Study suggest a plausible chain:

parental disadvantage and low birth weight; some or all of, financial hardship and poor nutrition, crowded residential accommodation and disrupted sleep patterns, and delayed growth during childhood; and the social circumstances which delay childhood growth predispose to labour market disadvantage, as indexed by prolonged or frequent spells of unemployment (1999, p.68).

Blane further argues that their individual effect on health is probably unusual but becomes plausible when these factors accumulate into a chain of disadvantages (Blane, 1999). The West of Scotland Collaborative study in 1970s demonstrated the accumulative effect of disadvantages through life and as determinant of future health. Each individual was assigned to three social class positions: social class position during childhood based on father's occupation; social class at labour entry market based on own first occupation; and social class during adulthood based on own present occupation. The study found that those who had been in non-manual social classes at all the three phases of life had best health and each step away from non-manual class was associated with worsening health. Similarly, all cause mortality during twenty-one years of follow-up showed same pattern of association with lifetime accumulative class, with more than 50 percent higher mortality among those associated with manual class at all three positions than those associated thrice with non-manual class (Davey Smith et al., 1977 cited in Blane, 1999). The focus on childhood poverty in social policy and the social sciences during the twentieth century derived its impetus from similar thinking.

There is also a strong relationship between unemployment or employment and health. Research studies have shown a higher prevalence of ill health among those who are

unemployed. Although most studies focus on the linkages of financial problems with health effects of unemployment, Bartley et al. argued that unemployment deteriorates health through three processes including financial problems (poverty), stress and influencing health choices. However, the research has found a stronger influence of financial hardships on the relationship between unemployment and ill health, than the other two processes (Kessler et al., 1988 cited in Bartley et al. 1999). Bartley et al. also focused on job security and quality, other than just being employed, as important factors in physical and mental health; unsatisfactory jobs can be equally depressing and would have health consequences (Bartley et al., 1999). Putting unemployment into a life course perspective, Bartley et al. sees unemployment resulting out of accumulative disadvantages since childhood. Those who are most likely to experience unemployment may also be those who had earlier experiences of hardship and disadvantage since their childhood, therefore, are vulnerable to increased illness and mortality (Valkonen and Martikainen, 1995, cited in Bartley et al., 1999).

Stansfeld (1999) highlights the importance of social support for health. Stansfeld argued that there is considerable evidence that social support is advantageous to health and social isolation leads to ill health. However, what is the exact nature of influence of social support on health remains intangible. The social support not only has a direct effect on health but there is evidence for a buffering effect which helps to moderate the impact of acute and chronic stressors on health (Stansfeld, 1999). A few studies have found associations of high levels of social support with lower heart rate, lower blood pressure, lower levels of cortisol, etc. (Seeman et al. 1994 cited in Stansfeld, 1999). There is also evidence from a number of prospective community studies that social networks affect mortality and those with fewest social connections had the highest mortality rate (Stansfeld, 1999). The association of social support with mental health has also been long known, since the work of Durkheim who observed that social isolation was associated with higher rates of suicides (Stansfeld, 1999). Those societies, which are less egalitarian and have higher levels of income inequalities, and diminished social cohesion, have also higher mortality rates (Kawachi and Kennedy, 1997 cited in Stansfeld, 1999). Therefore, social support influences mortality through physical illness as well as psychological morbidity (Stansfeld, 1999).

Some of the important health issues including low birth weight and malnutrition among children, which influences their physical growth and development, and the life course and disease in later life are related to intake of diet. Food and nutrition are two main determinants

of health, and affect health in two ways –under nutrition as well as through over nutrition (Robertson et al. 1999). There is a clear gradient in diet related problems between developed and developing countries. In developing countries the health problems –low birth weight, under-nutrition and short stature are because of lack of diet, while in developed countries obesity related problems are because of over nutrition and the pattern of food choices. Similarly, within both developed and developing countries, the problems related to diet vary among lower and higher income groups, with under-nutrition being a major problem among the poor. Under-nutrition affects almost one billion people of the world (Robertson et al. 1999) who are majorly located in developing countries. The high levels of infant and child mortality in developing countries are due to under nutrition and increased risk of infection.

The effects of diet on health are also evident by the fact that almost half of all premature deaths in Europe are associated with diet, and therefore, are preventable. Research has shown strong links between diet and cancers; diabetes and obesity; diet and coronary heart diseases and stroke (Robertson et al. 1999). Although most of these problems are because of over nutrition, food poverty has emerged as an increasing concern in Europe with growing unemployment and poverty after the adoption of a neo-liberal policy framework (Robertson et al. 1999). The macro-economic changes have their effects on local and national food production as well as on manufacture of foods (Robertson et al. 1999).

Nutrition status at birth and during infancy has also been found associated with adult health and disease by Barker in 1993 (cited in Robertson et al., 1999). This is because the nutritional deficiencies at the critical periods of fetal and infant development may lead to organ impairment and permanent changes in bodily functions (Robertson et al. 1999). As the growing fetus derives nutrients from mother, the poor nutrition status of women and their access to inadequate diet during pregnancy will affect the growth and development of the fetus. Research has also found that high mortality rates due to diarrhoea, respiratory and other infections are associated with children not being exclusively breast fed (Popkin et al. 1990 cited in Robertson et al. 1999). But to what extent a mother will be able to breastfeed her child, is also determined to a significant extent by her nutritional intake as well as working schedule. This highlights the importance of health and nutrition status of women in the early development of children. Thus, the early health of children will be negatively affected in societies where the health and nutrition status of women is not good.

The low women's status and health has grounds in both cultural factors and policy implementation. Wadsworth (1999) explained that the cultural aspects including prohibition of female inheritance and ownership of land and other resources as well as lack of opportunity for education, freedom to travel alone, freedom to make decisions to spend money and so on are responsible for women's low health. These factors operate through effects of poverty, low self-esteem, denial of rights, etc. (Wadsworth, 1999). Watkins (1995) also argued that the arduous design and implementation of labour laws hardly give women adequate protection against discrimination, provide equal opportunities and protect their interests to social security during illness (cited in Wadsworth, 1999).

Shaw et al. (1999) explained that poverty, relative deprivation and the processes of social exclusion affect population health majorly. Shaw et al. noted that health outcomes are affected not only from the material conditions but also from social and psychological problems associated with living in relative deprivation as well as from prejudice and racism. Shaw et al. (1999) stated that as poverty, inequality and social exclusion are increasing in Europe, health inequalities are also polarizing. The differences in mortality and life expectancy by social and occupational class are reported from across the world, and are in fact widening. For instance, Drever and Whitehead (1997) found that the differences in life expectancy between high and low occupational classes in Britain increased from 3.7 years in late 1970s to 4.7 years a decade later (cited in Shaw et al. 1999).

The effects of relative deprivation<sup>1</sup> have been widely seen in the analysis of health inequalities. Eames et al. (1993) found higher rates of premature deaths associated with higher deprivation in England and Wales (cited in Shaw et al. 1999). Filakti and Fox (1995) found that mortality showed a pattern of lesser rates among those who owned a house and one or more cars than those who did not (cited in Shaw et al. 1999). Even when the basic needs are largely met in Europe unlike in the developing countries, the inequality in socio-economic conditions has detrimental effect on health. The poverty and relative deprivation has increased in many European countries during late twentieth century. Vogel (1997) indicated the nature of economic development, which has led to mass unemployment, reduction in welfare transfer systems, and cuts in public services, as the reason for increasing

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<sup>1</sup>Relative deprivation refers to the lower position of an individual or group in terms of material conditions and social status relative to the others in the society to which they belong (Townsend et al., 1988 cited in Shaw et al. 1999).

poverty and relative deprivation in Europe (cited in Shaw et al., 1999). Britain provides a unique example where there have been considerable improvements in terms of living standards in the post war period, which led to falling mortality rates. However, in the later phase of twentieth century, poverty as well as inequality has grown up in spite of overall growth in prosperity (Shaw et al., 1999). These inequalities have led to increasing health disparities. For example, Raleigh and Kiri (1997) found areas with greatest gains in prosperity between 1984 and 1994 in England and Wales had seen greater gains in life expectancy, where as such improvements were negligible in deprived areas. This led to the difference in life expectancy to the extent of 6.7 years for men and 4.7 years for women between most and least deprived areas (cited in Shaw et al. 1999). Such polarization on a larger scale has been seen across many other countries. Shloknikov et al. (1998) observed that the death rates have risen sharply in many Soviet countries since the collapse of communism, with Russia seeing the rise fastest among those with lower levels of education (cited in Shaw et al. 1999). Watson (1995) argued that the falling absolute standards of living for majority of population were not the only reasons for the rising mortality in eastern European countries. But it was also related to “increased social and economic inequalities, a sense of hopelessness and disenfranchisement with the political process and higher levels of insecurity and uncertainty, particularly in employment”(Watson, 1995 cited in Shaw et al. 1999, p.222).

Wilkinson (1999) observed the relationship between life expectancy and per capita GDP was very weak among the 23 richest countries of OECD (Organization for Economic Cooperation and Development). Wilkinson also found a weak association between long-term economic growth rates per capita and changes in life expectancy. *He suggested that income is related to health for not being a determinant of material standards but being a marker of social status.* Therefore, where income differences result into differential social status, they are closely related to health (Wilkinson, 1999). Hence, income affects health not only through absolute material conditions but also through socio-economic status and hierarchies. This finds support from the evidence that there is a strong relation between society’s income distribution and population health. *“More egalitarian societies, that is societies with smaller differences in income between rich and poor, tend to have better health and increased longevity”*(Wilkinson, 1999, p.259). This is what Kalpan et al. (1996) also found that mortality in United States (US) was not related to median state income but was closely associated, as observed by Kennedy et al. (1996), with measures of income inequality within

those states. For the same reason, the life expectancy in Greece is higher than USA, although the per capita gross domestic product in USA is twice as in Greece. Greater income differences lead to greater disparities in socio-economic status and greater burden of relative deprivation, therefore, health outcomes tend to be relatively less good in such societies (Wilkinson, 1999).

*How do income inequality and relative deprivation affect health?* Alongside its direct psychosocial effects of low social status, the income differences accentuate hierarchy in a society. The social relations become less supportive and tend to be more conflicting, the trust in others declines sharply and the hostility increases (Wilkinson, 1999). Wilkinson observes that these attributes of social environment were all closely associated with mortality as well as income inequality. Kennedy et al. (1997) has revealed a relatively greater racial discrimination existing in those US states which have higher income inequalities than with lesser (cited in Wilkinson, 1999). Wilkinson, however, provides a caveat that this does not mean that material conditions are not important. The statistical relationships suggest that income inequality may be attributing anything between one-third to two-third of the differences in social environment and in mortality (Wilkinson, 1999). Wilkinson (1999) stated that income inequalities also contribute to social positions and without tackling income inequalities, the quality of life would be poorer.

In summary, the literature shows that there is ample evidence across the world that indicates the strong linkages between development, poverty, employment, working and living conditions and the population's health. Thus, pointing to the larger societal structure and patterns of domination that operate through race, sex and class, and sustain inequality. Therefore, the inequalities in health status are much more related to larger social, economic, environmental, cultural and political determinants than individual attributes. Though some of the scholars and political decisions continue to focus on the relative importance of the individual variables like life styles, behaviour and education, but an emerging agreement is being shaped on the relation between socio-economic inequalities and health. The linkages between health status and socio-economic variables when analysed in a broader and multidimensional perspective, their strong association and pathways are revealed in a significant way.

The literature also highlighted the influence of socio-economic status on health through multiple pathways –primarily through access to basic needs including nutrition, and social inequalities including discrimination. Further, it also indicated social cohesion as a positive determinant of health.

*The literature also tells us that with changes in socio-economic environment over a short period of a decade or so, the changes in health status are expected. Therefore, any change in health indicators concurrent with changing socio-economic conditions revalidates the linkages between these two sets of variables. The nutritional status as a proxy indicator of health provides an important and unique example of demonstrating the influence of changes in the social, economic, ecological and political environment (called environment thereafter) on health over a short span of time.* The nutritional status also reflects a balance between diet intake and claims on it (infection). Any change in nutritional status therefore will reflect changes in both diet intake and levels of communicable disease. In a way, it becomes a robust indicator of diet intake and infections.

Murray and Lopez (1996) analysed the causes for the global burden of deaths and found malnutrition as largest single contributor accounting for almost 12 percent of global deaths (cited in Marmot, 1999). Therefore, the levels of nutrition achieve high significance in determining the health status of populations. In the context of developing countries, the effect of malnutrition on health would be relatively greater for being home to a majority of undernourished population in the world. The next section analyses the experiences of nutritional status in diverse contexts around the world.

## **1.2. Socio-Economic Conditions and Nutrition Status:**

The literature reflects a very diverse picture of the nutritional levels and the changes experienced by different societies in nutritional status over time across the world. The ‘*mean height*’ of populations has been widely used as a measure/indicator of nutritional and health status for its capacity to reflect long-term development in health and nutrition (Hatton, 2013; Moradi, 2010; Shatrugna, 2001). The evidence from many sources also shows that ‘height’ is linked with later life outcomes, including educational achievement, morbidity and mortality (Hatton, 2013). This section analyses the changes in the mean height of populations over time and examines underlying factors, which have influenced these changes.



Studies have shown a positive change in mean stature and earlier sexual maturation over generations in many parts of the world, more so in the West but also in some other countries. As parents and children may not be subjected to the same environmental conditions, the change in height over a generation or so further strengthens the body of evidence on the strong linkages of socio-economic environment and health as against genes being the main determinants of stature. These changes in the body dimensions and maturational timings over the generations are called '*secular change*'<sup>2</sup> (Garn, 1987).

Evidence from Western countries suggests that there has been a secular increase in heights over the last one and half century. The present generations are significantly taller and heavier than what they were a century ago. Research has also shown that children attain sexual maturity as well as reach maximum stature earlier. Tanner (1962) concluded that all data from Western Europe suggest a secular increase in mean adult heights since 1850 to the extent of about one centimetre per decade or one inch per generation (25 years) (Khosla and Lowe, 1968).

Khosla and Lowe (1968) conducted research on the heights of men in two industrial populations in United Kingdom –Birmingham in 1960 and Port Talbot in 1965. They observed that the increase in mean heights of men was in progress with same magnitude as was reported from Western Europe since 1850s up to 1943. The two earlier best-known national surveys in 1930 and 1943 had suggested that Western Europe saw a secular increase of about 1 inch (2.5 cm) per generation since 1850s. Khosla and Lowe found that the men measured under their study in 1965 and 1960 were more than one inch taller than the men measured under national surveys in 1943 and 1930. The men in their studies were also much heavier than in 1943 and 1930 (Khosla and Lowe, 1968).

Khosla and Lowe (1968) argued that such increases in height are due to complex reasons, which are rooted in the social history of the past century but largely attributable to significantly improved nutrition and the decline in infectious disease. They explain this is because malnutrition and severe infections can hinder children's development; therefore, result in a stunted adult (Khosla and Lowe, 1968).

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<sup>2</sup> The term "secular" refers to successive periods of time (Garn, 1987).

In the context of United States, Bakwin and Mclaughlin in 1964 argued that children have been increasingly growing taller and maturing earlier for at least a hundred years. This has led to considerable difference in mean adult heights, with adults in 1964 almost 4 inches (10 cm) taller than a century ago, and the menarche was over three years earlier (Bakwin and Mclaughlin, 1964).

Bakwin and Mclaughlin observed that although many studies (Bakwin 1964, Cameror 1901, Gray and Ayres 1931, Broman et al 1942, Stolz and Stolz 1951) have indicated that the secular increase in height had reached to an end in US by early 1930s, but their own findings did not conform to such conclusions (Bakwin and Mclaughlin, 1964). Bakwin and Mclaughlin (1964) compared the data on measurements of college entrants to Harvard and Wellesley from both public and private schools, in the 1930s and in 1958-59. They found that during the interval of almost twenty-five years between the two sets of measurements, the boys aged 16-19 years who came to Harvard from public school had increased in height by 1.5 inch (3.8 cm) and in weight by 13.5 lb. (6.1 kg). But there was no significant change in the average height of boys who came to Harvard from private schools, but their weight increased by 8.9 lb. (4.5 kg). As the private-school group did not see any change in heights during 1930s and 1958-59, they were presumed to have achieved their maximum growth potential by the 1930s. But as the results have shown that the public-school entrants in 1958-59 were as tall, and weighed almost the same, as the private-school group in 1930s and 1958-59, suggested that the public schools entrants had also achieved their maximum growth but by 1958-59. Similarly, the measurements of height and weight of the entrants in Wellesley College in 1930s and 1958-59 showed no change in either case –public or private schools – pointing to the fact that both of whom may have attained maximum growth by the 1930s only (Bakwin and Mclaughlin, 1964).

*Importantly, Bakwin and Mclaughlin (1964) also observed that children from diverse ethnic groups have been found growing tall almost to the same extent, suggesting that ethnic origin doesn't seem to be important in determining heights in the United States.*

*What has led United States to reach plateau in heights so early? Bakwin and Mclaughlin (1964) argued that an improvement in the diet seems to be the most likely explanation for more rapid growth and development during the past century. Therefore, the socio-economic considerations are significant in determining secular change. They further explain that*

*infection is unlikely to be a factor since its better control has been only since the late 1930s by antimicrobials, and lack of them has not affected the growth and development of the privileged group who reached maximum growth by early 1930s* (Bakwin and McLaughlin, 1964). However, other public health measures including improved drinking water, hygiene, housing and sanitation were likely to have improved environment and decreased infections in US (CDC, 1999; Cuttler and Miller, 2005). The evidence from Hardy's study in 1938, also failed to demonstrate any association existing between the number of ordinary illnesses, physical growth, and final adult size (Bakwin and McLaughlin, 1964). Bakwin and McLaughlin also argued that there was no convincing evidence that out breeding or heterosis was partly being responsible for the acceleration in growth, which was suggested by Hulse in 1957 (Bakwin and McLaughlin, 1964).

Netherlands provides an important example of being witness to significant increase in mean heights. Fredriks et al. (2000) commented that the increase in the mean stature of Netherland population since 1858 is a reflection of the improvements in their nutrition, hygiene, and health status. Fredriks et al. analyzed data from the fourth nationwide growth study in 1997 in comparison to earlier three nationwide growth studies carried out in 1955, 1965, and 1980. These three earlier cross sectional studies had already demonstrated that Dutch populations were the tallest in the world (Fredriks et al., 2000).

Fredriks et al. (2000) found that the mean height was 184 cm and 170.6 cm for men and women respectively at the age of 21 years in 1997. This revealed that during the last 42 years preceding the study in 1997, the mean final heights have increased by 8 and 7.75 cm for men and women respectively. The final mean heights measured in 1955 study were 176 and 163 cm for men and women respectively. Fredriks et al. further observed that there was no change in length at the age of one year throughout all studies and the major part of the secular change had occurred in the age group of 5–10 years for both sexes. The total increase in mean final heights found during last three studies in 1965, 1980 and 1997 with respect to 1955, was 2.7, 5.7 and 7.9 cm respectively. This also indicates that the rate of the positive secular change has slowly decreased over the time from 2.7 cm/decade during 1955–1965 to 2.0 during 1965–1980 and 1.3 cm/decade during 1980–1997 (Fredriks et al. 2000).

Although the Dutch adults were already the tallest in the world by 1980, this study in 1997 revealed that the height had further increased afterwards. *The study concluded that although*

*the rate of secular growth change had gradually reduced from 1955 onwards, the size of the secular change during the last 17 years from 1980 onwards at the rate of 1.3 cm/decade suggested that it was unlikely that the maximum growth potential had been reached in Netherlands* (Fredriks et al., 2000). This was in contrast with the experiences of Scandinavian countries where the data had showed that the secular change has stopped; suggesting the maximum potential had been achieved (Fredriks et al., 2000). Fredricks et al. also found that the rate of secular change has been almost similar for both women and men through the four national studies in Netherlands. However, the final height differences between women and men have been observed to be stable around 13 cm, which has also been the experience in Europe and America (Marshall and Tanner, 1989 cited in Frederiks et al. 2000).

Fredriks et al. (2000) also looked into the association of heights with other variables. Van (1986) had observed in the 1955 study, “the mean height for age was related to geographical regions (northern children were taller than southern children), socioeconomic status (children with higher socioeconomic status were taller), and educational levels (children attending special education and lower secondary education were shorter)” (Fredriks et al. 2000, p. 318). Roede (1985), however, observed these differences existed but had diminished during the 1980 study (Fredriks et al., 2000).

Fredricks et al. (2000) observed *in 1997 study* that the educational level of the parents was significantly associated with height, which is in agreement with many other studies in Europe. This indicated that the inequalities in childhood living conditions will continue to contribute to inequalities in adult heights (Fredricks et al., 2000). Fredricks et al. also observed that the height differences across regions in the Netherlands since 1880 have been remarkable considering its small size (Fredricks et al., 2000).

Fredericks et al. (2000) also drew from other research studies and pinpointed other factors possibly related to the secular changes in Netherlands. They note, from Garn (1987), that the general wealth of the population has increased considerably during the time between 1955 and 1997, which has led to almost all children having easy access to food. This increase in access to calories has been incremental with improvements in transportation resulting in a decrease in energy lost or expended. There has also been an increase in the consumption of animal proteins and saturated fat between 1936 and 1975, as was noted by ‘van der Haar and Kromhout’ in 1978, to the extent that ‘International Dairy Federation’ stated the consumption

of dairy products in Netherlands in 1997 was one of the highest in the world (Fredericks et al., 2000). Fredericks et al. (2000) also draw attention to general child health being another major determinant of growth in a population. Hirasing in 1997 noted that the provisions of freely accessible preventive child health system, better hygiene, and a generalized vaccination program (covering 95% of Dutch infants) have resulted to substantial improvements in child health in Netherlands during the last four decades (Fredericks et al., 2000).

Although there have been significant increases in mean stature over the last one and half century in Western countries, the evidence of such increases during the most difficult times of two world wars and great economic disruption provides mixed results. Garn (1987) argued that there has been a pause or actual reversals in heights in some cases during such times of deprivation. Garn notes, “*Some of the best known examples are Germany at the end of World War I and into the Weimar Republic, Russian cities besieged by German forces in World War II, the "terrible winter" in Rotterdam (1945-1946) that affected prenatal as well as postnatal growth and the siege of Jerusalem in 1947-1948*” [italics authors](Garn, 1987, p. 818). There have also been reports of recording decreases in the size of low-income infants in the Detroit area post severe unemployment in 1982-1984 (Garn, 1987).

These reversals in heights also explain the impact of environment and stand out against any genetic explanation. Garn (1987) argued that nutritional factors are the most rational explanation for these reversals. There were interferences with the food supply and food delivery as well as weakening of public health measures during such times of difficulty (Garn, 1987).

The evidence has also shown that the stature of both boys and girls decreased in Hiroshima immediately after the explosion of the atomic bomb, even among those children who were far removed from the epicentre and with minimal exposures (Garn, 1987). These reversals in heights among children who were conceived long before 1946 are unlikely to be explained by any genetic explanation; but the social and economic disruptions (Garn, 1987).

Garn also explains that there have been secular decreases in size in specific regions in Third World countries due to political disruption, economic policies and activities and in some cases due to urbanization (Garn, 1987). The work of Tobias (1985); and Tobias and Netscher

(1976, 1977) bring forth the negative secular trend in African and other populations (Garn, 1987).

The evidence from Palestine also indicates reversals in heights during the period of political disruptions. Palestine has witnessed conflict from around mid-20<sup>th</sup> century. As with other conflict areas in the world, the ongoing conflict has affected the wellbeing of the people in multiple ways, and an impact on the nutritional status is likely. During the current phase of uprising, there is clear evidence of impact of conflict on the nutritional levels in Palestine. Palestinian Central Bureau of Statistics has conducted nutritional surveys of a randomly selected population in 1996, 2000 and 2002. The survey has shown stunting<sup>3</sup> among children aged 6-59 months have increased over the years from 7.7% in 1996 to 8.0% in 2000 and 9.0% in 2002. The 2000 and 2002 survey results have also shown that stunting increased with children's age, having lowest levels in 6-11 months and highest among 12-23 months during. Gender also appeared to be a significant variable, with 8.6 percent girls experienced stunting compared to 7.5 percent boys (Palestinian Central Bureau of Statistics, 2003). The 2002 survey also showed high levels of anemia and malnutrition which have also increased since 2000 (Qouta and Odeb, 2004).

Hatton (2013) provides, however, an alternative perspective on the trends of heights in Europe during the time-period regarded as most difficult time –two world wars and great economic disruption. Hatton (2013) analyzed data sets on the average heights of adult males in 15 European countries from the mid-nineteenth century to 1980, which also included the period through two world wars and great disruption. The findings reveal that there have been fluctuations in the average height across the countries but the overall increase since late nineteenth century has been dramatic (Hatton, 2013). The data showed that the average male height in these 15 European countries increased by 11 cm (about 1 cm a decade) between the birth-cohorts of 1871–75 and 1976–80. Hatton observes that these results were consistent with findings of other studies that average height has significantly increased by 11 cm in just over a century (Hatton, 2013).

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<sup>3</sup> Stunting was defined as height by age below -2 standard deviation of the mean of the referenced population (Palestinian Central Bureau of Statistics, 2003).

In order to understand the height experiences during the most difficult times, Hatton divided the period for which data was examined into three major economic eras: 1871–75 to 1911–15 (pre-war), 1911–15 to 1951–55 (trans-war), and 1951–55 to 1976–80 (post-war), to analyze the trends. Hatton observed that in Northern and Western Europe, except in Netherlands, the growth was slower after 1950 than they experienced during the trans-war period. The growth in southern Europe (classified as North and middle Europe by Hatton) was high during the post-war period. *Specifically, the countries like Austria, Belgium, Denmark, Norway and Sweden experienced higher rates of increase (1.25 to 1.83 cm per decade) during trans-war period than other periods of growth.* These findings have been surprising for the fact that the trans-war period has witnessed two world wars and the great economic depression. These increases are also prior to what is known as golden age of post-war growth, the introduction of new medical treatments, and the beginning of universal health care systems in Europe (Hatton, 2013).

Hatton explored the reasons for the dramatic increases in height in Europe, examining its socioeconomic underpinnings and the role of public policy. Hatton raised two pertinent questions: *What were the underlying factors for the dramatic increases in adult height over the past century? What can account for this pattern of growth that the data has shown?* Hatton ruled out the genetic reasons and argued that the genetic pool cannot change in a short span of time of four to five generations to make such substantial increases in mean stature. As the height is determined by childhood circumstances, the whole concern has to be about health in the first 20 years of life. *Hatton argued, as most literature has revealed, that two key influences on height are food and disease. The interaction between these two factors produces net nutrition and is influential during early childhood.* However, he argued that these two factors are not amenable to direct measurements but their underpinning socioeconomic trends can be examined. Hatton also considered other factors that have their indirect effect on height through these two main channels of food and disease (Hatton, 2013).

Income per capita is generally taken as a proxy of food consumption, even though the two variables have not always moved parallels, and after critical threshold nutrition is achieved, the rising income may not have an effect on height (Hatton, 2013). Hatton however argued that as working class families in United Kingdom (UK) were spending almost 60 percent of their incomes on food until the late twentieth century, income might have been a principal determinant in the consumption of food. The gross domestic product (GDP) per capita

enhanced annually at the rates of 1.3% during 1870 and 1913, 0.9% during 1913 and 1951, and 3.5% during 1951 and 1980 in Western Europe (Maddison, n.d cited in Hatton, 2013). Therefore, the height should have ideally moved faster after 1950s or before 1913 with faster growth in GDP. The data has rather shown that the increase in height was faster during trans-war period in many countries, when the growth in GDP was slower. This is a paradoxical situation. *Hatton, argued, however, that mean outcomes will depend both on average income and its distribution.* A decline in inequality should improve average health for a given average income, as noted by many observers (Steckel, 1995, cited in Hatton). This might be the reason why increase in height was faster during trans-war period because inequality had reduced in Europe during the first half of 20<sup>th</sup> century (Hatton, 2013).

As research studies have shown relation of height with family size/ fertility rates through diluting incomes and overcrowding, Hatton also argued that the downward trend in fertility was strong during 1900s and 1930s and might have contributed to increased acceleration in heights during the early 20<sup>th</sup> century (Hatton, 2013).

Many studies have also indicated that the improvements in the disease environment have contributed to secular increases in height (Hatton, 2013). Tanner (1962) and others have pointed out the importance of respiratory and gastrointestinal infections, which are common to infants and young children and can, limit body's ability to absorb nutrients, thereby, limiting the growth. Others have pointed out effects of microbial and chronic infections on growth (Hatton, 2013). The UK birth cohort studies have shown that serious illnesses during childhood can reduce adult height by almost 1-2 cm (Kuh and Wadsworth, 1989 cited in Hatton, 2013). The question to ask is what could explain whether the disease environment had improved? Hatton noted *that infant mortality is the most sensitive indicator of the disease environment.* The infant mortality was high in Europe in the 19<sup>th</sup> century particularly due to diarrheal and respiratory diseases. However, it declined sharply after the turn of twentieth century across Europe. The decline experienced was from an average of 178 per thousand in 1871–75 to 120 per thousand in 1911–15 and then fell to 41 in 1951–55 and 14 in 1976–80 (Hatton, 2013). This dramatic improvement in disease environment as represented by improvements in infant mortality could have contributed to the upward trend in height (Hatton, 2013). This was also supported by findings of other studies, which have used infant mortality as a proxy for disease environment/ infections and found relation of infant mortality with height (Hatton, 2013).



Hatton (2013) also looked into whether medical advances and public health programmes contributed to the increase in heights? McKeown's work had shown that medical sciences' contribution to the improved health and declining mortality in England and Wales until first half of 20<sup>th</sup> century would not have been significant because most of the landmark medical discoveries did not become available until then (McKeown and Lowe, 1966)<sup>4</sup>. Szreter (1992) argued that the preventive public health measures (including sanitation and clean water supply) played most decisive and important role in the mortality decline in England and Wales during the 19<sup>th</sup> century. Mackenbach's (1996) work also showed that improvements in medical care from the 1930s contributed between only 4.7% and 18.5% to the total decline in mortality up to 1970 (Hatton, 2013). Further, in cases the treatment and improved expertise became available, the access was very limited (Hatton, 2013). The government sponsored health insurance programmes of later 19<sup>th</sup> century and early 20<sup>th</sup> century in different European countries, which provided access to medical services had very limited coverage. The broader expansion of health services occurred only after World War–II (Hatton, 2013). Hatton found almost insignificant contribution by health and social services, increasing urban environment as well as transportation and argued that it could be because their effect on height through disease environment is being captured by infant mortality (Hatton, 2013).

In order to understand the contribution of all the proximate variables, Hatton carried a regression analysis considering each such variable. Hatton found a strong effect of increases in income but no significant effect of inequality, which he explained its effect might be interpolated. The family size and parent's education was found to have a significant effect on height. Similarly, infant mortality has also a significant effect on height. The analysis, however, showed that half of the effect of rising living standards on height works through the disease environment. There was no significant evidence that periods of wartime stress had any effect on height. *The data showed, overall the decline in infant mortality was the largest single influence that was associated with almost 4-5 cm increase in height over the whole period of more than a century, followed by per capita income which added 1-2 cm and*

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<sup>4</sup> Hatton noted, "Streptomycin (effective against tuberculosis) was introduced in 1947, sulphonamides and sulphapyridine (effective against bronchitis, pneumonia and influenza, and whooping cough) not before 1938, and antibiotics still later. Similarly, treatments for other childhood diseases such as measles and scarlet fever were developed in the 1930s, long after the steep decline in these diseases. Only the timing of the reduction in diphtheria mortality from around the turn of the century seems to be consistent with the advent of treatment by antitoxin (Hatton, 2013, p. 10).

*education almost 1 cm over this period. The family size was an influential factor but had only modest effect (Hatton, 2013).*

However, during the trans-war period, which had surprisingly shown higher increases in height in some European countries, the decline in infant mortality contributed almost 3 cm to height in middle Europe (Austria, Belgium, Germany, Great Britain, Ireland) but with slight effects in north Europe (Denmark, Finland, the Netherlands, Norway, Sweden) and south Europe (France, Italy, Greece, Portugal, Spain). This was supplemented by decline in family size in north and middle Europe but not by the growth in education. The income effects have also been modest except in the north Europe. *Hatton concluded that it was the improvement in the disease environment<sup>5</sup>, which had boosted increases in height during the trans-war period in some European countries (Hatton, 2013).*

Robertson et al. (1999) argued that times of hardship can also result into health benefits. There is evidence of decline in mortality up to 20-30 percent in Norway during the Second World War. This was assumed to be related with the decrease in the intake of dietary energy from saturated fat (Johansson et al 1996, cited in Robertson et al. 1999). There was a significant decline in obesity among non-insulin-dependent diabetics in Sarajevo from 60 to 18 percent during the war in 1995. This had led to substantial improvements in control of blood glucose and blood pressure levels with prescribed medication reducing up to 30 percent (Kulenovic et al 1996, cited in Robertson et al. 1999).

The African experience provides another interesting example of upward-sloping trend in heights. Moradi (2010) examined the nutritional status of women and economic development in 28 countries in sub-Saharan Africa from 1950 to 1980. Using mean height as an indicator of nutrition status, Moradi found that the nutritional status of 1960 birth cohorts was relatively better. However, after 1970, the data revealed that mean heights were either stagnating or showing reversal trends. Moradi concluded that the economic difficulties in later 1970s and 1980s have been responsible for the decline or stagnation of heights in sub-Saharan Africa (Moradi, 2010). The data, however, also showed that African women who

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<sup>5</sup> Hatton (2010) concluded that the most important reasons, which have led to improvements in disease environment since late 19th century in Europe, were improvements in sanitary and housing conditions, among other factors. Cutler and Miller (2005) had also found significant impact of sanitary reforms on infant mortality in the United States.

had taken birth in 1960s were not only taller than those who had taken birth later in 1970s and 1980s but also relative to other developing countries in the 1960 and 1970s (Moradi, 2010).

Overall, the data have shown a U-shaped trend in the heights in sub-Saharan Africa, but Moradi also analysed the differences in heights between different countries within sub-Saharan Africa. *The data showed that countries like Chad, Guinea, Mozambique, Namibia, Niger and Zimbabwe experienced decline in mean heights of women in the age of 20-49 years, with an average decrease of 0.2 cm in height per five-year birth cohort.* In another group of countries, the data showed that heights remained mostly stagnant over time, and included Benin, Ethiopia, Comoros, Eritrea and Malawi. *Whereas most of the countries surprisingly have followed a U-shaped trend including Burkino Faso, Central Africa Republic, Cameroon, Ghana, Madagascar, Togo, Uganda, Nigeria, Rwanda, Zambia and Mauritania.* These countries have witnessed improvements in height after 1940-50s but the height came to halt in 1960s and subsequently reversed down to the level of 1960s. However, only Mali, Senegal, Kenya, Gabon, Tanzania and Cote d'Ivoire in the group have shown positive increases in height with almost 0.25 cm increase per five-year birth cohort (Moradi, 2010).

In order to explain the height trends that the data has shown about sub-Saharan countries, Moradi explored whether the height trends were positively correlated with trajectories of economic development followed by these countries during this time. Moradi observed that African countries had done economically well in 1950s and 1960s with average growth of 1.7 percent per annum (Maddison, 2001 cited in Moradi, 2010). But the 1970s have seen almost stagnation in the economies (average 0 % growth) which was followed by negative growth in per capita income (average -1 %) in 1980s due to debt crisis. Moradi argued that economic crisis had perhaps impeded the growth of teens growing up then (Moradi, 2010).

Moradi also looked into other plausible influential factors. Moradi explained that both calorie and protein supply/intakes are correlated with heights. However, as proteins determine quality aspects of food intake, the protein supply or cattle holdings as such was found by Moradi and Baten (2005) and FAOSTAT (n.d) correlated with heights in African countries (cited in Moradi, 2010). With predominantly rain-fed agriculture in Sub-Saharan Africa, Moradi also considered rainfall as a determinant of food security and livelihood for majority

of population. Besides, as diseases inhibit the absorption of nutrients and could block children's growth, Moradi considered infant mortality as a proxy for disease environment<sup>6</sup>. In order to observe the effect of investments into children directly, Moradi considered educational level attained by cohorts, which has arguably served as a proxy for the provision of public goods. As civil war has detrimental effects on health and nutritional status, Moradi explained those who were born in times of war would have suffered in terms of their health. Moradi also considered urbanization for those living in urban areas enjoy height benefits over those in rural areas (Moradi, 2010).

Considering all these variables in a regression analysis, Moradi found a significant relation of growth in GDP per capita and height. With an average growth of 5.7 % over five years, there would be an increase of 0.12 cm per decade, or with an average growth of 2.5 % over 20 years, a cumulative increase of 0.8 cm would be expected. However, Moradi inferred that the fall in economy in mid 1970s and 1980s must be partly responsible for reversal trend in heights (Moradi, 2010).

Moradi found a significant relation between food supply (in terms of protein supply) and nutritional status, which has been also indicated by other studies. Moradi noted, *“A ten percent rise in per capita protein supply over a 5-year period would increase mean heights by about 0.13 cm”* [italics authors](p. 26-27). The analysis also showed a significant negative relationship of infant mortality with height but results were mixed for rainfall. Education attainment, fertility and urbanization were found insignificant. Civil war was associated but not significantly. Moradi argued that although people suffer in conflicts but its effect seem to be channelized by collapse of economy. Moradi, noted, *“On average civil wars are associated with a 10 % fall in GDP/c”* [italics authors](p.27). *The data also showed that the height at the aggregate level in the African countries did not conform to the expected global height-income relationship (Moradi, 2010). Moradi argued that this has resulted because of the drawbacks of using income as a measure of living standards (Moradi, 2010).*

One of the important examples from Asian countries comes from Japan, which has also witnessed a significant secular change in height post world war-II. The data has shown that

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<sup>6</sup> Moradi however provided a caveat for using infant mortality as proxy for disease environment as it suffers limitations but he also described that it is best proxy available.

Japanese boys and girls mature in height earlier than African, Swiss, American and English children (Ali et al., 2000). Ali et al. (2000) argued that better environmental situations being reasons for earlier growth in Japan. Takahashi (1984) pointed out that the secular increase in Japan was associated with increased consumption of milk.

Studies have shown clearly that many countries have witnessed secular increases in height over generations. There have been many explanations for the secular or generational trends in stature but the two prominent ones include those, which draw impetus from genetic school of thought, and those, which highlight the role of environment. The fact that there has been a reversal in the secular trend during wartime in some Western and African countries contradicts the genetic explanations (Garn, 1987). But the explanations of the role of genetic factors in determining heights have been very prominent and needs some clarity and deliberation in this paper.

#### **1.2.1. The Role of Genes:**

Heights of populations are essentially determined by a combination of genetic factors and socio-economic environment. The role of genetic factors is important but remains very limited to the predisposition of determining the growth potential of a population –whether the population has the potential to achieve mean heights of 5 feet or 6 feet or so. However, whether the population will achieve this height as determined by its genetic potential depends completely on the environment. The evidence from Western countries has shown influence of many variables on heights but prominent factors included a combination of nutritional intake and infections. West had seen significant increases in calorie intake as well as a simultaneous decrease in energy lost or expended due to improved transportation and easier travel (Garn, 1987). Garn explains that in Britain the nutritional improvements started with repealing of Corn Laws, which led to the increased availability of food at lower costs. Additionally, there has been increased availability of safe milk and parallel improvements in the water supply and in the disposal of human wastes, and more recently the introduction of antibiotics and immunization. These efforts have led to the decreased incidence of diarrhea and more serious infections during childhood. Further, the abolition of child labour, use of school buses and warmer winter temperatures in home have led to decrease in energy expenditure. This all has led to leaving of more energy available for growth and development (Garn, 1987). Garn notes, *‘For a 10-yr-old, not working in a factory, not walking miles to and from school and*

*not living in a frigid home in winter together free hundreds of kilocalories or kilojoules per day for the serious business of growing and growing larger'* [italics authors] (1987, p.820).

Genetics also does play a role in determining individual heights but Moradi argued that the individual genetic variance loses significance on considering mean heights of populations (Moradi, 2010). This has been demonstrated by studies, which compared healthy and well-nourished populations of different ethnic origins, and found they attained similar heights (Moradi, 2010). Evidence from United States has shown that populations of different ethnic communities have attained almost equal heights (Bakwin and Mclaughlin, 1964). Komlos and Lauderdale (2007) found that African-American women (163.8 cm) who were born during 1955-1970 reached to almost same height as did non-Hispanic whites (164.1 cm) (Moradi, 2010). Evidence also comes from India that children of high-income groups attained as much height as do by children in United States. On the other hand, there are sharp inequalities that exist in heights between rich and poor people of same ethnicity and regions. Therefore, the inequalities in heights across socio-economic groups in a country may largely be an outcome of inequalities in nutritional intake and health status

Importantly, the genetic pool may hardly change over a short period of 10- 20 years, but there is strong evidence of secular changes in height over generations. The intergenerational studies have shown that changes in environment over a generation have resulted into significant changes in heights from parents to children. Over this short period of 20-30 years, genetic predispositions could not be assumed to have changed. A few studies have also shown that heights of children have declined compared to their parents (see Moradi, 2010).

The evidence from different parts of world have demonstrated that improvements in economic conditions have resulted in secular increases and when worsened, the secular trend has stopped or even reversed as evident from German and Russian data (Garn, 1987). Similarly, the secular trend has followed improvements in nutritional levels and health-care standards as evident from the experiences of migrants to the United States and in the Japan (Garn, 1987).

This all evidence indicates the limited role of genetics in mean heights at population level but shows a very strong evidence of the high influence of environment on the mean heights of

populations. This also led to the acceptance of environmental conditions as being primary causes of shortness and inequalities in heights (Moradi, 2010).

In summary, the literature has shown that most western countries have experienced a significant intergenerational increase in physical stature. Such secular increases have mostly been absent or marginal in developing countries, some of which have even witnessed reversals in height –reverse secular trends (Garn, 1987). A few countries from Asia have also seen dramatic changes in mean stature in the second half of the twentieth century, especially Japan. In most other countries, the secular or generational change has been restricted to particular ethnic or tribal groups or to the social and economic elite (Garn, 1987). The review also revealed that genetics has no role to play in determining the inequalities in heights across and within populations, and the present shortness in developing countries is because of environmental conditions. Food intakes, disease due to environmental conditions and social inequalities have come to be known as determinants of population height, where as conflict conditions and economic recession periods sometimes have led to decline in heights. The studies have also demonstrated that changes in socio-economic conditions over a short span of time had resulted into substantial changes in height. Therefore, it provided a strong evidence of the linkages between socio-economic conditions and health.

### **1.3. Health and Nutrition Status in India:**

In India, while economic growth has occurred to a significant extent, poverty and destitution levels have also continued to be very significant and additionally, economic inequality has also increased in the last two decades simultaneous with the high economic growth in the country. This section discusses health and nutrition status in the context of India, specifically focusing on the changes that have taken place over time.

The data on health and nutrition status shows that significant inequalities exist across different socio-economic groups and regions in India. The findings of large-scale surveys such as NSSO and NFHS demonstrate and micro level studies corroborate these disparities in health status. For instance, the fourth round of National Family Health Survey (NFHS-4) survey in 2015-16 has revealed disproportionate rates of Infant Mortality Rate (IMR) and Under-five Mortality Rate (U5MR) among different socio-economic groups. As can be seen from Table-1.1, the IMR (per 1000 live births) was 32.1 among higher castes but 45.2 among SCs and 44.4 among STs; whereas the IMR was 19.8 among the wealthiest group (highest

wealth quintile), it was 56.3 among poorest group (lowest wealth quintile). Similarly, the U5MR (per 1000 live births) was 38.5 among higher castes but 55.9 among SCs and 57.2 among STs, and whereas the U5MR was 22.6 among wealthiest group, it was 71.7 among poorest group (IIPS and ICF, 2017a). Therefore, the NFHS-4 data clearly indicates the IMR and U5MR rates are much higher among vulnerable groups- SCs and STs- as compared to higher castes and so are among economically poor as compared to wealthy groups.

Table-1.1 shows that the burden of illness is also very high among poor socio-economic groups. For instance, the prevalence of Acute Respiratory Infections (ARI) among children under-five years in the two weeks before the survey was 3.1 and 2.9 percent among lowest and second wealth quintiles respectively whereas it was 2.3 percent among highest wealth quintile. Similarly, the prevalence of fever among children under five years in the two weeks before the survey was 13 and 13.5 percent among lowest and second wealth quintiles respectively as compared to 11.4 percent among highest quintile. The percentage of children under five years who had diarrhoea in the two weeks preceding the survey were 10.2 and 9.5 among lowest and second wealth quintiles respectively as compared to 7.8 percent among highest quintile. Similarly, the prevalence of anaemia among children in age group of 6-59 months was 60.6 and 63.3 percent among SCs and STs respectively, and whereas it was less by almost nine percent points among higher castes (54.2%) compared to STs. Similarly, the percentage of children with anaemia was 64.0 percent among lowest wealth quintile as compared to 51.8 percent among highest quintile (IIPS and ICF, 2017a).

Table-1.1 also shows that the percentage of children under-five years who were stunted (short for their age) [below 2 SD] were 42.8 among SCs and 43.8 among STs as compared to 31.2 among higher castes. Similarly, the percentage of children under five years who were underweight (thin for their age) [below 2 SD] were 39.1 among SCs and 45.3 among STs as compared to significantly lower proportion of 28.8 percent among higher castes. The data shows stark disparities in the proportion of stunted and underweight children across wealth quintiles (IIPS and ICF, 2017a).

As could be seen from Table-1.1, the NFHS-4 data has clearly demonstrated sharp disparities in prevalence of illness, nutrition status and mortality rates across different socio-economic groups. These disparities are a reflection of the inequalities existing in the working and living conditions as well as access to resources between poor and rich; SCs/STs and higher castes;



and between women and men. The societal structure is largely unequal in India, roots of which are in the centuries old casteism which has close overlaps with the way resources and opportunities are distributed. The distribution of power, resources and opportunities such as wealth and income, employment, housing, land and other attributes are highly unequal along the lines of class, caste and gender. Because of these disparities, the lower socio-economic class is more likely to experience adverse living conditions, increasing communicable diseases and unequal access to health services.

<b>Table 1.1: Disparities in Health Indicators in India</b>							
<b>Indicator</b>	<b>Scheduled Caste (SC)</b>	<b>Scheduled Tribe (ST)</b>	<b>Higher Castes (excluding OBCs)</b>	<b>Lowest Wealth Quintile</b>	<b>Second Wealth Quintile</b>	<b>Highest Wealth Quintile</b>	<b>Total</b>
IMR (per 1000)	45.2	44.4	32.1	56.3	47.2	19.8	40.7
U5MR (per 1000)	55.9	57.2	38.5	71.7	57.3	22.6	49.7
Children with any Anaemia levels (%)	60.6	63.3	54.2	64.0	59.7	51.8	58.5
Children with ARI symptoms (%)	3.0	2.2	2.7	3.1	2.9	2.3	2.7
Children with Fever (%)	13.0	10.6	13.1	13.0	13.5	11.4	12.9
Children with diarrhoea (%)	9.6	8.1	8.4	10.2	9.5	7.8	9.2
Children stunted (below 2 SD) (%)	42.8	43.8	31.2	51.4	43.5	22.2	38.4
Children underweight (below 2 SD) (%)	39.1	45.3	28.8	48.6	40.4	20.1	35.7
Women with BMI less than normal (18.5) (%)	25.3	31.7	17.8	35.8	29.5	11.6	22.9
Men with BMI less than normal (%)	22.9	25.2	16.3	31.9	26.6	10.6	20.2
Any Anaemia among women (%)	55.9	59.9	49.8	58.7	55.1	48.2	53.1
<i>Source: IIPS and ICF, 2017a</i>							

### **1.3.1. Nutrition Status in India:**

The Global Hunger Index (GHI) for 2019<sup>7</sup> has indicated ‘serious’ levels of hunger in India, with India achieving a GHI score of 30.3. India has attained a rank of 102 among the 117 countries across the world ranked for 2019 (Grebmer, et al. 2019). In fact, the performance of India is astonishing even in comparison to other South Asian countries with only exception of Afghanistan attaining a higher value of GHI at 33.8 for 2019 (Grebmer, et al. 2019). The GHI data also shows that the improvements in terms of percentage change in GHI score over time since 2000 is lower for India than other South Asian countries. The GHI for India has reduced by 21.9% between 2000 and 2019, whereas the reduction has been higher for other countries including Nepal (43.5%), Afghanistan (35.1%), Bangladesh (28.5%), Pakistan (25.6%) and Sri Lanka (23.7%) (Grebmer, et al. 2019). The United Nations Human Development Index also reflects a very dismal picture of India, which attained 129<sup>th</sup> rank (1<sup>st</sup> being the best and 189 as worst) among 189 countries across world and falling in ‘Medium Human Development Group<sup>8</sup>’ (UNDP, 2019).

The NFHS-4 data also shows higher levels of under-nutrition among children and adults. As can be seen from Table-1.1, more than one third (38.4%) of children under five years of age were stunted and almost similar proportion of 35.7% of children under five years of age were underweight. Similarly, the data shows that more than one fourth of its adults (22.9% women and 20.2% men) in the age group of 15-49 years were with BMI less than normal (IIPS and ICF, 2017a).

The prevalence of anaemia continues to be widespread among women and children. The NFHS-4 shows that majority of 58.5 percent children in the age group of 6 to 59 months were anaemic in 2015-06 and the anaemia has decreased by just 11 points since 2005-06 when it was 69.5 percent. Similarly, the anaemia prevalence was 53.1 percent among women in the age group of 15-49 in 2015-16, which has decreased by just 2.2 points during the last 10 years from 55.3 percent in 2005-06 (IIPS and ICF, 2017a).

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<sup>7</sup> The Global Hunger Index (GHI) is a tool designed to measure and track hunger at global, regional and national levels and is a composite index which captures four inter-linked indicators of hunger —the proportion of undernourished in the population, the proportion of children (under 5) wasted, the proportion of children (under 5) stunted and the under-5 mortality rate (Grebmer, et al., 2019).

<sup>8</sup> The Human Development Report groups 189 countries into four groups including ‘Very high human development’, ‘High human development’, ‘Medium human development’ and ‘Low human development’ (UNDP, 2019).

The long-term data on the weights and heights of population in India also indicate that there has been minimal improvement in the weights and heights of populations. For instance, the comparison of NFHS- 3 and NFHS-4 data also revealed that the decrease in the proportion of under-weight children has been minimal during the last 10 years with a total decrease of just about 7 percent points from 42.5 percent in 2005-06 (IIPS and Macro International, 2007) to 35.7 percent in 2015-16 (IIPS and ICF, 2017a). This shows that despite the rapid growth in its economy, India has not done well on nutrition as well as on other social development indicators.

The National Nutritional Monitoring Bureau (NNMB) surveys have shown that the mean weight of children at 5 years of age in 1977 was 13.7 kg and 14.1 kg compared to the NCHS median weights of 17.7 and 18.7 kg for girls and boys respectively. The data shows that in 1996, the weights were 13.6 kgs and 14.4 kgs for girls and boys respectively, which indicates near stagnation in weights during 20 years from 1977 to 1996. Similarly, the NNMB data has also shown that the mean weights of adult women and men (20-24 years) were 42.9 and 48.1 kgs in 1977 and increased to 43.5 and 50.3 kgs in 1996, as compared to NCHS median weights of 56.6 and 68.9 kgs for women and men respectively (Shatrugna, 2001). *Shatrugna comments that as these are mean values, it could be assumed that almost half of the population in India have even lower weights than what NNMB survey has shown; a condition, which she observed, is very close to chronic energy deficiency or starvation (Shatrugna, 2001).*

Shatrugna explained that famine studies have shown that people lose 20 to 25 percent body weight during famines before death. The weight deficit of 10 to 15 kgs in Indian population also amounts to almost 25 percent lesser than normal weights; therefore, a famine-like condition has persisted in India as far as the weights are concerned. Shatrugna also explained that people with such low body weights manage to live by using all their energy from food for working only, and in due course of any further crisis, they reduce any unnecessary movements in the body (Shatrugna, 2001). Shatrugna (2001) argued that although illness is also a reason for low body weights, inadequate food intake is most influential factor for low body weights. However, a disaggregated analysis of NNMB data and few other studies from different parts of the country have revealed that weights of the financially well off sections in India are as good as the NCHS median weights (Shatrugna, 2001).

Heights of population are considered an important indicator of health and nutritional status for its ability to reflect long-term development and access to adequate diet. Studies have shown that different populations around the world have observed secular increase in the adult heights over time, as discussed in the section-2 of this paper. Some of the Western countries have reached plateau in 1940s-1960s only. It is generally argued that the positive secular change in the western countries has been achieved by improvements in environmental conditions; particularly such factors that can impede full expression of the biological potential as inadequate nutrition, infections, poverty and suffering. In a way, a positive secular change reflects improvements in the nutritional, hygienic and health status of a population (Fredriks et al, 2000; Ghosh and Malik, 2007).

In the context of India, the data shows that a height deficit exists in India. For instance, the NNMB data showed that height among boys and girls was 99.6 and 100.5 cm respectively at the age of 5 years in 1996, indicating a deficit of the extent of almost 8-9 cm, as compared to NCHS standards (108.4 and 109.9 for girls and boys respectively). Furthermore, this height deficit only worsens with age. At the age of 20-24 years (assumed to be final height), the NNMB data showed that the mean height of women and men was 151.2 and 163.4 cm in 1996, as compared to NCHS standards of 163.7 and 176.8 cm for women and men respectively. This indicates that the deficit in final heights in India had totalled up to 12.5 and 13.4 cm for women and men respectively in 1996 (Shatrugna, 2001).

The extent of deficit in heights in India could be understood from the fact that the average heights in India now in 21<sup>st</sup> century are comparable with the heights attained by the deprived class in West in 19<sup>th</sup> century. The female Dutch orphans and factory workers born in 1849, representing an underprivileged class, reached to more than 152 cm height (van Wieringen, 1972 in Moradi, 2010), which is the mean height attained by women now in India (Mamidi et al. 2011).

However, the situation in India is also not that the whole population has been devoid of any increase in mean stature but any increase that occurred has been divided and unequal with upper castes and classes showing significant increases and lower castes and income groups not experiencing any significant increase, as discussed later. This is because of the inequalities prevalent in Indian society as well as the widespread presence of hunger and

poverty among the lower socio-economic groups, which does not provide enabling environments for majority of population to grow in height.

The pertinent question to be asked here is *does Indian population have the potential to achieve taller heights*. Given the fact that most of the people in India were shorter and lighter than the Western population, Shatrugna (2001) noted that during 1970-80s it was being suggested that the normal standards of weights and heights must be lower for Indians. However, studies have revealed that children belonging to upper socio-economic classes in India grow consistent with the Western children until 12-16 years. These findings suggested that the children in India have a biological potential to grow tall and reach height and weight commensurate with other populations (Gopalan et al., 1989 in Shatrugna, 2001). The Japan and China experiences are important in highlighting the growth potential of people living in Asian countries, counter to what was suggested earlier that such populations are genetically shorter. Shatrugna stated that if the conditions in India would have been beneficial to the poor, height increases of almost 4-6 cm could have been expected (Shatrugna, 2001).

There is evidence that comes from both large-scale surveys and field studies, which has shown that some increases in heights have been observed in India but the increase has either not been significant at population level or limited to some groups and regions only. Ghosh and Malik (2007) examined changes in height, among other morphological characteristics between parental and children generations of Santhals in West Bengal. The study included 400 Santhal families, which consisted of 1262 individuals. The study observed a positive secular trend and found that the sons and daughters were markedly taller than their fathers and mothers respectively. But the increase was more in sons than in daughters. The mean height of sons (N=292) was 162.88 cm whereas it was 159.84 cm for fathers (N=400). Similarly, it was 150.79 cm for daughters (N=170) as compared to 148.94 for mothers (N=400) (Ghosh and Malik, 2007). Ghosh and Malik further note that this increase has become possible due to the socio-economic improvements and access to health services. The higher increase among sons than daughters in height was due to gender related factors that daughters are nutritionally deprived and sons are relatively privileged among Santhals (Ghosh and Malik, 2007).

Shatrugna and Rao (1987) conducted a study in Hyderabad to assess whether there have been any improvements in the heights of daughters over mothers but only among those who had

poor socio-economic status. The study included 512 pairs of mothers and daughters; daughters were in the age group of 18-28 years and their mothers were in 33-60 age group. The data showed that the mean height of daughters with 150.4 cm was only marginally higher than the mean height of their mothers of 150.1 cm. There was little difference in weights as well; mothers had 45.7 kgs of weight on average and daughters with 44.7 kgs. The data indicates clearly that there was no secular increase in heights over a generation among poor sections of population. In fact, as the height slightly reduces after crossing 50 years of age, and if that correction was made in the data on measurement of mothers, the trend would have been towards height reversal over a generation among poor sections in Hyderabad (Shatrugna and Rao, 1987).

Contrary to this, a few studies have found secular trends in populations of higher socio-economic status in India. Shatrugna et al. (1988) observed a secular increase of almost 2 cm in the younger generation of daughters as compared to their mothers among the forward castes in rural Hyderabad (Shatrugna, 2001).

Mamidi et al. (2011) analyzed unit level data of NFHS-3 survey to examine if any secular change has occurred in heights over time in India. They looked at measurements of 69,245 men and 118,796 women in the age group of 20 to 49 years. The data showed huge variations in final heights across states. At the national level, the average height was 165 and 152 cm for men and women respectively. The measurements of different age groups (20-29, 30-39 and 40-49), which also represent different birth cohorts, revealed that a modest secular increase in height of 0.50 cm and 0.22 cm per decade has occurred among men and women respectively in India. The data also showed that higher socioeconomic status and consumption of milk was associated with tall heights and secular increase in heights (Mamidi et al. 2011).

Mamidi et al. (2011) also found that the secular increase in heights experienced in India was though modest but with huge variations across states to the extent that even some states have seen reversals in heights. Among these states included Punjab with depreciation of 0.06 cm in average height among men, who were in the age group of 20-29 years compared to 40-49 years (which represented two different birth cohorts over the last 20-30 years). Other states, which saw depreciation in heights among men over this period included Delhi with 0.02 cm, Arunachal Pradesh with 0.71 cm, Meghalaya with 0.73 cm, Jharkhand and Orissa saw 0.05 cm each. *However, those states which saw relatively higher increase in heights over the three*

*birth cohorts included J&K and Kerala with 0.99 cm each, West Bengal with 0.96, Maharashtra with 0.95 cm and Sikkim with 0.90 cm (Mamidi et al. 2011).*

The depreciation in heights among women has occurred in states including Delhi (0.31 cm), Nagaland (0.27 cm), Meghalaya (0.14 cm), Haryana (0.12 cm), Goa (0.07) cm, Madhya Pradesh (0.06 cm) and Bihar (0.04 cm). *Among those states, which saw relatively higher increase in heights among women included, Kerala with 1.24 cm, Tamil Nadu with 0.72 cm, Maharashtra with 0.57 cm, Andhra Pradesh and Chhattisgarh with 0.51 cm each (Mamidi et al. 2011).* Although, J&K men had seen highest increases in heights (0.99 cm per decade), the heights of women have increased by only 0.39 cm per decade (Mamidi et al. 2011).

These inter-state differences in heights and the secular increase are likely because of the inequalities that persist across states in socio-economic conditions, nutritional and health status and status of women. Kerala witnessing higher increase in height over the time could be assumed is because of the overall better health indicators (Mamidi et al. 2011) and provisioning of social services.

The NFHS-3 data analysed by Mamidi et al. (2011) also showed relation of height with residence, caste, education, wealth index and religion as can be seen from Table-1.2. For instance, the mean heights of men (aged 20-49) living in urban areas were 165.5 cm tall as compared to those living in rural areas with 164.3 cm (152.4 cm and 151.6 cm for women aged 20-49 years respectively). The men with no education were 162.9 cm tall and those with higher education were 167.2 cm tall (151.2 cm and 154.4 cm for women respectively). Men who belonged to poorest wealth quintile were 162.4 cm tall, those from middle quintile were 164.3 cm and those who belonged to richest quintile were 167.3 cm (150.6 cm, 151.6 cm and 153.7 cm for women respectively). Men who were scheduled caste were 163.2 cm tall; scheduled tribe men were 162.7 cm tall; OBC men were 164.8 cm tall whereas men from forward castes were 166.2 cm tall. The women across social groups show a similar trend (see Table 1.2). The data also showed that the secular increase over the three birth cohorts has been disproportionate along the same gradients (Mamidi et al. 2011).

The data in overall analysis showed that living in urban areas, belonging to forward caste or richest quintile, with higher education, belonging to Sikhism and Jainism were all associated positively with heights. However, the greater influence was of wealth index (Mamidi et al.

2011). The results also found that among the animal source food, milk was highly correlated with heights as well as secular increase in heights (Mamidi et al. 2011).

*The secular trends in the Indian context over time especially a comparison of pre- and post-1990s period, which represent different phases of economic growth and different policy regimes, have not received much attention. This may be also due to the absence of long-term quality anthropometric data in the country (Mamidi et al. 2011). The only data sets that provide information since 1970s are NNMB and NFHS surveys. These large-*

<b>Criteria</b>	<b>Mean Height for Men (cm)</b>	<b>Mean Height for Women (cm)</b>
Urban	165.5	152.4
Rural	164.3	151.6
No Education	162.9	151.2
Higher Education	167.2	154.4
Poorest Wealth Quintile	162.4	150.6
Middle Wealth Quintile	164.3	151.6
Richest Wealth Quintile	167.3	153.7
Scheduled Caste	163.2	150.7
Scheduled Tribe	162.7	151.3
OBCs	164.8	151.8
Others (forward castes)	166.2	152.8

*Source: Adapted from Mamidi et al. 2011. The data is based on NFHS-3 survey*

*scale surveys –NNMB and NFHS –as well as micro-level studies point to a very dismal picture of the nutrition status in India, with significant inequalities along the lines of gender, caste and class. The data indicated a rising secular trend in height but minimal and highly unequal across states, with some states and groups witnessing reversals in heights over time. The average height of men and women, even in the richest wealth index still falls short of NCHS values by more than 10 cm (11.8 cm for men and 10.7 cm for women), which indicates that it may take many more decades to reach growth potential in India. As the data has shown that the even the modest secular increase in heights has been unequal (Mamidi et al. 2011), suggesting that the inequalities in height will further increase along caste, class and gender.*

A lot of evidence has shown that the nutritional status is related to income, food intake, illness and other socio-economic conditions. This raises an interesting question in the context of India, why the nutritional status in India remained so compromised despite the fact that the



country has seen very rapid and high rate of economic growth in the last two decades, and is discussed in the section below.

### **1.3.2. Factors Responsible for Low Nutrition Status:**

India has seen a high level of growth in economy and per capita income in the last two decades but the data has not indicated corresponding improvements in nutrition levels. The global trend has shown that height has mostly moved with income because increased income resulted into improved access to adequate diet. Moradi, however, found that the height trends in Africa did not conform to the expected global height–income relationship and argued this is because of the drawbacks of using income as a measure of living standards (Moradi, 2010). That might be the reason why the high economic growth in India did not translate into corresponding levels of nutritional and health. Hatton (2013) and Moradi (2010) explained that even distribution of income is equally important as growth in income itself. *Therefore, variables like poverty, inequality and hunger may prove significant in explaining the changes or stagnation in nutritional status over time in the context of changing economies. As levels of illness is also a strong influential factor in determining the increase in heights over time, the access to health services assumes importance, among other social services.* Shatrugna (2001) explained that children’s weights are very sensitive to minute changes in food or illnesses, therefore, the low child weights are not just because of low food intakes but also because of inaccessibility to health services. The literature has also revealed that early life is an important indicator of adult health; therefore, childhood malnutrition and illness would be important determinants of secular changes in adult height over time.

*Therefore, to what extent and how all these factors –access to food, hunger and malnutrition, poverty, illness among children and access to health services –have changed with economic growth in the country would determine any change in height. The paras below analyze the performance of these indicators in India over time.*

**1.3.2.1. Poverty:** The poverty in India has continued to be very high. The official poverty rate has been revised in India using Tendulkar methodology and estimated at 45 percent in 1993-94 (old estimate was 36 %) and 37 percent in 2004-05 (old estimate was 27.5 %) (Govt of India, 2011a). The Planning commission estimates for 2011-12 reveal that the poverty has

reduced to 22 percent (Govt of India, 2013). However, the poverty line has been widely contested for its minimalistic approach<sup>9</sup>.

Some scholars have also argued that there have been only marginal improvements in poverty rate since 1990s in India. Himanshu (2007) showed based on NSSO data that the annual rate of reduction in poverty between 1993 and 2005 was lower than in the 1970s and 1980s. Further, he argued that there has been little or no reduction in poverty in 1993-2000. Sen and Himanshu (2004) indicated that, "...economic inequality had increased sharply during the 1990s in all its aspects and, as a result, poverty reduction deteriorated markedly despite higher growth" (p. 4361). Deaton and Dreze also revealed that regional disparities have increased in 1990s, as well as economic inequality within states especially between rural and urban areas. They have also examined indicators related to education and health and noted, "Most indicators have continued to improve in the nineties, but social progress has followed very diverse patterns, ranging from accelerated progress in some fields to slow down and even regression in others" (Deaton and Dreze, 2002, p. 4361). The inequality-adjusted human development index (IHDI) of United Nations has revealed that inequality in the distribution of human development is markedly more prominent in India than elsewhere (Suryanarayana, Agrawal and Prabhu, 2011).

The data has also shown high levels of poverty among Scheduled Tribes and Scheduled Castes. For instance, the estimates for 2009-10 reveal that in rural areas, the highest levels of poverty were among Scheduled Tribes with 47.4%, followed by Scheduled Castes with 42.3%, and Other Backward Castes (OBCs) with 31.9%, where as the poverty rate among all classes was 33.8%. Similarly, in urban areas the poverty rate among Scheduled Castes with 34.1%, Scheduled Tribes with 30.4% and OBCs with 24.3% was much higher than against a total poverty rate of 20.9% among all classes (Govt of India, 2012).

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<sup>9</sup> The *Saxena Committee on the Identification of BPL Households in Rural India* in 2008 argued that the poverty line in India has been underestimated. The poverty line was fixed at Rs. 356 and 539 per capita per month in the rural and urban areas respectively in 2004-05. But in order to meet the desired nutritional norm of 2400/2100 kcal, which is the basis of poverty line in India, the cut-off line for determining poor should have been ideally around Rs 700 and 1000 for the rural and urban areas respectively as suggested by the NSSO consumption expenditure data. The Committee argues that because of fixing the poverty line at a low level, a large number of rural people with consumption in the range Rs 360 to 700 did not figure out in the poverty estimates. As a result, the Planning Commission estimated that only 28 percent of population is poor in rural areas. Whereas, the NSSO data shows that almost 79.8 percent of the population in rural areas was calorie deficient, against the recommended dietary norms (Govt. of India, 2009).

Therefore, even if a high growth was seen in India at the country level, the growth has not been egalitarian, and it did not lead to any significant decrease in poverty. It has rather increased inequality. Studies from the West have demonstrated that inequality in itself is detrimental to health even when absolute poverty does not increase.

**1.3.2.2. Hunger and Malnutrition:** The global hunger index has indicated ‘serious’ levels of hunger in India (Grebmer, et al., 2019). The high levels of hunger have sustained even with the high economic growth of India in the two decades after 1990. The proportion of population consuming calorie below the recommended 2,100 kcal in urban and 2,400 kcal<sup>10</sup> in rural areas increased from 64.8 % (66.1 for rural and 60.5 for urban) to 75.8 % (79.8 for rural and 63.9 for urban) between 1983 and 2004-05 at all Indian level (Deaton and Dreze, 2008).

The NSSO data has also shown that the mean calorie consumption has fallen in rural India from 2,240 Kcal in 1983 to 2,047 Kcal in 2004-05, which amounts to almost 8.6 percent over this period. The data has however shown almost stagnation in urban areas from 2,070 Kcal in 1983 to 2,021 Kcal in 2004-05 (Deaton and Dreze, 2008).

The NSSO data has also shown high inequalities in calorie consumption between the poor and rich. As can be

<b>Table 1.3: Mean Calorie Consumption in Rural India</b>					
<i>(figures in kcal)</i>					
<b>Period</b>	<b>Bottom Decile</b>	<b>Bottom Quartile</b>	<b>Second Quartile</b>	<b>Third Quartile</b>	<b>Top Quartile</b>
<b>Total Calories</b>					
1983	1,359	1,580	2,007	2,328	3,044
1987-88	1,488	1,683	2,056	2,334	2,863
1993-94	1,490	1,659	2,000	2,251	2,702
1999-00	1,496	1,658	1,978	2,250	2,707
2004-05	1,485	1,624	1,900	2,143	2,521
<b>Cereal Calories</b>					
1983	1,150	1,309	1,589	1,738	1,974
1987-88	1,221	1,359	1,598	1,715	1,894
1993-94	1,203	1,316	1,504	1,591	1,690
1999-00	1,197	1,289	1,591	1,509	1,566
2004-05	1,189	1,259	1,690	1,430	1,471
<i>Source: Table adapted from Deaton and Dreze, 2008.</i>					

seen from Table-1.3, the calorie consumption of the poorest quartile is much lower than the top quartile at any time. It also indicates a declining trend in the calorie consumption among

<sup>10</sup> A committee appointed by Government of India in 1979 recommended these nutritional requirements.

the bottom as well as top quartiles from 1987 onwards. Saxena (2011) explained that this declining trend of calorie consumption among the top quartiles could be due to increasing sedentary life style or increasing diversity in food intake. But the decline in calorie intake among the poor cannot be inferred as a sign of prosperity, who are largely deprived of non-cereal diet like pulses, fruits, milk, meat products, etc. Saxena argued that decline among the poor might be because of increasing non-food costs like education of their children, fuel, health services etc (Saxena, 2011).

Deaton and Dreze also argued that though cereals are important, a better nutrition status requires a balanced diet with reasonable additions of fruits, vegetables, proteins and fats, as also access to clean water, sanitation and health services (Deaton and Dreze, 2008). They found, however, that the NSSO data shows per capita consumption of protein has also decreased from 63.5 gms and 58.1 gms in 1983 to 55.8 gms and 55.4 gms in 2004-05 in rural and urban areas respectively. This decline in protein consumption amounted to 12.1 and 4.6 percent over this period in rural and urban areas respectively (Deaton and Dreze 2008). The decline in per capita consumption of proteins particularly in rural areas has been gradual over time (see Table 1.4). Kumar et al. (2007) found that the decrease in protein consumption was much more in bottom income groups in rural areas where the population consuming proteins below the required level has increased from 51 per cent in 1983 to 65 per cent in 1999-00 (cited in Saxena, 2011).

<b>Table 1.4: Mean Protein Consumption per Capita per day (figures in gms)</b>		
<b>Period</b>	<b>Rural</b>	<b>Urban</b>
1983	63.5	58.1
1987-88	63.2	58.6
1993-94	60.3	57.7
1999-00	59.1	58.4
2004-05	55.8	55.4

*Source: Table adapted from Deaton and Dreze, 2008.*

Saxena also pointed out that the decline in consumption of calories/food grains is unlikely due to the rising food prices because the food prices have moved almost along with general prices from 1983 to 2004-05. Even in both rural and urban sectors, the relative price of food was lower in 2004-05 than in 1983. But the NSSO data has shown that share of food in the total consumer expenditure has declined from 73 and 64 percent to 55 and 42 per cent in rural and urban areas respectively during 1972-73 and 2004-05 (Saxena, 2011). This is indicative of the lack of purchasing power and contraction of effective demand by the poor, who are forced to spend now a significant part of their limited incomes on minimum non-food items

like transport, fuel and light, health services, and education, which have become as essential as food (Saxena, 2011). In a way, there is a shift of household budget to meet the non-food costs. For instance, the NSSO data shows that the share of health spending in the total expenditure has increased from 5.4 to 6.6 in rural and 4.6 to 5.1 in urban areas during the period between 1993-94 and 2004-05 (Baru et al., 2010). The increasing health expenditure in India due to decline in access to public health services<sup>11</sup> has pushed 3.55 percent (about 39 million) of people into poverty in 2004-05, against 2.91 percent in 1993-94, as indicated by NSSO data (Selvaraj and Karan, 2009).

Although the availability of food grains in India had increased from 416 grams during 1950-55 to 485 grams in 1989-91 per head per day (Patnaik, 2004 cited in Saxena, 2011), there has been a reverse trend thereafter with the availability of food grains reducing to 445 grams per head per day in 2006 (Economic Survey, 2009-10, cited in Saxena, 2011). This decline in availability of food grains has resulted because of the decline in food production, increasing exports (Saxena, 2011) and transformation of Public Distribution System (PDS). The production of food grains had drastically increased from 1960s onwards but it has declined since early 1990s (Supreme Court Commissioners, 2007). This may be because of the economic reforms initiated in 1990s that have resulted in cuts in investments in social and primary sectors including agriculture. During the late 1970s to early 2000s, the public investment in agriculture declined from 3.4 percent to 1.9 percent of agricultural GDP (Bisaliah, 2007 cited in Saxena, 2011). On the other hand, India exported more than 7 million tonnes of food grains per annum during 2002 and 2008 at subsidized rates (Saxena, 2011). This high level of export of food grains has been possible due to transformation of PDS in 1997. Supreme Court commissioners (2007) indicated that the steepest decline in availability of food grains in India has occurred after 1997 and has happened due to the transformation of PDS. Saxena commented that the Government of India had chosen to export subsidized grains to feed the foreign cattle, than to distribute in India (Saxena, 2011).

Public Distribution System in India has been a major food distribution programme in the country. PDS was stipulated to supply subsidized food grains universally to all the households. However, because of large-scale economic and social policy changes in the

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<sup>11</sup> For the shifts in decline in access to public health services and increase in utilization of private services over time, refer to section 3.2.3 on health services.

country, it was converted to a targeted PDS in 1997. The targeted PDS provided food grains to a smaller section of population who were identified poor by Government of India. Its effects were clear and led to decline in the access of people to PDS, increase in leakages and dysfunction of PDS. The NSSO data have shown that the leakages in rice and wheat together increased from 28 percent in 1993-94 to 54% in 2004-05 (Himanshu and Sen, 2011), and this increase in leakages is likely because of targeting of PDS. The underestimated poverty ratio and the problems in identification of poor led to further exclusion of a huge section of population from accessing food and livelihood support including many marginalized and poor sections who were likely to be more vulnerable to hunger. For instance, the NSSO data in 2004-05 have also shown that only 44.2 and 40.5 percent of households in the lowest and second lowest income quintiles had BPL ration card (Supreme Court Commissioners, 2007). This exclusion of a significant proportion of population from a subsidized food ration was likely to sustain hunger and malnutrition, even if the economy was growing.

The stark disparities in consumption of food intakes among the low and high income groups, as shown by data, makes the case strong that there is unequal distribution of food among different economic groups, which is because of the unequal distribution of incomes among the different classes and castes of society. There is also clear evidence that overall consumption of calories and proteins have declined over the last 25 years (Saxena, 2011). The fact that the consumption of calories and proteins has decreased post mid-80s also explains that why the increasing economic growth did not have any impact on nutritional levels. Ghosh pointed out that because of the decline in availability of food grains among the population in general as well as in consumption among lower economic groups, the number of hungry increased in India during the last two decades (Ghosh, 2010).

Many studies have also argued that early years of life are important for adult nutritional and health status. During the early years of life, children have high-energy requirements and are vulnerable to infections but depend on others for care. That is the reason why children who are deprived fall behind in early years of life, although studies have shown they can catch up growth in later period of childhood but only if environment is enabling (Moradi, 2010). Shatrugna explained that it is very normal that children who are healthy and have access to adequate and quality food grow weights and heights with age. However, in cases of shortfalls in food, they stop growing tall and if they continue to have access to only inadequate food, they are likely even to lose weight (Shatrugna, 2001). The NFHS data shows that levels of

malnourishment, anaemia, infant mortality and under-five mortality among children in India are very high, with either no or insignificant change over the years (see section 3.1 for details). The NNMB data have also shown very marginal improvements in body weights of children over time. Only 10 percent children in India were classified with having 'normal' weight in 1997 as per Gomez classification. Whereas, almost 90 percent had low weights for age compared to NCHS median values, out of which 45-50 percent were classified in 'moderate to severe' malnutrition category (Shatrugna, 2001). The disaggregated data shows huge disparities on all these indicators among different socio-economic groups with higher levels of under-nutrition, infant and under-five mortality among scheduled castes and scheduled tribes and among lowest income group (see Table-1.1 for details).

*In summary, there is enough empirical evidence on many indicators, which reveal that the endemic hunger continues to affect a large proportion of Indian population. What is more important is the fact that there are widespread disparities among different socio-economic groups with low income groups, SCs and STs perform badly and are therefore more vulnerable to hunger and illness. The higher levels of under-nutrition and hunger as well as inequalities across groups have continued in the last two decades, when the India saw high economic growth.*

The adoption of neo-liberal policy agenda and the subsequent socio-economic reforms that were introduced in India in 1990s led to increasing market-oriented development, privatization, financial cuts in the social sector and declining public provisioning of services. The result has been high economic growth but with increasing inequalities (see Himanshu, 2007; Sen and Himanshu, 2004). Evidence of the impact of neo-liberal policies on increasing inequalities has come from other countries as well. For instance, United Kingdom (UK) provides an insightful example where the social polarisation has well advanced in the neo-liberal policy era. The inequalities in living standards have increased to a significant extent. Only 7% of the population lived below the European Commission poverty line by mid 1970s, but the proportion increased to 24 % by mid 1990s (Graham, 2001). Graham (2001) argued that this increase in poverty in UK was an outcome of changes in the labour market with a sharp reduction in the demand for manual and low skilled work.

The development processes of constructing dams, forestry and mining, industries etc. on a wider scale and in an intense manner led to large-scale displacements of people. Some

estimates reveal more than 50 million people have been displaced in India (Ray, 2000). The agriculture sector in India has turned into great shambles with millions of cultivators quitting farming. The estimates have shown that nearly 8 million cultivators quit farming in one decade between 1991 and 2001 (Sainath, 2010). There has also been increasing number of farmer suicides, which is an indication of huge distress the cultivators live with. National Crime Records Bureau has revealed that nearly 2 lakh peasants have ended their lives between 1997 and 2008 (Sainath, 2010). Nagaraj's study has pointed out that higher levels of suicides are concentrated in areas of high commercialization of agriculture and with high peasant debt and those engaged in cash crop cultivation (Sainath, 2010). The Planning Commission has also observed an increase in the unemployment among agricultural labour households from 9.5 to 15.3 percent during in 1993-94 and 2004-05 (Saxena, 2011).

With such simultaneous processes of destitution and marginalization, and concurrent increasing dependence on market for utilization of basic services, it was likely that poverty and hunger would have sustained in India despite the kind of economic growth the country has seen.

**1.3.2.3. Health Services:** As the nutritional status is a balance of diet intake and infections, therefore, access to health services emerges as an importance factor in determining the nutritional status through decreasing duration and severity of disease. However, the studies and large-scale surveys on the utilization of health services show that though there have been some improvements in access to health services over the last decade, the utilization of health services remains low. For instance, the NFHS-4 survey indicated that the women in the age group of 15-49 years who had at least four ANC (antenatal care) visits during their last pregnancy increased from 37% in 2005-06 to 51.2% in 2015-16. Similarly, the institutional deliveries have seen significant improvement from 38.7% to 78.9% during this time- more than 100% increase. The NFHS-4 data also shows that the proportion of children aged 12 to 23 months who received all basic vaccinations<sup>12</sup> increased from 43.5% in 2005-06 to 62% in 2015-16 (IIPS and ICF, 2017e).

However, despite these improvements, the inequalities prevalent in the larger social system continue to reflect in the health service system in India as well and the accessibility to health

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<sup>12</sup> BCG, measles, and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth)



services reveals wide disparities. As can be seen from Table-1.5, the NFHS-4 survey in 2015-16 has revealed that not only the coverage of all basic vaccinations has been low at 62% at all-India level, there are also considerable variations across different socio-economic groups with 70% coverage in the highest income quintile, while the coverage was only 52.8% in the lowest quintile. The data on coverage among different caste/tribes groups also reflected an unequal picture with coverage of all basic vaccinations among Scheduled tribes at 55.8%, and upper/higher castes at 64.5%. Similarly, the access of children (under five years) with diarrhea for whom treatment was sought reflects the same trend that those in highest income quintile (79.1%) have had better access than those in the lowest quintile (59.5%). The NFHS-4 data also shows similar pattern of disparities for children (under five years) with fever or ARI symptoms for whom treatment was sought. Those in the highest income quintile or are upper/higher castes have had better access than those in the lowest quintile or those who belong to lower castes/tribes, as can be seen from the Table-1.5 (IIPS & ICF, 2017a).

The access to maternity care services indicates a similar pattern of unequal access across different caste groups, as can be seen from table-1.5. Women (aged 15-49 years) who did not avail any antenatal checkup stood at 19.6 percent for STs, 17.8 percent for SCs and 17.7 percent for OBCs, while the counter figure for women belonging to upper/higher castes was 11.4 percent. The occurrence of giving birth in a health facility is also comparatively lower among STs (68.0%) followed by SCs (78.3%) and OBC (79.8%) women than those belonging to upper/higher castes (82.9%). The disparities along the income lines are much stark. For instance, the proportion of women (aged 15-49 years) who did not avail any antenatal checkup was only 5% among highest income quintile as against 34.7% among the lowest income quintile (IIPS & ICF, 2017a). The Table-1.5 presents differences across wealth quintiles with respect to some other indicators as well.

<b>Table 1.5: Disparities in Health Services in India (%)</b>							
<b>Indicator</b>	<b>Scheduled Caste (SC)</b>	<b>Scheduled Tribe (ST)</b>	<b>Other Backward Class</b>	<b>Others (Higher Castes)</b>	<b>Lowest Wealth Quintile</b>	<b>Highest Wealth Quintile</b>	<b>Total</b>
Women received no ANC	17.8	19.6	17.7	11.4	34.7	5.0	16.4
Institutional Delivery	78.3	68.0	79.8	82.9	59.6	95.3	78.9

Women received no PNC	30.6	35.3	30.5	26.7	46.9	17.1	30.2
Children received all basic vaccinations	63.2	55.8	61.9	64.5	52.8	70.0	62.0
Children with symptoms of ARI for whom treatment was sought	78.6	70.5	78.5	80.2	69.3	90.0	78.1
Children with fever for whom treatment was sought	74.6	67.0	73.4	74.1	63.7	82.6	73.2
Children with Diarrhoea for whom treatment was sought	68.6	64.6	67.4	70.3	59.5	79.1	67.9
No treatment for Diarrhoea	16.4	22.3	17.9	16.8	22.1	12.3	17.8
<i>Note: Treatment included those for whom treatment was sought from a health facility/ provider</i>							
Source: IIPS and ICF, 2017a							

Baru et al. (2010) explained that the disparities in access to health services in India result partly from a highly uneven availability of health services– differences in infrastructure, human resources and supplies– and spatial distribution of health services across Indian states and between different regions, districts and taluks within states. However, they add, that these disparities in access also result partly from the larger socio-economic inequalities that are embedded in society (Baru et al., 2010).

Given the fact that caste has continued to be a dominant factor in India in determining access to resources, employment and services, the health services system also reflects a similar pattern. People significantly from upper castes and elite/middle class have important positions from top to bottom across the delivery system (see Qadeer, 1985), and poor and lower castes are unable to access the services. A lot of evidence indicates that despite the availability of health services, some social groups do not happen to utilize the services. They

are excluded from the services for belonging to a marginalized and vulnerable class of the society. The findings of the NFHS-4 survey showing differential access to immunization, treatment, maternity care service, etc. gives a preliminary idea of exclusion of the lower socio-economic groups from accessing health services. The NFHS-3 survey had also indicated this specific pattern of differential access to health services along the lines of caste and class. This continuation of differential access to health services over time demonstrates the influence of larger inequalities embedded in the society on the health service utilization. *In this context, the increasing inequality in India since 1990s would further increase class-gaps in India and would have an impact on the relations between rich and poor classes within the larger system as well as in health service system.*

Baru et al. (2010) stated that although there has been an expansion in the public and private health services in India since independence due to many efforts aimed at strengthening rural infrastructure, the expansion has been inadequate to provide access to quality services to all universally. The implementation of health sector reforms since 1990s has reinforced a selective and targeted approach with declining public investments and falling level of efficiency in the public sector. These changes ultimately led to increasingly high dependence of people on the private sector for health care and decline in access of the poor to any health care (Baru et al., 2010).

The health sector reforms have led to further widening of the pre-existing significant inequalities in access to services. Lister notes, “The best-resourced health services (and most private for-profit provision) tend to be concentrated in localities inhabited by the affluent and influential, while services in rural areas and for the urban poor, women, elderly, and people with mental health problems tend to be seriously lacking in facilities, resources and staff” (Lister, 2008, p. 78). Hart (1971) called it as ‘*inverse care law*’- those who require maximum services are provided least (Lister, 2008).

The NSSO data have indicated a decline in utilization of public health services after health sector reforms were implemented. The data shows that only 22.3% of people in rural and 19.1% in urban areas have utilized the public sector for outpatient services in 2004, as against 26 % and 28 % in rural and urban areas in 1986-87 (Meeta and Rajivlochan, 2010). Similarly, only 41.7% and 38.2% in rural and urban areas respectively were able to utilize inpatient treatment from public sector in 2004, while the utilization of public services in 1986-87 was

59.7% and 60.3% in the rural and urban areas respectively<sup>13</sup> (NSSO, 2006). Meeta and Rajivlochan (2010) provides a caveat that a higher utilization of private sector should not be interpreted to mean that people prefer to use the private sector for health care for private sector costs being almost three times higher than public sector making them unaffordable for the poor quintiles. The NSSO data shows that on an average the private sector costs Rs 8,738 for hospitalization against Rs 3,410 in the public sector. Rather, people use private health services due to compulsions that public facilities are inadequately equipped (Meeta and Rajivlochan, 2010).

The macro-survey and field studies have indicated that the important reasons reported by people for not using public services were lack of infrastructure at public facilities and indifferent and rude behaviour of personnel towards patients (Baru et al. 2010). The data also indicates that the functioning of institutions and quality of care has been compromised over the last two decades or so with the supply of inadequate staff. For instance, the Central Bureau of Health Intelligence (CBHI) has revealed that the doctor-patient ratio has reduced in rural India from one doctor for 17,000 people to one doctor for 34,000 people during 1986 and 2006 (cited in Meeta and Rajivlochan, 2010). Meeta and Rajivlochan (2010) stated, "...the patient-doctor ratio and the patient-nurse ratio in rural India are among the lowest in the world" (p.46).

The increasing dependency and utilization of private care has inevitably resulted in increasing out of pocket (OOP) expenditure on health services. Leaving all indirect costs such as loss of earnings due to the illness, the NSSO data shows that 80% of total health expenditure and 97% of private health expenditure are borne through OOP payments in India (Government of India, 2006 cited in Baru et al. 2010). The higher OOP expenditures on health is also indicated by the NSSO data and showed that the household consumption expenditure spent on health has increased from 5.4% and 4.6% in 1993-94 to 6.6% and 5.2% in 2004-05 in rural and urban areas respectively (Baru et al. 2010).

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<sup>13</sup> However, this should not be interpreted to mean that the overall levels of access to treatment has declined, which has broadly remained stagnant over time. For instance, the NSSO data has shown that the proportion of non-treated ailments (includes self-medication and home remedies, which are not considered a formal treatment in NSSO survey) stood at 17.7 percent in 1987-88 and marginally declined to 15.7 percent in 2004-05 (Selvaraj and Karan, 2009). Further, the implementation of NRHM in 2005 is likely to have improved access to public health services thereafter but a larger data set is awaited.

A large portion of this expenditure is made on drugs (medicines) and accounted for 77% and 69% of total out-of-pocket expenditure in rural and urban areas respectively in 1999-2000 based on the estimates from National Sample Survey (Sakthivel, 2005). The higher expenditures on medicines are partly due to the over- prescription of drugs, which has become a routine in India particularly in private health care. The over prescription of drugs has been indicated by many studies (Bhatnagar. et al, 2003; Dutta and Chakraborty, 2010). Not only the over-prescribed drugs increase health care costs, they also pose a serious impact on the health (Meeta and Rajivlochan, 2010). A reason for over-prescription has been indicated by a village study conducted in Kupwara district (J&K) where people reported medicines were over-prescribed by the doctors because they receive commissions from pharmaceutical companies on sale of drugs (Dar, 2012).

The decline in the public health services and the increases in the health expenditure over the last two decades have made the health services either unaffordable to the poor (Nayar, 2007) or inaccessible. This has been supported by the findings of NSSO surveys. The NSSO surveys have shown that the proportion of people who either had no money to seek treatment or were unable to find a local medical facility were 18% and 10% in 1986, which has increased to 40% and 20% in 2004 in rural and urban areas respectively (Meeta and Rajivlochan, 2010). The increasing costs that are rendering the services unaffordable for the poor are likely to have led to the increasing inequalities in access to health care, along the lines of gender, caste and class.

As the health expenditures have significantly increased over the last two decades, people especially the lower socio-economic groups depend heavily on borrowing, contributions from relatives and sale of important assets to cope up with health expenditure. This is revealed by the NSSO data, which shows that 20 percent of outpatient treatment costs and up to 40 percent costs for hospitalization are financed through borrowing in rural areas of India, with the borrowings substantially higher among poorer sections (Baru et al. 2010). The village study 'Health Services in J&K' revealed that in many cases the poor would later sell off some of their asset or crop to repay the debt (Dar, 2012), which further leads to depletion of resources in an already depleted basket of resources available to the poor.

Therefore, the increasing health expenditure is likely to exacerbate the vulnerability and deprivation of poor people and may have pushed many into deep poverty and indebtedness

(Dar, 2012). A few scholars have analysed the impact of costs of health services on poor people and have observed catastrophic implications of treatment on poor sections of population. Garg and Karan (2005) estimated that an additional 3.25% of the population (32 million people) fell below the poverty line in 1999-2000 due to health care costs (Baru et al., 2010). Doorslaer et al. (2006) estimated based on NSSO data that 3.7% of population amounting to more than 37 million people were impoverished (fell below international poverty line of \$1.08 per capita per day) due to healthcare costs in India in 1999-00. This additional increase of poor amounted to almost 12% increase in poverty head count (Doorslaer et al., 2006).

*Therefore, there is clear evidence that despite the country's high economic growth over the last two decades, the access to public health services has rather declined in India up to 2005 (the implementation of NRHM in 2005 is likely to have improved access to public health services thereafter but a larger data set is awaited). The primary reason has been the implementation of health sector reforms in 1990s simultaneously when the country started witnessing high growth. The reforms have rendered the services unaffordable for poor. As a result, the inequalities in access to health services that persisted in 1980s have sharpened over the last two decades. It is also important to note that the health sector reforms were implemented concurrent with other rapid changes in social and economic sectors, as mentioned earlier. In the background of these changes, the impact of health sector reforms on the people inevitably increased. The differential access to health services helps in sustaining the health inequalities to a significant extent, as well as have implications on the working and living conditions of people.*

*The data also shows that the kind of services –public or private, high or low costs –are equally important in determining the access to health services. In the context of health being largely determined by socio-economic determinants, the extent to which health services have a role to play in bridging the gap in health inequalities is characterized by the level of access to health services that all socio-economic groups enjoy and type of services that are available.*

#### **1.4. Issues related to Health and Nutrition Status in India:**

The disparities that exist in health and nutrition status across different socio-economic groups are a reflection of unequal distribution of power, resources and opportunities as well as

differential access to social services. The economic development in India has not been egalitarian and has accentuated inequality. Qadeer and Sen pointed out that the structural adjustment policies have led to significant increases in the prices of basic commodities, decline in public funding in education, transport and food, and changes in labour market across South Asian countries. All these services are very much important in determining the population health (Qadeer & Sen, 1998).

As a result, not only the absolute deprivation of lower socio-economic groups in terms of their access to food and nutrition, health services and livelihood opportunities has continued to be significant but the inequality has also increased. The inequalities in terms of power, wealth, incomes and resources have accentuated over time. The economic growth of India in the last two decades has neither translated into increasing levels of access of people to food, better nutrition and declining hunger prevalence. The disparities in access to food, education, health services, employments and other social services have in fact sharpened. These disparities in resources and in access to services have in turn helped to maintain inequality in health and nutrition status. This is the reason why the high economic growth of India has not translated into comparable improvements in health status. The basic socio-economic and political structures neither became more egalitarian nor were the public services strengthened.

The impact of India's high economic growth since 1990s on the reduction of poverty has become controversial and debated. Pro-market economists and policy makers claim that the growth in economy has made substantial impact on poverty in India, whereas, many debate this position and reckon that the growth in India after 1990s has not made any substantial impact on poverty and has even increased inequality (Himanshu, 2007; Sen and Himanshu, 2004). This divide in opinions has also made the *approaches to poverty* a debate among academicians and policy makers. Those who believe that the economic growth in India has not led to any substantial impact on poverty, claim that the present approach to poverty is a minimalist approach (Breman, 2008; Jodha, 1988; Krishnaji, 2012). *Breman explains that the measurement of economic deprivation in pure quantitative terms using data based on macro-surveys does not capture all aspects of poverty. Poverty is multi-dimensional, and therefore, any approach to conceptualise and measure poverty must place poverty in a wider social context, examining the inequality, which is underlying causes of poverty and hinders it from being redressed, look into the linkages between the poor and non-poor and study power*

*hierarchy and status differentiation. All these aspects are central to the notion of poverty and provide insights into the behaviour of people and socio-economic groups (Bremner, 2008).*

The findings of Wilkinson (1999) that increasing inequality has deteriorated health in the developed nations, adds another dimension to the context of India, where most of the health problems are thought to have prevailed because of lack of fundamentals of living. Therefore, the rising inequality along the lines of income further accentuates the already caste based unequal and hierarchal society in India. Stansfeld (1999) highlights the importance of social support for health and argues that social isolation leads to ill health. Therefore, in the less egalitarian societies where there are higher levels of income inequalities the social support and cohesion may be limited. As social cohesion and support is also influenced by physical environment, the societies where the settlement patterns create division may be less cohesive, supportive and egalitarian. As well as the fear of violence may inhibit social interaction and increase mistrust (Stansfeld, 1999). This however does not indicate that the cohesion, interaction, support and trust among the different social, economical or geographical groups/communities will be less and would depend on the context. In the Indian context, the settlement pattern in the rural communities is largely built along the lines of caste. The lower castes are still forced through socio-political structures of power to remain limited within their own geographical boundaries. The local institutions that are largely under the control of upper castes are mostly not ready to provide any help to lower castes (see Qadeer, 1985). In such environment, the members of lower castes are likely to feel isolation. The increasing inequalities in socio-economic status and health services will further increase the gaps in service delivery to the poor. However, due to the influence of various movements around the issues of caste, a strong identity of caste has emerged, and may likely to have led to increased cohesion and support within groups, but needs to be explored. This would require analysis at different levels exploring both vertical (between groups) and horizontal (among groups) cohesion and support across groups.

Shaw et al. (1999) also explain that the processes of social exclusion have a significant effect on population health. *Social exclusion is not only denial of material resources but is a multiple disadvantage of being discriminated, stigmatized and marginalized.* The marginalized groups have least access to or simply denied economic resources, education opportunities, social networks and support, supply of goods and services, etc. (Shaw et al., 1999). The processes, which lead to exclusion, vary across countries and regions. In the



Indian context, dalits, tribals and muslims among other groups, face stigmatization and discrimination, which has often led to their spatial segregation in communities. Consequently, these groups have observed compromised health benefits and least access to services, as demonstrated by the large-scale data (see IIPS and Macro International, 2007; IIPS and ICF, 2017a).

The health and nutritional status of women and children have also found importance in the life course analysis of health as a determinant of adult health (see Blane 1999, Wadsworth, 1999). In the context of India, the women's health and nutrition status have remained very low, as well as malnutrition and morbidity among children have found prevalence to a wider extent. This would therefore significantly affect the health outcomes of population. Blane (1999) explains that the educational attainment is a major transmission belt for the long-term effects of childhood circumstances, and is a means to move up in the social status. The figures on educational attainments in India are equally discouraging and unequal among different socio-economic groups. The 2001 census has revealed that literacy rate among STs was 47.10 %, among SCs it was 54.69 and it was 54.16 % among females against a total of 65.38 % at all-India level (NUEPA, n.d).

The provisioning of and access to health services has an important role to address the health needs in general and inequalities in health status in particular. The large-scale survey data in India shows that the access to health services has remained much compromised. The disparities across socio-economic groups exist substantially. One of the main reasons has been the decline in access to public health services in India since the implementation of neo-liberal policies in 1990s (see section 3.2.3). These disparities in health services have also contributed to the health inequalities that exist substantially in India.

*All these issues: social exclusion, social support and isolation, inequality, relative deprivation, women's status, child health and nutrition, relation between poor and rich classes, power gradient, patterns of domination and marginalization are all central to the notion of public health and are underlying causes of inequalities in health among different socio-economic groups in India. These are equally important as absolute material conditions in determining the population health. The socio-economic policies in India in the last two decades were not designed to address these issues, and have rather made a negative impact.*

All these factors have also been the reasons that a positive secular trend in heights has been mostly absent in India, with only marginal increase over the period. The secular increase in heights is a reflection of better health and nutrition status of population as well as improving socio-economic environment. However, the health and nutrition status as well as socio-economic structure did not see significant changes in India, even during the period of being witness to high economic growth. Moradi (2010) had argued while observing that the income-height relation was missing in Africa, that the income distribution was as important as the income growth to have an impact. Hatton (2013) also made similar observations in the context of Europe. However, some studies have shown that there have been some increases in height over time but only in the financially well-off groups. The NFHS-3 data has also pointed out that J&K men and the Kerala men and women have witnessed significant secular increases in height. The increase in heights per decade has been of the international standards (0.99 to 1.24 cm per decade) (Mamidi et al. 2011).

The state of Jammu and Kashmir (J&K) provides an interesting and unusual example of significant socio-economic changes in the last two decades despite experiencing political conflict. Even while physical mobility was hindered during this time, the access to health services has remained relatively better than most other parts of India. The health and nutritional status of J&K also reflect a better picture than all-India, despite the huge impact of conflict on the state's economy. Importantly, as noted earlier, J&K men have also seen significant increases in height. Examination of how these changes unfolded could provide further insights to contribute to the existing literature and discussion on determinants of population health. The section below provides some insights and raises further questions for exploration.

### **1.5. Health, Nutrition and Socio-economic Conditions in Jammu & Kashmir:**

Health outcomes reveal significant disparities across different states in India including in infant mortality rate, child mortality, under five mortality rates, maternity mortality rate, nutrition status of children and anaemia levels in women and children (see IIPS & Macro International, 2007, and IIPS and ICF, 2017a). These variations have resulted due to the inter-state disparities in number of socio-economic factors such as status of women, per capita income, levels of poverty, housing and socio-economic relations between different caste groups as well as due to differential access to livelihood, water supply, sanitation, food and nutrition, health services, etc. The NHFS-3 and NFHS-4 data gives an insightful picture

into the huge variations that continue to exist in access to health services across states (see IIPS & Macro International, 2007 and IIPS and ICF, 2017a).

Contrary to all-India status, Jammu and Kashmir provides a better picture on many of the health indicators (see Table-1.6). For instance, the NFHS-4 data shows that the infant mortality rate in J&K was 32.4 as against 40.7 in all India in 2015-16. Similarly, the under-5 mortality rate in J&K was 37.6 as against 49.7 in all India in 2015-16 (IIPS and ICF, 2017a).

The NFHS-4 data also shows that the proportion of underweight children less than five years of age were 16.6 percent, which is less than half of the 35.7 percent underweight children in India in 2015-16. Similarly, the proportion of stunted children (short for their age) less than five years of age were 27.4 percent as against 38.4

<b>Health Indicator</b>	<b>J&amp;K</b>	<b>India</b>
Infant Mortality (per 1000 live births)	32.4	40.7
Neo-Natal Mortality (per 1000 live births)	23.2	29.5
Child Mortality (per 1000 live births)	5.4	9.4
Under-five Mortality (per 1000 live births)	37.6	49.7
Children (under 5 years) underweight (%)	16.6	35.7
Children (under 5 years) stunted (%)	27.4	38.4
Women whose Body Mass Index is below normal (less than 18.5) (%)	12.1	22.9
Men whose Body Mass Index is below normal (less than 18.5) (%)	11.5	20.2
Women who are anaemic (%)	49.4	53.1
Men who are anaemic (%)	20.6	22.7
<i>Note: Women and Men were aged 15-49 years</i>		
Source: IIPS and ICF, 2017a		

percent in India in 2015-06 (IIPS and ICF, 2017a). The NFHS-4 data also shows that the women and men aged 15-49 years had a better nutritional status in J&K than all-India in 2015-16. The proportion of women and men who have BMI less than the normal cut off of 18.5 is 12.1 percent for women and 11.5 percent for men, and that is almost half of the proportion of women and men with BMI less than normal in India (22.9 percent for women and 20.2 percent for men) as can be seen from the Table-1.6. Table-1.6 also shows the anemia levels among men and women are higher in all-India than J&K.

The prevalence of some of the health problems is lower in J&K than all-India, as can be seen from Table-1.7. The prevalence of Tuberculosis (per 100,000 populations) was 165 in J&K as against 316 in India in 2015-16 (IIPS & ICF, 2017a). The lower prevalence of

Tuberculosis in J&K is despite the fact the prevalence has actually increased since 2005-06 when it was 104 only ((IIPS & Macro International, 2007). The NFHS-4 data also shows that the prevalence of asthma and cancer were also lower in J&K than India in 2015-16 as can be seen from the Table-1.7. Diabetes was, however, more prevalent in J&K as compared to India in 2015-16 as can be seen from the Table-1.7. The Planning Commission's study in 2008 revealed that no death was reported in J&K due to malaria, kala-azar, dengue and japanese encephalitis (Govt of India, 2011b).

<b>Table 1.7: Prevalence of Illnesses in J&amp;K and India</b>		
<b>Type of Illness</b>	<b>J&amp;K</b>	<b>India</b>
Tuberculosis (per 1,00,000 populations)	165	316
Women with Diabetes (%)	1.9	1.7
Men with Diabetes (%)	3.0	1.7
Women with Asthma (%)	0.9	1.9
Men with Asthma (%)	1.3	1.2
Women with Cancer (%)	0.1	0.2
Men with Cancer (%)	0.03	0.3
<i>Note: Women and Men were aged 15-49 years</i>		
Source: IIPS & ICF, 2017a (for India) and IIPS & ICF, 2017b (for J&K)		

### **1.5.1. Determinants of Better Health Indicators in J&K:**

The body of evidence that the socio-economic factors play a greater role in determining the health status of population suggests that the reasons for J&K to achieve relatively better health outcomes than India as a whole are likely to be the better socio-economic conditions of the people in the state.

Only 4.5 percent people in rural areas of J&K were estimated as living below the official poverty line in 2004-05, while the estimates were 28 percent in rural India (Govt. of India, 2009). These poverty estimates were later revised based on Tendulkar methodology to 37.2 percent at all India level (41.8% for rural India and 25.7% for urban India) and 13.1 % for J&K (14.1% for rural and 10.4% for urban) in 2004-05 (Govt of India, 2012). The Planning Commission estimates reveal that poverty has reduced to 21.9 percent at all-India level and to 10.35% for J&K in 2011-12 (Govt of India, 2013). The data therefore shows that the poverty levels in J&K are much lower as compared to India as a whole.

Although the poverty line in India has faced severe criticism for being minimalist in nature, the wealth index<sup>14</sup> of NFHS-4 has also indicated that people have relatively better socio-

<sup>14</sup> The NFHS wealth index is prepared based on the scores given to a range of assets and goods and housing characteristics which includes: household electrification; type of windows; drinking water source; type of toilet

economic conditions in J&K. The wealth index of NFHS-4 pointed out that only 7.3 percent and 19.6 percent of population in J&K falls in the lowest and second lowest wealth quintiles respectively. On the other hand, a significantly higher proportion of 24.5 percent falls in middle quintile, 23.5 percent into the fourth quintile and 25.2 percent in the highest quintile in J&K (IIPS & ICF, 2017a).

To corroborate this, the data also shows that a significantly higher proportion of households own agricultural land in J&K as compared to all India. For instance, the NFHS-4 survey in 2015-16 revealed that 63.7 percent households (79.7% in rural and 30.2% in urban areas) owned some portion of agricultural land (IIPS and ICF, 2017b), whereas the households owning some portion of agricultural land at all India level were only 37.9% (51.6% in rural and 12.5% in urban areas) (IIPS and ICF, 2017a). Given that land is an important asset and source of employment especially in rural areas, a higher proportion of households owning agricultural land in J&K give it an edge in reducing poverty.

The literature has also shown that the health services are important for not only mitigating sufferings of population but because they address the inequalities in health. However, the data has shown that the utilization of public health services has declined between from 1986-87 to 2004 (see NSSO, 2006; Meeta and Rajivlochan, 2010). The health expenditures have increased and the burden has shifted towards people with government cutting down costs. In the context of J&K, the data reveals that overall access to range of public health services including livelihood, food and nutrition, health services, hygiene and sanitation, water, electricity, housing, etc. provides a much better picture.

Along with a few other states in India, the Public Distribution System (PDS) was universal in J&K before the National Food Security Act was passed in J&K in 2015 (Govt of J&K, 2015). The universalized PDS entitled each household to a subsidized ration every month including those who above the poverty line (APL). The APL households get relatively less subsidy than BPL households do but up to 50 percent of the economic cost of ration (OCSC, 2009).

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facility; type of flooring; material of exterior walls; type of roofing; cooking fuel; house ownership; number of household members per sleeping room; ownership of a bank or post-office account; and ownership of a mattress, a pressure cooker, a chair, a cot/bed, a table, an electric fan, a radio/transistor, a black and white television, a colour television, a sewing machine, a mobile telephone, any other telephone, a computer, a refrigerator, a watch or clock, a bicycle, a motorcycle or scooter, an animal-drawn cart, a car, a water pump, a thresher, and a tractor (IIPS & Macro International, 2007).

Although only 10.35% percent of population was estimated as poor by the planning commission in J&K in 2011-12 (Govt of India, 2013), the proportion of households owning a BPL/AAY card were much higher (which is more than 3.5 times the poverty rate). The NFHS-4 data shows that households who had a BPL card were 37.5 percent in J&K in 2015-16 (IIPS & ICF, 2017b). Whereas, those who had a BPL card in India as a whole were only 38.6 percent in 2015-16 (IIPS & ICF, 2017a) against 21.9 percent poverty rate in 2011-12. This shows that a relatively higher proportion of people are entitled to subsidized ration every month in J&K against a low poverty rate. '*Hunger in the Valley*', a study conducted by the Supreme Court Commissioners on Right to Food and '*Health Services in J&K: A Study of Public Provisioning and People's Access*', a study conducted by this researcher have both confirmed that PDS has been functioning very well in Kashmir and has enhanced access of people to food grains at subsidized rates (OCSC, 2009; Dar, 2012).

The macro-data (NFHS surveys) also shows that a higher proportion of households (97.4 %) had electricity connections in J&K than in India as a whole (88.2 %) in 2015-16. Similarly, a higher proportion of households (79.3 %) had access to toilets in J&K than India as a whole (61.1%). Further, the proportion of households with a pakka house in J&K (70.9 %) in 2015-16 was significantly higher than all India (56.3 %) (IIPS & ICF, 2017a).

Similarly, the macro-data from NFHS, DLHS and NSSO as well as micro-level studies have shown that the access to health service in J&K is relatively better than India as a whole. For instance, the NFHS-4 survey in 2015-16 showed that the proportion of women who had institutional delivery in J&K was 87.6 percent as compared to 78.9 percent in India as a whole. The proportion of women who had access to four or more antenatal check-ups (ANC) was 81.3 percent in J&K and 51.2 percent in India. The proportion of children in the age group of 12-23 months who received all basic vaccinations was 75.1 percent in J&K and 62 percent in India. The proportion of children with diarrhoea and ARI for whom treatment was sought from a health provider/facility was 74.1 and 81.9 percent in J&K respectively, while it was only 67.9 and 78.1 percent in India respectively (IIPS & ICF, 2017a).

These findings were also corroborated by a village study conducted by this researcher in 2012. The study, '*Health Services in J&K*', showed that among those who were ill in the last 15 days prior to survey, almost 83 percent had sought treatment for their illnesses. These levels of access were as high as was reported for J&K by 60<sup>th</sup> round of NSSO (Dar, 2012).

The village study “*Health Services in J&K*” conducted by this researcher in 2012 found that all the 17 women who had given birth in the last three years prior to survey had consulted a health provider (doctors in all cases) for antenatal check-up; nine used public services and eight had used private services. The study also indicated that a strong need was felt by the women for ANC services, who had clearly articulating the benefits of ANCs for women’s health. However, 29.4 percent (5 cases) reported giving birth at home, 41.2 percent (7 cases) in a private hospital, and 29.4 percent (5 cases) had given birth in public hospitals. All the five women at home were assisted by a Dai (traditional birth attendant). Most of the women also felt it was desirable to give birth at a hospital, as they get relief and care at health facilities. Further, 13 out of 17 women said that they did not had any PNC after they were discharged from health facility, and mostly it was because they did not feel any need for PNC. The study also revealed that the costs involved in carrying out an ANC or delivery at a health facility were very high, running into thousands of rupees; which was much more in private facilities than the public services (Dar, 2012).

Importantly, the 60<sup>th</sup> round of NSSO in 2004 revealed 52 and 51 percent of those who received outpatient treatment in rural and urban areas respectively were able to access public health facilities. Whereas, the corresponding proportion of such people who received outpatient treatment from public health facilities in rural and urban areas were 22 and 19 percent respectively. At all India level, 78 percent in rural and 81 percent in urban areas have utilized private services (NSSO, 2006). The NFHS-4 data also corroborates the fact that a higher proportion of households use public health care as the main source in J&K as compared to all-India. The data shows that 80.3 percent households in J&K (IIPS & ICF, 2017b) generally use public health facilities as main source of health care use when they get sick as compared to 44.9 percent at all India level (IIPS & ICF, 2017a). The village study conducted by this researcher also found that 60 percent of those who had sought treatment had used public services for accessing treatment (Dar, 2012).

This indicates that J&K has a relatively better access to health care than all-India and a higher proportion of people are able to use public services in J&K. Importantly, the NFHS successive rounds show that access to public health services has increased in J&K over time. The proportion of households in J&K who use public health facilities as main source of health care has increased from 62.9 percent in 2005-06 to 80.3 percent 2015-16 (see IIPS and Macro International, 2007 and IIPS & ICF, 2017b).

The availability of functional public health services is also a means of social protection for many people especially those who belong to lower socio-economic groups. Estimates have indicated that because of the health expenditure more than 37 million were impoverished in India in 1999-00 (which increased the poverty rate by 12 percent) (see Doorslaer et al., 2006). Therefore, if there are public services and people are able to use them it is equivalent to saving their expenditures or income, which indirectly promotes the socio-economic conditions and health. The PDS in J&K has not only led to improved access of people to food grains and has been indirectly an important source of income transfer to people. Dreze and Khera (2013) estimated that PDS is making a substantial impact on the poverty rates as well as poverty gap-index in India but the impact varied across states depending on its functionality and extent of reach. At an all-India level, the PDS reduced rural poverty ratios by 11 to 16 percent and poverty index by 18 to 22 percent using Tendulkar poverty line and CPI-AL poverty line respectively. The corresponding reduction in rural poverty was 45 to 26 percent and poverty gap-index 35 to 41.5 percent in J&K (Dreze and Khera, 2013). Dreze and Khera stated that such levels of income transfer are roughly comparable to one-week earnings from MGNREGA work in India. This explains how public services are influential factors in determining the socio-economic conditions of people and thereby health status.

On the other hand, as the literature has shown, the status of women and their freedom to travel alone or accompanied by others to health facilities, which are mostly located outside the village, not only determines women's own access to health services but also for children's access. The NFHS data gives some insights into the freedom of women to travel outside home, women's autonomy and decision-making powers. The NFHS-4 survey in 2015-16 has revealed that women in J&K have a high exposure to the mass media. Only 21.2 percent women (15-49 years) are not regularly (at least once a week) exposed to media including newspapers, TV, radio and theaters/cinema (25.2% at all India level). The data also shows that 47 percent of women were allowed to go by themselves to three specific places –market, a health facility and places outside the village/community, which is a relatively better performance than all India where only 40.5 percent were allowed to go by themselves to these three specific places. The proportion of women who had money that they can decide how to use was 41.7 percent (41.7% also at all India level). Further, 83.1 percent of currently married women (15-49 years) stated that they -alone or jointly with their husband- decide *how their own earnings are used* (82.1% at all India level). The proportion of currently married women who usually participated in three important decisions including their own



health care, making major household purchases and visits to her family or relatives was 61.7 percent (63% at India level). The NFHS data therefore indicates that J&K is at par with India as a whole (and better than many states) in terms of mobility of women, their exposure to media and participation in decision making. The mobility of women is a crucial factor for accessing health care and may be one of the contributing factors for a higher level of utilization of maternity services in J&K.

Therefore, the data on socio-economic indicators and public services as well as women's status provide some explanation for J&K having better health indicators. However, inequalities also lie in J&K in access to resources, socio-economic conditions as well as in access to public health services among different socio-economic groups. J&K has a proportion of 7.4 percent Scheduled castes (SC) and 11.9 percent Scheduled tribes (ST) in state. But only 0.1 percent Scheduled caste population live in Kashmir, while 6.7 percent ST population exist in Kashmir (excluding Ladakh region) (RGI, 2011). Against a total Hindu population of 28.44 percent in J&K, Muslims majorly inhabit Kashmir region and Hindus are only 2.5 percent (RGI, 2011). This makes Kashmir's population composition limited to mostly Muslims and STs. STs are also mostly Muslims but have a different ethnicity and constitute most deprived class in Kashmir, therefore, it is important to categorise them separately in the context of Kashmir, in which this study is proposed to be conducted.

The NFHS-3 wealth index<sup>15</sup> puts J&K on a better position with only 2.8 percent and 12.3 percent population falling into lowest and second lowest wealth quintiles in 2005-06 (only few states across India had such a better position) (see IIPS and Macro International, 2007). However, the lower castes/tribes did not show such a performance as was reflected at the state level. As can be seen from the Table-1.8, the NFHS-3 survey showed that 3.6 and 19.5 percent of SCs belonged to lowest and second lowest quintiles respectively. The STs seem to have a worst situation among all with 14.3 and 36.9 percent population falling in lowest and second lowest quintiles respectively. Whereas, other forward/higher castes have performed much better with only 1.1 percent and 7.5 percent population falling in lowest and second lowest quintiles respectively (IIPS and Macro International, 2009).

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<sup>15</sup> Although the data based on NFHS-4 survey has been released but the wealth-index has been provided for only state level and not for caste/tribe wise within states as was done by NFHS-3 reports.

The NFHS-4 data further reveals that infant mortality at state level was 32.4, but it was 31.7 for SCs, 37.5 for STs and 32.2 for other forward/higher castes in 2015-16. The data also shows that the under-five mortality rate was 42.3 for SCs, 49.3 for STs and only 35.8 for other forward/higher castes (a difference of 13.5 points between STs and forward castes). Similarly, while 27.4 percent children were stunted (below 2 SD) at state level, it was 37.8 percent for SCs and 32.3 percent for STs and whereas it was only 25 percent for other higher/forward castes. Whereas 16.6 percent children were under-weight (below 2 SD) at state level, it was 21.9 percent for SCs and 26.3 percent for STs and just 14 percent for other forward/higher castes (IIPS and ICF, 2017b).

The NFHS-4 data also shows that although only 12.1 percent women aged 15-49 years had BMI less than normal (18.5) at state level, there were 18.3 percent women from SCs and 21 percent from STs with BMI less than normal. On the other hand, there were only 10.3 percent women from other higher/forward castes with BMI less than normal (IIPS and ICF, 2017b). The Table-1.8 also shows the stark differences in BMI among men across different social groups.

<b>Table 1.8: Disparities in Health Indicators and Health Services in J&amp;K</b>				
<b>Indicator</b>	<b>Scheduled Caste (SC)</b>	<b>Scheduled Tribe (ST)</b>	<b>Others (Forward Castes)</b>	<b>J&amp;K</b>
Proportion falling within lowest Wealth Quintile*	3.6	14.3	1.1	2.8
Proportion falling within second lowest Wealth Quintile*	19.5	36.9	7.5	12.3
Infant mortality rate	31.7	37.5	32.2	32.4
Under five mortality rate	42.3	49.3	35.8	37.6
Children under five years stunted (below 2 SD) (%)	37.8	32.3	25.0	27.4
Children under five years underweight (below 2 SD) (%)	21.9	26.3	14.0	16.6
Women (15-49 years) below normal BMI (%)	18.3	21.0	10.3	12.1
Men (15-49 years) below normal BMI (%)	17.1	18.0	9.8	11.5
Women (15-49 years) who had 4 or more ANC visits (%)	76.5	69.3	83.8	81.3
Institutional delivery (%)	83.9	74.1	88.0	85.6
Children (12-23 months) received all basic vaccinations (%)	74.1	69.0	75.9	75.1

*Source: IIPS and ICF, 2017b but for \* source is IIPS and Macro International, 2009*

The disparities across social groups also existed in access to health services. The Table-1.8 shows the proportion of women aged 15-49 years who had four or more ANC visits were 81.3 percent at state level in 2015-16, but 76.5 percent among SCs, 69.3 percent among STs and 83.8 percent for other forward/higher castes. Similarly, the NFHS-4 data shows the proportion of women who had given birth in a health facility in the last five years preceding the survey were 83.8 percent women from SCs and 74.1 percent from STs and on the other hand, 88 percent from other forward/higher castes. The Table-1.8 also shows disparities in access to basic vaccinations. Whereas 69 percent children aged 12-23 months from STs received all basic vaccinations in 2015-16, the proportion of children from other higher castes who received all basic vaccination was higher at 75.9 percent (IIPS and ICF, 2017b).

As discussed earlier, that women's status in a society is important for women and children's health. The NFHS-3 data though provides a good picture for J&K state as compared to other Indian states; inequalities continue to persist in this aspect of development as well. The percentage of women who usually participated in three important decisions including their own health care, making major household purchases and visits to her family or relatives was 61.7 percent at state level. However, such proportions of women were only 52.9 percent among STs, 60.6 percent among SCs, 58.5 percent among OBCs and 63.3 percent among other forward/higher castes (IIPS and ICF, 2017b). Similarly, the percentage of women allowed to go by themselves to three specific places –market, a health facility and places outside the village/community were 47 percent at state level, while it was only 35.5 percent among STs, 40.3 percent among SCs, 41.4 percent among OBCs and 49.2 percent among other forward/higher castes (IIPS and ICF, 2017b). On the other hand, the proportion of women who had money that they can decide how to use was 41.7 percent at state level. It was however only 25.4 percent among STs, 34.5 percent among SCs, 39.2 percent among OBCs and 44.8 percent among other forward/higher castes (IIPS and ICF, 2017b).

Therefore, the NFHS data shows that inequalities exist in wealth, health and nutritional indicators as well as in access to health services in J&K. The inequalities also exist in women's status and their participation in decision-making. The micro-level village study on health services conducted in a village in Kupwara district of Kashmir also shows that huge

inequalities existed in the village across dominant castes and STs<sup>16</sup>. The study showed that among other castes, Ganaie families (a caste among Kashmiris) constituted the poor sections of the village along with the STs. The STs were localized in a separate hamlet of village, which was completely cut-off from the main village but only connected by uneven hilly paths. The settlement pattern even in the main village was very distinct for its caste stratification with hamlets called after caste names. The Gujjars (ST) and Ganaie (36 households in total) constituted more than one fourth of 131 village households but were the backward and poor sections in the village, whereas the ‘Khan’ caste was dominant economically and highest in numbers with 52 households in total (Dar, 2012).

The study showed that although all the households had land, the land holdings were very less among the Gujjars and Ganaie. Not even a single household among them had orchards; and just one Gujjar household had irrigated land, which is a relatively high paying asset. The village had also severe disparities on other socio-economic parameters other than land (Dar, 2012). Among the 17 households who had flush toilets in their houses, not a single was from Gujjars and Ganaie families. Among the 14 households who had access to piped water within their houses, not even a single was from Ganaie or Gujjar families. Similarly, among the 35 households who used LPG as cooking fuel, not even a single was a Ganaie or Gujjar family (Dar, 2012).

The village study also showed that not even a single Ganaie or Gujjar family owned any of the four consumer durables like colour television, washing machine, computer and refrigerator. Similarly, among the six households which had vehicles or scooter/bike (wealthy assets), not even a single was from Ganaie or Gujjar background. Not even a single person from Ganaie and Gujjars was able to attain graduation or post graduation, whereas nine persons were graduates and seven were postgraduates from Khan and other castes. Besides, not a single Gujjar person was holding a government or private job, and only three Ganaie persons had jobs (one low salaried and two middle salaried) (Dar, 2012).

On the other hand, the village study showed that ‘Khan’ households were dominant and had better socio-economic conditions. For instance, among the 16 households who had the

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<sup>16</sup> The findings from this village study are reproduced verbatim here. The village study was conducted by this researcher as part of his MPhil dissertation.

highest irrigated landholdings of more than 4 Kanals, 11 were Khan and 3 were from other castes. Among 35 households who owned apple orchards, 27 were Khan and 8 were from other castes. Further, among the 17 households, who had flush type of sanitation in their houses, 12 were Khan and 5 from other castes. Among the 14 households in the village who had piped water lines into their house, 10 were Khan and 4 were other castes. Similarly, among the 35 households who used LPG as cooking fuel, 23 were Khan and other 12 were from other castes. Among 32 households who owned any of the four consumer durables like colour television, washing machine, computer and refrigerator, 23 were Khan and 9 were from other castes. Similarly, among the six households, which had vehicles or scooter/bike (wealthy assets), all the six were Khan. Further, among the 16 graduates and postgraduates, 7 were Khan and 9 were from other castes. Among the 45 households, who had a person(s) engaged in any low, middle or high salaried job or in middle or high business, or multiple occupations (classified as better occupations in study), 25 were Khan, and 16 were from other castes, as can be seen from Table-1.9. Therefore, these findings of the survey show that the ‘Khans’ were the better-off ones in the village, followed by other castes (Dar, 2012).

<b>Caste</b>	<b>Living on Alms /Begging /Charity</b>	<b>Casual labour</b>	<b>Artisan/ Small Business</b>	<b>Low salaried</b>	<b>Middle Salaried/ Medium Business</b>	<b>High Salaried/ High Business</b>	<b>Multiple Occupations</b>	<b>Total</b>
Khan	0	19	8	8	11	2	4	52
Ganaie/ Gujjars	0	27	5	2	2	0	0	36
Other castes	2	17	8	4	6	1	5	43
Total	2	63	21	14	19	3	9	131

*Source: Dar, 2012*

The village study also ranked all households based on the composite score they got on nine socio-economic indicators, and almost all Gujjar and Ganaie households achieved lowest scores, except only one Ganaie household who was in the middle range. These findings were also corroborated by the fact that all of Ganaie and Gujjar households had been officially indentified as poor. All of them had either AAY or BPL ration card (Dar, 2012).

Interestingly, this caste stratification was also the basis for being powerful or powerless in the village, and even in the panchayat politics of the village. In a focused group discussion

(FGD) with 15 people, with participation from Geelani, Gujjars, Khan, War, Reshi and Bhat castes, people agreed that the Khans are most powerful and articulate group in the village, with Ganaie and Gujjar being powerless and voiceless (Dar, 2012).

Therefore, inequalities exist in access to resources and services in J&K, as shown by NFHS-3 data and corroborated by the village study conducted by this researcher. In addition to inequalities, the political situation has also not been favorable in J&K for being witness to conflict over the last two and half decades since 1989. As reported by a number of studies, the 24-year-old conflict has taken a heavy toll on Kashmir. APDP (Association of Parents of Disappeared Persons) estimated that almost 70,000 people were killed in Kashmir in the last two decades (APDP, 2011). Such huge number of killings have left many children orphaned and many women widowed.

Studies also suggest that there has been huge impact on the psychological well being of the people in J&K. It is very likely that there would be a high prevalence of depression, anxiety and trauma among people due to their consistent exposure to traumatic events. A study by MSF in 2005 reported that 33.3 percent of the respondents in Kashmir suffered from psychological distress during the past 30 days prior to survey due to the consistent exposure to violence. The study indicated that 9.4 percent of people had lost one or more members of their nuclear family and 35.7 percent of people had lost one or more extended family members during 1989 and 2005 due to violence in Kashmir. 16.9 percent respondents had been detained legally or illegally and of these 76.7 percent reported that they were tortured in detention ((Jong, K. et al., 2006). Another study by ActionAid and IMHANS indicated that 11.3% of adult population suffered from mental illness in the Kashmir valley in 2015. The study found that depressive and anxiety related disorders constituted most of the mental illnesses in the valley (Hussain, et al. 2016). Further, 11.6 percent of respondents have also reported of being victim of sexual violence since 1989 (Jong, K. et al., 2006). With such levels of violence in the state, the higher psychological distress is to be expected.

The conflict has also affected other aspects of socio-economic development including curbing movement of people, increase in unemployment, compromised growth in economy, infrastructural damages, etc. Many reports including of government show the conflict has affected many economic activities of the state (Burki, 2007; Govt of J&K, 2008-09). J&K ranks low on many indicators of economic development including per capita income, state

GDP, growth rate, financial surplus/deficit, etc. (Burki, 2007). The per capita income in J&K at constant prices (1999-00) was Rs 20,604, while it was Rs 24,256 for India level in 2007-08, leaving behind J&K by almost 18 percent (Govt of J&K, 2008a). The ground realities also demonstrate that the conflict has deteriorated the means of livelihood for many families especially those dependent on daily wage work, tourism, forestry, livestock, etc. and those who migrate to towns and cities on a daily or on a long-term basis (Dar and Khaki, 2012). This all has led to increase in unemployment in the state as reflected by the NSSO data, which shows that from 1993 to 1999 there has been an increase in unemployment among youth (3.7 to 7.9 %) and educated persons (5 to 10 %) in rural areas of state (Govt of J&K, 2008-09). The NSSO data on unemployment also shows a dismal picture of state with 5.3 % unemployment rate against the all-India rate of 2.6 % in 2009-10 (Govt of J&K, 2012-13).

The data also shows that up to 1990-91, the state as a whole had produced surplus food but thereafter the deficit in food grains originated, reaching to 35 percent in 2000-01, which was reduced to almost 20 percent in 2006-07 (Govt of J&K, 2007-08). Although this deficit in food grains has resulted out of many changes that have occurred in nature of land use and investment patterns, one of the reasons has been the occupation of a significant portion of land by the Indian security forces. As per J&K's former Chief Minister, Ghulam Nabi Azad, almost 2,50,000 acres (101.17 thousand hectares) of land were occupied by the security forces in 2006 (Navlakha, 2007). However, the Omar Abdullah Government later in 2009 reported to the state assembly that 1,31,840 acres (53.35 thousand hectare) of land has been occupied by security forces. A significant portion (81 percent) of which reported to be occupied illegally (The Milli Gazette, 2013). Not all this land is agricultural land and the issue needs to be explored further to what extent this has affected the food grain production. Navlakha (2007) stated that the widespread presence of the security forces in the state also affects agriculture indirectly as well by restricting the mobility of people to the fields and market. At the macro-level there has been a decline in the plan outlay for agriculture as a proportion of total outlays. The share of agriculture in total plan outlays reduced from a 16.88 percent in 1985-90 to a mere 7.04 percent in 2007-12 (Govt of J&K, 2007-08). The reasons for this doesn't seem to be related with impact of conflict on state's economy but rather due to overall decline in investments in agricultural sector in India since 1990s.

A lot of infrastructure was also damaged. Although there is no precise account of the damage that has happened to infrastructure, Futehally and Bhatt (2004) recorded that more than 1151

governmental buildings, 11 hospitals, thousands of private houses and hundreds of shops were damaged during a period of 13 years from 1989 to 2002. The state government has revealed that 401 bridges were damaged (Govt of J&K, 2008-09). Education provides an example of showing extreme damages in infrastructure. The Education Department of J&K has revealed that almost 950 schools were burnt/damaged in J&K (712 in Kashmir only) during 1990s (Govt of J&K, N.Da). Based on the Planning Commission's J&K State Development Report in 2003, it could be easily assumed that almost a thousand schools, on a minimum count, were occupied by security forces in J&K in 1990s (Govt of India, 2003). Considering the total number of schools in the state on a base year of 1995, *almost 13 percent of school buildings were lost due to either being targeted or burnt (6.37 %) or occupied by security forces (6.7 %) (Mannaan and Dar, 2017).*

Therefore, with the multi-dimensional impact of conflict on human life and development, how could health indicators have revealed a better picture in J&K than India as a whole needs a detailed consideration? Although J&K's economy was hit very badly in 1990s due to the conflict, its increasing fiscal deficit was taken care of by the Government of India through special/additional assistance/grant-in-aid. In effect, J&K has been a revenue surplus state with receiving high levels of central grant-in-aid (Govt of J&K, 2012-13). As a result, it did not affect investments in social services like education, health, etc. to any significant extent, even in the 1990s. The five-year plan outlays for J&K reveal that since 1950s the percentage increase in plan outlays have been much enhanced during 8<sup>th</sup> and 9<sup>th</sup> five-year plan, covering period between 1992-2002, than earlier periods. The increase in outlays during 8<sup>th</sup> five-year plan was 185.7 percent over 7<sup>th</sup> five-year plan and a 150 percent increase during 9<sup>th</sup> five-year plan over 8<sup>th</sup> plan. However, during 10<sup>th</sup> five-year plan, only 45 percent increase was seen in the plan outlays over 9<sup>th</sup> plan, as can be seen from Table-1.10.

Period		Total Plan	Social Services		Health		Education	
<i>Plan</i>	<i>Time period</i>	<i>% increase over last plan</i>	<i>% increase over last period</i>	<i>% of Total plan</i>	<i>% of Social Services</i>	<i>% of Total plan</i>	<i>% of Social Services</i>	<i>% of Total plan</i>
7 <sup>th</sup> Plan	85-90	55.56	75.20	28.74	15.67	4.50	20.53	5.90
8 <sup>th</sup> Plan	92-97	185.71	194.05	29.58	15.20	4.50	30.06	8.89
9 <sup>th</sup> Plan	97-02	150.00	125.88	26.73	24.54	6.56	37.44	10.01
10 <sup>th</sup> Plan	02-07	45.00	53.68	28.33	19.39	5.49	33.26	9.42
11 <sup>th</sup> Plan	07-12	78.17	62.35	25.81	20.29	5.24	32.40	8.36

*Source: Govt. of J&K, 2007-08; For 9<sup>th</sup> and 10<sup>th</sup> plan: Govt of J&K (N.Db)*



The plan provisions for social sector also reveal that the share of social sector in total plan has been almost consistent with 28.7 percent share in 7<sup>th</sup> plan (1985-90), 29.58 percent share in 8<sup>th</sup> plan (92-97), 26.73 percent share in 9<sup>th</sup> plan (97-02) and 28.3 percent in 10<sup>th</sup> plan (02-07). *In fact, the share of health and education has increased in 1990s, as can be seen from table 1.10.* The share of health sector in total social sector has increased from 15.67 percent during 7<sup>th</sup> plan to 24.54 percent during 8<sup>th</sup> plan and 19.39 percent during 10<sup>th</sup> plan. The share of health sector in total plans has also shown increase during this period. However, the agricultural sector has seen decline in share of investments proportionate to total plan growth, as mentioned earlier, and one of the reasons for decline in food grain production in state.

Therefore, the plan outlays show that the problems experienced in the economic activities at the macro-level in the state due to conflict were unlikely to have effect on the socio-economic development of people due to consistent increases in social sector plan provisions through the conflict period.

Surprisingly, the macro-data at the state level not only shows that the socio-economic conditions are much better than India as a whole, the data also reveals that there has been a phenomenal improvement in the socio-economic (SE) conditions of people in the 1990s and thereafter. The improvements in SE conditions have been demonstrated by the poverty estimates of planning commission based on NSSO consumption expenditure surveys. The data shows that the poverty has declined in J&K from 25.17 percent in 1993-94 to 5.40 percent in 2004-05, least poverty in any state of India<sup>17</sup>. In fact, J&K is the only state, which had lower poverty in rural areas (4.6 %) than urban areas (7.9 %) (Govt. of India, 2011a). On the other hand, the poverty estimates at all India level reduced from 35.97 percent in 1993-94 to 27.50 percent in 2004-05. Fig. 1.1 shows the trends in decline of poverty in J&K and India.

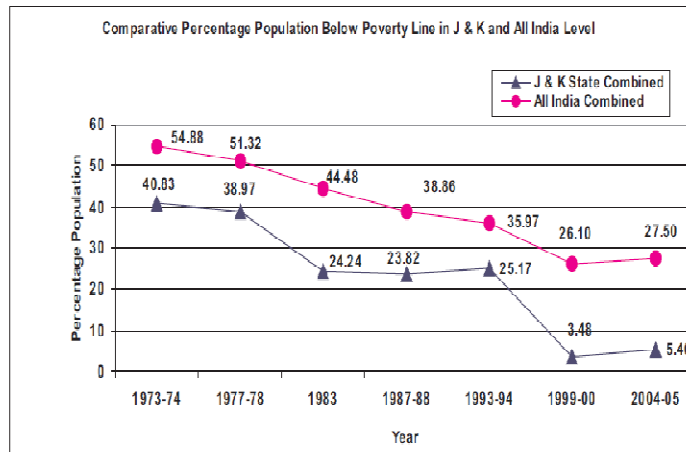
The estimated poverty rate of J&K has been contested and doubts have been raised by not only academicians and civil society on the quality of data of NSSO estimates in Kashmir for conflict reasons, but also by the state government. The state was not even ready to accept the figures. The J&K Economic Survey, 2008-09 report mentions, “The poverty figures thrown

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<sup>17</sup> The poverty estimates of 1999 were contested for being too minimalistic because of adoption of revised methodology in NSSO survey in 1999, and for these reasons the 1999 poverty estimates are not considered comparable with poverty estimates over time (Sen and Himanshu, 2004).

out by the Planning Commission on the basis of data collected by the NSSO through its socio-economic surveys in respect of Jammu and Kashmir State have been a matter of debate and controversy in the State” (Govt of J&K, 2008-09). The state government conducted a survey in 2008

**Figure 1.1: Trends in Poverty Ratio in J&K and India**



Source: Figure adapted from Govt. of J&K, 2008b

for poverty estimation and came up with 21.6 percent poverty rate in the state (Govt of J&K, 2008b). However, they used a higher cut-off line for determining poverty than used by the Planning Commission. The state government used Rs 500 and 600 per capita per month in rural and urban areas as poverty cut-off line in 2008 (Govt of J&K, 2008b), whereas Planning Commission used almost Rs 391 and 504 in J&K’s rural and urban areas as cut-off line in 2004-05 (Himanshu, 2007). So it was obvious that the poverty rate estimated by state government using a higher standard would come out significantly more. As a result, the BPL survey of J&K cannot be used to testify or contest Planning Commission’s poverty estimates for J&K. The wealth index prepared by successive NFHS surveys on the other hand corroborates the findings of Planning Commission that the poverty in J&K is low. The NFHS-3 showed that only 2.8 percent and NFHS-4 showed that only 7.3 percent population fell in the lowest wealth quintile (see IIPS and Macro International, 2007 for NFHS-3 and IIPS & ICF, 2017a for NFHS-4).

While nothing substantial has been written about the steep decline in the poverty rate in the state, most explanations indicate the implementation of land reforms extensively in the state in 1950s have become a primary factor for reducing the poverty in the state. The land reforms were likely to have had long-term effects on level of inequality and on social changes in the state. However, the temporal relation does not show that the steep decline in poverty, which happened in 1990s, would be because of the land reforms, which were implemented in 1950s. The second explanation that has been put forth was the higher proportion of security forces (7 lakh in official terms), who have been staying in Kashmir for longer periods (assumed to be

potential buyers), and therefore, the demand for local items have increased. However, the trade and tourism sector has shown steep decline in its performance during 1990s. The trade and tourism added up to 17.2 percent in the total state GDP in 1980s, but their share declined to 9.9 percent in 2000-01 (Planning Commission of India, cited in Burki, 2007). The number of domestic and foreign tourists also declined from 7,22,035 to 3,77,000 during 1988 and 2004, which amounts to 47.78 percent decrease during this time (Govt of J&K, 2008-09). Therefore, this explanation that security forces have been potential buyers of local products and therefore lot of incomes have flowed to local people doesn't seem to be valid in the light of declining share of trade and tourism in this period. The overall growth in state GDP has been 4.75 percent during 8<sup>th</sup> plan (1992-97), 4.21 percent during 9<sup>th</sup> plan (1997-02) and 5.47 during 10<sup>th</sup> plan (2002-07) (Govt of J&K, 2008b).

Nevertheless, two radical changes have occurred in the state in 1990s, which needs examination for understanding the changes in socio-economic conditions in the state. One, the government of India implemented the structural adjustment programmes in the country in 1990s and along its lines, the neo-liberal policy framework was evolved which was pushed into all states. There has been impressive growth in the economy at the India level; however, the research has shown that inequality has also significantly increased. The poverty rate at all India level as well as in other states doesn't show any radical decline/shift, therefore, it doesn't seem likely that the benefits of neo-liberal policies and high economic growth in India would have trickled down to state of J&K to bring down poverty. Second, in 1989, the state of J&K witnessed emergence of conflict, which brought changes in almost all aspects of life in the state. The reports have shown that the economic base of the state has largely deteriorated since the onset of conflict in 1989, with the state economy becoming increasingly dependent on the grants from Government of India (in 2000-02, the grant-in-aid from the central government constituted 67 per cent of total revenue receipts) (Govt. of India, 2003).

### **1.5.2. Impact of Conflict on Health and Nutrition Outcomes:**

Studies throughout the world have indicated that conflict has largely led to deterioration of living standards. Moradi, noted, "On average civil wars are associated with a 10 % fall in GDP/c"(2010, p.27). However, what is also possible is that the conflict has also led to radical changes in the socio-economic and political relations between different classes and castes in the state. As a result, the development benefits may have trickled down to people at large.

Amartya Sen (1981) while arguing on the approaches to poverty in his book 'Poverty and Famines' recognizes that as inequality and poverty are associated with each other, a different distribution (or redistribution per se) may reduce poverty even without any improvement in country's economic capacity. Therefore, any transformation in the dynamics of class and caste (nature of relationship between poor and non-poor) may have led to the changes in the socio-economic conditions in the state. Hatton (2013) argued that inequality had reduced in Europe in early 20<sup>th</sup> century while it witnessed two world wars and great economic depression during that period. However, these are assumptions only in the context of J&K and need to be explored in depth.

Further, the net transfer of central grants to the state has been much more after the onset of conflict in 1989 relative to the pre-conflict period. There has been a significant increase in plan outlays during 1990s. The public provisioning of development programmes like PDS and health services might have also contributed their share in reducing poverty. Dreze and Khera estimated that the public provisioning of PDS have led to reduction in rural poverty by 45 to 26 percent and poverty gap-index by 35 to 41.5 percent in J&K at Tendulkar and CPI-AL poverty lines respectively (Dreze and Khera, 2013). Dreze and Khera also stated that such programmes serve as indirect income transfers to the people. Similarly, Doorslaer et al. (2006) estimated the more than 37 million fell below the poverty line in India in 1999-00 due to health expenditures, which led to almost 12 percent increase in poverty head count. Therefore, the better access to public health services in J&K would contribute to the people's living. The NFHS surveys have also shown that utilization of public health services has increased in J&K by 17.4 percentage points from 62.9 percent in 2005-06 to 80.3 percent 2015-16. However, the overall impact of public provisioning in reducing poverty in the state has to be explored.

Importantly, the neo-liberal policies that lead to land acquisitions and displacement of people on a wider scale in many Indian states could not be introduced into J&K with same rigour due to the persistent conflict in the region. Jan Breman sees the shifts between public and private dimensions of poverty as an important concern for poverty reduction. That would mean privatization would aggravate the destitution and public subsidies would reduce the poverty (Breman, 2008). *These issues, and plausible explanations set forth, raise important questions to be explored in the context of J&K.*

Any development and growth of a state must lead to better living and health conditions of people. As explained earlier, that the improvements in health conditions would itself corroborate the improvements in socio-economic conditions for health being strongly related with socio-economic conditions. These developments in health would result from a balance between conflict related effects and changes in socio-economic conditions in the society. It was shown by Hatton's work that even during difficult times in Europe (world wars and economic recession) adult height was ultimately determined by an overall accumulative impact of a combination of factors (Hatton, 2013). It could be therefore inferred that conflict may not necessarily lead to decline in heights, as wartime stress has shown no significant effect on height (Hatton, 2013), and would depend on context.

The impact of conflict on health and particularly nutritional status has rather shown differential experiences in the world (see Section-2 for detailed review on how conflict/wars have differently affected the nutritional status of people in different parts of world). This explains that the conflict is likely to follow different trajectories in terms of its impact on socio-economic development and health status, depending on the social organization, handling of the conflict, provisioning of services, relations between different classes, social cohesion and support, access to resources, etc. That is the reason why there is evidence of both positive and negative impact of conflict on health.

J&K itself shows that the improvements in height after the onset of conflict in 1989 have not altered broadly. Mamidi et al. (2011) predicted the mean height at the age of 20 years based on the NFHS-3 data which was collected in 2005-06 and found that J&K men of 170 cm were tallest while Kerala women were tallest in India with 157 cm height. That also means those who were 20 years old in 2005-06 in J&K have taken birth in 1985-86 and have grown up mostly in the conflict time which emerged in 1989. Mamidi et al. (2011) work has also shown that J&K men have seen rapid increases in heights in the past three decades prior to 2005-06, 15 years of which have been a conflict period in the state. This has resulted into an average of 0.99 cm increase per decade. Only Kerala men have seen the same rate of increase over this period. For Kerala women being tallest in India is because they have seen highest increase of 1.24 cm per decade on average. This level of increase in height among J&K men and Kerala men (0.99 cm per decade), and Kerala women (1.24 cm per decade) are close to the international standards of increase. In comparison, some states in India have seen a decline in heights over this period (Mamidi et al. 2011).

The NFHS-3 data has shown that the younger generation (20-29 years) of men in J&K (168 cm) was almost as tall as in Punjab (168.4 cm) and Haryana (168.1 cm) in heights, representing the tallest heights in India in 2005-06. This is despite the fact that the older generation (40-49 years) in J&K had been shorter with only 165.8 cm, as compared to Punjab (168.5) and Haryana (167.6) respectively. This also shows that heights have increased at much faster rate in J&K than Haryana and Punjab in the last three decades period to 2005-06 (Mamidi et al. 2011).

A comparison of NFHS-2, NFHS-3 and NFHS-4 surveys, which were conducted in 1998-99, 2005-06 and 2015-16 respectively (NFHS-1 in 1992-93 was conducted only in Jammu region and didn't include Kashmir region), tells about changes in some of the health outcomes from 1998-99 to 2004-05 and 2015-16. The NFHS-2 data shows that 12.3 percent of households fell into low standard of living (SLI), 63.4 percent in medium SLI and 24.3 percent in high SLI in 1998-99 (IIPS and ORC Macro, 2002). Whereas, NFHS-3 and NFHS-4 reports divided surveyed households into five wealth quintiles (based on a range of household characteristics and assets). The wealth index of NFHS-4 pointed out that only 7.3 percent and 19.6 percent of population in J&K falls in the lowest and second lowest wealth quintiles respectively. On the other hand, a significantly higher proportion of 24.5 percent falls in middle quintile, 23.5 percent into the fourth quintile and 25.2 percent in the highest quintile in J&K (IIPS & ICF, 2017a).

The NFHS data also shows that the infant mortality has decreased by 50.2% between NFHS-2 and NFHS-4 rounds (from 65 to 32.4) in approximately 17 years. The under-5 mortality rate has decreased by 53.1% during the same period as can be seen from the Table-1.11. The corresponding decrease at all-India level was 39.8% in infant mortality and 47.6% in under-5 mortality between NFHS-2 and NFHS-4 (see IIPS and ICF, 2017a; IIPS and Macro International, 2007)

The NFHS data showed that 44.6 percent children were classified as stunted and 29.2 percent as under-weight in 1998-99 and this proportion decreased to 27.4 and 16.6 percent respectively in 2015-16 as can be seen from the Table-1.11. Therefore, J&K saw a decrease of 38.6 and 43.2 percentage points in children who were stunted and under-weight during a period of 17 years between NFHS-2 and NFHS-4 rounds. Whereas the corresponding decrease at all-India level was only 12.6 and 7 percentage points in children who were

stunted and under-weight respectively during this period as shown by NFHS-2 and NFHS-4 rounds (see IIPS and ICF, 2017a; IIPS and Macro International, 2007).

Further, the NFHS data shows that the proportion of children with any level of anaemia in J&K was 71.1 percent in 1998-99 and it decreased to 54.5 in 2015-16. The proportion of women with any level of anaemia in J&K was 58.7 percent in 1998-99 and it decreased to 49.4 in 2015-16. Thereby, J&K saw a decrease of 16.6 percentage points in children with any anaemia and 9.3 percentage points in women with any anaemia during a period of 17 years between NFHS-2 and NFHS-4 rounds (see Table 1.11). Whereas the corresponding change at all-India level was a decrease of 15.8 percentage points in children with any anaemia and increase of 1.3 percentage points in women with any anaemia during this period as shown by NFHS-2 and NFHS-4 rounds (see IIPS and ICF, 2017a; IIPS and Macro International, 2007).

The NFHS data also shows that there has been improvement in access to services over the time. Whereas 55.8 percent women accessed four or more ANC checkups in 2005-06, the proportion of such women increased to 79.1 percent in 2015-06, thereby showing an increase of 23.3 percentage points during last ten years between NFHS-3 and NFHS-4. Further, the NFHS data shows the proportion of institutional births has increased from 35.6 percent in 1998-99 to 87.6 percent in 2015-16, thereby, showing an increase of 52 percentage points in 17 years between NFHS-2 and NFHS-4 rounds (see Table 1.11). Whereas the corresponding increase in institutional births at all-India level has been 45.3 percentage points during this time as shown by NFHS-2 and NFHS-4 rounds (see IIPS and ICF, 2017a; IIPS and Macro International, 2007).

While 56.5 percent children had received all basic vaccinations in 1998-99, the proportion of such children increased to 75.1 percent in 2015-16, thereby, showing an increase of 18.4 percentage points in the 17 years between NFHS-3 and NFHS-4 rounds (see Table-1.11). The corresponding increase in children who received all basic vaccinations at all-India level has been 20 percentage points during this time as shown by NFHS-2 and NFHS-4 rounds (see IIPS and ICF, 2017a; IIPS and Macro International, 2007).

The proportion of children with symptoms of ARI for whom treatment was sought from a health facility/provider were 71.6 percent in 2005-06 and 81.9 percent in 2015-16, thereby showing a increase of 10.3 percentage points during the last 10 years between NFHS-3 and

NFHS-4 rounds. Similarly, the proportion of children with diarrhoea for whom treatment was sought from a health facility/provider were 67.0 percent in 2005-06 and 74.1 percent in 2015-16, thereby showing a increase of 7.1 percentage points during the last 10 years between NFHS-3 and NFHS-4 rounds (see Table 1.11). The corresponding increase at all-India level has been 9.1 percentage points in children with symptoms of ARI for whom treatment was sought from a health facility/provider between NFHS-3 and NFHS-4 rounds. Similarly, corresponding increase at all-India level has been 8.1 percentage points in children with diarrhoea for whom treatment was sought from a health facility/provider between NFHS-3 and NFHS-4 rounds (see IIPS and ICF, 2017a; IIPS and Macro International, 2007).

<b>Table 1.11: Changes in Health Indicators &amp; Services in J&amp;K over time</b>					
<b>Indicator</b>	<b>NFHS-2 1998-99</b>	<b>NFHS-3 2005-06</b>	<b>NFHS-4 2015-16</b>	<b>Point Difference between NFHS-4 &amp; NFHS-3</b>	<b>Point Difference between NFHS-4 &amp; NFHS-2</b>
Infant mortality (per 1,000 live births)	65.0	44.7	32.4	12.3	32.6
Under-five mortality (per 1,000 live births)	80.1	51.2	37.6	13.6	42.5
Children stunted (%)	44.6 (under 3 years)	35 (under 5 years)	27.4 (under 5 years)	7.6	17.2
Children under-weight (%)	29.2 (under 3 years)	25.6 (under 5 years)	16.6 (under 5 years)	9.0	12.6
Children with any anaemia (%)	71.1 (6-35 months)	58.6 (6-59 months)	54.5 (6-59 months)	4.1	16.6
Women with BMI less than normal (%)	26.4** (ever married)	24.6 (married & unmarried)	12.1 (married & unmarried)	12.5	14.3
Men with BMI less than normal (%)	Not available	28.0	11.5	16.5	--
Women with any anaemia (%)	58.7 (ever married)	52.1 (married & unmarried)	49.4 (married & unmarried)	2.7	9.3
Men with any anaemia (%)	Not available	19.5	20.6	-1.1	--
Women having access to four or more ANC visits (%)	#	55.8*	79.1*	23.3	--
Institutional delivery (%)	35.6	54.3	87.6*	33.3	52.0
Children (12-23 months)	56.7	66.7	75.1	8.4	18.4



received all basic vaccinations (%)					
Children under 5 years with ARI symptoms received treatment from a health facility/ provider (%)	#	71.6	81.9	10.3	--
Children under 5 years with diarrhoea received treatment from a health facility/ provider (%)	#	67.0	74.1	7.1	---
<i>Notes:</i>					
1. Women and men were aged 15-49 years					
2. # indicates comparable data was not available from NFHS national or state specific reports.					
3. The negative sign shows the situation with respect to this indicator has worsened over time.					
Sources: For NFHS-2 & NFHS-3: IIPS and Macro International, 2009; For NFHS-4: IIPS and ICF, 2017a ; For single starred data: IIPS and ICF, 2017b and For double starred data: IIPS and ORC Macro, 2000					

The different rounds of NFHS survey conducted in 1998-99, 2005-06 and 2015-16 shows not only that the health outcomes and access to basic maternal and child health services are better in J&K as compared to all-India but also the improvements has been relatively better in J&K than all-India level.

Although NFHS surveys reveal that, there have been improvements in health outcomes over time in J&K, the psychological distress has increased and reported by many studies in J&K (see Jong, K. et al. 2006; MSF, 2016). There is also a lot of evidence for the relation between psychosocial factors and health outcomes. Although stress as a response is adaptive and useful in the short-term but likely to have serious implications on health if prolonged over time, and may result into depression, increased vulnerability to infection, diseases, high blood pressure, high cholesterol levels, etc. In J&K, the exposure to traumatic /stressful events has been prolonged in nature and therefore likely to be maladaptive to the person's ability to respond to the challenging environment. Such prolonged stress may be related with illness mediating through psychosocial pathways.

Brunner and Marmot (1999) presented evidence that social structure influences health not only through material conditions but also through social and work environment, which are in turn mediated through psychological and biological processes/pathways. For instance, the Widdowson's study of orphaned children in Germany post war, found those children who

lived in orphanages looked after by Fraulein Schwarz (who was stern and forbidding) showed less growth in heights and weights than children who were in other set of orphanages under Fraulein Grun but cared with affection, under same conditions of rationing. The study also found that as a matter of chance Grun was replaced by Schwarz during the study, and measurements showed reverse growth rates even under provisions of extra food. This study provides a clear evidence of the impact of adverse psychosocial circumstances on children's growth (Brunner and Marmot, 1999). Evidence from other studies has also shown the importance of psychosocial factors in determining health outcomes highlighting the importance of social rank, chronic anxiety, insecurity, low self-esteem, social isolation, lack of control on work, etc. Therefore, other than material conditions, the social and work environment affects health through psychosocial pathways (Brunner and Marmot, 1999).

But the response of individuals/society to stressors is related with material and social capital. Brunner and Marmot noted, "The level of demands does not itself pose a risk to health, provided that the individual has adequate coping resources and the opportunity to control his or her environment"(1999, p. 40). The evidence from the study of Kristenson, et al. (1997, 1998) on differences in incidence of coronary heart disease between Vilnius (capital of Lithuania) and Linkoping (a city in Sweden) has also shown that lower income groups witnessed higher levels of isolation and found a greater difficulty in coping with it than those in the higher income groups (Brunner and Marmot, 1999). Although, the stress related problems might tend to accentuate with lowering of social status, it may also depend on the severity of stress. Whereas the upper class may have access to material resources to cope up with stress, but the social support lend by relatives and friends may not be always available. In this context, the community support becomes much more important, but particularly for lower social class.

Stansfeld (1999) on the other hand highlighted the importance of social support for health and argued that social support has a protective and buffering effect against acute and chronic stressors and helps to moderate effects of stress on health. Therefore, social integration and cohesion, existence of mutual trust, respect between sections of society, etc. will have a positive influence on community health as a whole (Stansfeld, 1999). Stansfeld also noted, "there is increasing evidence that communities with high levels of social cohesion have better health than those with low levels of social cohesion". (1999, p. 169). Further, Kawachi and Kennedy (1997) found, "societies in which there are high levels of income inequality and

diminished social cohesion have higher levels of crime and violence and higher mortality rates” (cited in Stansfeld, 1999, p.170). As noted earlier, social cohesion and support is also influenced by settlement patterns in communities. In this context, the spatial segregations of caste groups and higher inequality will influence negatively the effectiveness of social support and cohesion to help individual deal with stress. But at the same time, cohesion and support within the groups will influence positively. In the context of Kashmir, with the emergence of strong ‘Kashmiri identity’ after the onset of conflict, it may be presumed that the cohesion and support would have improved vertically as well as horizontally in the society to show more resilience.

As J&K has relatively lesser poverty ratio (only 10.35 percent population was identified as below the poverty line in 2011-12), it meant that a majority of population have access to basic standards of living. In such context, the question of ‘inequality’ within the larger society achieves as much importance as investigating into ‘destitution’. Although only about seven percent population in Kashmir are either STs or SCs, there are clear and distinct patterns of caste segregation within the remaining larger section of population (including mostly Kashmiri muslims), but this segregation and division across caste lines in Kashmir is not as strong as in mainland India. On the other hand, the fear of violence and restricted mobility of people especially in the evenings not only increases stress but also acts negatively on the process of social interactions and cohesion. Therefore, the social support and cohesion and its impact on health needs to be analyzed in Kashmir within this framework only.

Kashmir has been traditionally inclusive and egalitarian to some extent. It has institutionalized some of the support structures for the poor and destitute. For instance, most of the people do provide ‘sadka’ (charity during the month of fasting) and many do provide ‘zakaat’(almsgiving as a form of wealth redistribution among muslims) that is distributed to the poor and destitute in the communities. In some villages, ‘Baitulmal’ institutions (meant to provide financial help to poor) have also been functional. There are also other forms of support structures in the community. For example, on the death of any person, the village or hamlet makes arrangements for food and other utilities for the family and other guests for four days to support the bereaved family at the time of distress. These community institutions may provide some form of social protection to the most marginalized people and, therefore, *form of ‘social capital’ for those who are vulnerable and do not have strong social support or networks*. These go beyond one’s personal social capital like what was described by

Wadsworth (1999) including parental socio-economic status and education, parental self-esteem, degree of family accord and area of residence. Wadsworth has highlighted the importance of this 'personal social capital' in the development of health conditions. However, the above community institutions will represent more like a 'community social capital', which extends beyond personal social capital to everyone in the community. *But how this 'community social capital' has changed over time through the conflict remains to be explored.* There is a possibility of increasing social cohesion in the society with the increasing political conflict in Kashmir and is to be explored in depth whether such movement has led to increased integration of people. The question also arises whether the social support and cohesion in Kashmir society has been, and to what extent, able to help people to deal with conflict induced stress.

The village study conducted by this researcher in Kashmir for MPhil dissertation found that Gujjars (ST population) were in most cases localized in separate hamlets throughout the Rajwar block (Kupwara district) in which the study was conducted. The study also showed that Gujjars and the Ganaie's (disadvantaged Kashmiri castes) had least access to resources, education, employment and health services (Dar, 2012). These groups also faced discrimination. One of the respondents, who belonged to Gujjar community, under this study had narrated that they find great difficulty in borrowing money for meeting health expenditures for hospitalization because no one in the community could have huge savings, therefore, are forced to sell assets. He also mentioned that Kashmiris do not lend them any substantial amounts of money (Dar, 2012). This indicates that such groups may not be enjoying a strong social support in the community or village as a whole. *Therefore, in the context of Kashmir, the lower socio-economic groups may have experienced higher impact of conflict, with relatively lower material resources and lower social support available.*

Putting psychosocial factors (stress), social support, personal social capital and health together, the former acts as a negative effect on health but social support and capital has a positive effect on health. Anything, which shifts the balance, would affect health accordingly. But, those at the lower strata of societies in terms of socio-economic status are likely to experience greater impact for inability to cope with stressors because of their weak personal social capital. These all issues need to be explored.

*In summary, the impact of conflict on health may be interpolated in different ways. The research has shown that it transmits through economic changes, increasing stress and worsening of public provisioning of services, and possibly through micro-level processes of change in social organization. There is a clear evidence of increasing psychological distress in J&K but Hatton has observed that wartime stress was not related with heights. Moradi also did not find civil war significantly related with heights in Africa. The economic changes do not seem to have deteriorated public provisioning in J&K to a significant level. As explained earlier, that the developments in health would result from a balance between conflict-related effects and changes in socio-economic conditions in the society. It could be assumed by observing significant improvements in heights in J&K over the last three decades that the positive changes in socio-economic conditions despite the conflict are more pronounced in J&K than the negative effects of conflict, which have resulted into secular increases in heights in J&K. But this hypothesis needs to be examined further.*

However, other issues also need consideration. The impact of conflict is likely to be differential on different socio-economic groups with upper classes enjoying greater resources to cope with any impact. The aggregated data at state-level is likely to cover up the inequalities that may exist, as well as any differential improvement across socio-economic groups. The macro-data has also shown that the disparities in health status and access to services exist significantly across different socio-economic groups in J&K. The improvements in upper class will compensate any depreciation occurring among the lower classes. The data has also shown nutritional status of men and women differ, probably due to intra-household disparities in diet and access to health services. The increases in heights that have occurred in the last three decades have also been highly unequal among men and women. Therefore, it is important to understand how the changes in social economic conditions as well as health and nutrition status that have occurred in J&K have affected the lower caste groups. Whether the improvements in health and nutritional status have equally benefited these lower groups would also be important to explore. It is also important to examine the linkages between improving socio-economic conditions and any corresponding change in the health status and to what extent the changes in health status have been brought by the improving socio-economic conditions.

It is in this context that the present study is focusing on the socio-economic changes that have been experienced in J&K and any subsequent improvements in the health status, with focus

on the pathways and processes that have led to these changes. The next chapter underlines the research design that was adopted for carrying out this study.

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## Chapter 2: Study Design

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The socio-economic status of people is a multi-dimensional subject and a variety of conditions may culminate into a better or poor socio-economic status. The perception of what is a 'healthy population' varies across nations, regions, cultures, groups, etc depending on their life experiences and traditional wisdom. Therefore, to understand health status of any population requires a multi-faceted investigation. Large set of data collected by government institutions on regular basis to assess the patterns in health status as well as the socio-economic conditions of populations provides the most credible source for studying conditions of the population. Important among these are the NFHS (conducted after 6 to 10 year basis), Census (every 10 years), Annual vital statistics (every year), NSSO (every 4 years), State Economic surveys (every year) and other state and central government reports. These reports don't, however, offer sufficient rigorous analysis of the complexities of population health and socio-economic progress at a decentralized level, which are otherwise important to develop insights into 'health' and 'progress'. It is equally important to understand the relationship that exists between population health and socio-economic conditions, as do, the processes leading to socio-economic changes at community level. Such analysis and insights on inter-linkages may only come through micro-level studies and observations of the complexities involved in such issues of health and socio-economic change.

What is also important to appreciate is that the macro-level surveys and reports have indicated a significant progress in both the socio-economic conditions and health status of people in J&K, especially, in the last thirty years, coinciding with the onset of heightened political conflict in the state. Such progress is paradoxical in a way as it occurred during the years of conflict, which otherwise, is believed to result in decline in economic opportunities and diverts a part of state expenditure to areas which are potentially not beneficial to people's economic conditions. Therefore, the role of state policies and of people's own actions in all this, to improve the socio-economic conditions and promote health in such a context attains importance. It also becomes crucial to understand the pathways by which state policies and people's responses to them may have determined the socio-economic reality of people.

The macro-data have shown that there are significant variations in topography, demography, socio-economic conditions, political environment and access to public health services between Jammu, Kashmir and Ladakh regions in the state<sup>18</sup>. It may have been therefore desirable to conduct the micro-level study in different regions of state covering people from different ethnicities and groups. Although imperative considering the regional variations in the state, it was not logistically feasible to do so as part of a PhD degree and it was decided to limit the primary study to Kashmir region only to develop insights into the health status and socio-economic changes, whereas, the macro-data from government surveys was analysed to provide a state level picture about the entire state. The Kashmir region was chosen for a micro-level study for three reasons: firstly it is a major region of the state and secondly as the researcher belonged to Valley it was feasible to find a reasonable logistic support in Kashmir. Thirdly, it is the most conflict affected region in the state.

With these presumptions and limitations, the study was designed along the following dimensions:

### **2.1. Research objectives:**

The following objectives were set for the study and it was designed to meet these objectives:

1. To examine the changes in health status and contributory social and economic conditions in J&K over the twenty five year period from 1989 to 2014.
2. To analyze the factors and explore pathways and processes that have led to these changes in J&K over the same period.
3. To examine the disparities in social and economic conditions, and health status of people in J&K and factors responsible for the same.

### **2.2. Research Questions:**

More specifically, the present study attempts to answer the following questions:

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<sup>18</sup>At the time of writing the research proposal, J&K state was divided into three regions including Kashmir, Jammu and Ladakh but with reorganization of J&K into two Union territories of J&K and Ladakh in 2019, it includes only two regions now- Kashmir and Jammu. Although J&K is a UT now, it is referred as a 'state' in this study because it remained a state throughout the period considered for data analysis under this study.



1. What have been the changes in health and nutrition status in J&K over a generation from 1989 to 2014, and what factors have led to them?
2. What have been the social and economic changes in J&K over the period from 1989 to 2014, and what factors have led to them?
3. Whether the changes in the social and economic conditions and health and nutrition status have been unequal? If so, why and what are the factors that have influenced the differential changes?

*As the title of this thesis indicates, it was initially proposed in the synopsis to consider the period from 1989 to 2014 for examining the changes in socio-economic conditions and health status. However, the actual field work for this study was conducted in 2017 and early 2018, which provided an opportunity to extend the period of analysis to 2018. To understand changes in any period it is always more robust to see if the changes persist for a longer duration. As the trends were therefore explored beyond 2014, they gave us a better idea and more confidence in analysis of the study period.*

## **2.3. Methods of Data collection:**

### **2.3.1. Sources of data:**

The study relied on using both primary and secondary sources of data. It included reviewing of literature and analysis of the data from official macro-surveys and reports, as well as undertaking an empirical study in a village in J&K for primary data collection.

The researcher referred to the literature and studies especially with respect to nutritional experiences from across the world including the countries which have seen better health status and those witnessing decline in health at certain periods of time. Further, a review of data from official macro-surveys and reports was undertaken including Census of India, NSSO, NFHS, SRS, DLHS, State Economic Surveys and other central and state government studies and reports, which are related to socio-economic and health development in J&K, to provide a macro-level picture at state level. The study also reviewed the socio-economic development of the district in which the study was undertaken in order to develop links between the micro-level findings and state level macro-data on socio-economic conditions and changes that have occurred over time.

The NFHS-4 data for J&K on ‘heights’ and ‘weights’ was also analysed which provided a state and district level picture of the status of ‘heights and weights’.

In order to gain an in-depth understanding of the dynamics of social and economic change as well as developments in health and nutrition status over the time, a micro-level village study was conducted in a village in Kashmir. As the village studies provide opportunity to examine poverty and socio-economic changes in a wider social context, the study explored and analyzed the factors responsible for changes and improvements in health status of populations. The study also attempted to understand the linkages between the changes in the socio-economic conditions and health status of population in J&K. The micro-study also helped to comprehend the patterns that have been revealed by macro-data, and raised other questions as well.

The primary (field) study was conducted in two parts. First part included interviewing a small group of households focusing on socio-economic changes over time. Second part, in addition to recording basic information about socio-economic conditions, focused on recording heights and weights of adults in the age group of 20-50 years in a larger group of households in the village. This provided adequate sample size for the anthropometric measurements and to make inferences to help understand the extent of linkages of socio-economic variables and heights as well as changes in heights over time.

### **2.3.2. Study Area:**

The micro-level primary study was undertaken in Anantnag district of Jammu and Kashmir. Anantnag is one of the oldest districts in Kashmir region and state. A district-wise analysis on many socio-economic indicators revealed that Anantnag district represents a picture of neither being too poor and backward, nor being too developed and prosperous like Srinagar and Jammu districts. Anantnag district has also witnessed a tremendous increase in apple cultivation in the last 30 years or so- hypothesized as one of the reasons for improvements in economic conditions of people- and remains one of the most politically sensitive districts in the valley. It is also a bastion for one of the major regional parties in the state- therefore may be receiving priority attention from state. These qualities of the district make it ideal for such study which focused on socio-economic changes and health improvements in the last more than two and half decades

since conflict emerged in the state. On the other hand, it was logistically feasible also to conduct study in this district, as the researcher belonged to a neighboring district- Kulgam- which was originally part of Anantnag district until 2007.

Within the district, the study was initially thought to be undertaken in three neighboring villages, one will be the ‘main’ village which will be the focus of the study and in the two neighboring villages (called as ‘secondary’) only heights and weights of adults were to be recorded. It was also thought that to examine and develop insights into socio-economic changes that have occurred in the last two and half decades and their corresponding impact on health and nutrition status, and the inequalities that may exist in socioeconomic and health status along the lines of caste, ethnicity, class and gender, the main village should prescribe to some basic criteria. *The village should have an average population strength (of 500 to 1000); be composed of different caste groups including scheduled tribe population; and located neither far nor close to the block or district head quarter; have experienced marked socio-economic changes during the period under study.*

The discussions with a former District Horticulture Officer of Anantnag district and few other key informants including a retired PHE employee, local businessman, a few PhD students and representatives of local NGOs, suggested that ‘Dachnipora’ block may be very appropriate to locate this study. It had seen tremendous growth of apple cultivation; partly hilly topography; diverse in terms of population composition inhabiting ST population and also seasonally migratory population; and importantly, it was part of Bijbehara political constituency- home to PDP’s patron and two former chief ministers.

Within the Dachnipora block, the researcher visited many villages and spoke to local people in many villages to be able to capture socio-economic landscape, farming, livelihoods, topography and especially the composition of the villages in terms of caste and ethnicity. Only after these visits and observations made thereof, ‘Khiram’ village was found to be suitable for the study.

Khiram village had a hilly topography where a few hamlets were located from basin to middle parts of the hills surrounding the village from almost three sides. It was inhabited by a diverse

composition of people, including different castes and also hundreds of ST households. People were engaged in diverse occupations, and a major portion of land was converted to horticulture (apple and walnuts). It was located at a distance of 12 kms from sub-division of Bijbehara town (where there was a local court, sub-divisional magistrate, community health centre, Degree College, medium level market, etc) and at 18 kms from district head quarter. However, it was bigger in size composed of 1453 households and more than nine thousand population (9160) (RGI, 2011). Although it is a much bigger village for the study than originally thought ideal, its diversity in terms of caste and ethnicity and other socio-economic characteristics make it suitable for meeting the objectives of the study, and therefore, it was selected for undertaking the primary micro-level study. Its socio-economic, demographic and political characteristics and of the whole district Anantnag are analysed in chapter-3.

Further, given the size of this village in terms of number of households, population and diversity, it was decided to conduct the entire study in this village, rather than spreading to other two 'secondary village'. As the village was divided into three larger hamlets, each one of them represented a village in terms of area, population and diversity. The sample was selected for both parts of the study from the entire village covering all these three larger hamlets, as discussed in detail below.

### **2.3.3. Sample and Sampling Process:**

Initially a group discussion was conducted in the main village involving local teachers, businessmen, local leaders, youth and other people to gain a basic understanding of the village about its geography, land patterns, occupations, education, settlement patterns, caste composition, population and other socio-economic and demographic attributes. This also helped the researcher to get familiarized with some people in the village, and to introduce the work that is going to be undertaken. These people also facilitated the researcher's interactions and visits to individual households later.

A baseline survey was to be conducted, using an interview schedule, in the village covering all households to record their socio-economic status. It was decided that all the households will be ranked based on the data recorded on socio-economic indicators, and this ranked list of

households will be used as a sampling frame to draw the final sample for the in-depth study. However, given the size of village with almost 1453 households, located in dozens of smaller hamlets from basin to mid-hill, spread across kilometers of distance, it was much time consuming to conduct a baseline survey on certain socio-economic indicators to be used as a sampling frame. The entire list of households was available with a local ‘muqdam’ (traditionally a local revenue functionary) who provided the list to this researcher. This list was used as a sampling frame, and it was found, as indicated by the locals, that the households were geographically listed. However, households with different castes and ethnicities and those rich and poor were spread across the list; thereby the probability to select diverse households using a random sampling was high.

The sample for in-depth study (first part) on socio-economic status and changes that have occurred over time was drawn from this list of households based on systematic interval sampling method to ensure that it covered different socio-economic classes from the village. Every 14<sup>th</sup> households was selected from the list, and in this way, a total of 100 households were selected for this first phase of the study.

The second part included two aspects, collecting information on some basic socio-economic indicators and anthropometric measurements of all adults in 20-50 years of age. It was initially decided to cover a total sample of 504 households for anthropometric measurements. This sample size of 504 households for the study was calculated using a scientific formula (with the help of ‘R’ software) assuming that sons of rich fathers are 4 cm taller and sons of poor fathers are 2 cm taller than their respective fathers (Mamidi et al, 2010), with a standard deviation of 8 cm, 95% Confidence Interval and 80% Power. The appropriateness of this sample size was also cross-checked from nutritionists who have been involved in community studies of such nature<sup>19</sup>. The actual study covered 510 households to keep a buffer of 6 households in case some households were excluded for data errors. However, at the stage of data analysis, no such data errors were observed and all these 510 households were included in the analysis. That included

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<sup>19</sup>The advice was taken from Dr. Veena Shatrugna and Dr. Raja Sriswan Mamidi, both of them have been associated with the National Institute of Nutrition, Hyderabad.

selection of an additional 410 households, to be added to the already 100 households covered under the first part of study.

These 410 households were selected by systematic interval sampling, covering every third household in the village. The researcher started interviewing and undertaking measurements from one end of the village and moved across the village by selecting every third household. This ensured that the households selected belonged to diverse socio-economic backgrounds, including both lower and upper socio-economic categories. In this way, heights and weights of adults in the age group of 20-50 years in 510 households were recorded from Khiram village.

Within these 510 households, the study required that every adult will be covered for measurements. It was assumed based on the average family size for J&K (5.9) and proportion of adults in the population (47 percent population is in 20-50 years of age) that about 1400 adults (700 males and 700 females) may be covered for anthropometric measurements. However, the results of the study showed that these 510 households consisted of 3204 people with average family size of 6.3 and a total of 1526 adults (802 males and 724 females) in the age group of 20 to 50 years. The response rate for height measurements turned out to be 91.65% for men and 77.21% for women. Similarly, the response rate for weight measurement was 90.65% for men and 77.07% for women.

With this response rate, the heights were therefore taken for 1298 adults and with exclusion of data of 4 persons with disability; the effective sample totaled up to 1294 adults (735 male and 559 females) for height measurements. Similarly, weight measurements were taken for 1287 and with exclusion of data of 2 persons with disability<sup>20</sup>, the effective sample totaled up to 1285 (727 males and 558 females).

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<sup>20</sup> There were a total of 5 persons with disability in the sample to be measured for heights and weights. In one case, no measurement was undertaken because the female was feeble. In two cases, both heights and weight measurements were taken and in another two cases only heights were taken. The latter two couldn't stand on weighing machine. Because of the problems with their posture to stand upright for height measurements or inability to stand on weighing machine, such cases were later excluded from the analysis.

Those who were not measured were primarily due to their non-availability at home even after making couple of visits and telephone calls. Men who were not measured were mostly working outside block or district or state. On the other hand, most of the women who were not measured had gone to their maternal home. It was observed that in winter when the study was undertaken women were relatively free (no farming or any work undertaken) and allowed to visit their parents. It was only in case of two females that their father didn't agree for their heights and weights to be measured. But the fathers themselves (including his wife in one case) agreed to be measured for heights and weights. In another 8 cases (7 females and 1 male) measurements were not taken because the respondents weren't willing likely because of their shyness or being not comfortable. In few cases even their family members compelled them on researcher's behalf but they did not agree to participate in the study. Out of the 7 households where women didn't agree to give their height and weights measurements, in 4 households other women participated and in 3 households there was no other women. In only 1 household where a male respondent didn't agree to participate in height and weights measurements, other men in the household did.

The reason that there is a difference of 9 persons in the number of height and weight measurements is because the measurements of 17 persons, who all were working with security forces, were recorded as per the information provided by them over telephone. They were not available at home during the study and were posted in different parts of the state or country. They all knew their heights but only 8 of them were sure of their weights taken recently. These measurements as reported by them were included in the analysis but because the information was available for 17 cases with respect to heights and only 8 cases with respect to weights led to a difference of 9 persons between heights and weights measurements.

#### **2.3.4. Tools of Data Collection:**

The primary data collected was both quantitative and qualitative data in nature. For the first part of the study which focused on recording information about socio-economic conditions and the changes that have occurred in socio-economic conditions over time, *a semi-structured interview schedule* was used. The interview schedule is annexed as Annexure-A. It was administered with 100 households only.

The semi-structured interview schedule was divided into 11 sections, which covered different issues, to give a smooth flow to the questions related to a particular issue and to ease the process of interviewing with respondents. It included questions related to demographic information of family members; ownership of assets; access to education over the generations; land ownership and cultivation patterns; employment, migration and debt; housing and other amenities; food intake and quality; work patterns; quality of life and trauma; and discrimination faced by STs. Within each selected household, the details were recorded for all the members.

The respondents were any adult of the household. However, it was preferred to interview multiple respondents of a household together, if available, especially the older ones and that helped to recall information pertaining to three decades earlier.

For the second part of study which focused on collecting information related to basic socio-economic indicators and also recorded anthropometric measurements of adults, another interview schedule was used (see Annexure-B). The schedule included questions related to 11 socio-economic indicators in addition to asking socio-demographic information of all family members. Within this interview schedule, a separate section was chalked out for recording anthropometric measurements (heights and weights) of the adult members. This schedule was administered with 510 households including the already covered 100 households under the first part of the study.

The information on socio-economic conditions was recorded through an interview with any adult member of the family, preferably one female and one male. However, the anthropometric measurements were done for each adult member of the selected household. In case any adult member was not present at the time of visit; the researcher made repeated visits and also made phone calls on mobile numbers to seek appointment of those who were not present at the time of visit. The 'height measurements' were undertaken using a SECA measuring tape (steel based) and 'weight measurements' using a digital weighing machine (Omron HN-283).

**Qualitative data:** In addition, in-depth interviews and group discussions were conducted with people in the village including local leaders, local people who were government employees and other middle-aged and old people from different occupations and caste groups to gain insights



into the changes in socio-economic conditions, health issues, nutrition levels, and the socio-political relations between different classes, castes and between men and women. Since the STs were the most backward and poor community within the village, separate discussions were held with them to gain insights into the local development, caste relations and other aspects of the study. These discussions provided a holistic perspective into the socio-economic and political development of the different social groups in the village.

During the first part of the study, the researcher also facilitated discussions in many households interviewed under the study on diverse issues related to socio-economic development and health. It was thought at the time of designing of study that there may be issues learnt in the field that would be important to discuss but may not have been referred in the interview schedule. Deriving from the MPhil study where the researcher had followed a process of adding up of issues to the interview guide that had come across in due course of study and had observed that this flexibility in evolving interview guide during field study added much more insights into the study than initially thought out (Dar, 2012). A same process was repeated in this study also. It was observed that many important issues came up for discussion during the field study and all the new questions were listed throughout the study, which itself turned into a flexible interview guide, to which as many questions were added as new issues were learnt and found important to ask. The interview guide is annexed as Annexure –C. As the 100 households covered for in-depth study in the first part were re-visited for second part of the study also, it provided an opportunity to ask and record information on any questions which was added to the interview guide at a later stage and were not asked to them in their initial interview.

What has improved the data quality of the first part of study was the rigorous process followed by the researcher for data rectification, where needed. After the first part of study was concluded the researcher checked all the filled schedules to mark any contradictions in information or any information missing. As all these 100 households were revisited during the second part of study, the researcher would begin the interview to make corrections in the marked gaps in their initial filled schedules. It was observed that this process has improved quality of data to a great extent.

### **2.3.5. Quality Control:**

Before any measurement was done, both of the instruments (SECA measuring tape for heights and OMRON weighing machine) were first cross-checked for errors, and after fully satisfied with the results these were used in the villages. The manufacturer of Omron weighing machine claimed a good accuracy with possibility of a marginal difference of  $\pm 400$  gms for weights from 5 to 60 kgs and  $\pm 600$  for 60.1 to 100 kgs. It displayed weights to a precision of 0.1 kg (100 gms), and could measure adults up to 150 kgs.

Even during the study, the researcher would take his own measurements often to cross-check the accuracy of weighing machines and measuring tape.

During the study, it was found that most of the households had a flat (leveled) and concrete surface (even those with katcha houses had a concrete veranda or lobby) on which the weighing machine was placed to take their weights. In only one ST households, there was no flat/concrete surface, and their measurements were taken after the machine was placed on a big flat rock next to their house. The availability of concrete surfaces improved the accuracy of measurements undertaken under this study.

The measurements were taken in winter and people would normally wear three layers of clothes including a sweater and a woollen gown. All men were asked to remove their gown for weight measurements and in few cases where they were uncomfortable to do so, their weights were appropriated by reducing it by 1.5 kgs (an average weight of a gown, which was calculated in the field by weighing couple of gowns). While the women were allowed to wear gowns during measurements given the cultural sensitivity, because all women wore gowns during measurements, their weights were not reduced/appropriated for wearing gowns.

For taking heights, the measuring tape was fixed firmly to an aluminum block on one side, which was held upright against a straight wall, placed on a concrete surface, in each household and adults were asked to stand erect on the concrete floor with their back to the vertical aluminum block. The adults were also asked to place their feet together with both their heels touching the base of the vertical block, and also to look straight and parallel to the floor. The arms hang freely

by trunk. In a way, the heels, buttocks, scapulae and back of head were positioned in contact with the vertical block while maintaining erect and normal stature. After the adults were able to keep their posture upright and erect, the horizontal bar of the measuring tape was pulled down to rest firmly on top of their head with sufficient pressure being applied to compress the hair. The height indicated by the measuring tape (in cms) to the last millimeter (mm) was then recorded.

In a few cases where women were wearing hair bun were asked to remove it before taking height measurements but in most cases women wore head scarf. No adults measured wore shoes during the measurement. All these measurements were directly obtained by the researcher, who was assisted by a local person (a graduate). The local person also helped to record the measurements read by the researcher, which would have also reduced recording errors.

It was observed that these procedures helped in quality control of the weight and height measurements obtained for this study.

#### **2.3.6. Pre-test and Data Analysis:**

The first semi-structured interview schedule for recording information from selected households was pre-tested in the field to gain insights into the reliability and validity of the data and subsequent changes were incorporated in the interview schedule accordingly. The pre-testing was however done in a separate village in district Kulgam which was convenient to researcher. It was observed that the schedule lacked in many areas which were improved, and the pre-testing especially helped in envisaging the possible responses to many questions. Therefore, it paved the way to make the schedule more structured than it was originally designed. The interview schedule was also pre-coded to the extent possible, before going to the field.

The interview schedule used for second part of study which focused on collecting basic socio-economic information and recording anthropometric measurements was not pre-tested before its use in the field. First, it was very concise and structured. Secondly, the researcher had already used a major part of it in his MPhil study and found it reliable.

The quantitative data collected through the village study was analyzed using statistical methods and techniques with the help of SPSS software. For the qualitative data, collected through interviews, discussions and observations, a content analysis was carried out. The qualitative data essentially enriched the results of the quantitative data and help to make in-depth insights in the linkages and processes that have led to certain socio-economic changes in the village over time.

#### **2.4. Methodological Questions and Analytical Frame:**

The review of literature on the questions of socio-economic change, relations between different classes, health status, inequalities in income and health raises some important methodological questions with respect to the research questions that have been raised in this research study and need deliberation.

**2.4.1. Health Status:** *One aspect of this study was to examine changes in 'health status' over time in relation to changes in socio-economic conditions. The question arises: which health indicators need to be looked at and whether changes in such indicators over time could be examined with objectivity and precision.*

In a broader view of health, absence or presence of illness cannot qualify as objective indicators of health because health is not just absence of illness. Besides, relying on any type of illness or a category of illness – physical or mental – is likely to leave a significant portion of a population out of the study (Ware, et al. 1981). In order to understand health at population levels, investigating broader health status measures becomes desirable. The literature shows that 'weight', 'height' and 'infant mortality' have been widely used indicators to understand population health and in particular to understand the developments in health over time. Therefore, these indicators make a case to be considered for examination.

Moradi (2010) stated that mean height of a population is a widely used measure of nutritional and health status. Shatrugna (2001) argued that weights and heights of populations reflect long-term development of population and may be even used as a proxy for development and equity. Hatton (2013) explained that the improvements in health status have been among the most significant achievements in human development in the past century. Hatton stated that the

average stature/ mean heights of populations are a key indicator of health conditions, reflecting development particularly during childhood. Hatton further noted, “Increases in human stature are a key indicator of improvements in the average health of populations” (2013, p.). *As the mean heights of population is widely accepted as an important indicator of health status, it was therefore decided to use it as one of the indicators to understand health and its development over time under this study.*

‘Weights’ are also known as an influencing factor for health. The research has shown a higher prevalence of illness and mortality among those who are too thin as well as among those who are obese (Shatrugna, 2001). Although both heights and weights can be used as important indicators of undernourishment, adults stop growing in height after 20 years and heights only represent nutritional experiences of childhood and adolescence, and on the other hand ‘weights’ are better indicators of knowing current nutrition levels among adults. *Therefore, it was decided that ‘weights’ of adults would also be recorded under this study to reflect current levels of nutritional status.*

For adults, appropriate weight depends on the height, therefore, ‘weight for height index’ (also called Body Mass Index) was calculated, which is a good indicator of muscle and fat stores in the body, and is considered a reliable index of chronic energy deficiency or chronic hunger in the adults (Shatrugna, 2001). For children, it was proposed in the research synopsis to record their heights and weights to compare with NCHS reference values, which are being used by both government and academia as reference standards in India. However, during the field study, it was found that children were usually out of home for tuitions or play, and was not feasible to take their measurements. Further, taking measurements of all adults in 510 households also turned out to be huge exercise, which was the focus of the study; it was therefore decided not to pursue taking anthropometric measurements of children for this study.

‘Infant mortality’ is also widely used as an indicator of child health, disease environment, infections and malnutrition. A lot of evidence has indicated child health and nutritional status as a determinant of adult health, mortality as well as socio-economic conditions (Hatton, 2013). Therefore, ‘infant mortality’ is not only important as a proxy indicator of child health and disease

environment in a population, but could also be used as an indicator to understand the role of child health and disease environment in influencing heights over time. However, as this study focused on only one village, the recent cases of infant deaths (in the last five years) would have been minimal. Further, to collect information on retrospective basis on infant deaths (back to 1990) as was required under this study was bound to suffer from recall bias; *it was therefore decided not to use 'infant mortality' as an indicator of health status under this study.*

Hence, this study considered '*mean height*' as an indicator of health status and interrogated to understand changes in these indicators over a generation to reflect changes in overall health status. It also recorded '*weights*' of adults to examine the current nutritional levels. BMI was drawn for each adult, which gave status of current nutritional levels.

The pertinent question that arises here is whether any secular change in nutritional status can be measured retrospectively in absence of baseline data or data on past generations. Studies have shown that the growth process comes to halt around the age of 18–20 years, and that 50 years of age is the threshold age when people begin to decline in stature because of the normal process of ageing (Cline et al., 1989 in Moradi, 2010). The longitudinal studies of adult heights have also confirmed Quetelets' opinion that there is no decline in height with age and individuals maintained their height up to 50 years. Any change in adult heights (20-50 years) with age observed in cross-sectional studies is largely a cohort effect (Khosla and Lowe, 1968).

In order to examine if there are changes in heights over a generation, this study proposed and undertook measurements of all adult members of the sample households who were in the age group of 20-50 years. A comparison of mean heights of different age groups like 20-30, 30-40 and 40-50 years reflected if any height differences exist between these age groups. As different age groups in this study also represented different birth cohorts (1967-76, 1977-86 and 1987-96) so any differences in their heights would be a cohort effect. Further, as adult heights are determined by child health, the difference in heights between these three birth cohorts would also represent the differences in their childhood environment. The childhood period extends for older birth cohort (40-50 year group) from 1967 to 1996 and for younger cohort (20-30 years age-group) from 1987 to 2016. In a way, the measurements of all adults in 20-50 years of age and the

comparisons within this group will indicate the changes in nutritional status over generations tracing change from those who took birth in 1967-76 to those in 1977-86 and 1987-96.

Komlos (1999) stated that as trends in heights reflect long-term development of the biological standard of living, a decline in height of populations would indicate an extensive period of adverse nutritional state of affairs. In fact, with advancements of health care and other utilities of life, which result in lower energy expenditures and leaving more energy available for growth, stagnation in heights over time would also be an indication of nutritional problems. Stagnation or reversals in height are likely to occur only if the diet of a significant number of individuals has been reduced in quantity or quality for a long period (Komlos, 1999, in Moradi, 2010) or increase in disease environment.

The issues that research has shown to influence the analysis of the trends in heights (in a cross sectional study) are *mobility/migration, daughter's marriages and infant mortality*. If any significant proportion of population in a village has moved out or into the village in the last five decades would affect the results of comparison of height of older and younger generations. This researcher in his MPhil dissertation "Access to Health Services" in Kashmir had observed that this was not a significant issue to the extent that it will affect the present study (Dar, 2012). However, this issue was considered while undertaking the present study and it was found that out-migration was not an issue at all in the study village. Any migration was mostly seasonal and related to livelihoods, including men in most cases. However, with the exodus of Kashmiri pandits from the valley, many families who lived in this village have also left and no longer lived in this village. Given the fact that the Kashmiri pandits were small in numbers and were upper caste and economically well-off, their exclusion from this study may not significantly affect the results of this study. In addition, as described in chapter-3 on Socio-economic conditions of the village, there were many families belonging to Gujjar and Bakerwal tribes who have been settling down in this village. But most of these are Gujjars and have migrated to this village in 1960s. Most of the adults covered under the study and measured for heights have either taken birth in this village or moved to this village when very young. Therefore, their inclusion may not affect the results of the study. Further, the analysis of the findings have also been presented caste/tribe wise for comparative inferences, which in effect also excludes Gujjars and Bakerwals

from the results of general and deprived castes. The differences in heights between Gujjars/Bakerwals viz-a-viz general and deprived caste communities (original inhabitants of the study village) were contributed by the disparities in their socio-economic conditions that have continued to exist in the historical context.

The second issue is of 'daughters' getting married outside village in most cases and 'daughters-in-law' are mostly coming into the village from outside. In such a case, the heights of daughters-in-law cannot be compared with mothers-in-law in an intergenerational study of examining changes in heights over a generation, and especially when the focus of the study is to understand the influence of socio-economic conditions on childhood growth and thus adult heights. The only way was to track all daughters who were married outside and record their measurements to be compared with their mothers in the study village. However, even if the daughters were tracked and their measurements taken but again the question arises that their mothers have come to the village from outside, and were not brought up in the same village. Hence, it was decided in the proposal that the study may not be able to make intergenerational comparisons in heights of women in real sense. But it was proposed to obtain the measurements of adult women in the households and a decision on the data inclusion in the study will be undertaken only at the time of data analysis and writing.

During the study, it was observed and indicated by the key informants that marriages in most cases occur between men and women from the neighboring areas and belonging to almost comparable economic classes. Therefore, the childhood conditions of presently mothers-in-law and daughters-in-law may have been largely similar as existed in the present village among comparable economic classes. Hence, the heights of older and younger women in the village may be compared in an intergenerational study. Further, as the study focused on the height comparisons of male adults, it was realized that the heights of women will supplement and enrich the analysis. In any case, the heights of women also provided a cross-sectional data set, if not to be compared across generations. Based on these assumptions, it was therefore decided to analyze the data on height and weight measurements of adult women to make intergenerational comparisons in heights, in addition to using this data for analysis of BMI, and to include it in the writing of this thesis.



Some of the research studies investigating into the secular increases in heights have also considered the positive effects of infant mortality on heights. If infant mortality is high, it is likely to remove weak children from the population who were likely to grow shorter, and would contribute positively to the population heights. However, infant mortality as a proxy of disease environment also has a negative relationship with heights. Many studies have considered this issue of survivorship bias and found it insignificant to make any impact on the heights of the population (Moradi, 2010). It has also been suggested that the negative impact of infant mortality out-weights the survivorship bias (or positive effect) (Hatton, 2013).

**2.4.2. Socio-economic conditions:** *Another central aspect of this study is to examine changes in socio-economic conditions over a generation as reflected by the macro-data. This is to be done in absence of a baseline survey. The questions that arise are: Which indicators are to be examined? Whether the data recorded would be retrospective or prospective, and if retrospective, whether there are methodologically sound ways of dealing with it?*

Marmot (1999) explained that any increase in living standards, which will result into a reduction of malnutrition and infections, is likely to have a significant impact on improving population health in developing countries. There is also evidence to suggest that the long-term socio-economic development of population is one of the important factors leading to increases in heights over time, which formed one of the central components of investigation in this study. The macro-data has shown that poverty has declined in J&K very sharply over the 20 years through 1990s and 2000s, when J&K experienced conflict. Conflict is generally thought to be associated with deteriorating socio-economic and health status of population. On the other hand, the poverty ratio did not show any significant improvements in India as a whole during this time. Therefore, examining changes in socio-economic conditions and their subsequent effect on health are important in this study and also to understand wider social environment.

The poverty measurement approach in India and some other countries has mostly relied either on income or consumption measurements. In the context of India, the approach has been mostly minimalistic and highly criticized for being reductionist. It is being argued by many scholars that concept of poverty must include many other aspects including education, housing, sanitation,

occupations, land and other assets, as well as relations between different classes (Breman, 2008; Jodha, 1988; Zurbrigg, 1983, Krishnaji, 2012). These are important indicators and central to the notion of poverty. The health and sociological research has also extensively relied on using these indicators or 'relative deprivation', instead of focusing on 'income' calculations methods, which has inherent bias in recording information and leads to underestimation. It is also important to move away from 'income' for the fact that health is visualized to be determined by a variety of socio-economic factors and the recent research has also shown that 'inequality' has significant effect on health, even if absolute conditions are accessed.

Consumption, expenditure, or socio-economic conditions are also being widely used as proxy for income and class to investigate into disparities among different classes by the academicians, policy makers and large-scale surveys.

Fredrick et al. (2000) relied on using 'education attainments' as an indicator of socioeconomic status. Hatton noted that studies have shown substantial effect of sanitary reforms and housing conditions on health and infant mortality, therefore, can be used as indicators of socio-economic conditions (Hatton, 2013). The research from Europe has also shown that inequality in terms of ownership of car and house had significant impact on health. Shaw et al. (1999) noted that there is an increasingly trend in Britain for using alternative social-economic measures like housing and access to car as indicators of social position in health research. There are scholars who have used relative deprivation approach in examining health inequalities and their relation with environment. Hatton (2013) used government's expenditure (as a percentage of GDP) on social services as an indicator of public provisioning on welfare, housing and health as well as on redistribution. In the Indian context, caste, educational attainments, land holdings and occupation has been widely used as indicators of socio-economic conditions. The recent methodologies in India to identify the poor to be benefited under the poverty alleviation programs have also relied on using the proxy criteria. For instance, the BPL (below the poverty line) 2001 survey and recent Saxena committee report on BPL identification used the indicators like land holdings, access to sanitation and drinking water, type of house, ownership of consumer durables, means of livelihood, etc. to identify the people who are poor (Govt. of India, 2009).

Therefore, as non-income variables have been used widely in the studies of such nature to understand dynamics of changes in socio-economic conditions across world, this study also relied on a range of such indicators to examine changes in socio-economic conditions. *These include land holdings and cultivation patterns; occupation/livelihoods; type of house; educational attainments; source of drinking water; type of toilet facilities; type of fuel used; ownerships of consumer durables; ownership of costly durables; and so on. The study also included exploring changes in food intake and quality; work patterns; trauma; and discrimination faced by STs.* Many of these indicators have also been used widely as a proxy to socio-economic class, which is discussed in the section ahead.

As there was no baseline information available, the information on these indicators was recorded as the status existed at the time of survey and as existed during 1989 retrospectively. This raises issue of ‘recall lapse’ that the information recorded on retrospective basis may be subjected to recall bias. This is absolutely a reasonable consideration to be given in this study. However, the importance of using the non-income variables in this study is that the recall lapse in recording the information on such parameters was minimized. Information about education attainments, employment, type of house, ownership of costly durables like tractor and car, type of toilet used and source of drinking water are likely to be remembered for long time without significant recall lapses.

In addition, the study also undertook a review of reports and macro-data back to 1970s so that the trends thrown by village study were understood in a historical context and correctly interpreted.

**2.4.3. Inequalities/Disparities and Power Gradient:** *As inequalities are a dominant attribute of health status and socio-economic conditions in India and globally, how are these relevant to J&K context and on what lines these inequalities were examined in this study?*

In the Indian context, the inequalities in access to resources, opportunities and power between different castes are considered underlying factors for low health status of population. Therefore, inequalities in both socio-economic conditions and in health status are at the centre of health

discourse. This study has also been conceptualized with ‘inequality’ assuming much significance in understanding the changes in health status and socio-economic conditions over time.

Research into the health and socio-economic conditions in India has mostly looked at inequalities along the lines of caste, class and gender. These attributes are equally relevant to J&K. ‘Caste’ is an important attribute/indicator and is being used as a proxy for class in many of the social science studies. However, in the context of Kashmir, the relevance of caste in research has been highly undermined. It is assumed that the stratification along the lines of caste is not significant as majority of people are Muslims who are assumed to not follow caste hierarchy. As a result, caste has not been conceptualized in the local context, and mostly missing in social science research in Kashmir. There is no substantial research work on the conceptualization, existence and the way casteism operates in Kashmir. Imtiaz Ahmed’s work on casteism among muslims clearly reveals caste patterns among Muslims in India (Ahmad, 1978). This researcher in his MPhil dissertation looked at the access of health services in Kupwara district of Kashmir and found ‘caste’ and ‘ethnicity’ significantly relevant in determining the socio-economic disparities in the village studied. Variables like housing, education, employment, land ownerships and occupations showed a clear gradient along caste and ethnicity. As a result, both prevalence of illness and access to health services varied along caste, with Gujjars (Scheduled Tribe) and Ganaie caste group being underprivileged in the village (Dar, 2012). However, the existence and severity of casteism would vary with composition of population in a particular village or area. *The process of conceptualization of caste for this study has been therefore grounded in the local context only in terms of identifying who are deprived and marginalized castes and who are the general and dominant castes, the nature of relations and their varied access to resources and opportunities.*

Similarly, the researcher had found in his MPhil study that the socio-economic class and gender were very relevant and significant in explaining disparities in access to health services (Dar, 2012). *This study therefore examined the disparities in ‘heights’, ‘BMI’ and other variables along the lines of caste, ethnicity, class and gender. It also examined the mobility in socio-economic conditions across castes, ethnicity, and gender.*

In terms of ethnicity, there were only two ethnic groups currently living in the study village: ‘Kashmiris and schedule tribes’. Scheduled tribe included ‘Gujjars’ and ‘Bakerwals’. Whereas the ‘Kashmiri ethnic group’ was further divided into general and deprived castes, the scheduled tribes – both Gujjars and Bakerwals- were analyzed as a single unit. In a way, the overall sample was analyzed by dividing it into three categories – general castes, deprived castes and scheduled tribes. An analysis of the disparities in access to resources and opportunities that existed in the study village along the lines of caste and ethnicity is presented in Chapter-3.

The power relations between different castes and classes in the village are an important factor in determining socio-economic conditions and inequalities across different castes, occupation and income groups. Therefore, how these power relations have changed over time, and how the changes are related with the improvements in socio-economic conditions are important to examine. *This study also looked at how the patterns of dominance have changed over time in the village.* Whether any affiliation with political organizations, dominant castes or religious groups was a source of power was explored. Although socio-economic indicators suggested the patterns of dominance, the people’s perception on how they understood the power gradient has changed over time, and what factors led to it, were also captured.

As J&K has relatively lesser poverty ratio (10.35% percent in 2011-12), it meant that a majority of population have access to basic standards of living. In such context, the question of ‘inequality’ within the larger society achieves as much importance as investigating into ‘destitution’.

**Socio-Economic Class (Gradient):** As ‘inequalities’ was the central focus of this study, it looked at disparities in ‘heights’ and ‘BMI’ along the lines of caste, ethnicity, class and gender. The relevance of ‘caste’ and ‘ethnicity’ was deliberated earlier, whereas ‘gender’ is clear. For determining ‘class’ or ‘socio-economic status’ of a particular household, there is an increasing trend to use alternative socio-economic measures as indicators than relying on income calculation methods for inherent bias in revealing income related information to outsiders. The health and sociological research has also extensively used varied socio-economic measures as a proxy to socio-economic status or class. Some of these measures used included education

attainments, housing conditions, landholdings, occupation/means of livelihood, drinking water facilities, sanitation, ownership of car and other assets, etc. In the Indian context, even 'caste' has been used as proxy to 'economic classes' in sociological and economic research.

However, the socio-economic measures itself are also very complex in reality, and possessing or dispossessing any of these socio-economic parameters may not determine one's socio-economic position, as the overall socio-economic status of a household is determined by several factors collectively. A person may be poor even if he owns more than an average land holding in the village; a person may be poor even if he is well-educated; and so on. Hence, one may have to rely on combination of these indicators to determine the economic class of a household.

*This study therefore used multiple socio-economic parameters to record information and determine the 'socio-economic status' or 'socio-economic class' of households selected under the study, so the disparities in 'heights', BMI and other variables can be examined along the lines of 'class' as well. The socio-economic parameters used included land holdings, farm outputs; educational attainments; occupation/livelihoods; source of drinking water; type of toilet facilities; type of fuel used; type of ration card; ownerships of costly durables and ownership of vehicle.*

This researcher in his MPhil study used many of these socio-economic indicators as proposed above to examine socio-economic conditions of people in the field area, and also used these as proxy to 'economic class' to determine the socio-economic status of households. The responses to these socio-economic measures were ranked and a composite score was arrived at for each household by adding the individual ranking score on each socio-economic measure. It was observed that these measures broadly revealed a precise picture of the socio-economic conditions of households and was in line with the local perceptions. The composite score also helped to divide the households into different 'socio-economic classes' to examine the disparities in access to health services (Dar, 2012).

Building on this experience, it was initially proposed to use a similar methodology under this study with some appropriations as per the field reality. After the information was collected and

analyzed, it was observed that these measures provided a holistic picture of the socio-economic conditions of the households. However, the composite ranking score to arrive at posed methodological issues especially the question of relative 'weight-ages'. For instance, what would be the appropriate land holdings to make it equivalent to a concrete house, or what type of house could be assumed as equivalent to a car, or can a flush toilet be made equivalent to a car, bike other durables, etc. These challenges were not as difficult during the field work for MPhil as it turned out for this study, primarily because the present village was bigger in size, very diverse in population compositions and engaged in diverse occupations and also a relatively large sample was selected for this study.

It was therefore decided to use all these socio-economic measures as proxy to 'economic class' individually and not as a composite score/measure. For instance, the ownership of a vehicle was used as a measure to determine socio-economic status of households as was land holdings, type of house, occupational categories, consumer durables, and so on. *The sample households were categorized into different groups based on the economic position/status indicated by these measures. The categories or sub-samples represented different 'economic classes' (called as economic groups for this study) and were used as a proxy to 'class' for the purposes of this study. These 'economic groups' formed the basis to examine the disparities in 'height', 'BMI' and other variables in the study village'.*

The overall categorization on eleven economic measures used was done on a two-tier or three-tier basis dividing the sample into two groups (two-tier) and/or three groups (three-tier) depending on the nature of analysis, sample size and number of variables used in analysis. Generally, for bi-variate analysis, three-tier categorization was followed. However, for tri-variate analysis, two-tier categorization was followed to minimize the number of categories for comparison so as to have sufficient sample size in each subcategory and that made disaggregated analysis at multiple levels possible. The cut-off values used to divide the sample into two or three categories were determined by either a standard classification system (used by many surveys) or specific values based on percentiles computed using SPSS or distinct characteristics and accordingly specified. To note, this doesn't apply for simple frequency tables where multiple categories were created.

In a three-tier categorization, the households were divided based on landholdings into three landholding groups: 0-8 kanals, 8-16 kanals and 16 or above kanals. Whereas, in a two-tier categorization, the households were divided into two landholding groups: 10 kanals or less and 11 kanals or above. Based on the educational attainments, the households were divided into two-tier as well as three tier categories based on percentiles as well as standard categories which have been specified in the tables drawn. The households were also divided into 'poor farming' and 'better farming' categories based on total farming incomes calculated using an alternative method (discussed in Chapter 4) and using a percentile based cut-off value. Similarly, the households were divided into two-tier categories based on number of costly durables owned by them: 'Nil owned' and 'one to four owned' groups. In a three-tier categorization, households were divided into three groups: 'Nil owned', 'one durable owned' and 'two-four owned' groups. The households were also divided into three groups based on the type of ration card they had: 'AAY', 'PHH' and 'NPHH' groups as well as into two groups: 'AAY/PHH' and 'NPHH'.

Based on vehicle owned, households were divided into only two groups: 'Vehicle owned' and 'No vehicle owned'. Given the nature of this variable, it didn't make sense to use a three-tier categorization system for this variable. Similarly, based on primary 'fuel' used for cooking, households were divided into only two groups: 'Dung/wood/electricity fuel' and 'LPG fuel'. The households were also divided into only two groups based on type of toilets: 'Pit latrine' and 'Flush toilet' groups. On the basis of proximity to water source, the households were divided into three groups: 'spring or community tap/tube well', 'personal tap/tube well within yard' and 'personal post/tube well inside house'. Given the distinct characteristics, the two-tier classification didn't make sense to use for this variable.

The study also collected information on the livelihoods of families which were found diverse as well as multiple at household level. Therefore a simple categorization system didn't work and a 'scoring method' was adopted. The livelihoods were allotted a 'score' ranged from '0 to 6'. The 'scores' were allotted<sup>21</sup> only after a careful deliberation and analysis of data related to livelihoods,

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<sup>21</sup> Those who living on alms, begging or depended on farming but that produced insignificant incomes were allotted a score of '0'. The casual labour, domestic worker, artisan, livestock rearing or worked on poor salaries like a cook in a hotel, private school teacher, apprentice, driver, daily wager with government or other equivalent livelihood



It differed from using ‘main occupation’ as it considered multiple livelihoods of households. In a way, those who had three people working as casual labour were ranked three times more than those who had only one person working as a casual labour. If a household had a member working on a low salaried job and another member had a high business, both were scored as per scoring index used and the household rank was arrived at by adding the individual scores each household member achieved. In this way, all households were ranked based on a ‘score’ attained considering all their livelihoods. Although it may also suffer from relative weight-age issue but because scores allotted were relative and were only used to rank the households based on their livelihoods, such issues didn’t affect the analysis. The analysis was also not used as ‘stand alone’ measure but was corroborated by other tangible economic measures.

The households were therefore categorized into livelihood groups based on the total score attained. The range of scores attained by households varied between two parts of the study which covered two different samples, and therefore cut-off values were decided according.

On a three –tier categorization the households were categorized into three groups --poor, moderate and better livelihoods --based on the total score attained. For chapter-4 which is based on a sample of 100 households, the households scored 1-3 were grouped as ‘poor livelihoods’, those who scored 4-5 were grouped as ‘moderate livelihoods’ and those who scored 6-15 were categorized as ‘better livelihoods’. For Chapter-5 which is based on a sample of 510 households, those scored 0-2 were grouped as ‘poor livelihoods’, those who scored 3-4 were grouped as ‘moderate livelihoods’ and those who scored 5-23 were categorized as ‘better livelihoods’.

Similarly, on a two-tier categorization, households were categorized into only two groups of ‘poor and better livelihoods’. For chapter-4 which is based on a sample of 100 households, those scored 1-4 were categorized as ‘poor livelihoods’ and those scored 5-15 were categorized as

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sources were allotted a score of ‘1’. Those who had small business enterprises like grocery shops or owned a cab, or were skilled labour, tailors equivalent were allotted a score of ‘2’. Those who were engaged in low salaried jobs (4<sup>th</sup> class) with government or private agencies were allotted a score of ‘3’. Similarly, those who had a middle level salaried (but not gazetted) job or medium business were allotted a score of ‘4’, and those who had a high salaried job (gazetted) or high level of business were allotted a score of ‘5’. Similarly, the farming incomes were divided into six levels (0- 20,000; 20000 to 1 lakh; 1 to 2.5 lakhs, 2.5 to 4 lakhs; 4 to 6 lakhs and 6 to 13.5 lakhs) and allotted score ‘0’ to ‘6’ depending on the farming income level with ‘0’ to lowest and ‘6’ to highest incomes.

‘better livelihoods’. For Chapter-5 which is based on a sample of 510 households, those scored 0-3 were categorized as ‘poor livelihoods’ and those scored 4-23 were categorized as ‘better livelihoods’.

In addition to these economic measures, the researcher also made an observational remark about the socio-economic status for each household at the time of interview and categorized households into three economic groups – lower, middle and upper— based on his overall observation of the type and maintenance of house, livelihoods, land owned, education, etc. and is discussed in detail in Chapter-3. For the reasons stated above, such economic categories were also re-organized into only two sub-categories: ‘lower economic group’ and ‘upper economic group’. The middle and upper economic categories were merged into ‘upper economic category’ and lower economic group was kept as it was given the sample consideration. Such categorization proved very insightful in the overall analysis of class-based disparities in the village.

For the similar sample considerations, the caste and ethnic groups were not only used as three separate categories— deprived castes, general castes and scheduled tribes, but were also re-categorized into two groups by merging ST and deprived castes into one category and the general castes were kept as it were given their adequate sample sizes. Although the discrimination and exclusion faced by Scheduled tribes is more intense than the deprived castes among Kashmiris, the merger was done from an economic perspective that both these groups are relatively poorer than general castes, and in no way are interpreted as a same social group.

**2.4.4. Psychosocial Determinants and Social Support:** *As there is evidence of the relation between psycho-social factors and health as well as between social support and health, how were these explored in the study given the fact that Kashmir has witnessed conflict and seen higher levels of stress.*

As noted earlier that psychosocial factors (especially stress) have a negative effect on health but social support and social capital has a positive effect on health. Anything which shifts the balance would affect health accordingly. The spatial segregations of caste groups and higher

inequality will lessen social support and cohesion to help individuals deal with stress. As there are inequalities across socio-economic groups in Kashmir, it may be important to understand that some particular groups/families may be vulnerable to different risks. It is also important to explore how community has responded to those experiencing absolute poverty and those who experienced chronic stress due to conflict, as well as how community attempted to improve cohesion within and across different socio-economic groups. It would be also important to understand how the community support structures have worked for people, particularly the lower socio-economic groups.

However, the mapping of the social support in terms of quality and type provided by others in objective ways is a very difficult task itself (Stansfeld, 1999). Equally difficult is to explore the effect of stress (resulting from conflict) on health through psychosocial pathways. This study only enquired into 'perceived support' especially among those who have experienced traumatic events like killing/injury/faced any-major violence and those who were poorest in the village whether they have received any support from community structures to cope with absolute poverty or distress. As such issues are very subjective and can't be quantified; therefore discussions were undertaken with families that experienced any severe traumatic event in the last five years and also with few poorest families to understand the social support they have received from community. Such issues were also discussed in the group discussions with local people. The experiences of a few families reflected the broader patterns of psychosocial factors and utility of social support and were also helpful in analysing determinants of health from a holistic perspective in this study.

**2.4.5. Data Trends and Social History:** As the study relied on analyzing the macro-data as well as collecting information through a micro-level study to answer the questions raised in the proposal, it was important to review retrospective trends in the data as much back as possible not only of the last 25 years on which the study is focused but of the last 40-50 years. That helped to understand and make correct inference about the trajectories in data of last 25 years. However, reviewing data back to 40-50 years was possible only at the macro-level, and in limited ways, due to lack of availability of relevant data in the public domain.

The study also analysed and reconstructed the 'social history' of the village through discussions with community, which provided much deeper insights and a comprehensive analytical frame to situate the findings of the study linking micro and macro levels.

**2.4.6. Ethical Issues:** As the study was conducted on human subjects, it followed some of the ethical protocols with much sensitivity to ensure that it does not violate the ethical norms of social science and health research.

The interviews were conducted only after taking informed verbal consent from respondents. A privacy of the recorded information was assured to the respondents and information was kept confidential. As the study also recorded information about under-five mortality, the interview schedule was designed to be sensitive to the experiences and emotions of the respondents. Only pseudo names, wherever required, are mentioned in the thesis.

An attempt was also made to ensure that the whole process of interview and taking measurements of stature is comfortable and sensitive to the respondents.

As the study involved the researcher (who is a male) interacting with women as well, a high consideration was given to the feelings of the respondents. In case the women felt uncomfortable in sharing any information, the researcher didn't insist at all. As the previous experience of this researcher during his fieldwork for MPhil suggested that interacting with women for the investigator, even though a male, was not difficult. As this study also involved taking body measurements of men and women, it was decided in the proposal that the investigator may take the help of a female person in the process of taking measurements. However, as the field work proceeded, the researcher was accompanied by a local male person to each selected household under the study, and it was observed that taking measurements of women in the village by the researcher himself was acceptable and he carried it out on his own without involving any local female in the process. But due care was taken to ensure that women were comfortable and the measurements were done in front of other family members. In few cases where women were uncomfortable or unwilling to participate in the study, their choices were respected.

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## **Chapter 3: Socio-Economic Profile of Anantnag District and Khiram Village**

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The primary data collection for this study was conducted in a village, Khiram, located in Anantnag district of Jammu and Kashmir. The following sections describe socio-economic profile of Anantnag district and Khiram village to underline the socio-economic context in which the study was conducted.

### **3.1. Socio-economic Profile of Anantnag District:**

Anantnag is one of the oldest districts of Kashmir valley and is located to the south of Kashmir, at a distance of approximately 55 kms from Srinagar- capital city. The district derives its name ‘Anantnag’ after a spring called as ‘Ananta Naga’ (countless springs) (Govt of J&K, 2014). The district is also popularly called as ‘Islamabad’, especially by locals, the usage of which became controversial after the onset of political conflict in the valley. Security forces wouldn’t allow anyone to use this name and would invite a beating from them if anyone dared calling it so. Security forces felt its usage was associated with Pakistan’s Islamabad. However, the name ‘Islamabad’ to Anantnag town was coined by the Governor of Kashmir -Slam Khan- in 1663 A.D during Mughal rule and has nothing to do with Pakistan’s Islamabad (Govt of J&K, 2014). While ‘Anantnag’ is officially used, the name ‘Islamabad’ is very popular among locals (District Admin of Anantnag, 2019a).

The district is surrounded by Srinagar in the north, Pulwama in the north-west, Kargil (Ladakh) in the north-east, Doda in the east, Ramban and Kulgam in the south-west (Govt of J&K, 2014). Anantnag district is one of the oldest districts of Kashmir and originally included entire South Kashmir before its bifurcation into two districts of Pulwama and Anantnag in 1979, which were further bifurcated into two each in 2007. Kulgam district was carved out from Anantnag and Shopian from Pulwama (District Admin of Anantnag, 2019b). In this way, Anantnag district was divided into four districts of South Kashmir over time.

Owing to its location, Anantnag district is an entry to the valley (called as Gateway of Kashmir) and connects the valley to Jammu region and other parts of India by a national highway. It is rich

in forests and mountains, the peaks of some even go up to a height of 4267-4572 meters (Govt of J&K, 2014). Because of its proximity to Peer Panchal Range (mountain), the district has relatively more temperate climate in summer than other districts of valley; and the snowfall is heavier with low temperature in winters (District Admin of Anantnag, 2019a). The landscape is also very beautiful and consists of some of the best health resorts of the state. The world famous ‘Pahalgam’ resort, which is one of the main tourist destinations in valley, is also located in this district, and the river Jehlum originates from this district. The district is also famous for the ‘Ammarnath cave’ (shrine), located at an altitude of 13000 feet, which is thronged by lakhs of Hindu pilgrims from across the country each year (Govt of J&K, 2014). Educationally and culturally rich, Anantnag has formed its own identity within the valley in all fields from education to culture to politics.

The district is also one of the politically active districts in the state both in terms of mainstream politics with one of the principal political parties (People’s Democratic Party) in the state having originated from this district and also since 2016 unrest in the valley the district emerged as a hotbed for mass protests, strikes and other related activities. Action Aid’s rapid assessment gives a thorough account of the impact of mass protests in 2016 on the people’s lives, food security and livelihoods in Kashmir. The report stated that the South Kashmir (including Anantnag district) was relatively more affected by the situation and was evident from the number of people who died, injured and arrested in the first two months of protests (ActionAid Association, 2016).

The report further noted:

This<sup>22</sup> has created a very fearful and insecure environment, and as a result, normal life has come to a complete halt. The shut-down and curfews have led to the closure of schools, businesses, markets and almost all employment opportunities. Many government services related to nutrition and employment have also collapsed including Integrated Child Development services, Mid-Day Meal Scheme, Mahatma Gandhi National Rural Employment Guarantee Act and other public works. (2016, p.2)

The discussions with the people indicated that district was also impacted by rising militancy in the valley in 1990s and later by renegades- a counter insurgency government supported group. After the conflict began in J&K, Anantnag has seen widespread presence of security forces

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<sup>22</sup> The mass protests, increased deployment of security forces and state’s actions to disperse protest.

throughout the district, from villages to towns to hills to roads. It was observed that the National highway passing through it is heavily guarded by security personnel all times during day and night, and the regular convoys of security forces on daily basis doesn't leave any sight without witnessing heavily armed security forces. Discussions with people suggested that they have been witness to torture, harassment, encounters, firings, killings, disappearances, raids, searching of houses, vehicles and so on like any other part of Kashmir. People reported that from early 1990s to early 2000s, many of the roads in this district were barricaded by security forces and all passengers travelling through these roads would have to parade at checking points and show identity cards to security forces. Such situation improved tremendously in early 2000s but in 2016 the district became a hotbed for mass protests (seen as anti-state protests). The study also corroborates this account of the impact of conflict on people. Most households (98.0% of 510 households) felt life has become stressful due to conflict and even 69.0% felt insecurity and fear has increased over this time. Further, 82% households said that at least one of their members has been exposed to traumatic events and 80% of the households also stated that one of the family members was tortured since the beginning of conflict in 1989 (more details in Chapter-4). Such higher levels of exposure to traumatic events and torture make it evident that why most of the households feel stressful, insecure and fearful.

Anantnag district is a moderately prosperous district in J&K with agriculture, apple orchards and tourism being its major economic activities (details in section 3.1.2 ahead). There are many people living in the rural and far off areas who are poor or don't have access to basic utilities for living including food, livelihoods, health services, sanitation, electricity, water, etc. Anantnag district is also partly hilly with many people living over hills who face many difficulties to access basic services and livelihoods. The climatic conditions especially snow during winters-sometimes for weeks or months at a time- and conflict (frequent encounters and protests) pose additional difficulties especially to poor, disadvantaged, vulnerable and those living in far off areas. The following paras highlight the socio-economic, demographic and other developmental aspects of this district.

### **3.1.1. Socio-Demographic Aspects:**

The district includes 8 towns and 394 revenue villages including 7 uninhabited villages. For administration purposes, the district has been divided into 12 tehsils, 16 community development blocks and 303 grampanchayats (District Admin of Anantnag, 2014).

As per the Census 2011, the total population of the district was 10,78,692 persons and consisted of 5,59,767 males (51.89%) and 5,18,925 females (48.11%). Out of these, 73.77% live in rural areas and 26.23% in urban areas, which is marginally less than the state level urban population of 27.38%. Further, 10.75% population is scheduled tribe against 11.91% in the state as a whole and only a very small proportion of 0.17% is scheduled caste against 7.38% at state level (Govt of J&K, 2014). The Census 2011 data shows that the district is predominantly inhabited by Muslims who constitute 97.99% of its population, followed by Hindus (1.22%), Sikhs (0.57%), Christians (0.13%) and others (0.09%). Whereas at state level, Muslims constitute 68.31% of population, Hindus with 28.44%, Sikhs with 1.87%, Christians with 0.28% and others (1.10%) (Govt of J&K, 2016-17). Muslims are very diverse with respect to caste names they carry, which also has socio-economic implications. However, there is no information available to underline the numbers and proportion of different castes living in the district.

The total area of the district is 3574 sq. kms (which amounts to only 3.53% of state's total net area including Ladakh but excluding Pakistan and China occupied parts). Its population, however, amounts to 8.60% of the state's total population. The density of population in terms of number of persons per sq. km was high at 302 against 124 at state level (Govt of J&K, 2016-17). The decadal population growth in Anantnag district between 2001 and 2011 was higher at 38.58% than the state level at 23.64 (Govt of J&K, 2014).

The sex ratio of the district at 927 was better than the state level at 889. However, the child (0-6 years) sex ratio at 841 was worse than the state level at 862 in 2011 (Govt of J&K, 2016-17).

### **3.1.2. Economic Aspects:**

Anantnag is largely an agrarian district with a major section of population dependent on agriculture and related activities for living. More than half of its area (2001.90 sq. kms) was



under forests in 2016-17 which amounts to 56.01% of its total geographical area. This is significantly higher than the overall 19.95% forest area in the entire state but slightly higher than Kashmir region with 50.97% of its area under forests (Govt of J&K, 2016-17). The presence of forests in more than a half of its area limits the potential for agriculture.

The total cropped area in Anantnag was 70,300 hectares (4,28,367 for Kashmir and 11,77,074 for State) and the net area sown was 46,610 hectares (3,42,134 for Kashmir and 7,57,026 for State) (Govt of J&K, 2016-17). In a way, the total cropped area in the district amounted to 16.41% of entire Kashmir's and 5.97% of entire states' total cropped area. Similarly, the net area sown in the district amounted to 13.62% of entire Kashmir's and 6.16% of entire state's net area sown.

The size of land holdings are however small in the district. The average landholdings in the district were 0.39 hectares in 2010-11, against 0.62 hectares in entire state (Govt of J&K, 2016-17). But, a higher proportion of land is irrigated in the district as compared to state. The data show that nearly two thirds (62.97%) of the net area sown is irrigated in the district as against only 44.39% at the state level in 2016-17. More than 95% of net area irrigated in Anantnag is through canals (Govt of J&K, 2016-17). The higher coverage of land by canals is possible due to a higher number of streams in Anantnag district especially Sandran, Brengi, Arpath and Lidder (District Admin of Anantnag, 2019a).

The availability of irrigation may be one of the factors for high rice production from the district. Anantnag district is known as "Rice" bowl of the Kashmir valley with 23,074 hectares of its land under rice cultivation (16.97% of total land under rice in Kashmir), second highest in the valley after Budgam district (24,567 hectares) (Govt of J&K, 2016-17). The other significant crops – in terms of acreage- cultivated in Anantnag are Maize and fruits. Maize is cultivated with 11,140 hectares under it, third highest in valley after Baramulla and Kupwara districts. A significant proportion of its land (12783 hectares) is under cultivation of fruits and vegetables (majorly apple)- which forms 11.60% of total land under fruits and vegetables in Kashmir (Govt of J&K, 2016-17).

There are no large scale industries in the district, likewise valley, but there are small scale industrial (SSI) units which are an important source of employment to thousands of people. In 2016-17, the total numbers of SSI units in Anantnag registered with government were 4940 (amounting to 8.34% of State's total SSIs) which provided employment to 20959 people in the district (amounting to 7.26% in State's total employment through SSIs) [Govt of J&K, 2016-17]. As noted earlier that Anantnag is home to very famous 'Pahalgam' health resort, among other destinations, and also to 'Ammarnath' Shrine, where lakhs of tourists and pilgrims visit each year. The data shows 5,10,547 tourists from Indian states, 7,062 foreigners and 1,58,481 pilgrims visited Anantnag district in 2016 for tourism or pilgrimage purposes amounting to a total of 6,76,090 tourists (excluding locals) [District Admin of Anantnag, 2018]. Therefore, tourism is an important source of livelihood for many in this district.

Because of agriculture, horticulture, tourism and other avenues, the population below the poverty line as per the State's own estimates in 2007 was 14.46% in the district (15.94% in rural), whereas the poverty ratio in the Kashmir region (excluding Ladakh) was 21.37% (26.34% for rural) and in the entire state the poverty ratio was 21.63% (26.14% for rural) (Govt of J&K, 2016-17).

### **3.1.3. Access to Basic Amenities and Services:**

The district level information especially from Census of 2011 and NFHS-4 survey of 2015-16 show that the access to basic amenities like water, fuel, electricity and sanitation and to health services in Anantnag district is relatively better. For instance, the Census of 2011 shows that 23.97% population of the district Anantnag had access to tap water from treated source, 48.1% had tap water from untreated source, 0.79% from covered wells, 0.72% from uncovered wells, 7.28% from hand pumps, 1.41% from tube wells/ bore wells, 1.77% from springs, 13.32% from river/canal and 2.63% from other sources (Govt of J&K, 2014). The NFHS-4 survey in 2015-16, on the other hand, shows that a large proportion of households (95.4%) in Anantnag had access to improved drinking water source, as against 89.2% at state level, as can be seen from Table 3.1. The data also shows that a large proportion of households had access to electricity. For instance, the Census of 2011 revealed that 80.36% households in Anantnag district used electricity, 13.77% used kerosene, 0.28% used solar, 3.72% used others and only 1.86% had no lighting

(Govt of J&K, 2014). On the other hand, as can be seen from Table 3.1, the NFHS-4 survey in 2016-17 showed that 96.7% households in Anantnag had electricity connections as compared to 97.4% at state level.

The Census of 2011 also showed that more than two third of households (71.71%) in Anantnag district used firewood for cooking, 3.42% used cow dung, 20.27% used LPG, and 4.6% used other fuel for cooking (Govt of J&K, 2014). This indicated that a large section of the district used unclean sources of fuel. However, the NHFS-4 survey in 2015-16, as can be seen from Table 3.1, indicated promising improvements in access to clean fuels in the district. It showed that 70.0% households in Anantnag used clean fuel (electricity, LPG/natural gas or biogas) for cooking as against only 57.6 % at state level.

However, the access to improved sanitation is not as good as other amenities. For instance, the Census of 2011 showed that less than one third of households (29.42%) in the district had flush/pour latrines (piped sewer system or septic tanks or others), 36.01% defecated in the open and others used different systems including pit latrine, services latrines, public latrines etc (Govt of J&K, 2014). The NFHS-4 survey in 2015-16,

however, indicated a higher proportion of 54.9% households in Anantnag using improved sanitation facility as against 52.5 % at state level (see Table 3.1).

Similarly, the district also lags behind in literacy rates. The Census of 2011 shows that the literacy rates of the district were slightly lower at 62.69% than the state level rates at 67.16% (Govt of J&K, 2014).

<b>Table 3.1: Access to Basic Amenities and Services in Anantnag District and J&amp;K</b>		
<b>Indicator</b>	<b>Anantnag</b>	<b>J&amp;K</b>
Access to improved drinking water source	95.4%)	89.2%
Electricity connections	96.7%	97.4%
Used clean fuel for cooking	70.0%	57.6 %
Improved sanitation facility	54.9%	52.5 %
Four ANC visits (at least)	82.5 %	81.3%
Institutional births	91.2%	85.6%
Postnatal check up	82.5%	76.0%
Children fully immunized	72.7%	75.1%
Children with fever or ARI symptoms taken to a health facility	80.9%	78.5%
Source: IIPS and ICF, 2017b for J&K and IIPS and ICF, 2017c for Anantnag		

On the other hand, the access of people to maternal and child health services in Anantnag is relatively better than shown by state as a whole (see Table 3.1). For instance, NFHS-4 data shows that among mothers who gave birth in the five years preceding the survey in 2015-16, 82.5 % had at least four antenatal visits, against 81.3% at state level. Similarly, the percentage of live births in the five years preceding the survey delivered in a health facility were 91.2% (86.6% at public facilities and 4.7% at private facilities) against 85.6% at state level. On the other hand, 82.5% had of women with a postnatal check within two days of delivery against 76.0% at state level.

The NFHS-4 data also shows, as can be seen from Table 3.1, the percentage of children aged 12-23 months who were fully immunized (BCG, measles, and 3 doses each of polio and DPT) were 72.7% in Anantnag, as against 75.1% at state level and those who received no vaccination at all were only 1.3% against 3.5% at state level. The data also shows that all the children aged 12-23 months received most of the vaccinations from a public health facility (97.5% at state level). The percentage of children (under 5 years) with fever or symptoms of ARI in the last 2 weeks preceding the survey who were taken to a health facility were 80.9%, as against 78.5% at state level.

#### **3.1.4. Health Outcomes:**

The better socio-economic conditions and access to services are known to be strongly associated with better health outcomes in a population. The data on the nutritional status of adults and children in Anantnag district shows a promising picture and relatively better than the state as a whole. For instance, the NFHS-4 survey in 2015-16 shows that that the proportion of children under 5 years who were stunted was 18.2% in Anantnag (27.4% in state); those who were wasted were just 5.4% in Anantnag (12.1% in state) and those who were under-weight were 8.2% in Anantnag (16.6 % in state). The proportion of children aged 6-59 months who were anaemic was 41.1% in Anantnag as against 54.5 % in state as a whole (see Table 3.2).

Similarly, men and women in the age group of 15-49 years whose Body Mass Index (BMI) was below normal (less than 18.5) were only 10.7% and 8.8% respectively, as against corresponding figures of 11.5% and 12.1% for state. Similarly, women aged 15-49 years who were anaemic

were 36.6% in Anantnag (49.4 % in state) and men aged 15-49 years who were anaemic were 14.6% in Anantnag as against 20.6 % in state (see Table 3.2).

However, the levels of women being overweight or obese are higher in Anantnag as compared to state. The NFHS-4 survey shows that the proportion of women who were overweight or obese was 33.1% as compared to 29.1% at state level, and the proportion of men who were overweight or obese was 14.9 % as compared to 20.5% at state level (see Table 3.2).

<b>Indicator</b>	<b>Anantnag</b>	<b>J&amp;K</b>
Children stunted	18.2%	27.4%
Children wasted	5.4%	12.1%
Children underweight	8.2%	16.6 %
Children anaemic	41.1%	54.5%
Women with BMI below normal	8.8%	12.1%
Men with BMI below normal	10.7 %	11.5%
Women anaemic	36.6%	49.4 %
Men anaemic	14.6%	20.6 %
Women overweight or obese	33.1%	29.1%
Men overweight or obese	14.9 %	20.5%
Source: IIPS and ICF, 2017c for Anantnag and IIPS and ICF, 2017d for J&K		

### **3.2. Socio-economic Profile of Khiram Village:**

Khiram village is part of ‘Dachnipora’ community development block and Srigrufwara tehsil and is located at a distance of 17 kms from nearest Bijbehera town (sub-district) and almost 22 kms from Anantnag district headquarter. It has a hilly topography with many of its hamlets- largely inhabited by Gujjars and Bakerwals- located on the hills surrounding this village from two sides. A few of these hamlets are up to 5 kms from the main village, and many of the households on the upper side in these hamlets don’t have road connectivity yet. The village is relatively bigger in size with a total area of 1416 hectares (second highest in block) and consisted of 1453 households as per the Census 2011. The Census 2011 revealed that its total population was 9160 individuals- the second highest in the block- and included 4742 males (51.76%) and 4,418 females (48.23%). The population of children up to 6 years of age was 1,486, which amounted to 16.22% of total population (Govt of J&K, 2014).

The village is primarily divided into three large hamlets- Degijpur, Khodapur and Durrupur- separated by nallahs<sup>23</sup> originating from hill down to the village. However, with increasing population, each of these hamlets is further classified into many sub hamlets. This study covered 510 households, who recognized themselves belonging to more than 25 sub-hamlets. Many of these sub-hamlets were known after the caste names of families like Teeli mohalla, Sheikh mohalla, Kumar mohalla, Parreypora, Sofi mohalla, Hajaam mohalla, etc. indicating that caste may be one of the underlying factors for settlement patterns. The village was geographically divided into main village, located in the basin of hill and inhabited by Kashmiris only, and Gujjar bastis (hamlets) located up the hill. The village has been very diverse, inhabited by Kashmiri muslims, pundits and Gujjars and Bakerwals. Even among Kashmir muslims, there are many castes. However, Kashmiri pundits no longer live in this village and have migrated as part of large-scale displacement in 1990s when most of pundits left the valley.

Although people have settled in this village centuries ago but Gujjar populations have come to this village as late as 1960s. Most of these were migrating between Kashmir and Jammu regions on seasonal basis (summer in Kashmir and winter in Jammu) to feed their livestock on the available pastures. They decided to settle down in a single place and chose this village because of the proximity to forests which could have served well for their livestock. Other than forest, availability of water in the forest was another deciding factor in choosing this village to settle. From Kashmiris perspective, because of availability of huge land in the village, they were willing to sell the upper belt (over the hill) – un-irrigated, rocky and inferior land- to the Gujjars for settling down. As they settled down in the upper belt, it has proved beneficial to the main villagers in two ways. One, their lands/produce used to earlier be damaged by the wild animals and their habitations itself created deterrence for wild animals to damage trees and maize. Second, they provided cheap labour to the village, which is required given the demand for labour in the fields. As with increasing apple cultivation and corresponding increase in incomes, the demand for labour increased in the village. With the Gujjars deciding to settle down in this village, many of them sold their livestock, which used to be their main source of livelihood, and purchased land in the village to live on agriculture supplemented by casual labour. Over time, many of their relatives and friends who also decided to settle down somewhere in Kashmir

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<sup>23</sup> A long depression in the surface of land like a gully

purchased land in this village and are living there. Many families the researcher met were originally from Rajouri area and because they felt it would be safer in Kashmir than Rajouri due to muslim majority region and therefore settled down here.

The village like any other village in Kashmir has seen huge implications of conflict and a widespread presence of security forces camps around. There were many stories of crackdowns, raids, night searches, torture, harassment, etc- which have become a routine in the lives of people in Khiram, as in Kashmir valley. The mobility was hindered and curfews and strikes further created barriers and a strong sense of fear and trauma created structural barriers to people's access to basic amenities for living, education of children and sources of livelihoods. Even the overall political situation has seen lot of improvement over time, there are still security forces camped in nearby villages, and this researcher was told that no one likes to take those roads to go to the nearest town or district headquarter because of fear. Other than the conflict induced reasons, the village being far-off from the town and district headquarter have limited people's access to services, health care, markets and livelihoods.

With the availability of huge land around, the village has largely been dependent on agriculture for livelihoods and has shifted its cultivation from almonds being main cash crop before 1990s to walnuts and apple. As was indicated by the respondents during the study, the land under maize and/ or paddy cultivation has also been shifted to walnuts and apple orchards over time. In this transition, incomes have gone up and consequently led to many other associated changes in the village including creation of casual jobs, small businesses, transport availability, education opportunities and therefore government jobs also. However, many households especially lower castes, landless and Gujjars are still poor and may not have seen many improvements in their socio-economic conditions over time.

As the study was conducted in two parts, the second part covered 510 households and collected information on a range of socio-economic indicators in addition to recording anthropometric

measurements<sup>24</sup>. The socioeconomic variables included type of house owned, land holdings, farm outputs, source of livelihoods, educational attainments, source of drinking water, fuel used, vehicle owned, costly durables owned and type of toilet used. The analysis of these socio-economic variables recorded from 510 households therefore provides a broader understanding of the socio-economic context of this village and is presented in the next sections. Given the sample size and process<sup>25</sup> followed to select the sample which represented diverse backgrounds and included households from as many as 25 castes, the results are fairly representative to the village.

### 3.2.1. Family, Caste and Gender:

The results of the study have shown that there were 3204 family members within the 510 households covered the study, thereby, amounting to a family size of 6.3 per family, which is in line with Census 2011 data which has also shown a family size of 6.3 in the village. 52.75% of these individuals were male and 47.25% were females, indicating a sex ratio of 895.86 females to 1000 males. A majority of these households (45.49%) were nuclear households, followed by joint households (28.43%) and nuclear-extended households (26.08%).

The village, as noted earlier, was diverse and consisted of many castes which can be grouped into larger caste groups- general castes, scheduled tribes (ST) and deprived castes. These deprived castes are not OBCs but have poor socio-economic and educational status in the villages and therefore disadvantaged as compared to general castes. These deprived castes were identified by the local perception in the village and not by any official notification (more on this in the chapter 2). As can be seen from the Table 3.3, a majority of households (66.67%) belonged to general castes, followed by STs who were 19.02% and deprived castes who were 14.31%.

<b>Caste Group</b>	<b>Frequency</b>	<b>Percent</b>
General Castes	340	66.67
Schedule Tribe	97	19.02
Deprived castes	73	14.31
Total	510	100.00

<sup>24</sup> The first part of the study covered 100 households and was more in-depth and collected information on higher number of socio-economic indicators. However, because the sample size under the second part of study (510 households) is larger than first part, so the information from the second part is analysed in this chapter.

<sup>25</sup> These households were selected following systematic random sampling the details of which can found in Chapter-2 (section 2.3.3)



In terms of individual castes, this study covered 55 castes under the study and among those in higher proportions included Bhat (20.4%), Lone (16.9%), Parrey (4.9%), Dar (3.7%), Rather (3.7%), Najaar (3.3%) and Sood (3.3%).

As will be discussed later and in the next chapters, the STs and deprived castes were majorly poor and disadvantaged with respect to many economic opportunities including land, employment, education and other services, which has also translated over the time into relatively shorter heights and higher proportion of underweight adults among STs and deprived castes as compared to general castes.

### 3.2.2. Type of Housing:

The results of the study have shown that all the households had a house to live in. As can be seen from Table 3.4, a major proportion of these households to the level of 61.96 percent had pakka houses, followed by 26.27 percent households with concrete houses<sup>26</sup>, 11.18 percent with semi-pakka houses and only a small proportion of 0.59 percent (3 HHs) with katcha houses. In a way, most of the households (88.24%) had pakka or concrete houses in the village.

Type	Frequency	Percent
Pakka	316	61.96
Concrete	134	26.27
Semi Pakka	57	11.18
Katcha	3	0.59
Total	510	100.00

Although the overall quality, maintenance and number of rooms varied hugely between general castes and ST households with general castes having good quality housing, the study indicates that even the poorest of the households had better housing. For instance, out of 97 ST households covered under the study, only 2.1% households (2HHs) had katcha houses, 20.6% had semi-pakka houses, whereas 77.3% had either pakka or concrete houses.

### 3.2.3: Source of Water, Sanitation and Fuel:

The source of water, access to sanitation and fuel used are also important aspects of living and the respondents were asked to provide information about the same. Large parts of the village had

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<sup>26</sup> Concrete houses require heavy investment than pakka houses and that is why a separate category was created. The term ‘Concrete house’ was used to identify and categorize houses separately which used cemented mortar, concrete bricks, steel-reinforced cemented slabs and cemented flooring. Pakka houses, on the other hand, may use mud plaster and wooden ceilings.

access to public piped water but those on the higher terrain especially the STs were not getting water through the pipe line system throughout the year or even sufficient to use. Some who were on upper side of hills didn't even have a proper source of water at all. Because of that the government had built tube wells in the village (but as the locations are influenced by political factors), many who needed didn't have it in their vicinity and those who may not need were able to get one close by. There were also tube wells built by households themselves for their convenience.

On the lower side of the village were few springs, full with water discharge, and were main sources of water for the entire village traditionally, but are still being used by those who couldn't afford piped water into their dwelling and had a spring flowing nearby.

The study also showed (see Table 3.5) multiple sources of water were used by the households. Most of the households (91.18%) had access to piped water, followed by 6.08% who fetched water from a tube well and 2.75% households who fetched water from a spring.

<b>Table 3.5: Source of Water</b>		
<b>Source of Water</b>	<b>Frequency</b>	<b>Percent</b>
Piped Water	465	91.18
Tube well	31	6.08
Spring	14	2.75
Total	510	100.0

To fetch water from a tap within the house or from one's yard requires some investment to be made, otherwise, households have to fetch water from a community tap which may or may not be placed in the yard and is usually centrally placed for couple of households. Table 3.6 shows that 51.57% of households had piped/tube well water into their

<b>Table 3.6: Proximity to Water Source</b>		
	<b>Frequency</b>	<b>Percent</b>
Piped water/ tube well inside house	263	51.57
Piped water/ tube well within yard	106	20.78
Community post/tube well	127	24.90
Spring	14	2.75
Total	510	100.0

dwelling and 20.78% had within their yard, and all these had made investments to bring water to dwelling or yard. On the other hand, 24.90% of households' fetched water from a nearby community tap/ tube well and 2.75% from a spring. In a way, a little more than a quarter of households (27.65%) had not made any investment to improve proximity to water source.

The results of the study have shown that proximity of households to water source had a caste gradient. Table 3.7 shows that 93.81% of ST households fetched water from a community tap/ tube well, as compared to only 20.55% deprived caste households and 6.18% general caste households who fetched water from a community tap/ tube well. The data also shows that no ST households has reported fetching water from a spring is because of the fact that there were no springs close to hamlets where STs lived- these were hilly terrains. On the other hand, only 6.19% ST households reported having piped water/ tube well within their yards or into their dwellings as compared to 63.01% of deprived castes and 93.24% general caste households.

These differences are primarily because of affordability of general castes and backward castes to invest on piped water/ tube wells to increase proximity to water source as compared to ST who are mostly poor. It is also because of

Proximity to Water Source	Schedule Tribe	General Castes	Deprived Castes	Total
Spring	0 (0.00%)	2 (0.59%)	12 (16.44%)	14 (2.75%)
Community tap /tube well	91 (93.81%)	21 (6.18%)	15 (20.55%)	127 (24.90%)
Piped water/ tube well within yard	1 (1.03%)	81 (23.82%)	24 (32.88%)	106 (20.78%)
Piped water/ tube well into the house	5 (5.15%)	236 (69.41%)	22 (30.14%)	263 (51.57%)
Total	97 (100.0%)	340 (100.0%)	73 (100.0%)	510 (100.0%)

the hilly terrain in which STs lived and may require relatively more investments to bring piped water to yard or into their dwelling. On the other hand it requires very less investment in the lower side/main village due to a better spread/network of public water pipes and that has helped backward castes to bring piped water into their yard or dwelling.

It was observed that the toilet facilities have increased in the village and people preferred to have their own toilet facility within close by distances. Whereas, open defecation has substantially reduced in the village. The study also showed (see Table 3.8) only a small proportion of 5.69% households didn't have any access

Toilet Type	Frequency	Percent
Open defecation	29	5.69
Pit	272	53.33
Flush	209	40.98
Total	510	100.0

to toilets and defecated in the open. On the other hand, 53.33% households used pit latrines and

40.98% had flush toilets (with septic tanks). Among the flush users, only one household used community toilet, other had their own.

Likewise other assets, the type of toilets used by households showed a clear co-relation with caste. As can be seen from the Table 3.9, 24.74% of ST households defecated in the open (and constituted 82.76% of those who defecated openly) as compared to 6.85% deprived caste households who also defecated in the open. Not a single general caste household reported defecating in the open.

Further, 70.10% of ST households and 71.23% deprived caste households used pit latrines to defecate as compared to only 44.71% general caste households who also used pit latrines. On the other hand, only 5.15% ST households (5 HHs) had flush toilets as compared to 21.92% backward caste households and 55.29% general caste households (see Table 3.9).

With no government programme to support construction of flush toilets (no household reported being supported under Swachh Bharat Abhiyan) these differences in having flush toilets across castes is primarily due to affordability issues.

<b>Toilet Type</b>	<b>Schedule Tribe</b>	<b>General Castes</b>	<b>Deprived Castes</b>	<b>Total</b>
Open	24 (24.74%)	0 (0.00%)	5 (6.85%)	29 (5.69%)
Pit	68 (70.10%)	152 (44.71%)	52 (71.23%)	272 (53.33%)
Flush	5 (5.15%)	188 (55.29%)	16 (21.92%)	209 (40.98%)
Total	97 (100.0%)	340 (100.0%)	73 (100.0%)	510 (100.0%)

Most households used multiple types of fuels for cooking. The study shows that on an average, households used 2.5 types of fuels for cooking including LPG, electricity and wood/dung. Many of the households used LPG, dung/wood and electricity on parallel basis throughout the year but some switched between LPG in summers and dung/wood during winters. As can be seen from the Table 3.10, 89.80% households used LPG also as one of the fuels; 85.88% of households used dung/wood available from farms or collected from nearby forests as one of fuels; 77.06% households also used electricity as one of the fuels; and only 1.18% households used purchased wood as one of the fuels for cooking. They purchased wood for fuel primarily due to either being landless or not having apple orchards, which produce fire wood.

The study showed that the majority of households (64.12%) using Dung/Wood or Electricity as primary fuel, which were relatively cheaper or absolutely free (see Table 3.11). Dung/wood used was mostly available from farms or was collected from nearby hills and

Fuel Type	Frequency	Percent out of 510	Percent out of 1295
Dung/ Wood Collected	438	85.88	33.82
Gas	458	89.80	35.37
Electricity	393	77.06	30.35
Wood Purchased	6	1.18	0.46
<b>Total</b>	<b>1295.0</b>	<b>253.92</b>	<b>100.00</b>

because of flat fee charged for usage of electricity (irrespective of use) electricity used for cooking also came as free. On the other hand, only a little more than a third of households (35.88%) used LPG as primary fuel for cooking.

The kind of primary fuel used by the households has also shown co-relation with caste. As can be seen from the Table 3.12, only 1.03% ST households (1 HH) and 19.18% deprived caste households used LPG as primary fuel for cooking, as compared to 49.41% general caste households who used LPG as primary fuel. These differences are because of lack of ability of STs and deprived castes at large to afford refilling of LPG, which is much costlier than dung/wood/electricity<sup>27</sup> fuels and also partly because STs didn't own LPG connections. The study has shown that 43.30% ST

Primary Fuel	Frequency	Percent
Dung/Wood	319	62.55
Electricity	8	1.57
LPG	183	35.88
Total	510	100.00

households didn't had a LPG connection as compared to 6.85% deprived caste households and only 1.47% general caste households who also reported not having a LPG connection.

Primary Fuel	Schedule Tribe	General Castes	Deprived Castes	Total
Dung/Wood/ Electricity	96 (98.97%)	172 (50.59%)	59 (80.82%)	327 (64.12%)
Gas	1 (1.03%)	168 (49.41%)	14 (19.18%)	183 (35.88%)
Total	97 (100.0%)	340 (100.0%)	73 (100.0%)	510 (100.0%)

<sup>27</sup> Electricity was clubbed together with Dung/Wood because its use as fuel was relatively cheaper or absolutely free, likewise wood/dung. Households didn't pay any extra bill to use electricity for cooking.

### 3.2.4: Ownership of Consumer Durables and Vehicles:

The ownership of some of costly consumer durables by the households in rural areas is also an indication of their socio-economic conditions. During this study, information was also recorded from the households if they owned a color TV, refrigerator, washing machine or a computer. As can be seen from the Table 3.13, a little more than half of the households (54.31%) owned a color TV, where as a little less than a quarter of households owned a refrigerator (23.14%) or a washing machine (23.53%). On other hand, only a small proportion of 10.20% of households owned a computer.

Durable Owned	Owned	Percent
Color TV	277	54.31
Refrigerator	118	23.14
Computer	52	10.20
Washing Machine	120	23.53

Many of the households owned more than one of these durables. The results show (see Table 3.14) that 40.0% of the households didn't own a single such durable, whereas, a little less than a third of households (32.16%) owned one of these durables, 10.59% owned two such durables, 10.98% households owned three and only 6.27% owned all the four durables.

Durables Owned	Frequency	Percent
Nil	204	40.00
One item	164	32.16
Two items	54	10.59
Three items	56	10.98
All Four Items	32	6.27
Total	510	100.0

The ownership of these durables by the households also showed a co-relation with caste. The results show that more than two thirds of ST households (70.10%) didn't own any such durable, as against 57.53% backward caste households and 27.65% general caste households who didn't own any such durable (see Table 3.15).

Durables Owned	Schedule Tribe	General Castes	Deprived Castes	Total
Nil	68 (70.10%)	94 (27.65%)	42 (57.53%)	204 (40.00%)
One item	28 (28.87%)	113 (33.24%)	23 (31.51%)	164 (32.16%)
Two items	0 (0.00%)	47 (13.82%)	7 (9.59%)	54 (10.59%)
Three items	1 (1.03%)	54 (15.88%)	1 (1.37%)	56 (10.98%)
All Four Items	0 (0.00%)	32 (9.41%)	0 (0.00%)	32 (6.27%)
Total	97 (100.0%)	340 (100.0%)	73 (100.0%)	510 (100.0%)

Further, 28.87% ST households owned one of such durables as compared to slightly higher proportions of 31.51% deprived castes and 33.24% general caste households who also owned only a single durable. Most of these 51 ST/deprived caste households who owned a single durable owned a color TV which is seen as an important source of entertainment and ownership of it may not actually reflect a better socio-economic condition of such households. On the other hand, only a single ST household owned two to four items, as against 10.96% deprived castes and a significantly higher proportion of 39.12% general caste households who owned two to four durables.

The differential ownership of these costly durables by different caste groups, with a better picture for general castes followed by deprived castes and lastly by ST households is purely an economic function with STs mostly poor may not be able to afford such luxury items.

Like consumer durables, the ownership of any vehicle by households is an important attribute of better socio-economic conditions. The information was recorded from the households whether they owned a bike, auto (three wheeler), a car, tractor, truck or any other vehicle for personal or commercial use. The results show that a larger proportion of 69.22% households didn't own bike, car, a three wheeler or any other vehicle and whereas only 30.78% households owned any such vehicle (see Table 3.16). Among those who owned any vehicle, almost a third of these (52 of 157 HHS) owned just a bike. But there were also some families owning more one car or a combination of bike and car or different vehicles.

<b>Table 3.16: Ownership of Vehicles</b>		
Vehicle Owned	Frequency	Percent
No Vehicle	353	69.22
Car/Bike/Tractor/Truck/ Auto or Equivalent	157	30.78
Total	510	100.00

The ownership of any vehicle by households also shows a co-relation with caste. A smaller proportion of households from ST or deprived castes had any vehicle as compared to general castes. Table 3.17 shows only 13.40% ST households and 16.44% deprived caste households reported owning a bike, a car or any other vehicle. In comparison, more than a third of general caste households (38.82%) reported owning a bike, car or any other vehicle.

In fact, out of 13 ST households who reported owning any vehicle, 9 had only a bike and 4 had cars for personal use. Those who had it was a luxury within their community as they required it for lack of any public transport to their hilly terrain hamlets- which were up to 5 kms far from the main village. But among 12 deprived caste households who had any vehicle, half of them had vehicles for commercial use to earn a living, and only 6 households had a bike or car for personal use.

Vehicle Owned	Schedule Tribe	General Castes	Deprived Castes	Total
No Vehicle	84 (86.60%)	208 (61.18%)	61 (83.56%)	353 (69.22%)
Car/Bike/Tractor/ Auto or Equivalent	13 (13.40%)	132 (38.82%)	12 (16.44%)	157 (30.78%)
Total	97 (100.0%)	340 100.0%	73 100.0%	510 100.0%

### 3.2.5: Educational Attainments:

Educational attainments by people are an important indicator of progress and the information about the education of all individuals members of the households covered was recorded. 908 individuals were studying at the time of survey and may be able to attain higher educational levels than what they had achieved by the time of survey. However, for the study purposes, what they had achieved by the time of survey was record and analyzed here.

Education Level	Male	Female	Total
No Education	255 (15.09%)	631 (41.68%)	886 (27.65%)
Up to Primary/ Not Passed 5th	230 (13.61%)	159 (10.50%)	389 (12.14%)
Primary/ 5th Passed	190 (11.24%)	135 (8.92%)	325 (10.14%)
Upper Primary/ 8th Passed	316 (18.70%)	228 (15.06%)	544 (16.98%)
Secondary/ 10th Passed	179 (10.59%)	106 (7.00%)	285 (8.90%)
Higher Secondary/ 12th Passed	168 (9.94%)	65 (4.29%)	233 (7.27%)
Graduation (Completed)	104 (6.15%)	30 (1.98%)	134 (4.18%)
Post-Graduation or above	100 (5.92%)	21 (1.39%)	121 (3.78%)
Didn't Know/ Religious Studies	1 (0.06%)	1 (0.07%)	2 (0.06%)
Underage Children	147 (8.70%)	138 (9.11%)	285 (8.90%)
Total	1690 (100%)	1514 (100%)	3204 (100%)

The results show (see Table 3.18) that a more than a quarter of



individual members (27.65%) had no education at all and 12.14% individuals had received education but didn't complete primary level of education. In a way, almost 40% individual members within these households had no significant education. A more than a quarter of the individual members (27.12%) had attained either primary or upper primary education; only 8.90% had secondary level of education; and 7.27% had higher secondary level of education. Further, a small proportion of 4.18% individuals were graduates and 3.78% were post-graduates (including 10 persons who had MPhil education). The results show almost a clear pattern that the proportion of individuals attaining secondary and above education decreases as the level of education goes up.

The educational attainments by individual members also show a clear gender and caste gradient indicating that education attainments are largely a function of socio-economic status despite the government's large scale subsidized public education programmes in J&K, as in other parts of India. As can be seen from Table 3.18, more than half of women (52.18%) had either no education or not completed primary level of education as against to only 28.70% men who had either no education or not completed primary education. Further, only 23.98% women (29.94% men) had primary or upper primary education, 11.29% women (20.53% men) had secondary or higher secondary level of education, and only 3.37% women (12.07% men) had attained graduation or above education and is clearly much lower than the corresponding attainments by men.

Similarly, those who were general castes have attained relatively higher levels of education levels followed by deprived castes and scheduled tribes (see Table 3.19). The results shows that only 2.99% ST members and 13.79% deprived caste members have attained secondary or higher secondary levels of education as compared to 20.83% general caste members. Similarly, only 0.60% ST members (4 individuals) and 3.74% deprived caste members have attained graduation or above education as compared to 11.35% general caste members.

The study also shows that a clear correlation exists between educational attainments and economic status. For instance, those with larger land holdings have been able to attain better educational attainments than those with smaller landholdings (see Table 3.20). 72.36%

households with small landholdings have attained education only up to ‘Upper primary’ level as against to 61.46% households with large landholdings who have education only up to ‘Upper primary’ level.

On the other hand, a relatively smaller proportion (13.79%) of individuals from households with small landholdings had achieved secondary or higher secondary level of education as compared to relatively higher proportion of individuals (18.36%) who have achieved

<b>Educational Level</b>	<b>Schedule Tribe</b>	<b>Deprived Castes</b>	<b>General Castes</b>	<b>Total</b>
No Education/ Up to Primary	325 (48.65%)	197 (46.03%)	753 (35.72%)	1275 (39.79%)
Primary or Upper primary	227 (33.98%)	126 (29.44%)	516 (24.48%)	869 (27.12%)
Secondary or Higher Secondary	20 (2.99%)	59 (13.79%)	439 (20.83%)	518 (16.17%)
Graduation or above	4 (0.60%)	16 (3.74%)	235 (11.15%)	255 (7.96%)
Underage children	91 (13.62%)	30 (7.01%)	164 (7.78%)	285 (8.90%)
Others	1 (0.15%)	0 (0.00%)	1 (0.05%)	2 (0.06%)
<b>Total</b>	<b>668 (100.0%)</b>	<b>428 (100.0%)</b>	<b>2108 (100.0%)</b>	<b>3204 (100.0%)</b>

secondary or higher secondary level of education. Similarly, only 4.62% of individuals from households with small landholdings have achieved graduation or above level of education as compared to relatively higher proportion of individuals (11.31%) from households with large landholdings who have attained graduation or higher levels of education. In a way, the study shows that the representation of households with small landholdings is much lower in secondary and higher educational attainments as compared to households with large landholdings, thereby, indicating the economic gradient in educational attainments.

Therefore, the study has shown a significant co-relation between socio-economic factors like gender, caste and economic status with the educational attainments indicating that these socio-economic factors are largely determining ability of individuals to attain higher levels of education.

The study also looked at highest educational levels attained at household levels and found that in 6.08% of households there was no one who had completed primary education. Further, within 7.06% households the highest education attained by any member was primary education, and within a larger proportion of 24.71% households the highest educational attained by any member was upper primary. In a way, in more than one third of households (37.84%) the

Education Level	Small Landholdings	Large Landholdings	Total
No Education/ Up to Primary	707 (44.10%)	568 (35.48%)	1275 (39.79%)
Primary or Upper Primary	453 (28.26%)	416 (25.98%)	869 (27.12%)
Secondary or Higher Secondary	224 (13.97%)	294 (18.36%)	518 (16.17%)
Graduation or above	74 (4.62%)	181 (11.31%)	255 (7.96%)
Others	1 (0.06%)	1 (0.06%)	2 (0.06%)
Underage Children	144 (8.98%)	141 (8.81%)	285 (8.90%)
Total	1603 (100.0%)	1601 (100.0%)	3204 (100.0%)

*Note: The cut-off for creating land categories were decided on 50<sup>th</sup> percentile using SPSS. The 'small' landholdings include landholdings up to 11 kanals and 'large' included more than 11 kanals.*

highest educational attainment was upper primary or less (see Table 3.21). Further, 33.14% households had secondary or higher secondary as highest educational attainment by any member. Only 11.96% households had highest educational attainment as graduation and 17.06% had post-graduation.

Educational Level	Frequency	Percent
No Education/ Up to 5th	31	6.08
Primary Passed	36	7.06
Upper Primary Passed	126	24.71
Secondary Passed	68	13.33
Higher Secondary Passed	101	19.80
Graduation (Completed)	61	11.96
Post-Graduation or above (Completed)	87	17.06
Total	510	100.00

The highest educational attainment at household level has also shown a caste gradient. For instance, in 83.51% ST households (N=97 HHs), the highest educational attainment was upper primary or less, as compared to 53.42% deprived caste households (N=73 HHs) and only 21.47% general caste households (N=340). On the other hand,

there were only 13.40% ST households as compared to 31.51% deprived caste households and 39.12% general caste households in which some member had attained secondary or higher secondary educational level. Similarly, in only 3.09% ST households someone was able to attain graduation or above education, as compared to significantly higher proportion of 15.07% deprived caste households and 39.41% households who had at least a member with graduation or above education level.

The study also looked at the engagements of children. There were 767 children (5 to 18 years) who were in school age group. As can be seen from the Table 3.22, it was found that a larger proportion of these children (89.70%) were studying (including 4 children who were pursuing religious studies) and 3.13% children were thought by their families to be young to go to school (therefore not presumed as out of school children). However, a significant proportion of 7.17% of children were not in school. As they are out of school, most of these were doing some work. 31 of these children were doing household work; 11 were casual laborers; 8 were not doing anything particular (4 of them were mentally disabled or unwell) and 5 were in different occupations including one who was tailor apprentice, one was artisan, another was working as a salesman on a clinic, one was helping his family in farming and another owned and was driving a three wheeler. Those who worked for paid jobs (excluding household work) were all above 14 years of age. All the children engaged in casual labor or farming or private jobs or business were males, whereas out of school female children were predominantly engaged in household work. 29 out of 31 children who did household work were females.

<b>Table 3.22: Status of Children</b>		
<b>Engagement</b>	<b>Frequency</b>	<b>Percent</b>
Study	688	89.70
Underage	24	3.13
HH Work	31	4.04
Casual labour	11	1.43
Nothing in particular	8	1.04
Others	5	0.65
Total	767	100.00

Those who were out of school were predominantly from ST households. 38 out of 238 total ST children (15.97%) were out of school, whereas only 6 out of 95 total children (6.32%) from deprived castes and 11 out of total 434 (2.53%) from general castes were out of school. Similarly, a higher proportion of female children were out of school. 37 out of 344 total female

children (10.76%) were out of school and were significantly higher than 18 out of 423 male children (4.26%) who were also out of school.

Those children who went to school attended both private and government run schools. The information about type of school attended was available for only 539 children out of 688 school going children (such information was not initially thought to be collected and was recorded only at a later stage of survey, so not available for all children). It was found that a larger proportion of 53.06% of these children went to government run schools, 46.20% went to private schools and 0.74% (4 children) went to privately run religious institutions. There was a significant caste gradient in children going to private or government run schools. 89.89% of ST children were going to government schools, as compared to 61.02% children from deprived castes and 27.74% from general castes. On the other hand, only 9.57% of ST children were going to private schools as compared to 35.59% children from deprived castes and 71.92 % children from general castes. There is a strong perception that private schools provide a better quality education as compared to government run schools, and those who can afford prefer private schools for their children. The fact that a larger proportion of children from ST and deprived castes were going to government schools was primarily because of their lack of resources to send their children to private schools.

### **3.2.6. Ownership of Land:**

Land ownership is one of the important resources at the disposal of rural households and may not only produce food for the households but is also an important livelihood activity for many of these households. Most households owned land in the village. There were two types of land owned by households- irrigated and un-irrigated. Un-irrigated land formed a major portion of total land owned by the households in the village, which is because of its partly hilly topography. The hills provided more land to bring under cultivation but un-irrigated.

The irrigation is canal-based which passes through the base of the village and therefore irrigates only such portions of land which are on the lower side and most portions of land located uphill are un-irrigated which depended on rain water. However, the State government has built three

major lift irrigation pumps from 2002 onwards which have been able to irrigate apple orchards even if located very uphill in the village. The details of these are given in Chapter-4.

People cultivated mainly four crops in the village by 1960 which included paddy on irrigated land, maize and almonds on better portions on un-irrigated land and walnuts on un-even/ sloppy un-irrigated land. They also cultivated vegetables on small portions of irrigated land for family use. The cultivation patters shifted by 1960s onwards when village started growing apple initially on un-irrigated land which later replaced all almonds and even covered major parts of maize and paddy land as well. By the time of this survey in 2017-18, people cultivated mainly four crops but replacing almonds completely with apple. They cultivated paddy on irrigated land (but very limited now), maize on un-irrigated land (also very limited), walnuts on un-even/ sloppy un-irrigated land and apply on both irrigated and un-irrigated land. The reasons for transformation in cultivation patters are explained in detail in Chapter-4.

The entire cultivation follows single cropping system, all crops are produced only once in a year but the crop cycles vary. Paddy season starts from June and is harvested in October, whereas the flowering for apple and walnuts sets in early summer by April but the harvesting is done in October majorly. The apple and walnut trees take many years before they produce crop.

The study collected information from all households about the land they owned and the crop they cultivated on this land. The data was analysed for the total land owned by households as well as separately for each crop as can be seen from the Table 3.23. Overall, only a smaller proportion of households to the level of 7.65% didn't own any land (were landless), whereas, 92.35% households owned some portion of land but the land holdings were small and varied. The average land (all types) owned by the households<sup>28</sup> was 13.92 kanals. 38.24% households owned 0.1 to 8 kanals of any land (1 acre or less), 25.69% owned 8.1 to 16 kanals (1 to 2 acres) and 28.43% households owned more than 16 kanals (more than 2 acres) of any land.

As households cultivated different crops, the data has also been analyzed to understand cropping pattern in the village. As can be seen from the Table 3.23, most of the families (93.92%) didn't

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<sup>28</sup> Including landless households

own any paddy land, whereas only a small proportion of households (4.90%) owned 0.1 to 4 kanals (up to half acre) of paddy land and 1.18 % households owned 4.1 to 16 kanals (half acre to two acres) of paddy land. The landholdings under paddy cultivation were very small with the average landholding of 0.20 kanals per household. The reasons for most of the households not owning any paddy land were two-fold. Firstly, a larger proportion of land available in the village has always been un-irrigated and secondly a major part of available paddy land was converted to apple orchards over the time especially in the last 20 years.

The other crop was the walnut cultivation which contributed significantly to people's incomes and was seen as a very reliable crop, mostly planted on sloppy un-irrigated land (more details about incomes from walnuts in chapter -4). A majority of households (82.16%) owned some portion of walnut orchards and only 17.84% of households didn't own land with walnut trees. The land holdings under walnuts were also small (but much higher than paddy) and the average landholdings were 5.85 kanals per household. The landholdings are varied among households (see Table 3.23). Out of the total households, 41.76% of households reported owned 0.1 to 4 kanals of walnut land, followed by 19.61% who owned 4.1 to 8 kanals and 20.79% households who owned 8.1 kanals or above.

The other most important crop in terms of contributory incomes to the farmer was 'apple' in the village and the acreage under apple cultivation has increased tremendously especially in the last 30 years (more details in Chapter-4). A majority of households (87.85%) owned some portion of apple orchards and only a smaller proportion of 12.16% of the households didn't own any apple orchards. The land holdings under apple were also small (but much higher than any other crop) and the average landholdings were 6.93 kanals per household. The landholdings also are varied among households (see Table 3.23). Out of the total households, 35.69% of the households owned 0.1 to 4 kanals of apple land (half acre or less), 25.88% households owned 4.1 to 8 kanals (up to one acre) and 26.28% households owned more than 8 kanals (more than an acre) of land with apple.

In addition, some households were left with a portion of un-irrigated land with was either used for maize cultivation or planted trees or left unused<sup>29</sup>. As can be seen from Table 3.23, only a small proportion of 17.65% households owned any such un-irrigated land, whereas a majority of 82.35% didn't own any such un-irrigated land. Such landholdings were also very small with an average of 0.95 kanals per household. Out of the total households, 10% owned only 0.1 to 4 kanals (half acre or less) of un-irrigated land, 5.49% households owned 4.1 to 8 kanals and only a smaller proportion of 2.16% owned more than 8 kanals of such un-irrigated land.

There were no significant gains from this un-irrigated land. Only 17 households with such un-irrigated land reported some output (mostly maize), some households used it for grass cultivation to be fed to livestock or planted trees for wood, and in majority of the cases either the land was rocky or too dry to be seen fit for any cultivation.

<b>Table 3.23: Ownership of Land by Crops</b>					
<b>Land in Kanals</b>	<b>Paddy Land</b>	<b>Walnut Orchards</b>	<b>Apple Orchards</b>	<b>Other Un-irrigated Land (Maize, trees, unused, etc)</b>	<b>Any Land</b>
Zero	479 (93.92%)	91 (17.84%)	62 (12.16%)	420 (82.35%)	39 (7.65%)
0.1 to 4	25 (4.90%)	213 (41.76%)	182 (35.69%)	51 (10.0%)	109 (21.37%)
4.1 to 8	5 (0.98%)	100 (19.61%)	132 (25.88%)	28 (5.49%)	86 (16.86%)
8.1 to 16	1 (0.20%)	70 (13.73%)	90 (17.65%)	6 (1.18%)	131 (25.69%)
16.1 or above	0 (0%)	36 (7.06%)	44 (8.63%)	5 (0.98%)	145 (28.43%)
Total	510 (100.0%)	510 (100.0%)	510 (100.0%)	510 (100.0%)	510 (100.0%)
<b>Mean Land Owned</b>	0.20	5.85	6.93	0.95	13.92

*Note: 8 kanals are equal to 1 acre of land*

The land ownership across different social groups has shown significant disparities. Given the important of land in determining the socio-economic status, these disparities became structural reasons for producing the inequalities in different spheres of life in the villages. As explained in

<sup>29</sup> It excludes land under walnut and apple orchards or under paddy cultivation, which are mentioned earlier



Chapter-4, the STs and deprived castes were disadvantaged with respect to many economic opportunities as compared to general castes.

The results of the study have shown that a higher proportion of 15.88% of households from STs/deprived castes were landless as compared to only 3.53% of general castes who were landless. The landholdings owned by STs/deprived castes were significantly smaller than the general castes (see Table 3.24). The average land holdings owned by ST households and deprived castes were just were 7.31 kanals and 5.93 kanals respectively as compared to the general castes who owned an average of 17.53 kanals- more than double of what was owned by ST/deprived castes.

The crop-wise land ownership also shows disparities across caste (see Table 3.24). All the paddy land left from being converted to apple was owned by households belonging to general castes. Against 75.26% households from STs and 61.64% households from deprived castes who owned any walnut orchards, 88.53% households from general castes owned any walnut orchards. Further, an average of 3.21 and 2.47 kanals of walnut landholdings was owned by ST and deprived caste households as against 7.33 kanals of walnut land owned by general caste households. Similarly, only 75.26% and 67.12% from ST and deprived caste households owned apple orchards of any size as compared to 95.88% of general castes who owned apple orchards. Likewise walnuts, the average apple landholdings owned by general castes (8.85 kanals) were significantly large as compared to STs (3.21 kanals) and deprived caste households (2.94 kanals).

<b>Table 3.24: Ownership of Land by Social Groups</b>						
<b>Categories</b>	<b>Paddy Land</b>	<b>Walnut Orchards</b>	<b>Apple Orchards</b>	<b>Other Un-irrigated Land (Maize, trees, unused etc)</b>	<b>Any Land</b>	<b>Total Households</b>
General castes	9.12 % (0.30)	88.53% (7.33)	95.88% (8.85)	19.12% (1.05)	96.47% (17.53)	340
Deprived castes	0.00% (0.00)	61.64% (2.47)	67.12% (2.94)	8.22% (0.53)	75.34% (5.93)	73
Scheduled tribes	0.00% (0.00)	75.26% (3.21)	75.26% (3.21)	19.59% (0.89)	90.72% (7.32)	97
Total	6.08% (0.20)	82.16% (5.85)	87.84% (6.93)	17.65% (0.95)	92.35% (13.92)	510

*Note: Mean land owned in brackets*

**Production of walnuts and Apple:** Walnut and apple produce contributed significant incomes to the farmers unlike the paddy cultivation which hardly left any savings in the hands of farmers. Although apple was seen as vulnerable to climatic conditions and fluctuating market rates, people acknowledged at large that apple has made a huge impact and significantly increased their farm dividends. It was evident from the changing cropping pattern with a fast rate of conversion of paddy land to apple orchards that apple was fetching good incomes to farmers, otherwise, why would they invest into planting of apple trees and wait for more than seven-eight years before the apple orchards start producing significant crop.

But to what extent the apple and walnut crops are increasing incomes to the farmers was investigated under this study. An attempt was made to estimate the incomes from the walnut and apple crop to the farmers. As incomes are usually not reported accurately, the respondents were asked about the approximate quantum of production of walnuts and apple they fetch from their farms annually on an average, and the reported produce was converted into approximate savings (by deducting expenditures/input costs from the average selling prices). These calculations- converting production into savings- was done with the help of a group of local farmers.

The results of the study (see Table 3.25) show that 42.16% households produced approximately 0.02 to 4 Mann every year (each Mann is equal to 80 kgs and was sold at a price of Rs 6000 in the year prior to survey), and therefore, may have an income of up to Rs 24,000 from walnuts. Pertinent to note that unlike paddy and apple (other two main crops), walnuts are produced at very low input costs. Similarly, 20.20%

<b>Output (in Rs)</b>	<b>Frequency</b>	<b>Percent</b>
No Land/ No Output	99	19.41
0.02 to 4 Mann (up to Rs 24,000)	215	42.16
4.1 to 8 Mann (Rs 24000 to 48000)	103	20.20
8.1 to 12 Mann (Rs 48,000 to 72000)	52	10.20
12.1 to 70 Mann (Rs 72,000 to 4,20,000)	41	8.04
Total	510	100.0
<i>Note: Mann is a locally used unit equal to 80 kgs</i>		

households had an approximate production of 4.1 to 8 Manns of walnuts each year which may fetch Rs 24000 to 48000, followed by 10.20% households who reported to produce an approximate 8.1 to 12 Manns of walnuts each year which may fetch Rs 48,000 to 72000. In

addition, 8.04% of households had a production of 12.1 to 70 Manns approximately which may fetch Rs 72,000 to 4,20,000 on annual basis.

It was also found that 19.41% households didn't produce any walnuts (*91 of these 99 households had no walnut land and 8 of these had walnut orchards but no production by the time survey*).

Although farmers were quick to add that both the walnut production and its selling price varies from year to year basis but in general walnuts were seen as a sustainable crop and not easily damaged by climatic uncertainties. Walnuts have emerged as a good source of cash for many families in this village.

With respect to apple production, the results of the study (see Table 3.26) that 20.78% of the households had no apple produce, which was because of either they had no apple orchards or planted apple trees very recently which takes time to produce crop or the land was dry and trees didn't grow. 20.20% households reported they produced up to 150 apple boxes approximately (each apple box contains almost 20 kgs of apple). 23.14% households had apple production of 151 to 300 boxes and 16.08% households produced 301 to 500 boxes. Similarly, 19.80% households reported having an approximate production of 501 to 2000 on annual basis.

Farmers reported that apple production was labour and resource intensive and very vulnerable to climatic uncertainties. However, it was obvious and agreed by most farmers during the interviews that apple is fetching very good incomes to a majority of

<b>Table 3.26: Production of Apple Annually</b>		
<b>Output (in Rs)</b>	<b>Frequency</b>	<b>Percent</b>
No output/ No Land	106	20.78
1 to 150 boxes (Rs 200 to 45,000)	103	20.20
151 to 300 boxes (Rs 45,300 to 1,20,000)	118	23.14
301 to 500 boxes (Rs 1,20,400 to 2,50,000)	82	16.08
501 to 2000 boxes (Rs 2,50,500 to 10,00,000)	101	19.80
<b>Total</b>	<b>510</b>	<b>100.0</b>
<i>Note: The output categories represent quintiles and the cut-offs were decided on 20<sup>th</sup>, 40<sup>th</sup>, 60<sup>th</sup> and 80<sup>th</sup> percentile which were computed using SPSS</i>		
<i>Mean Output in number of Boxes is 334.25 and in incomes is Rs 154348.24</i>		

households in the village. The average savings from apple crop annually were estimated at Rs

154348.24 approximately but such incomes varied a lot between households (see Table 3.26). 43.33% households were able to fetch an income up to 1.20 lakhs annually, 16.08% households could fetch an income in the range of Rs 1.20 to 2.50 lakhs and 19.80% households could fetch an amount in the range of Rs 2.50 to Rs 10 lakhs annually. Such variation in incomes was primarily determined by the landholding size under apple crop, irrigation or un-irrigated land and age of apple trees (well grown trees produced more fruit).

To give a holistic perspective on the farm incomes, an attempt was also made to make calculations about approximate savings from all crops fetched from paddy, walnuts, apple and other types of un-irrigated land based on the quantum of crop reported by households. Although 90 households (17.65%) owned un-irrigated land but it was found that there were no significant gains from this un-irrigated land. Only 17 households with un-irrigated land reported some output (mostly maize) and therefore farm outputs from un-irrigated land were not counted in calculations of total farm incomes, which included crops from paddy, walnuts and apple- three major crops produced in the village. To reiterate, these estimates were made with the help of group of local farmers from the study village.

As can be seen from Table 3.27, more than one fifth of the households (21.96%) had either no incomes or very insignificant incomes up to Rs 10,000 only on annual basis (called as insignificant farming for this study purposes). Those who reported no incomes were either landless or had recently planted apple trees or planted trees had dried up. Further, 19.80% households had incomes in the range of Rs 10,001 to 70,000 (called as poor farming for this study),

<b>Table 3.27: Total Incomes from Farming</b>		
<b>Farm Incomes</b>	<b>Frequency</b>	<b>Percent</b>
Rs 0 to 10,000 (Insignificant Farming)	112	21.96
Rs 10,001 to 70,000 (Poor Farming)	101	19.80
Rs 70,001 to 1,45,000 (Small Farming)	93	18.24
Rs 1,45,001 to 3,04,500 (Medium Farming)	102	20.00
Rs 3,04,501 to 13,50,000 (Good Farming)	102	20.00
<b>Total</b>	<b>510</b>	<b>100.0</b>
<i>Notes: (1) These incomes represent the savings and were arrived at by deducting the expenditures from the selling prices. (2) The Income categories represent quintiles and the cut-offs were decided on 20<sup>th</sup>, 40<sup>th</sup>, 60<sup>th</sup> and 80<sup>th</sup> percentile which were computed using SPSS</i>		
<i>Mean incomes is Rs 179824.22</i>		

However, 18.24% households were able to fetch approximately Rs 70 thousand to 1.45 lakhs on annual basis (called as small farming for this study). A significant portion of the households (20.0%) were able to fetch approximately Rs 1.45 to 3.04 lakhs and another 20% were able to fetch Rs 3.04 to 13.50 lakhs from farming on annual basis (called as medium and good farming respectively).

In a way, more than half of the households (58.24%) had significant incomes from farming in the range of Rs 70 thousand to 13.50 lakhs annually. Overall, the average incomes from farming were estimated (for all households) at Rs 1, 79,824.22 per year per household.

However, the production of crops and thereby incomes from farming show significant disparities along the lines of castes. Households from STs and deprived castes were able to produce lesser quantum of apple and walnuts than general castes. The results of the study show that a majority of ST households (78.35%) and deprived castes (78.08%) have either no incomes or insignificant or poor incomes (Rs 0 to 70 thousand), whereas only 23.53% of general caste households had either no incomes or insignificant or poor incomes. On the other hand, only a smaller proportion of 16.49% ST households and 17.81% deprived castes had small to medium incomes (Rs 70 thousand to 3.04 lakhs) in comparison to 48.82% of general castes who were able to fetch such incomes from farming. Similarly, only 5.15% ST households and 4.11% deprived castes had good incomes (in the range

of Rs 3.04 to 13.5 lakhs) from farming in comparison to 27.65% households from general castes who earned same from farming (see Table 3.28).

These differences in farming incomes across caste groups were mainly because of disparities in the apple

<b>Table 3.28: Incomes from Farming by Caste</b>				
<b>Farm Income Categories</b>	<b>Schedule Tribe</b>	<b>General Castes</b>	<b>Deprived Castes</b>	<b>Total</b>
No output/ Insignificant Faming	41 (42.27%)	33 (9.71%)	38 (52.05%)	112 (21.96%)
Poor Farming	35 (36.08%)	47 (13.82%)	19 (26.03%)	101 (19.80%)
Small Farming	12 (12.37%)	72 (21.18%)	9 (12.33%)	93 (18.24%)
Medium Farming	4 (4.12%)	94 (27.65%)	4 (5.48%)	102 (20.00%)
Good Farming	5 (5.15%)	94 (27.65%)	3 (4.11%)	102 (20.00%)
Total	97 (100.0%)	340 (100.0%)	73 (100.0%)	510 (100.0%)

production - which contributed majorly to farm incomes- and that was in-turn primarily due to four reasons. Firstly the ST/deprived caste households had smaller land holdings than general castes. Secondly, a major portion of apple land belonging to general castes is irrigated once or twice a year through government constructed lift irrigation projects in the village, which excluded major portions of land belonging to STs (more details about this are discussed in the Chapter-4). Thirdly, the investments (current and past) as input costs made by general castes viz- viz ST/deprived castes are disproportionate. The general castes converted to apple early and have full grown plants now, whereas ST/deprived castes made the shift to apple late and were not able to invest in one go. As the apple cultivation is resource intensive, even the present investments don't match of ST/deprived castes with general castes resulting in quality and quantity differences. Fourthly, the irrigated paddy land shifted to apple produced a better crop than un-irrigated land and the general castes own major shares of irrigated apple orchards as compared to ST (who hardly had irrigated land) or deprived castes.

These differences in the farm incomes across caste groups have also translated over time into wider disparities in socio-economic conditions which are discussed in Chapter-4.

### **3.2.7: Occupations and Livelihoods:**

People in the village were engaged in multiple occupations from studying to household work to farming to labour to jobs. The occupations of all individual members of the households covered under the survey were recorded. There were a total of 3204 members in 510 households. The data was analyzed to assess the main/primary occupations of all individual members as well as looked at diversification of livelihoods at household level.

The results show (see Table 3.29), 27.09% household members were engaged primarily in household work. These included mostly women (99%). 8.65% were primarily engaged in farming, out of which 98.9% were men indicating that farming is primarily undertaken by men as against household work which is mostly done by women. This does not mean that women were not engaged in farming but as a secondary occupation. Further, 5.24% of members were primarily working as casual labours (in and around village in most cases) and 2.87% were skilled

workers (carpenters, mason, tailor, electrician, plumber, etc). All casual laborers were men, and all skilled workers (except 5 women tailors) were men.

The study has also shown that a small proportion of 4.24% were engaged in business, mostly running small shops of different kinds in the village or did fruit business, sold shawls or owned transport vehicles and in few cases had started small wood joinery or shuttering enterprises.

Again, all businesses were run by men. Importantly, 4.74% of the members were either Government employees or pensioners, 2.28% were working in private jobs and 0.72% members were daily wagers with state government (most of these will get regularized in government jobs over time), indicating that a total of 7.74% of the individuals were salaried/pensioners. There was a very high preference among people for government jobs in the villages, as in the entire state. But the representation of women in salaried jobs was very low: only 9.27% (23 of 248) who were salaried or pensioners (including government jobs, private jobs and government daily wagers) were women in the village (see Table 3.29).

In addition, 28.34% members were engaged in study; 8.93% were too young to study or do any other work; and 5.96% reported not doing anything particular.

79.1% of these who were not doing anything particular were old (60 years or above) and other 4.2% were children (below 18 years).

<b>Occupation</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Farming	274 (16.21%)	3 (0.20%)	277 (8.65%)
Govt. Salaried/ Pensioner	139 (8.22%)	13 (0.86%)	152 (4.74%)
Govt. daily wager	17 (1.01%)	6 (0.40%)	23 (0.72%)
Private Salaried	69 (4.08%)	4 (0.26%)	73 (2.28%)
Business Enterprises	136 (8.05%)	0 (0.00%)	136 (4.24%)
Skilled worker	87 (5.15%)	5 (0.33%)	92 (2.87%)
Casual Labor	168 (9.94%)	0 (0.00%)	168 (5.24%)
HH Work	9 (0.53%)	859 (56.74%)	868 (27.09%)
Study	545 (32.25%)	363 (23.98%)	908 (28.34%)
Nothing in particular	84 (4.97%)	107 (7.07%)	191 (5.96%)
Others	15 (0.89%)	15 (0.99%)	30 (0.94%)
Underage	147 (8.70%)	139 (9.18%)	286 (8.93%)
<b>Total</b>	<b>1690</b> <b>(100.0%)</b>	<b>1514</b> <b>(100.0%)</b>	<b>3204</b> <b>(100.0%)</b>

At household level, there was a diversification of livelihoods with households relying on more than one source of livelihood for their living. The study showed that the sources of livelihoods ranged from 1 to 6, with an average of 2.27 sources of livelihood per household. 77.06% of households had more than one source of livelihood; 33.73% had more than two means of livelihoods; 12.75% had more than three sources livelihoods; 3.14% had more than four means of livelihoods and 0.20% (1 HH) had more than five sources of livelihoods.

Among these diverse livelihoods farming was one of livelihoods for 80.78% households; followed by casual labour which was one of the sources of livelihoods for 41.57% households; skilled labour was for 16.86% households; and businesses were one of the livelihoods for 27.65% households (see Table 3.30). In addition, jobs (especially government jobs) also constituted a major source of livelihoods. Government jobs/pension were one of the sources of livelihoods for 29.41%

households; followed by private jobs for 16.27% households and Government daily wages were for 4.90% households. But those who were working in private jobs were mostly earning minimal salaries.

With 77.06% households reporting multiple (more than one) source of livelihood,

<b>Table 3.30: Sources of Livelihood at Household Level</b>			
<b>Livelihood</b>	<b>Frequency</b>	<b>Percent out of 510</b>	<b>Percent out of 1157</b>
Farming	412	80.78	35.61
Casual Labour	212	41.57	18.32
Skilled Labour	86	16.86	7.43
Business Enterprises	141	27.65	12.19
Govt Salaried/ Pensioner	150	29.41	12.96
Private Salaried	83	16.27	7.17
Govt daily wager	25	4.90	2.16
Others	48	9.41	4.15
<b>Total</b>	<b>1157</b>	<b>226.86</b>	<b>100.00</b>

households were also asked to identify the main occupation which is a major source of livelihood for the household. As can be seen from Table 3.31, farming was reported as a main source of livelihood by 43.92% of households despite the fact that agriculture as a sector in overall has not seen growth comparable with other sectors. But the fact that apple has emerged as a major crop in the village and is fetching very good returns to the farmers is the reason why a significant proportion of households reported farming as a major livelihood source. There were families who had a person engaged with a government job but still felt farming was main livelihood for



them and that speaks of the dividends they are able to fetch from apple, even when the average landholdings are small in the village.

Further, 23.14% households reported casual labour as main source of livelihood, and 5.88% households reported that skilled labour was a main source for them. 9.61% households reported business being the main source of livelihood. Jobs were also main source of livelihoods for 16.67% households with Government jobs for 14.51%, private job for 1.57% and Government daily wages for 0.78 % households.

<b>Occupation</b>	<b>Frequency</b>	<b>Percent</b>
Farming	224	43.92
Casual Labour	118	23.14
Skilled Labour	30	5.88
Govt Salaried/ Pensioner	74	14.51
Private Salaried	8	1.57
Govt daily wager	3	0.59
Business Enterprises	49	9.61
Others	4	0.78
Total	510	100.00

Those who depended majorly on casual labour or skilled labour or on a very small business unit or poor farming outputs were disadvantaged and poor in the village and accounted for 32.5% of total households. The study also showed that such poor livelihoods were majorly a source of livelihood for STs and deprived castes as compared to general castes. In other words, STs and deprived castes didn't have equal access to better paying livelihoods as compared to general castes, thereby indicating a caste gradient in better sources of livelihoods.

As can be seen from the Table 3.32, farming was main source of livelihood for only 12.35% of ST/deprived castes as compared to 59.71% of general castes. This is because the average landholdings of ST/deprived castes were smaller than the general castes especially the land under apple and walnuts. Similarly, Govt job/pension was a major source of livelihood for only 8.24% ST/deprived castes as compared to 17.65% general castes. Such differences in jobs between ST/deprived castes and general castes also exist because of unequal educational attainments (as can be seen from Section 3.2.5). On other hand, ST/deprived castes relied more on vulnerable occupations. For instance, 49.41% ST/deprived caste households relied on casual labour as major source of livelihoods as compared to only 10% of general castes who relied on casual labour.

### 3.2.8: Ration Cards and Economic Status:

The type of ration cards provided to households may also reflect socio-economic status of households and information was collected about the type of ration cards households possessed. All households except seven had a ration card. These seven households had recently separated from their joint families but were provided food grains from the PDS store on an adhoc paper

Main Occupation	Schedule Tribe	General Castes	Deprived Castes	Total
Farming	13 (13.40%)	203 (59.71%)	8 (10.96%)	224 (43.92%)
Casual Labour	68 (70.10%)	34 (10.00%)	16 (21.92%)	118 (23.14%)
Skilled Labour	4 (4.12%)	12 (3.53%)	14 (19.18%)	30 (5.88%)
Business Enterprises	2 (2.06%)	27 (7.94%)	20 (27.40%)	49 (9.61%)
Govt. Salaried/ Pensioner	8 (8.25%)	60 (17.65%)	6 (8.22%)	74 (14.51%)
Private Salaried	0 (0.00%)	2 (0.59%)	6 (8.22%)	8 (1.57%)
Govt. daily wager	0 (0.00%)	2 (0.59%)	1 (1.37%)	3 (0.59%)
Others	2 (2.06%)	0 (0.00%)	2 (2.74%)	4 (0.78%)
Total	97 (100.0%)	340 (100.0%)	73 (100.0%)	510 (100.0%)

till their ration cards are prepared and provided to them. As they were getting ration, they were included in AAY and PHH ration card categories (1 in AAY and 6 in PHH) based on the ration card categories their joint families held.

The results showed that 12.35% households had Antyodaya Anna Yojana (AAY) card, meaning they were the poorest in the village. Further, a larger proportion of 66.47% households had PHH (priority households) ration card, which were provided much subsidized food grains. 20.59% had NPHH card (non-priority households), although allotted to households who are better socio-economically, they are also provided food grains but not as subsidized as provided to PHH households (see Table 3.33). Only three households were excluded from providing ration cards

Ration Card Type	Frequency	Percent
AAY	63	12.35
PHH	339	66.47
NPHH	105	20.59
Excluded	3	0.59
Total	510	100.00

for a family member being a Gazetted rank employee with Government who are excluded as per the provisions of scheme.

The study also showed that 32.99% of ST households and 20.55% deprived caste households had AAY cards as compared to only 4.71% general caste households. A higher proportion of households from ST and deprived castes had AAY cards than general castes because AAY cards are meant for the poorest households and ST/ deprived castes are relatively poor. On the other hand, 9.28% STs and 6.85% deprived caste households had NPHH cards as compared to 26.76% general caste households who had NPHH cards. NPHH cards are meant to be allotted to those who are economically better so a higher proportion of households from general castes have NPHH cards. Further, all the 3 households who were excluded belonged to general castes.

A larger proportion of households (66.47%) with PHH cards is broadly in line with state level proportion of PHH households under National Food security Act (NFSA) of 2013 in J&K. At state level 59% households have qualified for PHH ration cards under NFSA, which is a huge jump from 34.7% households who had AAY/BPL cards under PDS before food security legislation was passed in J&K (Dar, 2015). However, it was found that the distribution of these ration card types to households was not strictly keeping with only socio-economic factors in consideration. A few families who were among the wealthy in the villages, a few who have a government salaried/pensioner member, many with relatively better and diverse livelihoods, some with relatively bigger land farms, some with much better apple crop (fetching Rs 5 lakhs annually), some owning costly durables like color TV, Refrigerator and washing machine and even vehicle possessed PHH ration card. People reported that there is some political interference in determining the type of ration card provided to households. *Therefore, different types of ration cards may not necessarily represent poor or better socio-economic status.*

Knowing these complexities with ration card and other individual economic indicators from ownership of land, farming outputs, type of housing, livelihoods, main occupation, ownership of costly durables or vehicle, literacy status, etc. to indicate a clear pattern in socio-economic status of households, the researcher also made an observational remark about the socio-economic status for each household at the time of interview and categorized households into three economic

groups – lower, middle and upper-based on his overall observation of the type and maintenance of house, livelihoods, land owned, education, etc.

These observations showed that almost one third of the households (32.35%) were relatively poor, a larger proportion of 61.57% were in the middle economic group and a small proportion of 6.08% households were relatively rich (See Table 3.34). In line with other economic parameters these observations also showed that a larger proportion of households from STs (81.44%) and deprived castes (54.79%) were poor as compared to 13.53% general caste households who were categorized into lower economic group. Similarly, 17.53% ST households and 45.21% households from deprived castes were categorized into middle economic group as compared to a larger proportion of 77.65% general caste households who were categorized as middle economic group. On the other hand, only one ST household and no households from deprived castes were categorized as belonging to upper economic group, whereas a small proportion of 8.82% general caste households were categorized to upper economic group. In a way, these observations have indicated that STs were largely poor, followed by deprived castes, whereas general castes were largely better economically.

*In overall, the study has shown that the village was very diverse and consisted of many ethnic and caste groups. It has seen huge implications of conflict. A*

Category	Schedule Tribe	Deprived Castes	General Castes	Total
Lower Economic Group	79 (81.44%)	40 (54.79%)	46 (13.53%)	165 (32.35%)
Middle Economic Group	17 (17.53%)	33 (45.21%)	264 (77.65%)	314 (61.57%)
Upper Economic Group	1 (1.03%)	0 (0.00%)	30 (8.82%)	31 (6.08%)
Total	97 (100.0%)	73 (100.0%)	340 (100.0%)	510 (100.0%)

*majority of the households enjoyed a minimal level of security: all had a house to live in and mostly found some work for their living. Large parts of the village had access to public piped water but not to those STs on the higher terrain. Close to 72% households had piped/tube well water into their dwelling or within their yard. The toilet facilities have increased in the village and people preferred to have their own toilet facility within close by distances. Open defecation has substantially reduced in the village. Most households used multiple fuels for cooking but*

*majority were using Dung/Wood or Electricity as primary fuel. Almost 60% households owned one or more costly durables.*

*Land ownership has been one of the important resources at the disposal of households in the village and has emerged as one of primary livelihood activities. Most households owned land in the village and only a smaller proportion of households (7.65%) were landless. But, the land holdings were small and varied across socio-economic groups. People cultivated mainly four crops in the village including paddy, maize, walnuts and apple. But walnut and apple produce contributed significant incomes to the farmers unlike the paddy cultivation which hardly left any savings in the hands of farmers. Although apple was seen as vulnerable to climatic conditions and fluctuating market rates, apple has made a huge impact and significantly increased the farm incomes. A fast rate of conversion of paddy land to apple orchards corroborates this. The average incomes from farming were estimated (for all households) at Rs 1,79,824.22 per year per household, which is very significant. The increasing farm incomes have subsequently led to many other associated changes in the village including creation of casual jobs, small businesses, transport availability, education opportunities and therefore government jobs also.*

*The livelihoods have diversified with households relying on an average of 2.27 sources of livelihood for their living. Farming was one of main sources of livelihood for 43.92% of households. The government jobs have also emerged as one of the main source of livelihoods for 14.51% households. Almost 40% individual members within these households had no significant education (either no education or didn't complete primary education). The higher education levels are very low in overall but have significantly improved in the younger generation and likely to help in acquiring government jobs.*

*The study clearly shows that STs and deprived castes were majorly poor and disadvantaged with respect to many economic opportunities including land, employment, education and other assets, indicating a significant caste gradient. Some of the indicators like education and occupations also showed a clear gender gradient. Despite the fact that farm incomes have significantly increased and livelihood diversified in the village, many households especially deprived castes and Gujjars are still poor, which is because of the embedded structural deprivations in the*

*village in terms of land ownerships, educational access and so on. Most of the economic indicators- land ownership, farm outputs, livelihoods, main occupations, literacy attainments, vehicle ownership, costly durables ownership, proximity to water source- have indicated almost 30.0 to 40.0 percent of the households had poor socio-economic condition. These findings were also in consonance with the researcher's observations and categorization of households into three economic groups.*

*It is in this larger socio-economic context, as described in this chapter, that the changes in socio-economic status and health were studied, the analysis of which is presented in the next chapters.*

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## **Chapter 4: Intergenerational Changes in Socio-Economic Status in Kashmir**

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The analysis of macro-data over time has shown that J&K has seen significant improvements in socio-economic conditions over a period of last 30 years beginning in 1990s, coinciding with the period which witnessed intense conflict in the state. The last Chapter (3) also showed that the current socio-economic conditions of the 510 households in the study village were relatively better and in line with the macro-data. Most of the households have realized basic security in terms of housing, education, landholdings, livelihoods, water, sanitation and other amenities. How have these households' attained such socio-economic conditions is the broader question which needed detailed investigation and formed the main enquiry under this study. This chapter explores this complex question in the context of the study village and looks into the changes that have occurred over a generation in the last 25 years focusing primarily on the pathways and processes that have led to these changes. The study looked at diverse socio-economic indicators including basic amenities and assets, improvements in educational attainments, land use and cultivation patterns, livelihoods, access to food, work patterns, housing, sanitation, and drinking water facilities and so on. In addition to recording the current situation on these indicators, the study also collected data to reflect on the situation which existed 25 years before to be able to make comparison and assess changes over a generation from parents (older generation) to children (younger generation). Given its focus, such an investigation was more in-depth and covered 100 households.

To recall, the entire study was conducted in two parts, this chapter is based on the analysis of the data collected from 100 households during the first part of the study which focused on assessing changes that have taken place over the last three decades<sup>30</sup>. This sample of 100 households even though small was selected using systematic random sampling (as detailed in Chapter-2) and represented diverse backgrounds in terms of caste, ethnicity and economic groups, therefore the results are fairly representative of the village. The findings are discussed in the next sections.

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<sup>30</sup>The second part covered 510 households and also collected information on a range of socio-economic indicators in addition to recording anthropometric measurements. It provided only a broader understanding of the current socio-economic context of the study village which was discussed in the Chapter-3.

#### **4.1. Changes in Ownership of Assets by Households:**

One of the simple ways to assess the progress of households is to investigate into their possession of assets. An enquiry was made into 33 household amenities and assets. The list of these items is used by NFHS surveys to develop a wealth quintile. The findings of the study on these household assets are discussed ahead.

##### **4.1.1 Basic Amenities:**

Households have seen growth in possession of all items –except for three including radio, black/white television and use of mosquito net/repellants -- enlisted in the Table 4.1 between 1990 and 2016. The results have shown that households owned an average of 3.55 items in 1990 which increased to 7.11 in 2016, thereby, showing a significant increase of almost 100% over the last 26 years. A majority of households (75%) owned only 1 to 4 items and 25% households owned 5 to 12 items in 1990. In comparison, only a small percentage (11%) owned 3 to 4 items and most of the households (89%) owned 5 to 13 items in 2016.

Among those household items which have seen significant increase included possession of pressure cookers, mobile phones, spray motors and fans. Even household furniture like chairs, table and beds has seen growth despite the fact that people in Kashmir traditionally sit and sleep on the floor.

The fact that possession of radio and black/white TVs has seen a decline is because of the increasing use of colour TVs, smart phones and internet over time. The lesser mosquito nets or repellent use in 2016 as compared to 1990 is because a majority of households (76%) stated that these are not required at all after the paddy cultivation has sharply reduced in the village. Similarly, the number of households owning bicycles has reduced over time because the transport availabilities in this village have tremendously increased and a significant proportion of households also own a bike or a car now.

In addition to the increase in quantity of basic items in households, the respondents have also reported that the quality of some of these items has also improved over time. For instance, more than half of the respondents recorded that the mattresses they owned in 1990 were lesser in



numbers or low quality or home made out of old clothes, while in 2016 they own more and better quality mattresses and are largely cotton based. Similarly, many households who didn't have spray motors in 1990 owned peddle based spray machines, which required more manual work to push peddles to spray pesticides as compared to spray motors which are largely being used now.

Therefore, the possession of these items by the households over last 26 years clearly indicates economic growth in the village to be able to afford these basic items. However, the increase in basic items was not equal in the village among different economic groups. For instance, the

<b>Table 4.1: Possession of Basic Household Items</b>				
<b>S. No</b>	<b>Household (HH) Items</b>	<b>No of HHs possessed these items in 1990</b>	<b>No of HHs possessed these items in 2016</b>	<b>Increase in No of HHs over time</b>
1	Mattress	97	100	3.0
2	Pressure Cooker	22	90	68.0
3	Chair	7	32	25.0
4	Cot or bed	7	34	27.0
5	Table	6	28	22.0
6	Mobile phone	0	99	99.0
7	Any other type of telephone	0	2	2.0
8	Spray motor	2	72	70.0
9	Animal-drawn cart	0	0	0.0
10	Fan	9	67	58.0
11	Watch/Clock	57	72	15.0
12	Radio	79	65	-14.0
13	Black/White TV	11	3	-8.0
14	Sewing Machine	20	23	3.0
15	Bicycle	11	4	-7.0
16	Mosquito net/repellent	27	20	-7.0
<b>Average Items owned by each HH</b>		<b>3.55</b>	<b>7.11</b>	<b>3.56</b>
<i>Note: (1) The NFHS list originally included water pump but was replaced by spray motor which was more relevant to the local context. (2) Total Households covered are 100</i>				

upper economic group has witnessed an average increase of 3.73 items in comparison to an average increase of 3.08 items in the lower economic group. Similarly, those with poor livelihoods saw an average increase of 3.35 items against those who had relatively better livelihoods which saw an average increase of 3.75 items. Those with 1-3 rooms in house saw an increase of only 3.18 items against those with 4-5 rooms (3.44) and 6-15 rooms (4.06 items).

Those with 0-10 kanals of land holdings witnessed an average increase of 3.41 items against an average of 3.71 items by households with landholdings 11 kanals or above<sup>31</sup>.

#### 4.1.2. Ownership of Costly Durables:

The basic household items are cheap and even poor class is able to afford some of these items, and also some of these are basic living requirements. The enquiry was therefore also drawn to ownership of costly durables by the households including color TV, refrigerator, washing machine and computer.

Likewise the basic items, the ownership of costly durables has also seen growth in the village. The results have shown not a single household owned any of these durables in 1990. In comparison, 73% of the households owned at least one of these items in 2016, which is way ahead than the situation in 1990 (see Table 4.2). The data has shown that 38% of the households owned one of these durables,

followed by 10% households who owned two durables, 14% owned three and 11% owned all the four durables in 2016.

This is a clear indication of the increasing capacity of households in the village over the last 26 years to purchase

these durables. This data carry more value in indicating economic growth than the basic household items as all these durables are costly and can't be afforded without households being able to fetch adequate incomes.

<b>Table 4.2: Ownership of Costly Durables</b>			
<b>Costly durables</b>	<b>No of HHs owned in 1990</b>	<b>No of HHs owned in 2016</b>	<b>Increased HHs over time</b>
Color TV	0	70	70
Refrigerator	0	32	32
Washing Machine	0	14	14
Computer	0	28	28
<b>Average durables owned by each HH</b>	<b>0</b>	<b>1.44</b>	<b>1.44</b>

<sup>31</sup> As discussed in detail in Chapter-2, the households were categorized into socio-economic groups based on many social and economic measures using a two-tier or three-tier classification system. The reason to use two-tier categorization was to minimize the number of categories for comparison so as to have sufficient sample size in each subcategory. But both these categorizations (two-tier and three-tier) have been used in this chapter depending on the nature of analysis, sample size and number of variables used in analysis. These groups//sub-samples represented different 'economic classes' (called as economic groups for this study) and were used as a proxy to 'class' for the purposes of this study. These 'economic groups' formed the basis to examine the disparities in the study village'.

However, disparities exist in ownership of these costly durables. For instance, more than half of scheduled tribe/deprived caste households (53.17%) didn't own any of these durables, against only 14.7% households from general castes who didn't own any durable. Further, only 9.4% scheduled tribe/deprived caste households owned two or more durables as against 47.1% general caste households who owned two or more durables. Among the households categorized as lower economic group, only half (50%) owned any of these durables, whereas among those categorized as higher economic group, 81% owned one or more of these durables. Among the households with poor livelihoods more than one third (37.5%) didn't own any of these durables and only 12.5% owned two or more durables. Whereas among those with better livelihoods only 17.3% households didn't own any durable and more than half (55.8%) owned two or more durables. Similarly, among those with landholding 0-10 kanals, more than one third of households (35.3%) didn't own any durables and 23.5% households owned two or more durables. Whereas among the households with landholdings 11 kanals or more, only 18.4% didn't own any durable and 46.9% owned two or more durables. These findings are also supported by other economic indicators including water connections, type of toilets, type of primary used, housing, etc.

#### **4.1.3. Ownership of Motor Vehicles:**

Any motor vehicle requires a high initial cost and regular investments for its use (maintenance and fuel); therefore, those who own any motor vehicle must have developed economic capacity over time especially if they didn't have a vehicle before. The study has shown significant increase in number of households who didn't have any vehicle in 1990 but have been able to purchase one by 2016.

Only 4 households reported to have a scooter/motor and no household owned any other vehicle in 1990 (see Table 4.3). In comparison, 37 households reported owning any vehicle in 2016 and some of these owned more than one vehicle<sup>32</sup>. Among these, 18 households had a scooter/motor bike, one had a tipper and five others had three wheelers. Importantly, a significant proportion of 25 households reported owning a car in 2016.

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<sup>32</sup> No households reported owning a thresher in 2016 or in 1990, because it is not used in Kashmir, probably the land holdings are small and the paddy straw is used for feeding livestock.

Although eight of these 37 households owning a vehicle in 2016 have invested in commercial vehicles to make their livelihoods with the increase in use of transport in the villages in Kashmir, the increase in number of households owning vehicles for personal use (29 households) is still substantial. In the discussions with a group of people who were driving commercial transport vehicles in the village stated that almost 50 households have invested in commercial cabs which ferry passengers from village to nearest town and district headquarter on a daily basis.

<b>Costly durables</b>	<b>Ho of HHs owned in 1990</b>	<b>No of HHs owned in 2016</b>	<b>Increased vehicle owning HHs over time</b>
Scooty /scooter/ motorbike	4	18	14
Tractor/tipper	0	1	1
Personal/ commercial car	0	25	25
Three wheeler	0	5	5
Thresher	0	0	0
<b>Any vehicle</b>	<b>4</b>	<b>37</b>	<b>33</b>

Therefore, the last 26 years has seen an increase of almost one third of the households (33%) interviewed who have been able to afford a vehicle/s. With the banks offering loans to buy vehicles for commercial or personnel use, the purchase of vehicle has certainly been easier in 2016 than in 1990 but it also indicates the ability of people to purchase through making initial payments and paying monthly installments to banks.

The ownership of vehicle is certainly a privilege of those who have affordability to invest a high amount of money and therefore disparities exist in the village. Only 18.8% households (6 out of 32 HHs) from schedule tribe and deprived castes (ST/deprived group) owned a vehicle whereas 45.6% households (31 out of 68 HHs) from general castes owned any vehicle. Among six households from ST/deprived group who owned a vehicle, five of these had better livelihoods and also owned larger landholdings (16 kanals or above). In a way they were all better off among deprived castes/tribes in the village.

The study has also shown even among general castes those who owned a vehicle were better off. For instance, among the 37 vehicle owning households, 36 were observed to belong to upper economic group. But the data also shows interesting analysis with respect to their ownership of land and source of livelihoods/incomes. 22 households (59% of 37 HHs) reported farming as

their main source of occupation/incomes, followed by 11 households (29.7%) who had at least member with a Govt job/pension and 4 households (10.8%) had business enterprises as main occupation. Also, 25 households owned larger landholdings (11 kanals or above) and reported fetching better farm incomes (Rs 1.3 to 10.5 lakhs annually).

In a way, the data indicates that farming incomes and government jobs may have substantially contributed to the increased ownership of vehicles in the village. This was supported by the discussions in the village where people agreed that apart from the government jobs the incomes fetched from farming (especially from apple) and credit linkages (KCC loans and advances from middlemen against apple) have certainly contributed to increased ability of people to own a vehicle in the village.

#### **4.2: Changes in Housing, Water and Sanitation:**

Housing is an important asset for people and there is a tendency among people in Kashmir region to spend substantial portions of their incomes on construction of houses. Partly, the weather conditions (snow and extreme cold during winters) are also compelling for people to invest into housing. It is therefore not just an important asset but also an indicator of people's economic conditions reflecting the ability of people to spend. The study enquired about the changes that have occurred in housing on different parameters over time.

It has been observed from the data that significant improvements have occurred in the type of housing structures households owned over time. Only 23% households had pakka houses in 1990 which increased to 91% by 2016 (including 30% concrete houses which were made of pakka material and fully cemented). On the other hand, the proportion of households with semi-pakka houses decreased from 43% to 9% over this time. Katcha houses and Kotha<sup>33</sup> type houses, which constituted 34% houses in 1990, have vanished completely and not a single household had such types of houses in 2016 (see Table 4.4). Therefore, the data indicates huge intergenerational improvements in housing structures between 1990 and 2016.

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<sup>33</sup> Usually one room structure with roof made of grass and mud

Despite these widespread improvements in housing structures over time, the data also indicated disparities continue to exist along the lines of caste and class with general castes and well-off households have had largely better houses. In 1990, the proportion of households from ST/ deprived castes (56.3%) who had a Katcha/Kotha house- inferior type- were almost two times more than general castes (23.5%) who had a katcha house. On the other hand, only 12.5% ST/ deprived castes had a pakka house- better type- as compared to 27.9% households

<b>House Type</b>	<b>1990</b>		<b>2016</b>	
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
Pakka	23	23.0	61	61.0
Concrete	0	0	30	30.0
Semi-pakka	43	43.0	9	9.0
Katcha	26	26.0	0	0
Kotha	8	8.0	0	0
Total	100	100.0	100	100.0

from general castes who had a pakka house. Similarly, only 17.6% households with smaller landholdings had a pakka house as compared to 28.6% households with larger landholdings. In 2016, 94.1% general caste households had a pakka or concrete house as compared to 84.4% households from ST/ deprived caste who had a pakka or concrete house. Similarly, 93.9% households with larger landholdings had a pakka house as compared to 88.2% households with smaller landholdings. The concrete houses, if looked at separately, show much sharper disparities, which is because such houses require relatively more investments and therefore are still unaffordable for the poor. Not a single household from the lower economic group had a concrete house as against 40.5% households from upper economic group who had concrete houses. The data therefore shows that although disparities continue to exist over time, the inequalities have reduced in terms of types of housing.

The other parameters of housing also corroborate that housing facilities have improved over time. There have been significant gains in number of rooms owned by households over time. The households owned an average of 3.88 rooms in 1990, which increased to 4.97 rooms by 2016, indicating an average increase of 1.09 rooms per household over a generation. The data also showed that the households owning smaller premises declined. For instance, the households who owned only one to two rooms decreased from 33% to 12% between 1990 and 2016. On other hand, the households who owned three to four rooms increased from 39% to 46% and those who

owned five or above rooms also increased from 28% to 42% between 1990 and 2016 (see Table 4.5).

Again, the data shows disparities continue to exist in housing space households owned across socio-economic groups. For instance, the ST/ deprived castes reported owning an average of 3.69 rooms as compared to general castes who

<b>Table 4.5: Number of Rooms Owned over Time</b>				
<b>Number of Rooms</b>	<b>1990</b>		<b>2016</b>	
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
1 to 2 rooms	33	33.0	12	12.0
3 to 4 rooms	39	39.0	46	46.0
5 to 6 rooms	12	12.0	20	20.0
7 rooms or above	16	16.0	22	22.0
Total	100	100.0	100	100.0

owned an average of 5.57 rooms in 2016. Similarly, the households with larger landholdings (11 kanals or above) owned 5.94 rooms on an average which was more than households with smaller landholdings (10 kanals or less) who owned average of 4.04 rooms in 2016. Other economic measures also show a similar trend. *But what is more interesting to observe that the inequalities in housing space between socio-economic groups have increased over time from 1990 to 2016.* For instance, the households from general castes owned an average of 1.48 rooms more than ST/ deprived castes in 1990, and this gap increased to 1.89 by 2016. Similarly, the households from upper economic group owned an average of 1.6 rooms more than the households from lower economic group in 1990, and this gap increased to 2.97 rooms by 2016. Further, the households with larger landholdings owned an average of 0.24 rooms more than the households with smaller landholdings in 1990, and this gap increased to 1.9 rooms by 2016.

Another important parameter of housing was the material used for building roof of the house. Given the heavy snowfalls in Kashmir, people tend to spend huge amounts of money on building slanting roofs from good material and prefer using tin sheets over thatched roof to make them both strong and look beautiful. The results have shown that the households which had used tin sheets or concrete slap for roof increased from 64% in 1990 to 100% in 2016. On the other hand, those who used katcha materials (thatches or mud) decreased from 36% to zero over this period (see Table 4.6). The increased use of tin sheets/concrete slap is an indication of the increased economic affordability of households over this time.

To corroborate the findings on the improved housing facilities, the respondents were also asked what they felt about the housing conditions- given the structures, space and maintenance- over the time. Most of the households (92%)

Type of Roof	1990		2016	
	Frequency	Percent	Frequency	Percent
Tin sheets	64	64.0	72	72.0
Concrete Slab	0	0	28	28.0
Thatches	28	28.0	0	0
Mud	8	8.0	0	0.0
Total	100	100.0	100	100.0

stated their housing conditions have improved over a generation between 1990 and 2016. Whereas only 5% households felt their housing conditions has deteriorated over this time, and another 3% felt the housing conditions have remained same over this period (see Table 4.7).

With most households feeling improvements in housing conditions have occurred over time between 1990 and 2016, the disparities were insignificant along the lines of caste but the class gradient existed. For instance, only 80.8% households from lower economic group reported improvements in housing conditions over time as compared to 95.9% households from upper economic group who reported improvements in housing. Similarly, only 84.3% households with smaller landholdings reported improvements in housing conditions over time as compared to 100% households with larger landholdings who reported improvements in housing.

Changes	Frequency	Percent
Improved	92	92.0
Deteriorated	5	5.0
Same Condition	3	3.0
Total	100	100.0

Those who reported their housing conditions have deteriorated or remained same ( in terms of structure, space or maintenance) stated different reasons for not being able to improve their housing despite the fact that most in the village have been able to do. Four of these stated that with increasing incomes expenses have also increased so were not able to save money to invest into housing. One of these had a son who got government job but separated. In another family, the head was not able to work because of health issues, and with increasing expenses, they weren't able to make improvements in housing. In another case, the house got damaged in fire incident. Another household, a ST family, had recently settled in Kashmir and stated they had to start afresh here and depend on casual labour for living. The last household explained that his



parents had maintained their house well over time, whereas he also constructed a house (after wife sold jewellery) but couldn't maintain it to the same extent. He further noted, "Others in the village have either bigger apple orchards or have a member with salaried job, therefore, have been able to improve their houses". As this respondent suggested two factors- apple or salaried job- have been main reasons for improvements in housing conditions in the village, the data analysis later has also identified similar factors.

On the other hand, most of those who reported their housing conditions have improved over time were able to do so with the increased incomes. The data shows that 93.5% households reported that the increased income over the period between 1990 and 2016 has been one of the main reasons for improved housing conditions. 26.1% households had borrowed money or availed KCC loan (against apple crop) to help in improving housing conditions. As discussed later in this chapter, because of the apple cultivation, people's capacity to access credit linkages (taking advance from middlemen or avail KCC loan under government scheme) has significantly increased. Further, 13.0%

households had sold their asset/s—either a piece of land or livestock or trees or jewellery – to improve their housing conditions. 5.4% households were supported by government with cash assistance for improving housing conditions (see Table 4.8).

<b>Table 4.8: Contributing Factors for Improvements in Housing Conditions over time</b>			
<b>Contributing factors</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (92)</b>
Increased Incomes	86	61.0%	93.5%
Borrowed money/ KCC loan	24	17.0%	26.1%
Bank Loan	2	1.4%	2.2%
Govt. Support (PMAY)	5	3.5%	5.4%
Sold Land/livestock/ trees/ Jewellery	12	8.5%	13.0%
Societal Pressure	10	7.1%	10.9%
Others	2	1.4%	2.2%
Total	141	100.0%	153.3%
N=92, some households reported more than one factor			

Among those (86 HHs) who reported increased incomes for their improved housing conditions between 1990 and 2016, majority of households had diversified their livelihoods deriving their incomes from multiple sources. As discussed later in detail in this chapter the study has shown that the government jobs and horticulture have been the primary reasons for improved livelihoods over time and thereby

increased incomes in the village which has further led to creation of other opportunities in the village like local business or availability of casual work through a trickledown effect.

In overall, the data shows that most of the households have seen significant improvements in the housing conditions over the period between 1990 and 2016, which itself in an indication of the improving socio-economic conditions of majority of households in the village. Further, the fact that most households attributed these improvements in housing conditions to the increased incomes which has helped them to invest into better housing conditions also suggests that the economic conditions have gone better over the last generation between 1990 and 2016. The other important finding was the inequalities have either continued to exist in housing facilities (like types of structures) or increased like in spacing (no. of rooms) between socio-economic groups over time.

#### 4.2.1: Changes in Access to Water:

Access to water is one of the basic needs of people and a majority of households spent money- if they have resources- on creating facilities to improve access to water sources. Therefore, how the water is fetched by the households is an indicator of household consumption, and thereby, socio-economic conditions. The access to piped water has significantly increased in the village, whereas, the use of water from springs has significantly reduced in the study village.

The results have shown that the households using piped water have significantly increased from 10% to 96% between 1990 and 2016, whereas those who fetched water from springs declined from 85% to 2% over this period. Those using tube wells have remained same and the use of surface water has increased from zero to 3% between 1990 and 2016 (see Table 4.9).

Whether this transition of increased use of piped water and reduced use of springs is any

Source of Water	2016		1990	
	Frequency	Percent	Frequency	Percent
Piped water	96	96.0	10	10.0
Spring	2	2.0	85	85.0
Tube well	2	2.0	2	2.0
Surface water	0	0.0	3	3.0
Total	100	100.0	100	100.0

indication of progress is answered by the proximity to water source in terms of whether the

households have invested into bringing piped water into house or yard or fetch water from a distance. The results have shown that the proportion of households who reported that they have invested into bringing water pipeline into house and fetched water within the house has increased from just 2% in 1990 to 51% in 2016. Further, households who fetched water from their own yard have increased from just 3% to 34% between 1990 and 2016. On the other hand, a significantly large proportion of 95% households' fetched water from a distance in 1990 and such households reduced to only 15% by 2016 (see Table 4.10).

The increasing proximity of households to water source through pipelines over time is because of government investment into establishing a piped water system through the village. However, those who have been able to bring pipelines

Source	2016		1990	
	Frequency	Percent	Frequency	Percent
Inside	51	51.0	2	3.0
Yard	34	34.0	3	3.0
Outside (at a distance)	15	15.0	95	94.0
Total	100	100.0	100	100.0

into house reflect their ability to spend money on bringing water source close (these are private connections and have to pay small fee to government on regular basis). Further, those who reported fetching water from their own yard has increased from 3% to 34% is partly because of public taps established by government but not every tap in yard was set-up by government. Some of the households had invested to bringing pipelines to yard.

*Therefore, the data has shown that the increased proximity to water sources through pipelines is partly because of the increased economic ability of households to invest into bringing water sources close.*

However, the data has also shown disparities in proximity to water sources in 2016 along the lines of caste and class, which is likely due to the unequal socio-economic conditions among households. For instance, only 18.8% households from ST/deprived castes as compared to 66.2% general caste households had piped water into the house. On the other hand, 28.1% households from ST/deprived castes had to fetch water from a distance, as compared to only 8.8% households from general castes who fetched water from distance. Similarly, only 11.5%

households from lower economic group as compared to 64.9% households from upper economic group had piped water into the house. Further, only 41.2% households with smaller land holdings had piped water into their house as compared to 61.2% households with larger landholdings who had piped water in house.

An intra-household comparison between 1990 and 2016 shows that 90% households have seen improvements in water facility either in terms of changes in water sources (for instance from using surface water to a piped water) or in reduction of distance from which the water was fetched (see Table 4.11). Among the 10 households not seen any improvement in water facility over this time, four households had already access to piped water in 1990 from their yard or inside house. In another three cases, springs flowed just outside the house and didn't feel any need to invest into water facilities. There was also no pipeline system in this hamlet. In two cases, households reported they couldn't afford to invest to improve their water facility, and another one said they always used public tube well and the pipeline system was not successful in their hamlet.

Change	Frequency	Percent
Same	10	10.0
Improved	90	90.0
Total	100	100.0

Among those who reported improvements in water facilities over the time, most households (97.8%) said that one of the reasons was because the state government set-up a pipeline system through the village which brought pipelines closer to house to be able to bring piped water to yard or house easily. In a way, because the pipelines moved nearer to house, they had to invest less to take connections to yard or house. Although the pipelines system existed in the village in 1990 also but it was only limited to a portion of village, thereby, restricting access to a smaller proportion. The government has over the time invested into creating multiple sources of water reservoirs and widespread pipeline system. Further, 21.1% households reported that the increased income over the time has helped them to improve their water facility (see Table 4.12). The reasons for increased

Reasons	Frequency	Percent of Responses	Percent of Cases (90)
Incomes increased	19	17.4%	21.1%
Govt. set up a pipeline	88	80.7%	97.8%
Others	2	1.8%	2.2%
Total	109	100.0%	121.1%

N=90, but some households gave more than one response

incomes are discussed in detail in section 4.5 of this chapter.

The data has also shown slight disparities in the improvements in water facilities along the lines of caste and class. For instance, 92.6% households from general castes observed improvements in water facility as compared to only 84.4% households from ST/deprived castes. Similarly, 91.9% households from upper economic group observed improvements in water facility as compared to 84.6% households from lower economic group.

*In overall, the data shows widespread improvements in water facility especially in terms of proximity to water source, which has happened partly because of the government investments and partly because of the improved economic conditions of the households in the village.*

#### **4.2.2: Changes in Access to Sanitation:**

Another related parameter is the access to sanitation, which is not only important for hygiene conditions and privacy concerns, but also indicates people’s expenditure abilities. Those who spend to improve their toilets and/or bring them closer to house are likely to have better economic ability than those who don’t. The study shows that access to toilets has significantly improved over time between 1990 and 2016. Open defecation has decreased from 48% to just 4% between 1990 and 2016. The use of pit latrines over this time has slightly decreased from 50% to 45%. On the other hand, the households who used flush toilets have significantly increased from just 2% to 51% over this time (see Table 4.13).

<b>Table 4.13: Access to Toilets over Time</b>				
<b>Type of Toilet</b>	<b>2016</b>		<b>1990</b>	
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
Flush type	51	51.0	2	2.0
Open defecation	4	4.0	48	48.0
Pit Latrine	45	45.0	50	50.0
Total	100	100.0	100	100.0

The study also shows that the distance to toilets has significantly reduced

over the period between 1990 and 2016. Most of the households (93%) either defecated in the open or used community latrines (located at a little distance from home) in 1990. Whereas, just 1% household used a community toilet (flush type) and only 4% defecated in open in 2016. On the other hand, only 7% households had toilet facility located within yard or house premises in

1990, whereas, a majority of households (95%) reported their toilets were located within the yard of their houses or house premises in 2016 (see Table 4.14).

Interestingly, with the improvements in access to sanitation, the disparities along the lines of caste and class have become sharper in type of toilets. As most (98%) households used pit latrine or

Proximity	2016		1990	
	Frequency	Percent	Frequency	Percent
Community toilet	1	1.0	45	45.0
Inside house	22	22.0	1	1.0
Open defecation	4	4.0	48	48.0
Yard	73	73.0	6	6.0
Total	100	100.0	100	100.0

defecated in open in 1990, the disparities were insignificant. The flush toilets (which require good cost for construction) had significantly increased by 2016 but showed disparities. Only 25% households from ST/ deprived caste households as compared to 63.2% general caste households had flush toilets. Similarly, only 7.7% households from lower economic group had flush toilets as compared to 66.2% households from upper economic group who also had flush toilets. Only 35.3% households with smaller landholdings had flush toilets as compared to 67.3% households with larger landholdings in 2016. The only four households who continued defecating in the open belonged to ST/ deprived castes or lower economic group or had smaller land holdings (all underprivileged groups).

On other hand, an intra-household comparison of data between 1990 and 2016 shows, as can be seen from the Table 4.15, that 94% of households have seen improvements in sanitation (either type of toilet used or proximity to toilet). Only 5% households (6 HHs) didn't make any improvement in access to sanitation (4 continued with open defecation and one had a pit latrine in yard always). Another 1% household didn't require making any improvement (had flush toilet inside house since 1990 only).

Improved	Frequency	Percent
No	5	5.0
Yes	94	94.0
No Need	1	1.0
Total	100	100.0

Among those who observed improvements in sanitation facility, 90.4% households stated that increased privacy concerns and changes in societal attitudes were one of the reasons for

improving the sanitation facility for their households (see Table 4.16). Related to this, another 3.2% said the increasing population had led to intrusion in privacy especially for open defecation, so had to improve the facility. 54.3% households reported that the increased income over the time was one the reason for improving the sanitation facility. 10.6% households stated the hygiene consciousness has increased because of access to information over the time which has been one the reasons for them to improve the sanitation facility. Another 5.3% households said the conflict has created insecurity and they felt insecure to defecate in the open or use a facility at a distance, so had to improve the sanitation facility. To explain this further, one of the respondent stated after crackdowns<sup>34</sup> started in Kashmir, everyone wanted to have a toilet close to house.

*The discussion with the households also revealed that people have to spend good amount of money to build flush toilets in absence of any government support (as discussed later). Therefore, the fact that the flush toilets have significantly increased from 2% to 51% between 1990 and 2016*

<b>Table 4.16: Reasons for Improvements in Sanitation Facility over Time</b>			
<b>Reasons</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (94)</b>
Increases in incomes	51	32.3%	54.3%
Privacy concerns/ Societal attitudes	85	53.8%	90.4%
Increasing population	3	1.9%	3.2%
Hygiene Conscious/ More Awareness	10	6.3%	10.6%
Conflict/ Insecurity	5	3.2%	5.3%
Others	4	2.5%	4.3%
<b>Total</b>	<b>158</b>	<b>100.0%</b>	<b>168.1%</b>
N=94, but some households reported more than one reason			

*is a clear indication of the improved socio-economic conditions of a significant proportion of households over this time. This is also corroborated by 54.3% households of those who have improved sanitation facility and stated that the increased incomes over the time between 1990 and 2016 was one the main reason that they were able to improve the facility.*

#### **4.2.3: Government Support for Housing, Water and Sanitation:**

Government support is crucial in either directly supporting the households to improve their housing, water and sanitation facilities or to facilitate and promote such facilities in other indirect

<sup>34</sup> Crackdown is when security forces cordon off an area (village/hamlet) and ask every member of that area to assemble in one place and often very early in the morning till the search is completed through entire area

ways. An enquiry was made from the respondents if they received any support from government with respect to such facilities in 1990 or later. Most of the households (95%) stated they have not received any help from government in any way with respect to housing, water and sanitation facilities by 1990, and only 5% respondents acknowledged government's role with respect to water supply (3% said water pipeline moved close to house and they could then take a private connection and 2% said they could access a public tap/ tube well for fetching water).

However, the government's role in housing, water and sanitation facilities has significantly improved over time. Only 7% households stated not received any help from government with respect to housing, water and sanitation facilities by 2016. On the other hand, 5% households said they received support under PMAY (earlier called Indira Awas Yojana and initiated by central government in 1988) and were provided a cash assistance<sup>35</sup> to construct house. 82.0% households stated because the water pipelines established by government were closer to house they could get a personal connection easily to house or yard. Another 11.0% households reported fetching water from a public tap/tube well closer to their house (see Table 4.17).

Although government has also started Swachh Bharat Abhiyan to provide support to households to construct flush toilets, no households reported receiving any

<b>Table 4.17: Government Support for Housing and WASH over Time</b>					
<b>Govt. Support</b>	<b>1990</b>		<b>2016</b>		
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (100)</b>
No help in any way	95	95.0	7	6.7%	7.0%
PMAY Support for House	0	0.0	5	4.8%	5.0%
Water Pipeline close to house	3	3.0	82	78.1%	82.0%
Public post/ tube well close to house	2	2.0	11	10.5%	11.0%
Total	100	100.0	105	100.0%	105.0%
For 2016, N=100, but some gave multiple responses					

<sup>35</sup> People reported receiving different amount under the scheme which was mainly because the amount provided under the scheme has increased over the time.



benefit under this scheme. A discussion with few key informants in the village also confirmed that the scheme has not benefited anyone in the village till the time of survey.

*The data shows the government has played a proactive role especially with respect to water facilities over time. As a result, the proportion of households acknowledging government support in housing, water and sanitation facilities has increased from 5% to 93% between 1990 and 2016.*

### **4.3. Intergenerational Changes in Educational Attainments:**

Education is both an indicator of socio-economic conditions as well as a means to progress. This study also looked at the educational attainments of all family members to assess whether improvements in education have occurred over a generation. This meant comparing the educational attainments of parents with children. Not only the educational status of present family members was recorded but also of married female children (even if they were living with in-laws), and also of the parents even if not alive. While the cross-sectional analysis of educational status of all the household members is discussed in Chapter-3, this section looks at the intergenerational improvements in educational attainments comparing educational attainments of parents representing older generation with children who represented younger generation.

The study has shown widespread improvements in educational attainments of household members over a generation, which meant children are more educated than their parents or the younger age-groups have attended more years of schooling on an average than the older age-groups. Most of the households (88%) have observed some improvements in education in terms of increase in average school years attended by children as compared to their parents. Whereas, 9% of the households have seen decline and 3% households have seen no change in average school years attended by children as compared to their parents (see Table 4.18). These findings are elaborated later in this section. The change in educational attainments (improvement or

<b>Status</b>	<b>Frequency</b>	<b>Percent</b>
Improved	88	88.0
Reduced	9	9.0
No Change	3	3.0
Total	100	100.0

reduction) was calculated based on comparison of the average school years attended by parents with average school years attended by all children.

These improvements in average school years attended by children compared to their parents ranged from a half school year to 14.3 years and were widely shared. However, these improvements indicate a correlation with socio-economic conditions. For instance, male children in comparison to father have shown improvements in 80% households out of 95 households (comparison couldn't be made in 5 HHs), whereas female children have shown improvements comparing to mothers in only 66.3% households out of 89 households (comparison couldn't be made in 11 HHs). On the other hand, the improvements don't show a caste gradient and a higher proportion of ST/deprived castes (93.8%) have observed improvements in average school years as compared to general castes (85.3%) over a generation. The data does however indicate a clear class gradient. Only 80.8% households from lower economic group saw improvements in education as compared to 90.5% households from upper economic group. Similarly, only 83.3% households with poor livelihoods saw improvements as compared to 92.3% households with better livelihoods; and 86.3% of households with smaller landholdings (10 kanals or less) saw improvements as compared to 89.8% households with larger holdings (11 kanals or above).

To what extent these improvements in educational attainments have occurred over the last 26 years was examined in two ways. Firstly, the extent of improvements by household members was examined along the lines of generation (older/parents vs younger/children). The data shows that the average numbers of school years attended by parent's generation was 2.83 years, which has increased to 7.74 years for children's generation, thereby, increasing the average school years by 4.91 years over a generation (see Table 4.19). Such an increase is slightly more prominent among men which have seen an average increase of 5.05 school years as compared to women

<b>Table 4.19: Extent of Improvements in Education by Generation</b>		
<b>Generation Groups</b>	<b>Average Schools Years</b>	<b>Average Improvements (in years)</b>
Both Parents (N=100)	2.83	4.91
All Children	7.74	
Father (N=95)	5.00	5.05
Male Children	10.05	
Mother (N=89)	0.43	4.95
Female Children	5.38	
<i>Comparison between father and male children and mother and female children could not be done in all cases because in 5 households there was either no son or son was too young and in 11 households there was either no daughter or daughter was too young.</i>		

with an average increase of 4.95 school years over a generation. Even with the widespread improvements in education, the disparities in educational attainments between men and women have only become sharper over time. The average school years attended by male children at 10.05 years were significantly high as compared to female children at 5.38 years. This is because even when the women education seems to have taken strides but at paces slightly lower than men, therefore, the disparities continue to exist.

Secondly, the extent of improvements was examined by comparing different age groups. *It was observed that the younger the age group the higher is the educational attainment.* Those who were in the age group of 20-34 years (called as younger group for this study) at the time of survey had attended school for an average of 7.69 years<sup>36</sup>, as compared to only 4.03 years attended by those in the age group of 35 to 49 years (called as middle group), who are in turn followed by those who were 50 years or above (called as older group) and had been to school for only 2.62 years on an average (see Table 4.20). The analysis didn't include children up to 19 years because most of them were still pursuing their education and may have undermined their educational attainments if included in any group here.

The age-group wise data not only shows that educational attainments have increased with time but at a faster rate. The people in the age-group of 35 to 49 years are only ahead by an average of 1.41 years from those who are older to them

<b>Age Groups</b>	<b>Sample</b>	<b>Average school years</b>	<b>Difference (in years)</b>	
20 to 34 years	264	7.69	3.66	1.41
35 to 49 years	215	4.03		
50 or above	221	2.62		
Total	700	4.97		

and are in the age group of 50 or above but are behind the younger age group of 20-34 years by an average of 3.66 school years (see Table 4.20). This is because a larger number of people in the younger generation were enrolled in schools and many of these have also attained higher education. This has happened despite the fact that they have taken birth during the peak years of

<sup>36</sup> Some of the people included in this group were still pursuing education and likely to achieve more than what was recorded at the time of their survey. Therefore, the average school years attended by this age-group (younger group) is likely to further increase with time and thereby widen the gap in educational attainments with older age groups.

conflict and would have enrolled in schools in 1990s. What has helped the younger to do so is analyzed later in this section.

The data also shows that there has been progress in the education of women over time with younger age-group attending more years of schooling than middle and older age-groups. However, the women’s education has not progressed at the same rate as men’s did, resulting into an increased gap in average years of schooling between men and women especially in the middle-age group. Men in the middle age-group increased their schooling years by an average of 2.72 years than the older age-group, as compared to women in the middle age-group who moved ahead with only an increase of 1.54 schools years on an average, thereby, increasing the gender gap in educational attainments (see Table 4.21). In comparison, the younger age-group of women has moved slightly at faster pace than men, thereby, decreasing the gender gap very slightly. The younger age-group of women has seen an increase of 3.32 years of schools over the middle age-group, and is slightly higher than 3.24 years of increase seen by younger age-group of men over middle age-group (see Table 4.21). However, the inequalities have continued to exist in the younger age-group sharper than they existed in the older-age group. *In overall, the continued disparities in educational attainments over time have resulted in a gender gap of almost one generation. The average schools years attended by female children (5.38 years) - representing a younger generation- have reached close to father’s level (5.0 years) - which is representing an older generation [see Table 4.19].*

The data also shows marked disparities in average years of schooling attended by people along the lines of caste and class. Those who belonged to ST/deprived castes have attended schooling lesser than general castes by an average of 1.27 years. Similarly, those who belonged to lower economic groups

<b>Age Groups</b>	<b>Gender</b>	<b>Sample</b>	<b>Average school years</b>	<b>Difference (in years)</b>
20 to 34 years	Female	156	5.52	5.30
	Male	108	10.82	
35 to 49 years	Female	142	2.20	5.39
	Male	73	7.59	
50 & above	Female	118	0.66	4.21
	Male	103	4.87	
Total	Female	416	3.01	4.82
	Male	284	7.83	

were behind upper economic groups by an average of 2.89 years in schooling; & those with poor

livelihoods attended schooling less by an average of 2.93 years than those with better livelihoods. Other economic measures also show a similar trend (see Table 4.22). *The data suggests the higher the socio-economic status the more the number of school years.* But what is important to observe that the inequality in education in terms of numbers of school years along the lines of caste and class has actually increased over time.

The data shows that the gap in average school years attended by general castes and ST/deprived castes was 1.62 years in the older age-group (50 years & above), it reduced to 1.18 years in the middle age-group (35-49 years) but sharply increased to 1.87 years during the younger age-group (20-34 years). These findings are also supplemented by other economic variables. The upper economic group was ahead of lower economic group by an average of 1.92 school years in the older age-group, but this gap increased to 2.35 years in the middle age-group and finally to 3.84 years in the younger age-group. The data also shows those who had better farming had attended an average of 0.84 years of schooling more than those with poor farming in the older age-group. But this gap in school years increased to 1.77 years in the younger age-group. The similar pattern is shown by ‘livelihood groups’ that the gap in school years has increased between those with poor livelihoods & those with better livelihoods during the younger age-group. Similarly, the gap in school years had decreased between those with smaller landholdings and those with larger landholdings in the younger-age group as compared to middle age-group but in overall the gap in average schools has increased over time between smaller and larger land groups (see Table 4.22).

<b>Age Groups</b>	<b>Socio-economic indicators</b>	<b>Sample</b>	<b>Average School Years Attended</b>	<b>Difference (in years)</b>
20 to 34 years	Schedule Tribe/ Deprived Castes	102	6.54	1.87
	General Caste	162	8.41	
35 to 49 years	Schedule Tribe/ Deprived Castes	72	3.25	1.18
	General Caste	143	4.43	
50 years or above	Schedule Tribe/ Deprived Castes	69	1.51	1.62
	General Caste	152	3.13	
All Age-groups	Schedule Tribe/ Deprived Castes	243	4.14	1.27
	General Caste	457	5.41	
20 to 34 years	Lower Economic Group	56	4.66	3.84
	Upper Economic Group	208	8.50	

35 to 49 years	Lower Economic Group	52	2.25	2.35
	Upper Economic Group	163	4.60	
50 years or above	Lower Economic Group	52	1.15	1.92
	Upper Economic Group	169	3.08	
All Age-groups	Lower Economic Group	160	2.74	2.89
	Upper Economic Group	540	5.63	
20 to 34 years	0 to 10 kanals	117	7.09	1.07
	11 kanals or above	147	8.16	
35 to 49 years	0 to 10 kanals	115	3.06	2.09
	11 kanals or above	100	5.15	
50 years or above	0 to 10 kanals	108	2.16	0.91
	11 kanals or above	113	3.07	
All Age-groups	0 to 10 kanals	340	4.16	1.57
	11 kanals or above	360	5.73	
20 to 34 years	Poor Farming	124	6.75	1.77
	Better Farming	140	8.52	
35 to 49 years	Poor Farming	111	3.36	1.39
	Better Farming	104	4.75	
50 years or above	Poor Farming	105	2.18	0.84
	Better Farming	116	3.03	
All Age-groups	Poor Farming	340	4.23	1.43
	Better Farming	360	5.66	
20 to 34 years	Poor Livelihoods	103	5.90	2.93
	Better Livelihoods	161	8.83	
35 to 49 years	Poor Livelihoods	100	2.74	2.42
	Better Livelihoods	115	5.16	
50 years or above	Poor Livelihoods	100	1.62	1.83
	Better Livelihoods	121	3.45	
All Age-groups	Poor Livelihoods	303	3.45	2.68
	Better Livelihoods	397	6.13	

These findings are interesting especially in the context that education has seen widespread demand across socio-economic classes over time. The average schooling attended by younger age-group was 7.69 years which was way ahead than middle age-group (4.03 years) and older age-group (2.62 years); the educational attainments also improved in 88% of households; and the family members with no education (who never attended school) decreased from 69.7% among older age-group to just 26.9% in the younger age-group. The inequalities in school years attended between poor and economically better over the time have therefore increased by two

reasons. First, the poor and the ST/ deprived castes have still disproportionately higher number of people who have never been to school as compared to general castes and well-off groups. Secondly, those who belong to well-off groups and/or general castes attain higher education levels as compared to poor and/or ST/ deprived castes –majority of whom tend to drop out from education at elementary and secondary levels only. For instance, only 13.2% persons belonging to ST/ deprived castes had passed at least secondary level of education, as compared to 28.2% among general castes. Similarly, only 5% people belonging to lower economic group had passed at least secondary level of education, as compared to 28.3% among higher economic group. The similar trends are shown by cross tabulation with other economic variables including livelihoods, land ownership and farming outputs.

#### **4.3.1. Reasons for Intergenerational Improvements in Education:**

As majority of households (88%) have witnessed intergenerational improvements in education over time, the underlying factors that have helped these households to make intergenerational improvements in average schools years attended by children as compared to their parents were different and sometimes multiple. More than one fourth of these households (26.1%) said the overall demand for education increased over time and that pushed everyone to send their children to school. Education became a necessity for the present generation. One of the parents explained the perception of the necessity for education and said that children have to get education. He further noted, “We do hard work and also borrow money but send children to school”.

This was followed by almost one fifth of households (20.6%) which said that because of the increase in incomes due to horticulture, they were able to afford education for their children (how that happened is analyzed later in this chapter). Another 8.5% households stated that because of the increase in availability of casual work in the village and around, which has helped them to fetch more incomes, they were able to send their children to school. Related to this, 6.1% households felt that the wages have increased substantially over the period and has helped the children to attend school for more numbers of years than their parents. Another 8.5% households said it was because the parents got a salaried government job that their children were able to improve their education over their parents. 7.3% households felt because of their improvements in their business (new or existing) they were able to afford their children’s education more than

what the parents had attained. A very small proportion of 6.1% felt the better access to government schools now (especially in terms of physical proximity) has helped children to attend schools (see Table 4.23).

*In overall, more than half of the responses have indicated the enhancement in incomes have led to improvements in education, thereby, indicating economic factors as strong determinants for education, even when the education provisions have hugely increased over a generation and are acknowledged, as discussed later in this section. Second important factor for widespread improvements in education even among ST/deprived castes has been the increased demand for education. Education has come to be seen as a necessity for children.*

On the other hand, the data has shown 9% households have seen decrease and 3% households didn't see any change in the average school years attended by children as compared to their parents (see Table 4.18). However, no significant differences existed along the lines of caste and class and these households belonged to poor as well as better socio-economic groups. Such comparison of children with parents was done at household level and considered male and female education together.

<b>Table 4.23: Underlying factors for Intergenerational Improvements in Education</b>			
<b>Reasons</b>	<b>Frequency</b>	<b>Percent of total responses</b>	<b>Percent of total Cases</b>
Increased demand for education	43	26.1%	48.9%
Horticulture increased incomes	34	20.6%	38.6%
Availability of work increased	14	8.5%	15.9%
Parents got Govt. Job	14	8.5%	15.9%
Business flourished	12	7.3%	13.6%
Schools became accessible	10	6.1%	11.4%
Wages increased	10	6.1%	11.4%
Employment diversified	5	3.0%	5.7%
Others	16	9.7%	18.2%
No Response	7	4.2%	8.0%
<b>Total</b>	<b>165</b>	<b>100.0%</b>	<b>187.5%</b>

*Note: Although sample was 88 but responses are more because of multiple responses given*

In gender specific comparison of father with their male children, the data has shown that no improvements in education have occurred in 19% households (in many of these education has



actually reduced) over a generation. In a way, father is either as educated as or more educated than the average education levels of male children in these households. Similarly, the comparison between mothers and their female children show that no improvements in education have occurred in 30% households (in 29 out of 30 such households, education has shown stagnation) over a generation. No significant differences existed along the lines of caste/tribe. However, among the households where no intergenerational improvements in women education have occurred, a major proportion belonged to economically poor with smaller land holdings and poor livelihoods.

These households where no improvements in education have occurred over a generation either at family level (parents' vs children) or in gender specific comparisons (father vs male children and mother vs female children) were asked why the younger generation didn't improve in education as compared to their parents. These included a total of 44 such households and many of these reported more than a single reason. A little more than one fourth (25.4%) responded that the children had no interest and left education early. This was followed by 17.5% households who reported that they couldn't afford education for their children. A small proportion of 3.2% responses included children being asked to work; another 3.2% said schools were not accessible; and 7.9% reported other reasons.

Importantly, a larger proportion of 30.2% households reported socio-cultural factors as the main reason especially for women not being able to improve education than their mothers. What they stated was that society at large has been discouraging women education through different ways. For instance, women are asked to work and contribute to household work. Some female respondents felt that although because of poverty women were not sent to school, but as incomes started growing, boys were given priority to go to school. Another elder female respondent explained that parents were only willing to provide religious education to daughters, and weren't sent to school. Another elder woman said even in cases where daughters were enrolled in school, they had to leave the education after they grew physically. To this, one other respondent gave an example that one of her daughters was sent to a private missionary school but because her grandmother was concerned that she may get into an affair, the daughter was asked to leave school. One of the other respondents brought a class perspective and said while most women

didn't to go to school but those from rich families studied in the neighborhood. But this was also not universal as another said letting daughters go to school was not seen as 'right' by the society otherwise they could have afforded their education then. The lack of access to schools also augmented the barriers to women education. One of the respondents said that daughters left education after 5<sup>th</sup> standard, there was no middle school around. In overall, there was an agreement that women's education was not priority till very recently and especially the elder daughters weren't educated. However, times have changed and the new generation of girls is able to find greater opportunities to participate in education.

Alternatively, parents were also asked why they weren't able to make improvements in education as was done by their children later to understand their perspective on underlying factors that impeded their generation from making inroads into schools. Almost one third (33.7%) of the responses indicated that households could not afford education for them. A little more than one

fourth (26.0%) stated that women education was not a priority then for different reasons indicating the socio-cultural factors which created impediments to women education in particular (see Table 4.24). 10.5% households also said that the children had to work and didn't get time to go to school. Another 8.8% said there was very less demand for education in general, meaning, education was not seen a necessity as it seen now.

**Table 4.24: Underlying factors for Parental Generation for Less Education**

Reasons	Frequency	Percent of total responses	Percent of total Cases
Couldn't afford education	61	33.7%	61.0%
Women education not a priority	47	26.0%	47.0%
Child Labour	19	10.5%	19.0%
Less demand for education	16	8.8%	16.0%
Schools not accessible	11	6.1%	11.0%
Parents got Govt Job	5	2.8%	5.0%
Others	16	8.8%	16.0%
Not Applicable/ No response	6	3.3%	6.0%
Total	181	100.0%	181.0%

*Note: Because of multiple responses given, the frequency is more than 100*

6.1% said schools were not accessible (in terms of physical proximity), which coupled with lack of proper roads and almost no transport facilities, became barriers to continue education

especially after passing out from a local school. One of the respondents put this into perspective and stated that the children from his hamlet (ST hamlet located on the hillock) had to go to the main village (which was 5 kms away) on foot and many would leave school for the same reason. The narratives from other parents belonging to general castes who had studied suggest that the schooling didn't come easy then. They stated there was no focus of government on education. Those who went to school/ college later had to take lot of hardships. A respondent said he had to go to school located in neighboring areas often a few kms away. Another parent recalled that he didn't even had a school bag to carry books to school and used to take mother's stole as school bag and couldn't even afford stationery. He added, otherwise, he would have studied further. But as times have changed, his children are in private school- perceived to deliver better education.

#### **4.3.2. Government Support for Education:**

The discussion with parents suggested that educational provisions have increased over time and schools are more accessible for children's generation than they were for them. People felt the increasing provisions have helped and incentivized sending children to school. This was also corroborated by the data on the access of children to different government provisions over time (see Tables 4.25). 70% households acknowledged receiving some support from government in the last few years prior to survey which has helped the present children's generation to continue education, and only 30% said they haven't received any support at all. Those who didn't receive any support is because their children have mostly passed their elementary and/ or secondary education from private schools. Among those who accessed government provisions, many noted receiving more than one. Almost one third (33.3%) stated that the access to schools has improved. Schools are now located in almost every major hamlet in the village including those inhabited by ST population. 16.7% households reported their children receiving uniform from schools at least once; followed by 16.7% households reported receiving scholarships at least once and another 15.0% received books from school at least once. The high number of scholarships is because of the recently launched central government's minority scholarship programme along with increase in coverage for ST children under other programmes.

The data also shows that a higher proportion of households from ST/ deprived castes have received direct government support for education than general castes. For instance, 65.6% households from ST/ deprived castes reported receiving either scholarship or free books or uniform (or more than one) at least once, as compared to only 35.3% households from general castes. Similarly, 65.4% households from lower economic group received either scholarship or free books or uniform (or more than one) at least once as compared to only 37.8% households from upper economic group. These disparities are possibly for two reasons. Firstly, the scholarships are intended to target poor and marginalized, so the ST/ deprived castes and poor get benefited more. Secondly, the books and uniforms are given in government schools which are attended largely by ST/ deprived castes and poor children, whereas a higher proportion of children from better economic groups attend private schools. The state level data shows that 40.1% students in the age-group of 6-14 years in rural areas received education from private schools in 2018 (30.9% at national level) [ASER Centre, 2019].

On the other hand, the parent's generation doesn't seem to have received even half of what present children's generation has been able to access. As can be seen from the Table 4.25, more than half of the households (53%) reported receiving no support from government for education of parents when they were children. Among those who acknowledged government support, most of them saw it in terms of schools established by government. 41.3% responses noted that the government support has been in terms improving access (physical) to schools, and only a small proportion of 7.3% households reported receiving any other support in terms of scholarships, free uniform or books or stationery from schools at least once. The number of households which received any direct support for education was very less to assess the caste and class gradient. However, a higher proportion of 51.5% general caste households reported that government helped through improving access to schools, whereas only 15.6% households from ST/ deprived castes said so. These disparities are likely due to the fact that before the SSA programme was launched in 2001 the availability of schools was very limited, mostly placed in central locations but excluding the tribal and poor hamlets. *As a result of the lack of provisions along with widespread poverty with no schools available at ease, the parent's generation in this village has not done well in education as their children do now.*

**Table 4.25: Government Support to Parents and Children for Education**

Govt. Support	Children			Parents		
	Frequency	% of total responses	% of total Cases	Frequency	% of total responses	% of total Cases
Nothing at all	30	16.7%	30.0%	53	48.6%	53.0%
Improved access to schools	60	33.3%	60.0%	45	41.3%	45.0%
Free Uniform	30	16.7%	30.0%	8	7.3%	8.0%
Scholarship	29	16.1%	29.0%			
Free Books	27	15.0%	27.0%			
Others	4	2.2%	4.0%	3	2.8%	3.0%
Total	180	100.0%	180.0%	109	100.0%	109.0%

*Note: Because of multiple responses given, the frequency is more than 100 cases*

#### 4.4: Ownership of Land and Cultivation Patterns over Generations:

The overall availability of agricultural land is very limited in J&K, and as a result the average landholdings are small with 94% farmers owning small to marginal landholdings (Govt of J&K., 2012-13). The macro-data has also indicated an increasing deficit in food grains in J&K especially over the last 26 years beginning in 1990s, primarily due to low productivity and increasing changes in cultivation patterns (Dar, 2015). Agricultural land is not just a source of food grains but also an important opportunity for livelihoods. Almost 70% of population in J&K depended on farming for livelihoods (Govt of J&K, 2012-13). People in the study village cultivated mainly four crops by 1960 which included paddy, maize, almonds and walnuts. They also cultivated vegetables on small portions of irrigated land for family use. The cultivation patterns shifted by 1960s onwards when this village started growing apple initially on un-irrigated land but gradually replaced major parts of other crops as well. By the time of this survey in 2017, people still cultivated four crops but replacing almonds completely with apple. They cultivated paddy on irrigated land (but very limited now), maize on un-irrigated land (also very limited), walnuts on un-even/ sloppy un-irrigated land and apple on both irrigated and un-irrigated land. The transformation in cultivation patterns were driven by a strong economic rationale and land emerged as an important source for incomes and livelihoods, the reasons of which are explained in detail later in this chapter. Therefore, it was very relevant to make an enquiry into how land ownerships have evolved, the changing patterns of cultivation and the changing livelihoods over time in order to understand how ‘agricultural land’ has emerged as an

important resource in determining the overall socio-economic conditions of people in the study village. An in-depth analysis of these questions is presented in the next sections.

The study has shown that the proportion of households owning any land in the village was high and has also slightly increased over the last 26 years from 92% to 95% households between 1990 and 2016. Those households (4) who didn't own land in 1990 but reported to own land in 2016 included three households belonging to STs and one household to a general caste (Sofi). *These three ST households stated that they sold their livestock to purchase land (one also said because of availability of manual work and increased wages helped) and the fourth 'Sofi' household stated they were able to purchase land because they did well in their local bakery work over the time.*

In a way, the study has shown that land was owned by most households and such proportion of land owners (95%) is very high as compared to the overall scenario in J&K. The macro-data has shown almost 80% households in rural Kashmir own some agricultural land (see IIPS and ICF, 2017b). The land availability in the study village is relatively high, because it is surrounded by a hillock and that provided it an access to an entire hillock for ownership and cultivation. That is also the reason why many Gujjar hamlets exist in this village. Almost all the Gujjar (ST) families have settled in this village in the last 60 years and have been able to purchase some agricultural land from natives of this village.

It was also observed that majority of households have received land through inheritance- mostly patriarchal in nature, but many households have also purchased land partly or entirely and some have received a portion of land through land reforms. The study shows that 26% households have inherited all their land from ancestors over

<b>History</b>	<b>Frequency</b>	<b>Percent</b>
All land Ancestral	26	26.00
All Land Purchased	22	22.00
Part land Ancestral and Part Purchased	32	32.00
Part land under Land Reforms	15	15.00
No land owned	5	5.00
Total	100	100.00

generations. 22% households have purchased all their land recently in the last 50 years or so, and others (32% households) have land part purchased and part ancestral/inherited. Importantly, the

study showed 15% households reported receiving some portion of land (1 to 20 kanals) under land reforms in 1950s (see Table 4.26).

All the 17 ST families covered in this study have either purchased all their land (12 HHs) or partly purchased and partly received under land reforms (5 HHs). Not a single ST household has a history of ancestral land in this village, which is because they have settled there only recently.

Out of the 15 households who reported receiving some land under land reforms, five households belonged to ST, two to deprived castes and eight to general castes. All the five ST households had received land in their original places of living which was sold later and purchased land in the study village once they settled there.

*The data therefore shows that the land reforms which have helped almost 15% households to own some land and coupled with purchasing power for 22% of households especially the STs (reasons analyzed later) have been the primary reasons why a significantly higher proportion of households own land in this village.*

The five households who didn't own any agricultural land in 2016 included two belonging to deprived castes and three from general castes. These deprived castes (Muchi) never owned land and were traditionally engaged in shoe repairing occupation. The other three general castes including two from 'Sofi' who traditionally engaged in production of local bakery and the other 'Haji' household (upper caste) were traditionally engaged in management of local shrine and drew their livelihoods from acting as 'religious mentors' to people. Although many other households from these castes have over the time purchased land but still the landholdings owned by them are small as compared to other castes.

As stated earlier, the study also showed that the inheritance of land was mostly patriarchal. Households were asked if the mothers-in-law or daughters-in-law have received any share of land from their parents. 82% households stated that the mothers-in-law received no land, whereas only 18% households said that mothers-in-law had received some portion of land (out of 18 HHs, 14 said due share received and 4 said due share not received). However, all these

women who received any share of land were married in an arrangement where sons-in-law (gharjami in local term) were brought home. This has happened mostly in cases where parents had no son or land was too much that they needed extra hand to help cultivate the land. Further, to corroborate this, no daughter-in-law had received any portion of land from her parents. On the other hand, only three daughters who were married had received any portion of land from their parents. Two of these continued to live with parents and sons-in-law were brought home and the other (only exceptional case) who got married and lived with in-laws but receive a portion of land from parents. In a way, in all cases except one land was not inherited to women who were married and lived with in-laws.

#### 4.4.1. (Dis) Investing in Landholdings:

Other than the potential for farming, land has emerged as one of the main and stable investments in rural Kashmir, probably because of lack of opportunities to invest in other avenues. Land rates are very high in villages across Kashmir. Therefore, any purchase of land may indicate progress in incomes of a household to have developed capacity to invest lakhs of rupees into buying of land. Similarly, any sale of land by household may indicate lack of resources at the disposal of households to be used for certain expenses that were not met by regular incomes.

The study showed that over the last 26 years between 1990 and 2016, more than one third of households (34%) were able to purchase some portion of land, which certainly suggests that these households might have witnessed improvements in their livelihoods or incomes. These households have purchased an average of 7.04 kanals (in the range of 1 to 25.5 kanals). On the other hand, the study also showed that 18% of households have also reported that they sold some portion of their land in the last 26 years (see Table 4.27).

These households have sold an average of 2.81 kanals, from a minimum of 1 kanal to a maximum of 8 kanals. However, as a caveat, selling land (mostly inherited) in villages is perceived as a disgrace and people tend to under report it. That may be the reason why only 18% households have reported selling land in the study village as compared to 34% households who have purchased land.

<b>Table 4.27: Changes in Landholdings over time</b>		
<b>Landholdings</b>	<b>Frequency</b>	<b>Percent</b>
Increased	34	34.0
Decreased	18	18.0
Same	48	48.0
Total	100	100.0



*What has helped the households to purchase land is an important question to understand how the progress in incomes has occurred.* The study showed that over one fifth of households (22%) stated that the improvements in their local business enterprises (existing or new) have helped them to purchase land from others in the village. These businesses were very small in scale and included buying and selling of livestock at local level, making local bakery, horticulture business locally, collecting and selling of milk, selling handicrafts in tourist places, etc. Other than one case, all these businesses depended on local production and/ or local consumption. Further, an equal proportion of households (22%) stated that the government job any of their family members had has helped them to purchase land. With substantial increases in salaries over the last 26 years would definitely leave incomes in hand for investment.

The data also shows that 14% households contributed it to the increase in their incomes through the cultivation of horticulture cash crops (apple and walnuts). Another equal proportion of 14% households (7 HHs) stated that they sold their livestock to buy land (see Table 4.28). Six out of these seven households were scheduled tribe who traditionally owned larger numbers of livestock as a means to their livelihood. But as they settled in one place, they choose to invest in land which was important for their stability and had to sell their livestock –only resource they had- to fetch money to buy land. Most ST households have done same in the last 50 years as they settled in this village. This may not be a progress in incomes but rather a transition to a different means of livelihood.

Interesting, another 14% households said that the availability of manual work and/or wages have increased over time which has helped them to fetch more incomes and thereby to invest into buying land. Further, 6% households felt the sources of employment have diversified fetching more incomes

<b>Table 4.28: Factors Helped to Purchase Land over time</b>			
<b>Push Factors</b>	<b>Frequency</b>	<b>% out of Responses</b>	<b>% out of Cases</b>
Govt. Job	11	22.0%	31.4%
Business flourished	11	22.0%	31.4%
Horticulture farming increased incomes	7	14.0%	20.0%
Sold Livestock	7	14.0%	20.0%
Availability of work/ wages increased	7	14.0%	20.0%
Employment diversified	3	6.0%	8.6%
Others	4	8.0%	11.4%
Total	50	100.0%	142.9%
<i>N=34 but some households gave more than one response</i>			

which has helped them to purchase land (see Table 4.28). *In a way, in most of these cases except for ST families who sold livestock, the study has shown that the increases in incomes due to multiple reasons has helped the households to purchase land in the last 26 years.*

*Why did households sell their land, especially if it is considered as a priced resource?* The study showed, among those who reported selling some portion of their land, some households have sold land for constructing house, a few sold for managing expenses for marriage of any family member, a few for bearing devastating costs of health care and a few stated for general household expenses. Three households stated that they sold land only to purchase land in another place which was better but at higher prices, so lost some portion of land in this cycle (see Table 4.29). Among the others, one sold land to pay bribe to get his son employment (which he didn't get later), another sold to pay back debt, and another sold land to purchase tractor and cab for his sons to earn their living and another for his children's education. *In most of these cases, selling land seemed to be an indication of distress compelling households to sell their land to manage expenses for equally important activities.*

<b>Reasons</b>	<b>Frequency</b>	<b>% out of Responses</b>	<b>% out of Cases</b>
Constructing House	7	28.0%	38.9%
Marriage	4	16.0%	22.2%
Household expenses	3	12.0%	16.7%
Health care/illness	3	12.0%	16.7%
Land lost in purchase /selling cycle	3	12.0%	16.7%
Others	5	20.0%	27.8%
<b>Total</b>	<b>25</b>	<b>100.0%</b>	<b>138.9%</b>

*N=18 but some households gave more than one response*

The data also shows a socio-economic gradient in purchase and selling of land. A higher proportion of scheduled tribes purchased land than general castes (see Table 4.30). As argued earlier, ST households have felt more compelling need to invest in land and may not necessarily be an indication of progress over time. However, the data also shows that a higher proportion of household with better economic conditions -- better livelihoods or large landholdings—have purchased land (see Table 4.30). These findings are also supported by other economic measures showing a higher proportion of households from better economic groups have purchased land than the corresponding lower economic groups.

Inversely, the study shows a class gradient in selling of land that a higher proportion of households with relatively poor economic conditions have sold land than those with better economic conditions (see Table 4.30). These findings are also supported by analysis of other economic variables.

Socio-economic groups	Sold Land		Purchased Land	
	HHs	Percent	HHs	Percent
Scheduled tribes	2	11.8%	11	64.7%
General Castes	15	22.1%	19	27.9%
Poor Livelihoods	12	25%	11	22.9%
Better Livelihoods	6	11.5%	23	44.2%
0-10 Kanals	12	23.5%	7	13.7%
11 kanals or above	6	12.2%	27	55.1%

#### **4.4.2. Changes in Land Use Pattern:**

As noted earlier, households owned both irrigated and un-irrigated in the village but un-irrigated land formed a major portion of total land owned. People cultivated mainly four crops in the village by 1960 including paddy, maize, almonds and walnuts, but the cultivation patterns drastically shifted thereafter with the beginning of apple which gradually replaced all almonds and major parts of maize and paddy land as well. The conversion of land under different crops to apple and walnuts has happened largely in the last 26 years after 1990. The study shows apple and walnuts (horticulture cash crops) were produced on only 36.67% of reported land in 1990, maize on 35.58% and paddy on 16.67% of total land. However, by 2016, apple and walnuts were only main crops and were cultivated on 94.73% of total land reported. On the other hand, maize was cultivated only on 1.29% and paddy on 1.1% of total land. Almonds were hardly anywhere.

The macro-data at the state level shows a similar pattern that apple cultivation in particular has seen a phenomenal growth over time especially post 1990. The acreage under apple at state level has increased by 141.07% between 1989-90 and 2017-18. The growth of apple has also been much faster than growth in other fresh fruits taken together. Land acreage under all fresh fruits (minus apple) increased by only 27.51% and land under apple increased by 51.05% between 2004-05 and 2016-17<sup>37</sup> (Govt of J&K, 2016-17). Dar (2015) suggested that the phenomenal increase in acreage under apple in J&K is partly because of increasing conversion of land under food crops to apple and as was shown by the village study. Production of apple has also seen

<sup>37</sup> The data was not available before 2004-05

significant increases over this period. Apple constituted 77.89 % of the total fruits (fresh and dry) produced in J&K, and 97.76% of total apple produced in the state came from Kashmir region (excluding Ladakh) in 2016-17 (Govt of J&K, 2016-17).

This radical transformation in the cultivation patterns leading to increasing cultivation of apple over the last 26 years are discussed ahead in the context of study village to underline the broader changes in land use of over time.

The study has shown that 45.65% households (42 HHs) have been cultivating apple before 1990 (to be considered as old cultivation), whereas slightly higher proportion of 54.35% (50 HHs) started growing apple only after 1990 (new cultivation for this study). As a result, the proportion of households who cultivated apple in any portion of land was 92% by 2016. Among the eight households without apple orchards, five were landless and three households stated they converted all their un-irrigated land to walnuts because the land was not suitable for apple.

Most of the households who had apple prior to 1990 have also cultivated apple in other parts of land (irrigated or un-irrigated) in the later years. The average land under apple orchards was 4.29 kanals among the 42 households before 1990 and has increased to 8.41 kanals among the 92 households who cultivated apple in 2016. This indicated that not only number of households growing apple has substantially increased (from 42 to 92), but also the land under apple has almost doubled in the last 26 years between 1990 and 2016 (see Table 4.31). To understand these trajectories of apple cultivation, the data was analyzed separately for periods before 1990 and after and also separately for apple cultivated on un-irrigated land and paddy land. Similarly, the data was analyzed for walnuts cultivated over time.

<b>Table 4.31: Cultivation of Apple over Time</b>		
<b>Grow Apple</b>	<b>Prior to 1990</b>	<b>2016</b>
No of HHs growing apple	42	92
Average land under apple	4.29 kanals	8.41 kanals

**Conversion of Un-irrigated land to Apple:** The study showed that the entire apple cultivated by 42 households prior to 1990 was on un-irrigated land. A little over one third (35.7%) of the 42 households with old cultivation of apple have started apple cultivation in 1960s (total of 61.5

kanals), followed by 11.9% households in 1970s (total of 31.5 kanals) and jumped to 52.4% households who started growing apple in 1980s (total of 87.5 kanals).

This pattern was explained by many respondents and groups during discussion that government sanctioned what is famously called as ‘Hallan Plan’ (hallan is name of one place in the village) through which the households with land in this area were given apple trees and fencing support to grow apple. Although initially people thought these were free but much later they were asked to pay back debt because the trees and fencing support was given on subsidized loan but to be returned. Some people took this offer but many were skeptical and didn’t grow apple. However, this gave an impetus to start apple cultivation especially in un-irrigated land of the village, which was not very productive till then and very vulnerable to drought. A few respondents explained that as the initially grown trees started producing apple in 1980s and others felt confident so boosted another phase of apple plantation in 1980s, and that is why, more than half of the old apple cultivation has started in 1980s.

The data shows that initial apple growers—those who cultivated before 1990— were significantly higher from general castes and better economic groups. Only 15.6% (5 HHs) from ST/ deprived caste group had grown apple prior to 1990 as compared to 54.4% (37 HHs) from general castes. Similarly, only 15.4% households (4 HHs) from lower economic group had grown apple prior to 1990 as compared to 51.4% from upper economic group. The data also shows that only 25.5% of households with smaller landholdings (10 kanals or less) had grown apple prior to 1990 as compared to 59.2% households with larger landholdings (11 kanals or above). Similarly, a significantly higher proportion of households owning any vehicle, costly durables or bigger houses or had better livelihoods have grown apple prior to 1990 than those not owning any vehicle, no or lesser costly durables or smaller houses or had poor livelihoods.

The reason that why a smaller proportion of the lower economic groups and ST/ deprived castes have grown apple prior to 1990 as compared to general castes or higher economic groups is for two reasons. Firstly, because of their exposure to information and influence they exert in the local distribution of government services, the general castes and higher economic groups were likely to receive disproportionate benefits under government’s ‘Hallan plan’. In fact most of the

STs didn't have land located in this geography. Second, the apple cultivation is very resource intensive to buy apple trees and cover the orchard with some fencing and required more than a decade to grow plants to give any substantial outcomes. Therefore, the poor sections not just lacked the economic ability to invest but may not have also liked to take risk to grow a new crop and wait for a decade to see the outcome, especially when the new crop was in experimental stage in the village. That is why the apple plantation has picked up growth in 1980s only when people have witnessed good outcomes from the initial orchards planted in 1960s. *Has this delay in cultivation of apple orchards which over the time became very productive in fetching incomes led to increased inequality between the poor and rich in diverse ways, will be analyzed later.*

On the other hand, the study has shown that over two thirds of households (64%) have converted their un-irrigated land to apple orchards post 1990 (see Table 4.32). Among these are also included 29.7% households (19 of 64 HHs) who had apple orchards on un-irrigated land prior to 1990, and have converted additional un-irrigated land to apple post 1990. Other 70.3% of these households (45 of 64 HHs) have converted their un-irrigated land to apple first time only after 1990.

<b>Table 4.32: Conversion of Un-irrigated land to Apple Orchards post 1990</b>		
<b>Converted</b>	<b>Frequency</b>	<b>Percent</b>
Yes	64	64.0
No	31	31.0
Landless	5	5.0
Total	100	100.0

Among the 31 households who haven't converted any un-irrigated land to apple post 1990, 23 households are also those who had apple already on un-irrigated land prior to 1990. The reason that these

31 households didn't convert any un-irrigated land to apple was just because they weren't left with any available land which could have been converted to apple. Any un-irrigated land available with them by 1990 was converted by 27 households to walnut orchards (also a cash crop) and 4 households sold. The reason why they choose walnuts in this land is discussed later.

These 64 households have converted an average of 6.2 kanals of un-irrigated land to apple post 1990, which is significantly more than the average of 4.29 kanals converted by 42 households before 1990. This indicates that the conversion of un-irrigated land to apple orchards has increased post 1990 in terms of number of households shifting their crop as well as in terms of land brought under apple.

The conversion of un-irrigated land to apple post 1990s was highest in 1990 decade with a total of 170.5 kanals being converted in this period and was significantly higher than a total of 87.5 kanals converted in 1980 decade showing that growth of apple almost doubled. However, 1990 was also the peak in terms of conversion of un-irrigated land to apple. The total un-irrigated land converted to apple in 2000 decade was 158 kanals and was followed by 69 kanals converted in 2010 onwards (see Table 4.33). The reason for the steep decline in conversion of un-irrigated land to apple post 2000 is because the availability of un-irrigated land was shrinking in the village over time and was completely exhausted among the households covered in the study by the time of survey.

The data on the conversion of un-irrigated land to apple post 1990 by different socio-economic groups shows a mixed picture. For instance, a higher proportion of 75% households from ST/deprived castes have converted their un-irrigated land to apple post 1990 as compared to 58.8%

Time period	Households Converted Un-irrigated Land to Apple			Total Un-irrigated land converted (in Kanals)
	Frequency	Percent of Responses	Percent of Cases	
1990-94	14	17.9%	21.9%	88.5
1995-99	14	17.9%	21.9%	82
2000-04	20	25.6%	31.3%	95
2005-09	13	16.7%	20.3%	63
2010-14	14	17.9%	21.9%	54.5
2015-16	3	3.8%	4.7%	14.5
Total	78	100.0%	121.9%	397.5

*N=64, but some households have converted land to apple in two phases*

households from general castes. This is because general castes have been converting land to apple from 1960s, so ST/deprived castes have been only catching up in 1990s and later. Similarly, a slightly higher proportion of 65.4% households from lower economic group converted their un-irrigated land to apple as compared to 63.5% households from upper economic group. On the other hand, the data also shows that a significantly higher proportion of households with larger landholdings (69.4%) or better livelihoods (69.2%) have converted un-irrigated land to apple than those with smaller landholdings (58.8%) or poor livelihoods (58.3%) respectively.

However, in terms of acreage, the general castes and those with better economic conditions have converted more un-irrigated land to apple. For instance, ST/ deprived castes have converted an

average of 5.79 kanals of un-irrigated land to apple; whereas general castes have converted an average of 6.46 kanals. Similarly, those who belong to lower economic group have converted an average of 2.97 kanals as compared to 7.38 kanals by those belonging to upper economic group. Other economic variables also show a similar trend, which is because the general caste and upper economic groups owned more land, so were able to convert a higher portion of land even post 1990s.

In overall, taking all the conversion of un-irrigated land to apple both prior and post 1990s, the data has shown that most of the households (87%) in the village have converted some portion of their un-irrigated land to apple<sup>38</sup>. The conversion of un-irrigated land to apple orchards has been happening from 1960s onwards but it increased post 1990 in terms of number of households shifting their crop as well as in terms of land brought under apple. Even if most of the lower caste/tribe and lower economic group households were able to catch up with converting their un-irrigated land to apple in the recent years, the disparities exist in two ways – age of apple trees and acreage under apple. On an average, the general caste and upper economic group households have older apple trees and larger landholdings under apple, both of which are important determinants for farming outputs, and thereby giving rise to increased inequalities in farming outputs on un-irrigated land.

**Conversion of Paddy land to Apple:** As the apple witnessed high growth in acreage in 1990s in the village, households also started converting their paddy land to apple. The study has shown that among the 60 households who owned paddy land in 1990 or purchased paddy land later, 86.7% of them had converted this to apple by 2016. Other 8.3% households had paddy land in 1990 but had sold for different reasons. In a way, only 3 households with paddy land in 1990 didn't convert it to apple (see Table 4.34). The paddy landholdings owned by people are generally very small in Kashmir and the households have converted an average of 3.85 kanals of paddy land into apple in the range of 1 to 8 kanals.

<b>Table 4.34: Conversion of Paddy land to Apple Orchards</b>		
<b>Converted</b>	<b>Frequency</b>	<b>Percent</b>
Yes	52	86.7
No	3	5.0
Others	5	8.3
Total	60	100.0
<i>40 HHs didn't own any paddy land in 1990</i>		

<sup>38</sup> The other 13 households included five landless households and eight land owning households who converted their un-irrigated land to walnuts.



The data shows that the conversion of paddy to apple has though started in 1993, it had reached its peak in 2000-04 both in terms of numbers of households converting paddy to apple as well as the actual acreage converted to apple. Only 3.4% households converted paddy to apple during 1990-99, whereas over two third of households (65.5%) have converted paddy to apple during 2000-09 and followed by 31.0% households who converted during 2010-16 (see Table 4.35).

During discussions and interviews, people provided insights which explain this trajectory in apple growth. They explained that households were initially keen to converted un-irrigated land to apple because un-irrigated land was not very productive and

Time Period	HHs Converted Paddy to Apple			Total paddy converted to Apple (in Kanals)
	Frequency	% of Responses	% of Cases	
1990-94	1	1.7%	1.9%	8.00
1995-99	1	1.7%	1.9%	3.00
2000-04	24	41.4%	46.2%	86.50
2005-09	14	24.1%	26.9%	32.00
2010-14	12	20.7%	23.1%	49.50
2015-16	6	10.3%	11.5%	21.50
Total	58	100.0%	111.5%	200.5

*N=52, but some households have converted paddy to apple in two phases*

this trend continued till 1998-99. However, a severe drought hit the village and heavily damaged the apple plants. As a result, people then also started converting their paddy land to apple – paddy had assured irrigation and was not prone to drought. Further, with increasing market demand for apple and better rates, people had realized it was better to increase apple than any other crop to fetch more incomes.

This explains why apple has seen growth in paddy land after 2000. It reached its peak by 2004 and afterwards the rate of increase in apple acreage has seen decline till 2016, which is because the conversion had already reduced the available paddy land to close to half by 2004.

Over the time, people also realized that the quality of apple from irrigated land was better, productivity was more and growth of plants was fast. In a way, apple orchards developed in paddy land, especially when it has adequate elevation above sea level as existed in the village, became an important resource in this village.

**Conversion of Un-irrigated land to Walnuts:** As discussed earlier that walnuts have emerged as the second major crop cultivated in the village in terms of acreage under it. Although the households in the village cultivated walnuts since their memories go back, and many households had walnuts before 1990. However, the acreage under walnuts has significantly increased from 1980s to 2000 with its peak in 1990s.

The study has shown that 6.8% households recalled that they had walnuts in some portion of land by 1960s; either planted in 1960s or planted before which covered approximately 46 kanals of land. Afterwards, the plantation of walnut trees has seen steep increase for next 30 years either in terms of number of households who started cultivation of walnut or in acreage under the walnuts. For instance, 18.6% households converted some portion of land to walnuts, and were followed by 25.4% in 1980s and 21.2% in 1990s. The land brought under walnut orchard also increased by 93 kanals in 1970s, 144.50 kanals in 1980s and 246.50 in 1990s, showing a clear steep increase over this time (see Table 4.36).

However, thereafter, the study shows that the number of households who converted any land to walnuts as well as the actual acreage brought under walnuts decreased compared to earlier decades. For instance, only 16.9% households

Time Period	HHs Converted Land to Walnuts			Total land converted to Walnuts (in Kanals)
	Frequency	Percent of Responses	Percent of Cases	
1960-69	8	6.8%	9.0%	46.00
1970-79	22	18.6%	24.7%	93.00
1980-89	30	25.4%	33.7%	144.50
1990-99	25	21.2%	28.1%	246.50
2000-09	20	16.9%	22.5%	81.50
2010-16	7	5.9%	7.9%	1.71
No date	6	5.1%	6.7%	11.46
Total	118	100.0%	132.6%	624.67

*N=89, but some households have converted land to walnuts in two phases*

converted any land to walnuts during 2000-09, and were followed by 5.9% households during 2010-16. Similarly, the land brought under walnuts increased by 81.50 kanals during 2000-09 and 1.71 kanals under 2010-16. This decrease is because the land availability for conversion to walnuts exhausted. Secondly, with commencement of lift irrigation projects which made water available to un-irrigated land even at higher altitudes and therefore decreased vulnerability of

crops to drought, many households also preferred to convert some portion of the un-irrigated land into apple orchards.

In overall, the number of households who cultivated walnuts increased from 60 to 89 households (an increase of 48.33%) between 1990 and 2016 but the acreage under walnuts increased by 116.30% during this period. The 89 households who cultivated walnuts in some portion of land by 2016 had on an average 7.78 kanals under walnut orchards. Among the 11 households not cultivating walnuts by 2016, five were landless and five others had either no un-irrigated land at all or converted it to apple (which was more favored). The later five households belonged to ST/ deprived castes as well as general castes, and lower as well as higher economic group.

#### 4.4.3. Land ownership and Use in 2016:

These diverse processes as discussed above including inheritance customs, land purchases and selling, land reforms and shifting cultivation patterns over the last more than 50 years in general but 26 years in particular have ensured that most of the households owned land in the village but with a cultivation pattern which are dominated by horticulture crops. The study has shown that 95% households owned some land in 2016 but the landholdings were small (15.48 kanals) on an average. 38% households owned up to 8 kanals of land, 28% households owned 8-16 kanals and only 34% owned land 16 kanals or above.

The study also shows that the two main crops cultivated on agricultural land in 2016 were apple covering almost half of the total reported land, followed by walnuts in 44.72% of land. Collectively, apple and walnuts (horticulture cash crops) were cultivated on 94.73% of total land reported. On the other hand, paddy was cultivated only on 1.1% of land and maize on 1.29% of total land. Dry land (2.65%) was mainly vacant land or planted by trees, and was mostly not suitable for apple or walnut production (see Table 4.37).

<b>Crop</b>	<b>Total Land (in Kanals)</b>	<b>Average Landholdings (in Kanals)</b>	<b>%age of Total Land</b>
Total Land	1547.80	15.48	100.00
Apple Land	774.05	7.74	50.01
Walnut	692.25	6.92	44.72
Maize	20.00	0.20	1.29
Paddy	17.00	0.17	1.10
Dry Land	41.00	0.41	2.65
Vegetables	3.50	0.04	0.23

The land owned by households show huge disparities across the lines of caste and class. The average landholdings owned by ST/ deprived castes were 12.38 kanals as compared to 16.94 kanals by general castes. Similarly, those households observed as lower economic group owned an average of 5.78 kanals of land, as compared to 18.89 kanals owned by households from upper economic group. These disparities also exist in the ownership of apple and walnut orchards. Further, the households with poor livelihoods owned an average of 8.37 kanals of land as compared to 22.04 kanals of land owned by households with better livelihoods (see Table 4.38). Other economic indicators including type of housing, ownership of vehicles, costly durables and educational status also show a strong relationship with landholdings owned by households.

**Table 4.38: Ownership of Landholdings by Crop and Socio-economic Groups<sup>39</sup> in 2016**

Crop	Average Landholdings (in Kanals)					
	Scheduled Tribe/ Deprived Castes	General Castes	Lower Economic Group	Upper Economic Group	Poor Livelihoods	Better Livelihood
Total Land	12.38	16.94	5.78	18.89	8.37	22.04
Apple Land	5.28	8.90	2.64	9.53	4.58	10.65
Walnut	5.78	7.46	2.53	8.47	3.33	10.24
Paddy	0.00	0.25	0.00	0.23	0.08	0.25
Maize	0.44	0.09	0.54	0.08	0.31	0.10

These disparities along the lines of caste and class also exist in the ownership of apple and walnut farms which are more critical in determining the economic conditions of families. Because apple and walnuts constitute more than 93% of crop cultivated and are high paying crops, therefore, the changing cultivation patterns are likely to have favored the upper class and general castes disproportionately sharpening the existing inequalities in other socio-economic measures including education, livelihoods, housing, durables & other resources between ST/deprived castes and general castes and between poor and rich, which are discussed later.

<sup>39</sup> As explained earlier, the household were categorized into ‘poor and better’ livelihood groups based on scores given to multiple livelihoods reported by households. Also, households were divided into ‘lower and upper’ economic categories based on observational remarks, explained earlier in detail.

#### 4.4.4. Reasons for Conversion of Irrigated and Un-irrigated land to Apple and Walnuts:

Although both walnuts and apple are horticulture crops cultivated in the village, apple was the most favored crop and relatively new compared to walnuts. Walnuts have a very old history of cultivation in most parts of Kashmir and in fact contributed significantly to state economy to the extent that its felling was strictly prohibited. Although with diversification of economic avenues, walnut contribution doesn't remain that significant at state level, cutting of walnut trees still need permission from a Tehsildar, otherwise, invites state action. The cultivation of walnuts was broadly an addition to the incomes –because it was usually cultivated on sloppy/uneven and far off land- and not a replacement to any existing crop. However, apple on the other hand is recent cultivation especially at a scale as it exists now and is cultivated mostly on better un-irrigated land which were once under maize cultivation or on irrigated land which was used for paddy cultivation. In a way, apple cultivation required transition from age old crops like maize and paddy to apple. Therefore, it was important to understand the rationale behind the widespread cultivation of apple in the village which has replaced more than 99% paddy in just 23 years or so, and emerged as primary crop cultivated in terms of acreage under it.

The study has shown that 55.4% households (all except one who converted paddy to apple) stated that paddy cultivation didn't benefit much and there were limited earnings. Similarly, 94.6% households (all who had converted some portion of un-irrigated land to apple) also had similar concerns that there were very limited earning from cultivation of any crop from un-irrigated land. On the other hand, all of the 92 households who were growing apple in the village respondents stated that apple

has proved to be much more financially beneficial and that returns from apple are very high as compared to paddy or any other crop (see Table 4.39). Therefore, it provided a strong economic rationale for people to transit to apple cultivation.

<b>Table 4.39: Reasons for Transition to Apple Orchards</b>			
<b>Reasons</b>	<b>Frequency</b>	<b>% of Responses</b>	<b>% of Cases</b>
Paddy didn't benefit much/ limited earnings	51	21.2%	55.4%
Un-irrigated land didn't benefit much/ limited earnings	87	36.1%	94.6%
Apple returns are very high	92	38.2%	100.0%
Others	11	4.6%	12.0%
<b>Total</b>	<b>241</b>	<b>100.0%</b>	<b>262.0%</b>
<i>N=92, but some households have given more than one response</i>			

The study also showed that there were only 15 households who had apple on some portion but were still left with any portion of land (paddy or un-irrigated) without apple or walnuts (two most favored crops) in 2016. Among these included four households left with paddy land (2 to 6 kanals), two of whom said they have already decided to convert it to apple, and the third household had this land located in another village where paddy is still being cultivated. Fourth said their paddy land is wet land and not suitable for apple. The success of apple trees planted in between paddy fields or in wet land remains low because of dampness in soil. Another six households were left with un-irrigated land (1 to 8 kanals) and they cultivated maize on it. Two of these said they don't have money to invest into apple trees, otherwise have already planned to shift this land to apple. Three other households said that the land was not suitable for apple either it was very far and uphill located or was dry land or had rocks present in it. *Only one who was a ST household said that they were not happy with apple cultivation because the land was dry and apple trees are not fruitful on their land.* Another six households who were left with any land which was not converted to apple or walnuts said the land was too dry to grow plants on it.

As shown by the study, it seems very clear that all households preferred apple over other crops if land was suitable for apple. Among the 100 households covered, 92 households have grown apple in some portion of their land. While 5 households were landless, the 3 households without any apple said they converted land to walnut because it was dry land and was not suitable to apple. Among the 15 households who were still left with some portion of land at the time survey which was not converted, they had different reasons for not being able to shift this land to apple and neither had any specific dislike for apple

The reasons for people who grew walnuts on any portion of land did not convert their entire land to apple—which was highly favored crop and all households with apple orchards had said the returns from apple are very high— were manifold. During the personal interviews and discussions, people narrated that the village had experienced drought many times in the past, and a few were severe to the extent that they heavily damaged apple orchards on un-irrigated land. So they were cautious about planting apple trees on un-irrigated land; they wouldn't see rationale to plant apple trees on land where vulnerability was high. Walnuts, on the other hand, are more suitable to un-irrigated and dry land, therefore, makes it less vulnerable to drought. People had

more confidence on sustenance of walnuts on dry lands and therefore any land which was vulnerable to drought was used for walnuts. The government has though recently built three major irrigation projects in the village which are able to irrigate a significant portion of un-irrigated land once or twice a year, thereby, reducing vulnerability to drought and damage to plants. But the people stated that the walnut trees planted long time back have grown and are able to fetch good crops and good incomes. Therefore, replacement of these walnut trees with apple (if irrigation is now available) which will take another 10 years to produce crop doesn't make economic sense to many. Many people also felt walnuts are more sustainable crop and require very less investment, as compared to apple which is resource intensive. Because the apple is also very sensitive to climatic conditions, many said it was better to have mixed orchards for minimizing the risks. Importantly, walnuts are also mostly planted on inferior un-irrigated land, which is located uphill or sloppy and has no source of water, and therefore, not suitable for apple. In a way, the incomes from walnuts are additional to farmers without much investment, whereas apple requires replacement of existing crop and a wait period for almost a decade to fetch produce. This explained why people want to keep walnuts as well along with apple in the village.

#### **4.4.5. Government support to Apple Cultivation:**

People didn't see any direct support was provided to them for cultivating paddy or maize crops which were age-old main crops in this village and district. The production of paddy or maize was mainly used for household consumption and hardly fetched any extra cash to households to spend for other needs. The only support farmers received for paddy or maize was through subsidized fertilizers but that also applies to apple cultivation. On the other hand, as was stated by one of the retired District official from Horticulture Department, government has helped apple cultivation in many ways through creating local mandis (market), investing into research, creating awareness, facilitating essential supplies like fertilizers, created a new horticulture department, providing technical inputs, etc. However, there were three major ways government has supported farmers in this village which have had a huge impact on farming outcomes; two of these were specific to enhance apple cultivation.

The first major policy which benefited the farmers was the implementation of land reforms in 1950s. As noted earlier, 15 households (15%) reported receiving some land under land reforms; seven of these belonged to ST/ deprived castes and eight to general castes. This paved the way for a relatively egalitarian society and shared the precious resources (land) with the most disadvantaged.

As major portions of the land available to farmers in this village was un-irrigated and therefore vulnerable to drought. Although the village owned relatively more patches of land, it was still disadvantaged compared to those who had paddy land because the productivity of un-irrigated land was poor. But with government started encouraging cultivation of apple on un-irrigated land initially, the once low-productive un-irrigated land became the fortune to this village. However, land still faced the vulnerability to drought, and overall, the growth of apple trees was slow on un-irrigated land. To provide some access to water resources, the government has developed three major lift irrigation projects in the village over the time, the first started working in 2002, second in 2005 and the last one in 2018, a year after the field work for this study was completed. These lift irrigation projects pumped the water from a canal in the lower belt of the village to hundreds of meters uphill into a small canal which circulated the water thereafter to a major portion of un-irrigated land with apple orchards in the village.

The study showed the lift based irrigation had huge impact on apple and had wide coverage<sup>40</sup>. 70% households said that some portion of their land was covered by lift irrigation. It also included 14 households whose land was to be covered by third lift project<sup>41</sup> which was built but started working (in 2018) only a year after the field work was conducted. Only 20% households said that the lift irrigation doesn't cover any part of their land. 10% households said either the lift irrigation was not required because their apple orchards are irrigated through canal or didn't own apple orchards at all or they were landless (see Table 4.40).

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<sup>40</sup>The inquiry about coverage by lift irrigation was made only about apple orchards. There is a possibility that walnut orchards may also be covered for some households. Therefore, the data about apple orchards being covered by lift may not represent the entire lift coverage. That being said, lift irrigation was though primarily meant for apple.

<sup>41</sup>As this lift project was yet to be started at the time of survey and the coverage of land by it was anticipated by households, there is a possibility that the land to be covered by it may have been underreported.



The lift irrigation helped the farmers to irrigate their un-irrigated land once or twice a year, and was in addition to the canal-based irrigation system already existed for irrigated land. The land covered by lift irrigation was mostly apple orchards. Those who had access to lift irrigation spoke of huge dividends they are able to harvest from the lift projects. The most critical ways these projects have helped farmers and were stated by most respondents included reducing the vulnerability of apple orchards to drought, increased productivity, enhanced growth of apple trees, decreased investments (to carry water for spraying pesticides) and improved quality of fruit. In a way, by identifying these important ways lift irrigation has helped farmers, it was also a recognition that the lift projects have increased incomes from apple to farmers, and encouraged many to convert their un-irrigated land to apple and invest in it thereafter. The impact of lift irrigation was so much perceived in the village and could be understood by anecdotal evidence that many respondents stated that Degijpur hamlet of the village was most developed because they got the first lift project which was started in 2002, which helped their apple orchards to grow at a faster pace than households living in other hamlets who also got lift projects but at a later stage.

<b>Land in Kanals</b>	<b>Frequency</b>	<b>Percent</b>
0 to 4	35	35.0
4.1 to 8	15	15.0
8.1 to 16	17	17.0
16.1 & above	3	3.0
Not covered by Lift	20	20.0
Not required/ no apple/ Landless	10	10.0
<b>Total</b>	<b>100</b>	<b>100.0</b>

However, even with the widespread coverage by lift irrigation, disparities existed along the lines of caste and class. For instance, 50% households from ST/ deprived castes didn't have access to lift irrigation as compared to only 5.9% households from general castes. Similarly, 53.8% households from lower economic group didn't have access to lift irrigation, as compared to only 8.1% households from upper economic group. 31.3% households with poor livelihoods didn't have access to lift irrigation as compared to only 9.6% households with better livelihoods. 25.5% households with smaller land holdings (10 kanals or less) didn't have access to lift irrigation as compared to 14.3% households with larger landholdings (11 kanals or above).

One of the other most talked support systems, and the third major assistance extended by government, was the credit linkages for apple cultivation in the form of subsidized loan from

banks under a government Kisan Credit Card (KCC) scheme. People also took advances from middlemen returned through annual crop. The advances from middlemen were both in kind (fertilizers, packing material, pesticides, etc) and/or cash, and in return farmers were required to sell the crop to the same middlemen. Majority of farmers would use credit linkages with middlemen because the apple cultivation is resource intensive. However, in the last few years, people have started availing subsidized loan through KCC scheme which is gradually replacing the middlemen from the equation<sup>42</sup>. The loans are provided on a simple interest rate of 4 percent if paid back on time.

The study showed that 34% households have availed loan under KCC at least one time in the past (see Table 4.41). In fact, majority of these have availed the loan more than once in the last few years which may be an indication that the programme is beneficial to people.

<b>Availed</b>	<b>Frequency</b>	<b>Percent</b>
Yes	34	31.0
No	66	69.0
Total	100	100.0

However, there were disparities along the lines of caste and class. Only 31.3% ST/deprived caste households availed KCC loan, as compared to 35.3% from general castes. Similarly, only 19.2% households from lower economic group availed KCC loan as compared to 39.2% households from upper economic group. Further, only 17.6% households with smaller landholdings (10 kanals or less) availed KCC loan as compared to 51.0% households with larger landholdings (11 kanals or above). Such disparities existed because of two reasons. One, the lower castes and lower economic groups have smaller orchards, and in many cases, newly planted trees, which becomes a barrier to convince the revenue and bank officials of their capacity to return money. Second, they enjoy less influence and have smaller social capital which is important to avail government subsidies at most times.

It was very obvious that the demand for KCC loans was increasing over the time. However, 43.94% of those who didn't avail KCC loan had borrowed money from middlemen in the last

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<sup>42</sup> KCC loan is aimed to provide access to credit to farmers at low interest rate to be able to invest into farming and also to help them get rid of advance cycles from middlemen. Although KCC loan can be provided for any crop but mostly those who grow apple avail loans under this scheme. Other crops don't require any heavy investment and secondly the amount sanctioned for such crops (Rs 7000 per Kanal) is also low and usually not seen worth by people to put efforts into the documentation process required to avail loan. Whereas, the amount sanctioned for apple is Rs 44,000 per kanal.

four years (further details later in this chapter) and may suggest that KCC loans are not favored by everyone who wants to use credit linkages. The rationale that drives people's choice to take credit from middlemen or KCC or both was explained by the farmers during discussions with them. The availability of credit from middlemen from a much longer time has helped farmers in many ways and ensured that they are not forced by the situations to sell assets. One of the respondents explained that they would sell land for any crisis or major expenditures like housing, marriage, etc. till 1990 but later they could take advance of any amount (in lakhs) from middlemen whenever they needed against the apple crop. However, respondents were also very vocal that advances from middlemen turn to be expensive and keeps the farmers bound to sell the crop to the same middlemen at compromised prices. The middlemen also take their commission cuts. The rates of fertilizers, pesticides and packing boxes are usually charged at higher prices by the middlemen. Despite these disadvantages, many respondents especially the poor were keen to take advances only from middlemen and not avail KCC loan. A little over one fourth of households (25.76%) who didn't avail KCC loan were skeptical in availing loan from government fearing that if KCC loan is not returned on time to bank, government and banks may seize their land or even if not ceased they would have to sell land voluntarily to pay back debt. These fears drew partly from their past experiences especially from 'Hallan plan'<sup>43</sup> through which farmers were provided apple trees, fertilizers and fencing support to grow apple but were supported through bank loans. As people didn't pay back for decades, some in the village had to sell their land to pay back this debt to the banks when pressurized. Secondly, 7.58% of those who didn't avail KCC said apple crop is sensitive to climatic conditions and because the climatic conditions have become unpredictable for apple and worse at times, there is an increased risk to crop. If there are damages to crop against high investments made, they will not be able pay back loan to bank, whereas, they don't have to return money to the middlemen. The agreement is about returning crop and not cash. So, whenever, the apple orchard produces crop, it will be given to middlemen against advances taken. The advance from middlemen therefore helps the farmers to cover risk and continue investing into apple. Secondly, there is no interest on the amount to be paid back to the middlemen. Thirdly, 7.58% of those who didn't avail KCC loan

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<sup>43</sup> Government sanctioned a project- what is famously called as 'Hallan Plan' (hallan is name of one place in the village)- in 1968 through which the households with land in this area were given apple trees and fencing support to grow apple. The project was intended to promote apple cultivation in the village.

felt the interest rates (even subsidized) are still high on KCC loan, whereas, they don't pay interest to money borrowed from middlemen even if it delayed. In addition to these reasons, some respondents said middlemen don't pressurize people for return of cash, if crop is damaged or crop harvested is less than expected. Some others also said the processes are simple to take credit from middlemen: whenever farmers need money (for buying ration to marriage to construction to funeral to illness), they can avail advance from middlemen.

On the other hand, people who availed KCC were clear that it was helping them to get rid of middlemen and sell the crop directly to markets and thereby helping them save more money by reducing commission charges taken by middlemen. One of the respondent explained they had taken advance from middlemen against apple two years before and observed that they fetched almost 30% less incomes than if sold directly to market. Some of the people even among those who didn't avail KCC loan but took advances from middlemen favored KCC loan in ideal circumstances. The trend was also clear that households were gradually shifting to KCC loan for credit.

Many households (25 HHs) who availed KCC loan also took advances from middlemen in kind or cash. Some of these households noted that it is because of the increased access to credit from both sources that they are able to invest into household utilities or children's education. But some households saw this as a middle way to reduce the advance from middlemen by taking part credit under KCC scheme and part from middlemen. The less advance from middlemen helped them to reduce commission charges taken by middlemen but it also provided some security in case of crop failure that the farmer has to return only part credit availed under KCC and middlemen can wait till next crop.

In addition to KCC loan and lift irrigation, people also stated other benefits they availed from government which has helped them in apple cultivation. For instance, 14.4% households recalled receiving fertilizers on more subsidized (than normal) rates from government; 13.6% households reported receiving apple trees on subsidized rates from horticulture department; 12.7% households appreciated the technical advice they receive through government's mass awareness programmes and individual interactions with officials; 7.6% households said they benefited

under ‘Hallan Plan’ and could develop apple orchards early; and 8.5% households reported other benefits.

The study has therefore shown clearly that people at large in this village have been benefited by government programmes especially lift irrigation projects. These projects are unique and not built everywhere. There may not be many examples from Kashmir region where such an investment has been done by government to develop projects suiting to local conditions. These irrigation projects have structurally improved farmer’s access to irrigation and reduced their vulnerability to drought. Thereby, increased confidence of farmers to invest on apple grown in un-irrigated land and making its cultivation more sustainable. Why government has invested on irrigation projects in this particular village is because of the PDP’s patron’s fondness of this village. People from this village widely believed that the patron of People Democratic Party (PDP) – a regional party in J&K, and a two-time Chief Minister of J&K, has started his politics from this village. Plus, because of bigger size of this village, its influence on the overall political constituency (one state assembly seat) is significant and therefore making it important.

This village provides an interesting example of the impact government’s policies can have on people’s choices about cultivation, their reduced vulnerability to drought, access to credit and thereby their ability to produce increased crop and fetch better incomes. However, the impact has been differential with ST/deprived castes and those economically poor don’t enjoy equal access to lift irrigation, to credit and other support structures as compared to the general castes and those economically better who enjoy disproportionate access to government benefits.

#### **4.4.6. Farming Output:**

Whether farmers especially with small and marginal landholdings earn significant incomes from agricultural outputs has been a debate especially in the recent times. There are studies suggesting the incomes are very small, if at all, for small and marginal landholders. In J&K, the anecdotal evidence from farmers suggested that outputs from paddy or maize cultivation (main food crops in terms of acreage in Kashmir region) are too low, and possibly one of the primary reasons why farmers have increasingly shifted to other crops like apple. To understand to what extent ‘apple’

is increasing incomes to the farmers, an attempt was made to estimate the incomes (savings)<sup>44</sup> from all the four main crops produced in the village including paddy, maize, walnuts and apple. The study showed that there were only four households who were cultivating paddy in some portion of their land and owned an average of 4.25 kanals of land. These households fetched an average income (savings) of Rs 3308 per kanal of land with paddy. Similarly, only six households were cultivating maize on any portion of their land and they owned an average of 3.33 kanals of land. These households fetched an average income of Rs 1500 per kanal of land with maize crop (see Table 4.42).

On the other hand, as noted earlier that the main crops cultivated in the village presently were horticulture cash crops including apple and walnuts. There were 89 households (89%) who reported to have walnuts in any portion of their land. These 89 households had an average land of 7.78 kanals under walnuts. The walnuts fetched an average income (savings) of Rs 30869.66 to these 89 households. The average incomes per kanal of walnut land was estimated at Rs 3968.80. Similarly, 92% households cultivated apple on some portion of their land. These 92 households owned an average of 8.41 kanals with apple orchards. The apple crop fetched an average income (savings) of Rs 188071.74 to each apple growing farmer in the village. The average income per Kanal of apple land was estimated at Rs 22353.34 (Rs 1.79 lakhs per acre of land) (see Table 4.42).

<b>Table 4.42: Farm Outputs by Crops</b>				
<b>Crop</b>	<b>Sample HHs</b>	<b>Average Output per sample HH</b>	<b>Average Savings per Sample HH (INR)</b>	<b>Average Savings per Kanal of Land (INR)</b>
Paddy grains	4	11.25 Quintals	14062.50	3308.82
Maize grains	6	3.33 Quintals	5000.00	1500.0
Walnuts	89	6.17 Manns	30869.66	3968.80
Apple	92	404.47 Boxes	188071.74	22353.34

*Note: (1) All these crops are produced only once in a year. These outputs and savings are on annual basis. (2) Mann is a local unit for 80 kgs and each Apple box has 20 kgs of apple*

<sup>44</sup> The method by which incomes from farm outputs were estimated was explained in Chapter-3. To recall, as incomes are usually not reported accurately, the respondents were asked about the approximate quantum of production of crop they fetch from their farms annually on an average, and the reported produce was converted into approximate savings by deducting expenditures/input costs from the average selling prices. These calculations-converting production into savings- were done for all main crops with the help of a group of local farmers.

Although the paddy and maize cultivators were too small in number to make a comparison with apple and walnut orchards, the study does indicate that the average incomes (savings) from apple are very high than walnuts, paddy or maize. The savings from apple are 5.6 times more than walnuts, 6.7 times more than paddy crop and 14.9 times more than maize.

This explains therefore why there was preference in the village for apple crop even when it requires very high input costs, apple trees require a wait period for 5-8 years to grow to start producing crop, rates are relatively volatile and crop is very sensitive to weather conditions. It also explains why 64% households converted their un-irrigated land into apple post 1990s (51.3% of total apple), and only 6 households were left with some portion of un-irrigated land under maize crop which is not under apple (reasons explained earlier). Similarly, among the 60 households who owned paddy land in 1990 or purchased paddy land after, 86.7% of them converted it to apple (25.9% of total apple) and only 4 households with paddy land didn't convert to apple (reasons explained earlier). Although walnut is second most cultivated crop after apple in terms of acreage under it, it may still justify having walnuts because the land used for walnuts is in many cases not suitable for apple. The land is sloppy, dry or rocky and vulnerable to drought.

To provide a holistic picture of total incomes/ savings from farming in the village, the savings from all crops cultivated by the 95 landowning households were added. These 95 households owned an average of 16.29 kanals of land. The data showed that farming of all crops fetched an income (selling prices minus expenditures incurred) of more than two crore rupees to 95 households on annual basis (see Table 4.43). In a way, the average savings fetched by each of 95 landowning households was estimated to be Rs 2.12 lakhs, which is significantly high. *If all the 100 households covered under the study are considered including 95 landowning and 5 landless, the average savings would be Rs. 201362.50 per household.*

Such higher incomes from farming would have a significant impact on reducing the poverty in the village and would be helping a considerable proportion of

<b>Output</b>	<b>Sample HHs</b>	<b>Total Savings for 95 HHs</b>	<b>Average Savings per Household</b>
All Crops	95	20,136,250 (INR)	211,960.53 (INR)
All crops included apple, walnut, maize and paddy			

households to manage their living. The data shows that 68% households had incomes of at least Rs 70,000 or more from farming suggesting the impact of farm incomes is widespread and significant. Because the income sources are diverse to most families, the actual number of households with poor incomes would be lesser.

If the savings from farming of all crops by 100 households (including landless) is extrapolated to apply to the entire village which had more than 1450 households, the farming may be fetching close to Rs 29 crores to the village on annual basis. That suggests farming was not just a convenient livelihood source but is likely to have a trickledown effect to the overall economic opportunities in the village. A convincing example to this can be found from the fact that more than 50 cabs operated in the village to carry people between village and districts headquarter.

*The data has also shown that 85.9% of the total farm incomes came from apple, which covered only 50% of total reported land by households. 76.6% of the apple was cultivated post 1990s. Assuming the apple cultivated before and post 1990s produces same crop per Kanal of land, it is estimated that 65.8% of the total farm output comes from the apple cultivated post 1990s (because of acreage under it). It can be therefore inferred that apple cultivation post 1990s has led to increased incomes to the farmers and thereby to the village. The apple orchards were owned widely by farmers in the village (92% households owned some portion of apple orchards). But the village has reached to this point where most have apple by converting land under different crops to apple in phases over a long time. Plus, the land holdings vary between different classes and castes. With land becoming as productive as it is now, the question therefore arises, has the increased incomes from farming impacted inequalities in any way in the village. This question was analysed taking into consideration incomes from all crops and not just apple for a broader perspective.*

The farm incomes (savings) have shown a strong gradient along the lines of caste and class. The average income fetched by general castes from farming (all crops together) was Rs 2.42 lacs on annual basis, which was more than double than what was fetched by Scheduled Tribe/ deprived Castes at Rs 1.14 lakhs. Similarly, those with poor livelihoods fetched an average income of 94.8 thousands as compared to households with better livelihoods that fetched an average income of



2.99 lakhs from all crops on annual basis. The data also shows that those with smaller landholdings (10 kanals or less) fetched an average income of 75.1 thousands as compared to those with larger landholdings (11 kanals or above) who fetched 3.33 lakhs on an average from all crops on annual basis (see Table 4.44).

*But this also raises the question whether such disparities are just because of the differences in size of landholdings. To control the effects of size of landholdings, the disparities were analysed in terms of per Kanal of land. The data showed that the ST/deprived castes fetched*

Socio-economic Indicators		Sample	Average Savings Annually (INR)
Caste	Scheduled Tribe/ Deprived Castes	32	114,467.19
	General Caste	68	242,254.41
Livelihoods	Poor Livelihoods	48	94,883.33
	Better Livelihoods	52	299,650.96
Landholding	0 to 10 kanals	51	75156.86
	11 kanals or above	49	332719.39
Economic Groups	Lower Economic Group	26	36265.38
	Higher Economic Group	74	259369.59
N=100, Disparities were analyzed for all 100 households			

an average income of only Rs 7413.5 per Kanal, which is less than half of general castes who fetched Rs 15891.4 per kanal of agricultural land. Similarly, the households from lower economic group fetched only Rs 4749.2, which is less than one third of households from upper economic group who fetched an average income Rs 16140.1 per kanal of land. The households with poor livelihoods fetched an average of only Rs 9003.1, which is little over half of what was fetched by households with better livelihoods at Rs. 17032.6 per kanal of land. On the other hand, the data shows that those with smaller land holdings fetched an average income of Rs 12480.2 as compared to Rs 13905.2 fetched by those with larger landholdings, thereby, indicating only a difference of Rs 1425 per kanal of agricultural land between smaller and larger landholders (even that gets reduced to only Rs 68 if only land owners are considered excluding 5 landless households). Therefore, with no significant differences in average incomes between small landholders and larger landholders per Kanal of agricultural land, whereas there are significant differences in average incomes per Kanal of agricultural land between different castes and economic groups, the data shows that the disparities in agricultural incomes are not just mainly because of size of landholdings but because of other factors too.

These other factors which led to disparities in overall farm incomes along the lines of caste and class are the age of apple trees and acreage under apple (and not necessarily total land). On an average, the general caste and upper economic group households have older apple trees (invested on apple trees early so got first mover advantage) and have larger landholdings under apple, both of which are important determinants for apple production. As the apple constituted 85.9% of total farming incomes, the disparities in apple production will cast an overall effect on total farming incomes, and thereby giving rise to disparities in total farming incomes. In addition, the disparities in farm incomes among different castes are also because the general castes owned better quality land and had more access to irrigation (canal or lift based).

*This also indicates that because of the apple cultivation farm incomes have substantially increased and the general castes and upper economic groups are able to fetch significantly higher incomes from agricultural land than the ST/deprived castes and those who belong to lower economic groups. Such levels of inequality would not have existed in absence of apple as paddy and maize which were main crops were fetching only low incomes. The study therefore suggests that apple has contributed to increased inequality in agricultural incomes between poor and rich and between general castes and ST/deprived castes, and because apple production has substantially increased post 1990s the inequalities would have only become sharper thereafter.*

*In overall, the transition to horticulture especially the apple seems to have a significant impact on reducing poverty or in assuring minimum incomes to people, it has also led to disproportionate benefits to upper economic group and general castes indicating an increasing inequality.*

#### **4.5. Changes in Livelihoods over Generations:**

Livelihoods are an important determinant of overall socio-economic conditions of people and also have bearing on the people's health. The household members were engaged in multiple occupations in 2016 from studying to household work to farming to labour to jobs. A detailed description of livelihoods (occupations which fetch incomes) can be referred from the Chapter-3. However, to briefly recall, the study showed that among the 100 households interviewed farming was identified as one of the livelihood sources by 82% households; followed by casual labour as

one of the livelihoods by 47% households and skilled labour by 21% households. The local businesses opportunities constituted one of the livelihoods for 38% households. Formal government jobs or pensions were one of the sources of livelihoods for 44% households; government daily wages were for 7% households and private jobs for 15% households (together jobs/pensions constituted as one of the livelihoods for 66% households). 9% households also identified other livelihood sources.

The study also indicated diversification of livelihoods for most of the households. The sources of livelihoods ranged from 1 to 6 and on an average, each household covered under the study had 2.63 sources of livelihoods. The data has also shown that 85% households had two or more sources of livelihoods and 49% households had three or more sources. There were only 15% households with only one source of livelihoods. With the increasing number of livelihoods to a household, its ability to earn also increases. Diversification of livelihoods is a positive indication that households are able to find multiple jobs and thereby fetching incomes from different sources. However, the diversification doesn't necessarily mean improvements in livelihoods.

To understand changes in livelihoods over time and whether livelihoods have helped the households to improve the economic situation, respondents were asked, whether their livelihoods have improved in terms of earning over a generation between parents and children. The study showed a majority of households (89%) felt and opined that they make a better living now (2016) in terms of incomes from their livelihoods as compared to a generation ago in 1990. Only 11% households felt that they had better sources of incomes from their livelihoods in 1990 as compared to 2016 (see Table 4.45).

<b>Table 4.45: Intergenerational Improvements in Livelihoods</b>		
<b>Improvements</b>	<b>Frequency</b>	<b>Percent</b>
Livelihoods better in 1990	11	11.0
Livelihoods better in 2016	89	89.0
Total	100	100.0

The factors leading to improvements in livelihoods over the time have been multiple and different. Among those who reported to have improved their livelihoods, horticulture has emerged as the biggest contributing factor in improving livelihoods, as 82% households recognized horticulture incomes as one of the factors for better livelihoods now as compared to a

generation ago. Not that these households didn't cultivate land prior to 1990 but as discussed in the earlier section on 'land use pattern' horticulture has emerged as a main crop post 1990s and fetching substantial incomes to farmers.

In addition, 40.4% households said that one of the factors for their improved livelihoods and earning was because of the government jobs (formal or daily wages). 9.0% also said that salaries in government jobs have substantially improved over the last 26 years or so. Important to note, not all of those who worked on government jobs found these jobs only in the last 26 years, some of them had got these jobs prior to 1990s but because the salary has increased substantially after 1990s, and they had come to attain higher ranks in jobs by 1990s, the government jobs were thereafter impactful. Further, 14.6% households felt that because of the private jobs they acquired over the time was one of the factors which have helped them improving their livelihoods (see Table 4.46). Although these were mostly low level jobs these were not available prior to 1990s. These private jobs were mostly in hotels or private schools.

The other important factor which has helped many households in improving their livelihoods was the business opportunities (either new or flourishing of existing). 34.8% households stated that one of the main contributory factors for their better livelihoods was the business avenues they engaged in. These

<b>Reasons</b>	<b>Frequency</b>	<b>Percent of Responses (211)</b>	<b>Percent of Cases (89)</b>
Horticulture incomes increased	73	34.6%	82.0%
Govt. job	31	14.7%	34.8%
Local business flourished/opportunities	31	14.7%	34.8%
Availability of labour work locally	22	10.4%	24.7%
Private Job	13	6.2%	14.6%
Wages have increased	12	5.7%	13.5%
Skilled work	10	4.7%	11.2%
Salaries increased	8	3.8%	9.0%
Govt. daily wager	5	2.4%	5.6%
Others	6	2.8%	6.7%
<b>Total</b>	<b>211</b>	<b>100.0%</b>	<b>237.1%</b>

*N=89, but some households have given more than one response*

business opportunities were mostly local, in the form of small grocery and other shops, owning and driving cabs to ferry people from village to district headquarter and so on.

24.7% households stated that availability of labour work has increased locally (in the village and neighborhood) and they are finding adequate work now. Importantly, 13.5% households also felt the wages have substantially increased over the time. The adequate availability of work also meant that in many cases more than a family member was able to find work at good wages. These factors helped those depending on casual work to earn well as compared to a generation ago. Further, 11.2% households felt the improvements have occurred because at least one family member has become skilled worker in diverse fields like carpenter, mason, tailor, etc. With the adequate availability of skilled work locally and at higher wages than casual work, skilled work has therefore helped these families to earn well. *The increase in availability of work locally is because of three major factors: overall improvements in village economy resulted in many households undertaking construction activities; apple cultivation is labour intensive and increased apple orchards created more work; and public works have also increased locally and in the neighborhood.*

In overall, the data indicates that livelihoods have diversified for better over the generation and two main primary factors can be recognized which have contributed significantly to improving livelihoods and include government jobs and horticulture incomes. Also, through a trickle-down effect, these have created opportunities in other sectors. The reason to recognize these as primary factors is because these were main and significant sources in terms of bringing money to the village. For instance, the government jobs constituted almost one fifth (19.4%) of total livelihoods reported by all households and 38% households had at least one family member who had a government job (32% had formal government jobs and 6% had daily wage jobs). There were also 10% households with more than one family members engaged on government jobs. This also means that 38% households had assured monthly incomes from government, which in most cases was also supplemented by other sources<sup>45</sup>. Not just these households were assured of their incomes but they also brought incomes to village by their spending in different ways: construction activities thereby creating demand for labor, hiring labour for agricultural work, purchased of household items from local shops, invested into their children's education, etc.

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<sup>45</sup>In total, 45% households had at least one family member engaged in salaried job (government or private).

On the other hand, the horticulture incomes have contributed to improving the livelihoods of 82% households. As seen from the earlier section on 'Land use pattern', the data on farming incomes showed that the average incomes (savings) fetched by land owning households (95% owned land) was estimated to be Rs 2.12 lakhs annually, which is significantly higher than earlier and likely to have huge impact on reducing poverty in the village. These incomes came mainly from apple cultivation –85.9% of the total farm incomes came from apple. It was also estimated that 65.8% of the total farm incomes came from the apple cultivated post 1990s. It can be inferred therefore that apple cultivation post 1990s has led to increased incomes to the farmers and thereby to the village. The apple orchards were also owned widely by households in the village (92% owned apple orchards), thereby, making its impact widespread. Besides, it was also estimated<sup>46</sup> that the farming may be fetching close to Rs 29 crores to the village on annual basis. Therefore, the farm incomes were not just substantiating the livelihoods of farmers but also likely to have a trickledown effect to the overall economic opportunities in the village, and thereby creating opportunities for local businesses to thrive and also demand for labour.

In fact, these two primary factors (government jobs and horticulture incomes) were also related in a way that the land holdings were seen to have exerted direct or indirect influence on the access to government jobs. For instance, only 21.1% households with smaller landholdings (0-8 kanals) and 21.4% households with medium landholdings (8-16 kanals) had a member with a government job, as compared to 52.9% households with larger landholdings (16 kanals or above) who had a member with a government job. The possible pathways through which landholdings may have a bearing on access to government jobs was through the better ability of farmers with large landholdings to invest on education of children, which increased their chances to find a job, and also possibly through political influence. The well-off households enjoy better social and political capital than poor. Conversely, the government jobs helped in the shift to apple cultivation, since the salaried jobs allowed the families to afford the ten-year lag between investment and output from apple orchards.

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<sup>46</sup> Estimates were made by extrapolating earnings from 100 households to apply to entire village which had more than 1450 households

The labour and local businesses were other two significant but secondary sources of livelihoods for people in the village. The households who were primarily drawing their livelihoods from casual labour or local business had also some incomes coming from horticulture and thereby boosted their incomes as compared to a generation ago.

The perception and recognition of improvements in livelihoods over time were very clear among people and was reflected in their articulation. One of the respondents said that farming was the only source of income in 1990 and that too was meager, whereas the livelihoods have diversified and improved by 2016. Another two families narrated that they have experienced improvements despite the fact that the household head had a government job in 1990 but no child was able to get public employment later. These improvements have happened because of horticulture incomes which have proved more impactful than earnings from a government job. Another household who owned a water-based mustard oil mill fetching very good incomes but ran out of business later due to incoming of electric mills. They still feel they are better off now because of horticulture returns even when their own traditional occupation has declined. Another family who depended on casual labour for a living narrated that they don't even need to work as casual laborers now, and can rather work in their own farms.

*To summarize, the data shows that the government jobs and horticulture through direct and indirect ways have been significant factors for boosting livelihoods of entire village in the last 26 years as compared to the earlier period- thereby marking a significant intergenerational change in livelihoods. However, what also needs to be recognized is the role of the political processes and public policy especially the creation of lift irrigation projects which have boosted the apple production in the village.*

However, the study has also shown disparities in intergenerational improvements in livelihoods along the lines of caste and class. The data has also shown that a higher proportion of those who belonged to general castes or better economic groups have seen improvement in livelihoods as compared to deprived castes/STs or poor economic groups. For instance, only 81.3% ST/deprived castes reported improvements in livelihoods over the generation, as compared to 92.6% general caste households. Further, only 73.1% households from lower economic group

have reported improvements in livelihoods as compared to 94.6% households from upper economic group. Similarly, only 80.4% households with smaller landholdings (10 kanals or less) reported improvements in livelihoods over the generation as compared to 98% households with larger landholdings (11 kanals or above).

These disparities may exist because of two possible reasons. First, the number of livelihoods per household has shown a clear class gradient, if not on caste lines. For instance, only 26.9% households from lower economic group had 3-6 livelihoods, whereas 56.8% households from upper economic group had 3-6 livelihoods. Further, only 33.3% households with smaller landholdings (10 kanals or less) had 3-6 livelihoods as compared to 65.3% households with larger landholdings (11 kanals or above) who had 3-6 livelihoods. In a way, the better economic groups had more sources of livelihoods than those who were poor. As the number of sources of livelihoods increases, the ability of households to earn better incomes also increases. That may be one of the reasons, why a higher proportion of better economic groups have reported experiencing improvements in livelihoods as compared to those who were poor.

Secondly, the data has shown a clear pattern that those belonging to poor economic groups or deprived castes/STs were finding their livelihoods from low paying occupations than the general castes and better economic groups who were engaged in better paying and quality livelihoods. For instance, a higher proportion of households from ST/deprived castes, lower economic group or those with smaller landholdings reported to depend on casual labour or skilled work – low paying and vulnerable occupations- as one of the main sources of livelihoods, as compared to general castes, upper economic group or those with larger landholdings. On the other hand, only 25% households from ST/deprived castes had at least a family member with a government job (formal or daily wages), as compared to 44.1% households from general castes who had at least a family member engaged in government job. Further, only 3.8% households from lower economic group had a member with government job as compared to 50% households from upper economic group. Similarly, 25.5% households with smaller landholdings had a member with a government job as compared to 51% households with larger landholdings who had a member with a government job. On similar lines, the data also shows that those who belonged to higher



economic group owned a higher proportion of local business as compared to those who were poor.

These disparities in numbers of sources of livelihoods and quality aspects of livelihoods have sustained the inequalities that exist between the ST/deprived castes and general castes and between poor and well-off households despite the widespread improvements in livelihoods over generation.

On the other hand, the reasons were different for the 11 households who felt they haven't seen any improvement in livelihoods and their livelihoods have deteriorated over a generation (see Table 4.45). A few of them didn't own resources and drew livelihoods from low paying jobs. For instance, 10 of these eleven households owned land only up to 6 kanals (the average land holdings were 16.29 kanals in the sample). Eight of these had either no or very insignificant farm incomes fetching up to 10,000 Rs only on annual basis. Eight depended mainly on casual labour or skilled work for their livelihoods. In a way, eight of these households were poor but not all. A few others went out of work because of transitions to machine based supplies and services, and a few spoke of their livelihoods deteriorating over the years relative to other households. As only 11 households stated that their livelihoods have deteriorated over time, the sample was too small to make an inference about the disparities along the lines of caste.

The discussions with these eleven households on why they felt their livelihoods have deteriorated or not improved at all over a generation provided interesting perspectives. First, the rising standard of living and/or use of machines have reduced the demand for certain types of services in the village. For instance, one of the households who worked as porters stated that people have stopped using mud vessels –and instead are using metal based vessels– as the incomes increased in the village and that has affected their livelihood badly. Another three households who drew livelihoods from skilled work (as carpenters) over generations felt that the work of carpenters have decreased because of increasing use of machines now and they couldn't afford to start a joinery mill. Second, the vulnerabilities have increased for few households over time. One ST household stated that land and livestock owned by their father has reduced over time as it was distributed among five brothers, but the expenses have substantially increased,

thereby, their vulnerabilities have increased. Another ST household stated that although employment has diversified with both his sons working as casual labour but insecurities and debt has increased because of increasing expenses. He further explained that earlier they used to sell livestock whenever needed, but with no livestock left now, they have to borrow money whenever required. In fact, the household had one lakh debt taken for the marriage of a family member last year. He suggested that their incomes have not kept pace with expenses. Third, as six of the households felt, the increasing expenses over time have nullified any actual gains made in employment. One of these households stated that despite the fact that availability of work and wages have increased, but the ration availability – local production and PDS- has reduced, and therefore effectively nullified employment gains. Fourth, the transition to apple is not always an easy way. One household explained that they had recently shifted to apple cultivation and therefore were not able to produce any crop for some years. It may take few years for apple trees to grow and give output. Because of this transition in land cultivation, no return is coming out from some years, and that has decreased the income.

Fifth, a few households evaluated their livelihoods in terms of relative progress to others. Two of these households weren't actually poor but didn't see progress at same pace as others have seen over a generation. The perception of their livelihoods was based on the comparison of their incomes with others in the village that have seen high growth in horticulture incomes and therefore, the livelihoods of these households have not progressed, in relative terms, to the extent some others have over the time. Another household who drew their earning from government pension also felt livelihoods deteriorated because his children didn't get a government job as was held by him (their father), who on retiring perceived decreased incomes now as compared to what he used to earn before.

#### **4.5.1. Government Support for Employment:**

Government has always played an important role in employment generation both directly and indirectly. To understand whether the support from government to help people with livelihoods has changed over the generations, respondents were asked if they have received any direct government support or benefited from any government programmes which has impacted their employment. This enquiry didn't consider any help received by families related to agriculture

production like lift irrigation, KCC and other bank loans, fertilizers or housing support or social assistance or ration which were covered under other sections of this chapter.

The study showed that government's role in employment generation has improved over time especially with respect to creation of opportunities for casual work. The results have shown that those reported receiving support in any way from government with respect to their employment increased from 24% to 40% between parents and children's generation. The proportion of households who had at least a member in a government job slightly decreased from 24% to 21% between parents and children's generation. Whereas, 15% households reported that public works (including MGNREGA) have helped in creating opportunities for work locally during the present generation and not a single households reported that such works have helped them with employment a generation ago (around 1990) (see Table 4.47). The four households reported receiving support during the present generation which has helped their livelihoods in other ways. One said the bank loan received was used for developing a local business, another runs a Fair price shop under PDS, another is contractor under MGNREGA and another felt roads have helped his business grow. On the other hand, the study shows that those who reported not receiving any help with respect to their employment decreased from 76% to 60% between parents and children's generation.

The study has also indicated that during the old generation the government jobs were the main government support for helping people with livelihoods, whereas during the present

<b>Govt Help</b>	<b>Parents (Old Generation)</b>		<b>Children (Present Generation)</b>	
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
No Help	76	76.0%	60	60.0%
Govt Job/s	24	24.0%	21	21.0%
MGNREGA/Public Works created work	0	0.0%	15	15.0%
Others	0	0.0%	4	4.0%
Total	100	100.0%	100	100.0%

generation the government support has diversified from government jobs to MGNREGA and other public works and as a result, a higher proportion of people have been benefited.

The study has shown disparities along the lines of caste and class among the households who had a member with a government job during the parent's generation. As noted earlier, the government jobs were the only support received by people and the data has shown a higher proportion of households from general castes or better economic group had a government jobs as compared to ST/deprived castes or those who were poor. For instance, only 18.8% households from ST/deprived castes had a family member with a government job as compared to 26.5% households from general castes. Similarly, only 7.7% households from lower economic group had a family member with a government job as compared to 29.7% households from upper economic group. Further, 17.6% households with smaller landholdings (10 kanals or less) had a family member with a government job as compared to 30.6% households with larger landholdings (11 kanals or above).

Although the proportion of households receiving government support with respect to their livelihoods has increased during the present (children) generation, the disparities continue to exist. The two main types of support received during children's generation was government jobs and creation of public works (including MGNREGA), and both of these have shown class and caste gradient. Those who belonged to general castes or better economic groups have disproportionately held more government jobs. For instance, only 15.6% households from ST/deprived castes had a family member with a government job as compared to 23.5% households from general castes. Similarly, not a single household from lower economic group had a family member with a government job as compared to 28.4% households from upper economic group. In a way, all those who had a government job belonged to upper economic group. Further, 13.7% households with smaller landholdings had a family member with a government job as compared to 28.6% households with larger landholdings. On the other hand, those who were poor or belonged to ST/deprived castes have benefited more from creation of public works (including MGNREGA) which is because mostly poor work as casual laborers under such schemes. For instance, 34.4% households from ST/deprived castes received benefit from public works as compared to 5.9% households from general castes. Similarly, 38.5% household from lower economic group received benefit from public works as compared to 6.8% households from upper economic group. Further, 17.6% households with smaller landholdings received benefit from public works as compared to 12.2% households with larger landholdings.

The reason why general castes and those who belonged to better economic groups have held disproportionate share of government jobs during both generations is because of two reasons. First, those who are economically better have been able to invest into education and improve their educational attainments which increase the chances for getting a job. Second, because of the better social capital they are able to exert political influence which is especially important for daily wager jobs with government which over the time get regularized and that are what is how many people have got jobs in this village.

#### 4.6. Changes in Migration Patterns over Generations:

Migration on seasonal or regular basis is an important phenomenon for many people including poor and well-off to find livelihoods. It could be therefore an indication of both joblessness and desperation to find work for living outside home or opportunities for business and jobs which may not be available locally. It therefore depends on who is migrating and for what reasons. This study also looked into migration patterns of people over time comparing the situation in 1990s with 2016 and showed not much change has occurred in migration patterns at the village level over this time. The migration has reduced by only one percentage point over this time from 28% households in 1990 to 27% households in 2016 wherein any household member had migrated for work (see Table 4.48). The data also shows that the seasonality of migration has been almost similar between 1990 and 2016. However, the number of people who migrated outside state has increased over this time from one in 1990 to seven cases in 2016.

To understand whether the migration patterns that existed in 1990 have changed over time by 2016, respondents were asked did any household member migrated for

<b>Migrated</b>	<b>1990s</b>		<b>2012-16</b>	
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
Yes	28	28.0	27	27.0
No	72	72.0	73	73.0
Total	100	100.0	100	100.0

work to their domicile district headquarter, other districts of state or outside state or country in 1990s as well as in the last four years prior to survey in 2016. Only those cases were considered as ‘migration for work’ which involved the person to reside at the place of work for some time and not the day trips to workplace irrespective of distance.

The study showed 28% households reported that any of their members had migrated for work in 1990s. Among these, most of the people (25) migrated to different parts of state, two migrated within the domicile district and only one migrated to outside state. Further, the data has also shown majority of the people (22 of 28) who migrated had resided at place of work on regular basis during the period of migration; five migrated to place of work on seasonal basis and one involved travelling intermittently.

The reasons for migration in 1990s were different. A majority of them (18 of 28) migrated because they were working on government jobs which involved posting in different places within state. Three used to migrate between Kashmir and Jammu regions on seasonal basis for grazing livestock. These belonged to Bakerwals (one of the ST communities) who have been undertaking this migration from decades. Two other migrated for business related work. One migrated within the state for livestock business and another outside state for selling Kashmiri shawls during winters. The later one stated that he migrated because better opportunities existed outside state for work which could not be possible locally during winters. Only one household member migrated for a private job within the Kashmir region. Another one who was a local baker migrated to district and tehsil headquarters because of lack of demand for local bakery in the village. Three others migrated within the Kashmir region for casual labour. One of them stated he worked with contractor which involved working in different places and did so to access credit from the contractor whenever required as an advance against labour. Two others said the work was not locally available.

The data has also indicated disparities in migration patterns along the lines of caste and class with higher proportion of ST/deprived castes and those who were well-off households have undertaken migration in 1990s. For instance, 34.4% of ST/deprived caste households (11 of 32) reported that any of their household members used to migrate for work in 1990s as compared to only 25% general caste households (17 of 68) who used to migrate for work. On the other hand, only 19.2% households from lower economic group (5 of 26) reported any member migrated for work as compared to 31.1% households from upper economic group (23 of 74). Similarly, only 21.6% households (11 of 51) with smaller landholdings (10 kanals or less) reported any member migrated for work as compared to 34.7% households (17 of 49) with larger landholdings (11

kanals or above). The better economic groups have undertaken relatively more migration is because they held more government jobs, which was the primary reason for migration in 1990s. The ST/deprived castes have undertaken more migration because of the nomadic migration by three ST households, which if controlled, no difference exist between ST/deprived castes and general castes.

On the other hand, the study showed that only 27% households reported that any member of their household had migrated for work in the last four prior to survey in 2016. Among these, 18 worked in different districts of state, two worked within the domicile district and seven people worked outside state. Further, the data also shows that majority of persons (21 out of 27) who migrated for work between 2012 and 2016 had resided at place of work on regular basis during the period of migration, five migrated on seasonal basis (during winters) and one involved travelling intermittently.

The reasons for their migration were different. 14 of these worked on a government jobs which involved posting in different places within and outside state (11 within state and 3 outside), five worked on private jobs within and outside state (4 within and 1 outside state), four migrated for business related opportunities within and outside state (3 sold shawls in different states during winters and 1 engaged in livestock business within state), only two migrated for casual labour within Kashmir region and two others migrated for other reasons (one drove a three wheeler in the neighboring town and another drove a vehicle within state).

In a way, eight of these people who migrated (four business related, two casual laborers and two drivers) between 2012 and 2016 could be identified to have migrated for purposes which can be interpreted as an act of joblessness, desperation or out of poverty to find some work for living. The three who sold shawls outside state during winters said no such opportunities exist in Kashmir during winters and whereas they earn well outside state during this time. One worked as casual labour with a contractor in a neighboring district and said the work is also available locally but at low rates. Another was skillful in pruning apple branches and would go to different places within Kashmir region on seasonal basis. Other two drove vehicles, one in neighboring town and another within state.

The data has shown that no significant disparities existed in migration patterns along the line of caste but disparities do exist along the lines of class. For instance, only 7.7% households from lower economic group (2 of 26) reported any member had migrated for work as compared to 33.8% households from upper economic groups (25 of 74) where any member had migrated. Similarly, only 17.6% households (9 of 51) with smaller landholdings (10 kanals or less) reported any member migrated for work as compared to 36.7% households (18 of 49) with larger landholdings (11 kanals or above). These differences existed primarily because the better economic groups held more government jobs which involved posting in different places.

The comparison of data from 1990 and 2016 showed no significant change has occurred in numbers of households where any member used to migrate for work. The number of people who migrated for work in 2016 have seen slight decline from 28 to 27 between 1990 and 2016. However, the number of people who migrated outside state has seen quite a jump from a single person to seven over this period. The study has also suggested that changes have occurred between households who used to migrate then in 1990 and those who do now in 2016. The data has shown that 11 households (39.29%) out of 28 households who migrated for work in 1990 have discontinued migration by 2016. Whereas 17 households have continued their migration pattern between 1990 and 2016, meaning that they had a member who migrated in 1990 and also have a member who migrated for during the last 4 years prior to survey. On the other hand, the study has shown that 10 households who didn't migrate in 1990 have reported migration by 2016

Among these 11 households who reported discontinuation in migration between 1990 and 2016, five households had a member who worked on a government job and involved posting in different places so migrated for work in 1990s but has either retired (4 HHs) or was posted locally by 2016 (1 HH). Two others who migrated for casual labour in 1990 stated they are able to find work locally now in 2016, and another said because of increase in horticulture incomes they was no need for migration. One ST household reported as they have settled in one place and reduced livestock, they have left seasonal migration. One another said employment sources have diversified and another has changed his occupation over this period.



Among the 17 households which have continued the migration pattern between 1990 and 2016, 13 households are those where either the household head continued to be working on jobs which involved posting in different places or if head retired but children got jobs which involved posting in different places (all of these except two had government jobs). Two of the ST households who used to undertake seasonal migration for grazing livestock are settled in one place now but one of them migrates for casual labour and another does livestock business which involves travelling to different areas for work. In one household the head migrated for a government job outside his district in 1990s and his children have migrated to nearest town in the last four years for driving three wheelers. Only one household had a member who continued to migrate on seasonal basis for selling shawls in other parts of country.

Among the 10 households which have reported increase in migration over time (they didn't migrate in 1990 but do now), 6 of them have a got a government or private job (4 private and 2 government) which involved posting in different places. One household said because of increasing expenses they had to look for earning opportunities and therefore migrated outside state to sell shawls on seasonal basis. Three others had different reasons.

In a way, these changes in migration patterns among households who continued to migrate between 1990 and 2016 or don't migrate now but did in 1990 or vice versa is primarily because of the jobs they were able to secure. In 63.15% of the cases (24 out of 38) where the migration has occurred either in 1990 or 2016 or both times has happened because the family member who migrated worked on a job which involved posting in places outside the locality. In only 36.84% migration has happened for other reasons (all related to finding better avenues for work).

#### **4.7. Changes in Debt Patterns over Generations:**

People, both rich and poor have always borrowed money for different purposes and from different sources including people, middlemen and formal as well as informal financial institutions. The only difference is those who are poor have a very limited capacity to borrow money and do so usually against their labour or crop and for desperate reasons which has consequences for them. They are either provided less rates for their labour or crop or are forced to make distress sales of their limited assets. Whatsoever, the ability of people to borrow money

acts as a buffer for the immediate distress and may also help in making investments in education to housing, sanitation and other facilities and sometimes saving life from illness. The access to credit may also help in improvising the socioeconomic conditions of households.

This study also looked at the borrowing patterns over time and showed that the proportion of households who had borrowed money either from people (relatives, neighbors, etc) or banks or other sources has significantly increased from 61% in 1990s to 88% in 2012-16. In fact, a significant proportion of households (46%) have borrowed money from more than one source in the last four years before survey in 2016. The reasons for a higher proportion of households borrowing money now is because of the access to credit from middlemen and KCC scheme. KCC didn't exist in 1990 (it was started in 1998 and people have been accessing it only lately) and no one has also reported taking credit from middlemen in 1990, whereas 52% households had borrowed money from middlemen and 34% households from KCC scheme in 2012-16. As apple cultivation and market rates boosted only after 1990s fetching higher incomes, so the middlemen started playing prominent role in lending money to assure their own business in apple markets. The access to loans from banks has slightly increased from 4% to 6% between 1990 and 2016, and whereas borrowing from people has declined from 57% to 48% over this period. This decline is because households

have found other credit linkages – middlemen and KCC loans (see Table 4.49).

Although no data was collected on the amount people had borrowed in 1990 and in 2016, the anecdotal evidence suggest that quantum of

<b>Debt</b>	<b>1990s</b>		<b>2012-16</b>	
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
People	57	57.0	48	48.0
Bank	4	4.0	6	6.0
KCC Loan	0	0.0	34	34.0
Middlemen	0	0.0	52	52.0
None	39	39.0	12	12.0
<b>Total</b>	<b>100</b>	<b>100.0</b>	<b>152</b>	<b>152.0</b>
<i>Note: N=100 for 2012-16 but many have borrowed money from more than one source.</i>				

debt has also increased over the time because the spending has increased and secondly the sources who could lend higher amounts (the capacity to lend was low earlier) has also increased.

The study showed 57% households had borrowed some money from people (mostly relatives and neighbors) and 4% households had taken any debt from banks in 1990s. Only 39% households

had not borrowed money at all (see Table 4.49). Not a single household reported taking debt from more than a single source. Among those who had borrowed money from people or banks in 1990s, 72.1% households said one of the reasons for borrowing money was to meet household expenses in general. 63.9% households said that one of the reasons was to meet treatment costs of any family member, and were followed by 21.3% households who said they borrowed money for taking care of marriage expenses. Another 6.6% households said one of the reasons for borrowing money was for education of children and a same proportion of households had taken money for construction of house. Only 1.6% households said they required money to take care of agriculture expenses and 3.3% said for investing into business opportunities (see Table 4.50).

The data also shows class gradient in borrowings but not significant disparities along the lines of caste. For instance, 73.1% households from lower economic group reported borrowing money as compared to only 56.8% households from upper economic group. Similarly, 64.7% households with smaller landholdings had

<b>Reasons</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (61)</b>
Agricultural expenses	1	0.9%	1.6%
Business development	2	1.8%	3.3%
Education of children	4	3.7%	6.6%
Household expenses	44	40.4%	72.1%
Treating Illness	39	35.8%	63.9%
Marriage expenses	13	11.9%	21.3%
Purchase of livestock	1	0.9%	1.6%
Construction of House	4	3.7%	6.6%
Others	1	0.9%	1.6%
<b>Total</b>	<b>109</b>	<b>100.0%</b>	<b>178.7%</b>
<i>N=61, but some households have given more than one reason</i>			

borrowed money as compared to 57.1% households with larger landholdings. A higher proportion of poor borrowed money in 1990 is because of lack of resources at their disposal as compared to well-off families to meet pressing needs.

Those who didn't borrow any money in 1990s reported three main reasons for not borrowing any money then. Some of them stated they didn't require money to be borrowed. Some said because the expenses were less, so managed on their own. Whereas some said either people would not lend the money or people who could have lent didn't have excess money to give. So in a way, money was not available to be borrowed. As said earlier, those who borrowed money from

people borrowed usually from relatives and/or neighbors and that suggest the importance of social networks as determinants for lending/borrowing money.

On the other hand, the study showed that 48% households had borrowed money from people (mostly neighbors or relatives) in the last four years before the survey in 2016. Further, 52% households had taken advances from middlemen against horticulture crop- walnuts or apple (but apple mostly). As noted earlier, apple cultivation is resource intensive and requires high input costs for each crop. That is why a majority of households in the village has taken advances from middlemen against crop. The data has also shown that 34% households had accessed subsidized loans from banks under Kissan Credit Card Scheme at least once in last four years and 6% households had taken regular loan from banks (see Table 4.49). In total, 88% households had borrowed money from at least one source in the last four years before survey in 2016 and only 12% households had not borrowed money from anyone. The study also showed that a majority of these households had borrowed money from more than one source (see Table 4.51). 37% households had borrowed money from two sources and 9% had taken from three sources.

Those who reported not have borrowed money or taken any loan in 2016 had good resources at their disposal. All of these were from upper economic group; 11 of these had better livelihoods; and 8 of these owned a vehicle. On the other hand, those who had borrowed money in 2016 reported diverse reasons. 62.5% of these households stated one of the reasons for borrowing money was for meeting general household expenses. As

<b>Table 4.51: Any Debt Availed from 2012-16</b>		
<b>Source</b>	<b>Frequency</b>	<b>Percent</b>
People only	21	21.0
Bank only	6	6.0
Middleman only	15	15.0
Two sources	37	37.0
Three Sources	9	9.0
Not availed	12	12.0
Total	100	100.0

a caveat, it though looks like majority of households needed money for basic expenses, but only 19 households (21.56% of cases) had borrowed money primarily for general expenses, and in all other cases, general expenses were second, third or fourth reason. Secondly, it was probably convenient way to not reveal the specific details about the reasons for borrowing money –debt is still seen as stigma in rural areas. In addition, the data is cumulative and represents borrowing by households over last four years.

Further, more than half of the households (52.3%) stated that one of the reasons for borrowing money was to invest into cultivation of horticulture crops. As noted earlier, apple cultivation was resource intensive. Another 25.0% households stated that constructing house was one of the reasons to borrow money. 23.9% households required money for taking care of treatment costs of any family member and 15.9% required borrowed money for the education of children. 12.5% households said they one of the reasons for borrowing money was to take care of marriage expenses. 6.8% households said they invested into livelihood generating activities like purchase of transport vehicle, opening a grocery shop and so on. Another 6.8% households required money to purchase land or car or bike (see Table 4.52).

The data also shows an interesting pattern in borrowings and access to credit linkages along the line of caste and class. In overall, a higher proportion of ST/deprived castes and lower economic group have reported borrowing money than general castes and higher economic groups in 2012-16. For instance, 83.8% of general caste

<b>Reasons</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (88)</b>
Business development	6	3.1%	6.8%
Construction of House	22	11.5%	25.0%
Education of children	14	7.3%	15.9%
Horticulture expenses	46	24.0%	52.3%
Household expenses	55	28.6%	62.5%
Treating Illness	21	10.9%	23.9%
Marriage expenses	11	5.7%	12.5%
Purchase of Car/ Bike	4	2.1%	4.5%
Purchase of Land	2	1.0%	2.3%
Others	11	5.7%	12.5%
<b>Total</b>	<b>192</b>	<b>100.0%</b>	<b>218.2%</b>
<i>N=88, but some households have given more than one reason</i>			

households reported having borrowed money from any source as compared to 96.9% households from ST/deprived castes. Further, 83.8% households belonging to upper economic group reported having borrowed money as compared to 100% households from lower economic group. The reason for a higher proportion of ST<sup>47</sup>/deprived castes or poor groups to borrow money can

<sup>47</sup> The scheduled tribes lived across couple of hamlets; the quality of land varied across these hamlets and so did socio-economic condition. As they settled in this village, most of ST households have sold livestock primary for buying agricultural land and consequently depended mostly on casual labour for living. Many of these households felt that because of selling livestock and shifting to casual labour, their insecurities and dependence on cash has increased, so the need to borrow money also. In at least two ST hamlets, most households take advance from Kashmiris (well-off families) during winters because work is not adequately available in winters due to snow – sometimes for months at a stretch. However, the advances are provided against labour but on much lower wages at Rs 150-200 Rs per day (less than half of the actual wages during summer). In many cases, the lenders ask for a

be explained for lack of resources at their disposal to meet their needs, whereas general castes and well-off families have better resources at their disposal.

However, the disaggregated data on access to different sources of credit shows that a higher proportion of poor and ST/deprived castes have borrowed money from individuals (neighbors, friends or relatives), whereas the general castes and better economic groups have borrowed money using credit linkages with informal and formal financial structures. For instance, 68.8% ST/deprived caste households reported borrowed money from individuals as compared to only 38.2% households from general castes. 58.8% households with smaller landholdings had borrowed money from individuals as compared to 36.7% households with larger landholdings. The data on the other hand shows a higher proportion of general castes and well-off borrowing money from middlemen as compared to ST/deprived caste households and poor economic groups. For instance, only 40.6% ST/deprived caste households reported borrowing money from middlemen as compared to 57.4% of general castes. Similarly, only 49% households with smaller landholdings had borrowed money from middlemen compared to 55.1% households with larger landholdings. Likewise, the data also shows a higher proportion of general castes and well-off households have accessed KCC or other loans from banks. For instance, only 34.4% ST/deprived caste households reported taking of a loan from a bank, as compared to 41.2% general caste households. Similarly, only 23.5% households with smaller landholdings had accessed loan from banks as compared to 55.1% households with larger landholdings. The reason the poor and ST/deprived castes don't have equal access to borrowings from middlemen is likely because of their inability of produce high apple crop – due to smaller orchards, and in many cases, younger apple trees – which is an important factor for determining whether middlemen will lend money. In addition poor and ST/deprived castes enjoy less influence and have smaller social capital which is important to avail government subsidies at most times and therefore not find equal access to KCC scheme.

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written agreement from STs that they have to provide labour during summer and can't change employer. Additionally, the months-long political unrest in Kashmir also makes the situation worse for casual labours in general. For instance, during 2016, Kashmir witnessed political unrest for more than 4 months at a stretch and the government imposed restrictions on mobility of people, thereby, reducing the availability of work as well as access of people to work opportunities. Sometimes, certain expenditures push the ST families into near bondage situation. One family explained one of their sons had to sign an agreement to provide labor to a family against the advances they required to meet marriage expenses.

A comparison of reasons respondents stated for borrowing money in 2012-16 as compared to 1990s shows stark differences in certain purposes. For instance, only 6.6% households had borrowed money in 1990 for construction of house, whereas 25% households reported borrowing money in 2012-16 for such purposes. This partly explains why the housing conditions have improved in terms of structural components, numbers of rooms and overall maintenance. The access to credit especially from middlemen and KCC in 2012-16 would have provided cash in good amount<sup>48</sup> to households that they could plan constructing new houses or improving conditions of existing housing. Similarly, the proportion of households who stated they had borrowed money for education of children has also increased from 6.6% to 15.9% between 1990 and 2012-16. This may also explain partly why participation in higher education has increased in the younger generation despite the fact they have done schooling during conflict times. There were many students who have done their graduation from private colleges. Further, only a small proportion of 1.6% households said they had to borrow money for agricultural/horticulture expenses in 1990s, whereas 52.3% households reported borrowing money for taking care of agricultural/horticulture expenses in 2012-16 (see Table 4.53). This has happened for two reasons. First, as noted earlier, horticulture cultivation especially apple is very resource intensive and farmers require good sums of money for producing apple and consequently they borrow. Second, because apple pays heavy dividends the availability for credit from middlemen and banks (through KCC loan scheme) has substantially increased and is accessed by people.

On the other hand, the data also shows that the main expenses which required households to borrow money in 1990 are no longer compelling for many households to borrow money to the extent they appeared earlier. For instance, the proportion of households who stated they borrowed money to meet treatment costs declined from 63.9% to 23.9% households between 1990 and 2012-16. Similarly, the proportion of households who stated they borrowed money for marriage expenses of any family member also declined from 21.3% to 12.5% over this period, and the households reporting borrowing money for 'general household expenses' has also declined from 72.1% to 62.5% over the last 26 years (see Table 4.53). This doesn't mean that treatment costs, marriage and general households expenses have decreased over the time. In fact,

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<sup>48</sup> KCC loan or advances from middlemen are generally provided in large sums that can help make such investments, unlike borrowings from individuals which are provided in smaller amounts.

they may have actually increased, but the fact lesser proportion of households have borrowed money in 2012-16 to meet such expenses as compared to 1990 suggests the economic conditions of some households has improved over the time to take care of these costs on their own.

**Table 4.53: Comparison of Reasons for Borrowing Money over Time**

Reasons	1990		2012-16	
	Frequency	Percent of Cases (61)	Frequency	Percent of Cases (88)
Household expenses	44	72.1%	55	62.5%
Treating Illness	39	63.9%	21	23.9%
Marriage expenses	13	21.3%	11	12.5%
Education of children	4	6.6%	14	15.9%
Construction of House	4	6.6%	22	25.0%
Business development	2	3.3%	6	6.8%
Agricultural expenses	1	1.6%	46	52.3%
Purchase of Car/ Bike	0	0	4	4.5%
Purchase of Land	0	0	2	2.3%
Others	2	3.3%	11	12.5%
Total	109	178.7%	192	218.2%

*N=61 for 1990 and 88 for 2012-16, but some households have given more than one reason.*

In a way, the study has shown that the proportion of households borrowing money for compelling needs as illness, basic household needs (including ration) or marriages has decreased and on the other hand, the proportion of households borrowing money for improving their assets/facilities like construction of house or education of children has increased. Both ways suggest economic ability of many households has increased over time. This is also corroborated by the ability of households to return debt. Among the 61 households who had borrowed money from people or bank in 1990, a majority of them (82%) faced difficulties in returning the debt and only 16.4% said they paid back easily. 31.1% of those who faced difficulty in returning debt sold assets (livestock or other assets); 16.4% said they worked for lenders as casual labour; and among others. *Compared to 1990s, only 13.6% households among 88 households who had taken debt in 2012-16 reported faced difficulties in returning the borrowed money.* Despite the fact that most of the households had borrowed money or took loans in 2012-16 but majority didn't face difficulties to return debt indicates their increased ability and resources at disposal to pay back debt easily.



#### 4.8. Sale of Assets over time:

One of the other important ways that people cope up with increased demands to meet expenses is by selling their assets. In most cases, among the poor, the selling of their limited assets is compelling due to difficult circumstances and has detrimental consequences for them. The study has shown that the proportion of households who sold any asset for meeting any expenses has significantly declined from 85% to 49% between 1990 and 2016 (see Table 4.54).

The study showed that 78% households had sold some livestock in 1990s to meet any expenses they were not able to meet from their regular incomes. This was followed by 10% households who reported selling a piece of land and 7% households who sold some trees (see Table 4.54). In total, 85% households had sold any of these assets in 1990s and only 15% households reported not selling any asset in 1990s. The data also shows that a higher proportion of poor have sold these assets as compared to well-off households in 1990s, whereas no significant disparities exist along the lines of caste. For instance, 92.3% households from lower economic group reported they had sold asset/s as compared to only 82.4% households from upper economic group. Similarly, 88.2% households with smaller landholdings have reported they sold asset/s as compared to 81.6% households with larger landholdings. A higher proportion of poor households have sold their assets primarily because they lacked incomes and had to sell whatever resources they had at their disposal to meet the pressing needs.

<b>Table 4.54: Sale of Assets over Time</b>						
<b>Assets Sold</b>	<b>1990s</b>			<b>2012-16</b>		
	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (100)</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (100)</b>
Livestock	78	70.9%	78.0%	43	38.4%	43.0%
Land	10	9.1%	10.0%	7	6.3%	7.0%
Trees	7	6.4%	7.0%	10	8.9%	10.0%
Jewellery	0	0.0	0.0	1	0.9%	1.0%
Nil	15	13.6%	15.0%	51	45.5%	51.0%
Total	110	100.0%	110.0%	112	100.0%	112.0%
N=100, some households had sold more than one item						

Those who reported selling any asset in 1990 stated diverse reasons for their decision to sell any asset. 37.6% households said that meeting general household expenses was one of the reasons for

selling any asset/s. 10.6% households said they had to sell asset/s to pay back debt. 9.4% households said that meeting treatment costs was one of the reasons for selling any asset. 7.1% households had to sell any asset to meet the marriage expenses and 2.4% households stated they required money to invest into the education of children. Another 2.4% households said they sold any asset for construction of house. 4.7% households sold any asset to invest and purchase a piece of land. Further a higher proportion of 42.4% didn't report any specific reason and stated they sold any asset whenever they required money for any pressing need (see Table 4.55).

In comparison, the study showed that 43% households had sold some livestock during the last four years prior to survey in 2016, followed by 10% households who sold trees, 7% households sold a piece of land<sup>49</sup> and 1% sold jewellery (see Table 4.54). In total, 49% households had sold any of the items (livestock, land, trees or jewellery), whereas 51% households reported not selling any asset at all.

<b>Reasons</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (85)</b>
Construction of house	2	1.8%	2.4%
Education of children	2	1.8%	2.4%
Household expenses	32	28.3%	37.6%
Treating illness	8	7.1%	9.4%
Pay back debt	9	8.0%	10.6%
Extra had to be sold	9	8.0%	10.6%
Purchase of land	4	3.5%	4.7%
Whenever required money	36	31.9%	42.4%
Others	5	4.4%	5.9%
Marriage	6	5.3%	7.1%
<b>Total</b>	<b>113</b>	<b>100.0%</b>	<b>132.9%</b>
N=85, some households reported more than one purpose			

The data also shows that contrary to assumptions a higher proportion of general castes and well-off families have sold these assets as compared to poor sections during 2012-16. For instance, only 37.5% households from ST/deprived castes reported they had sold at least one asset (land or livestock or trees or jewellery) as compared to 54.4% general caste households. Similarly, only 38.5% households from lower economic group had sold any asset as compared to 52.7% households from upper economic group. Further, only 41.2% households with smaller landholdings (10 kanals or less) had sold any asset as compared to 57.1% households with larger

<sup>49</sup> A detailed discussion on land sold by people over last 26 years can be referred from an earlier section

landholdings (11 kanals or above). The reason that why a higher proportion of households from general caste and well-off groups had sold assets is probably because with rising socioeconomic status the upper class and caste don't want to keep rearing livestock. As selling of livestock has been the major contributor to the total reported selling of asset/s, its influence on the overall trajectory has resulted into a higher proportion of the upper class/caste reporting selling of asset/s.

Among those who reported selling any asset in the last four years before survey in 2012-16, a little over one third of households said they sold assets (e.g livestock and trees) because these were extra and had to be sold. When the trees grow old they are sold or people use these as a buffer in case of need. Similarly, with the breeding of livestock, people irrespective of class sell the extra livestock or whenever they require money. Another 10.2% households reported they sold livestock because it was not productive anymore. 16.3% households said they sold asset/s for meeting general household expenses. 14.3% households said construction of house was the main purpose for selling asset/s. For 6.1% households, education of children was the pressing need to sell asset/s and another

6.1% households sold asset/s to pay back debt. 14.3% households without giving specific details stated they have sold asset/s whenever they required money to meet any pressing expenses (see Table 4.56).

In overall, the data shows that the proportion of households who sold any asset for any

purpose has declined between 1990 and 2016. Although expenses have increased over this time, the fact that a smaller proportion of households had to sell asset/s to meet pressing needs in 2012-16 suggests that a significant section of households who may not have resources at their

<b>Table 4.56: Reasons for selling Assets in 2012-16</b>			
<b>Reason</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (49)</b>
Construction of house	7	11.1%	14.3%
Education of children	3	4.8%	6.1%
Household expenses	8	12.7%	16.3%
Pay back debt	3	4.8%	6.1%
Extra had to be sold	18	28.6%	36.7%
Livestock not productive	5	7.9%	10.2%
Whenever required money	7	11.1%	14.3%
Others	12	19.0%	24.5%
<b>Total</b>	<b>63</b>	<b>100.0%</b>	<b>128.6%</b>
N=49, some households reported more than one purpose			

disposal in 1990 but have now in 2016 to meet the needs without the compulsion to sell their assets. In a way, this also points to the larger findings of this study that socio-economic have improved over this time. Also, the fact that the borrowing capacity and avenues have increased over this time, and a higher proportion of households have actually borrowed money in 2016 as compared to 1990 which also provides a buffer to the households to meet the needs without any compulsion to straight away sell assets in the first place.

#### **4.9. Overall Quality of Life, Leisure and Trauma:**

The study has shown widespread improvements in socio-economic conditions of people in the village and is demonstrated by diverse indicators including educational attainments, farming incomes, housing, water, sanitation and other facilities. However, people's perception about the overall quality of life has not been completely in consonance with these substantial and quantifiable improvements, which is likely due to the background of the conflict in the state. The ongoing conflict has increased exposure to trauma and possibly may have partly overshadowed the perception about the improvements in socio-economic conditions. These questions were raised and asked to the people under this study.

The study revealed that 83.0% households felt the overall quality of life has improved and 76.0% said facilities/resources have increased over a generation's time. However, at the same time, 98.0% households stated that life has become stressful due to conflict, 69.0% households also felt insecurity and fear has increased and 3% said freedom of movements has reduced over this time. Further, 70.0% households also said stress has increased due to increasing demands for life. On the other hand, 10.0% households said quality of life has not improved and in fact has deteriorated (see Table 4.57). In a way, the data has shown while most of the households have acknowledged that life has improved in terms of availability of resources and household facilities, it has become stressful at the same time both because of the ongoing conflict, fear and curbs on movements and also because of increasing demands for life. There was though alternate perspective as well about life becoming stressful due to increasing demands which was felt by some of the poor people. To articulate this, a respondent belonging to a poor family noted, "Life has become stressful for rich people because they want to earn more and more money but for poor who have seen lot of poverty, they are enjoying and are seeing comfort now".

This perception of the overwhelming impact of conflict was also corroborated by the data about the exposure of family members to any conflict induced traumatic event. The study indicated that in 82% households at least one of their members has been exposed to traumatic events and only 6% households said none of their members have ever been exposed to such events. 12% households didn't respond to this question, either they had no knowledge or because of the

<b>Table 4.57: Overall Quality of Life over Time</b>			
<b>Parameters</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (100)</b>
Overall quality improved	83	19.8%	83.0%
Facilities/ Resources increased	76	18.1%	76.0%
Stressful due to increasing demands	70	16.7%	70.0%
Stressful/depressed due to conflict	98	23.3%	98.0%
Insecurity and fear increased	69	16.4%	69.0%
Quality of Life reduced/not improved	10	2.4%	10.0%
Freedom on movements reduced	3	.7%	3.0%
Others	11	2.6%	11.0%
<b>Total</b>	<b>420</b>	<b>100.0%</b>	<b>420.0%</b>

sensitivities involved they choose not to respond. In fact, four households also stated that one of their family members was killed by different agencies/groups (they were not asked to identify the group for sensitivity purposes). In another three households, one of the members was hit by a bullet or grenade explosive which had caused severe injury. Further, 80% of the households also stated that one of the family members was tortured (including beating and other forms of ill treatment with or without any injury) since the beginning of conflict in 1989. Only 7% households reported no member was tortured and 13% households didn't respond. These facts make it evident that why most of the households feel stressful, insecure and fearful despite the fact that they have seen substantial improvements in their socio-economic conditions over a generation.

With particular reference to women, the study showed that most of the households felt that the improvements in socio-economic conditions over time and the consequent changes in participation of women in manual labour and other tasks have had a positive impact on women in many ways. 99.0% households stated that access of women to health services has improved.

Further, 98.0% households said that access to food and nutrition has also improved and 90.0% households stated the access to clothes and other commodities has increased over a generation.

Importantly, 12.0% households said that the women’s freedom has increased. This was also corroborated by the fact that 36.0% households said child marriages have reduced; 3.0% household stated the participation of women in employment/other paid work increased and 25.0% households said the participation of women in education has also increased (see Table 4.58). In fact, on asking whether any child in the household was presently (at the time survey) married, not a single household reported any such case demonstrating that the child marriages have also seen steep decline.

On the other hand, only a small proportion of 4.0% households stated that the women’s freedom has reduced over the time and 2.0% said that health has deteriorated in terms of increased illnesses among people (see Table 4.58). In overall, most of the households have reported positive impact on women in different ways from enhanced access to services and nutrition to increased participation in education over a generation.

<b>Table 4.58: Overall Quality of Life for Women over Time</b>			
<b>Parameters</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (100)</b>
Access to health services improved	99	26.3	99.0%
Access to food and nutrition improved	98	26.1	98.0%
Access to clothes/other commodities increased	90	23.9	90.0%
Women’s freedom increased	12	3.2	12.0%
Participation of women in education increased	25	6.6	25.0%
Child marriages reduced	36	9.6	36.0%
Participation in employment/other paid work increased	3	0.8	3.0%
Others (improvements)	7	1.9	7.0%
Women's freedom reduced	4	1.1	4.0%
Illness increased/Health Deteriorated	2	0.5	2.0%
<b>Total</b>	<b>376</b>	<b>100.0%</b>	<b>376.0%</b>

All these changes—economic, cultural and political- that have occurred over a generations time in terms of increased household amenities, increase in women’s freedom, reduction in child

marriages and manual work, increased participation in education, improved access to markets, etc. have also impacted the leisure time and activities over time. The study showed that a majority of households (76%) stated that the leisure time/activities have reduced over the time. Only 22% households said the leisure time/activities have increased over the time (see Table 4.59).

Among those who said the leisure activities/time has reduced, 82.9% households stated that the increased participation of children and youth in education has limited time for leisure activities. This was followed by 63.2% households who stated that the conflict related fear and insecurity has restricted the movement of people and impacting the participation in leisure activities. Further, 59.2% households said because the life has become demanding leaving not much time for leisure activities. Related to this, 6.6% households also said that increased participation in employment/diversified livelihoods has left not much time for leisure (see Table 4.60). The declining participation in leisure activities due to increased demands in life and conflict induced restrictions/fear may also be contributing to the increasing perception that the quality of life has not improved despite witnessing improvements in socio-economic conditions.

Leisure	Frequency	Percent
Increased	22	22.0
Reduced	76	76.0
No Change	2	2.0
Total	100	100.0

On the other hand, most of those (22 HHs) who said the leisure activities/time have increased over a generation stated that because parent's generation had work and were left with no time to engage in recreation and whereas the present children's generation have no work other than education and therefore are able to participate in leisure activities. A few of these respondents also stated that while engagement of children in education

Reasons	Frequency	Percent of Responses	Percent of Cases (76)
Increased participation in education	63	37.7%	82.9%
Insecurity/conflict restricted movement	48	28.7%	63.2%
Life has become demanding	45	26.9%	59.2%
Increase in employment	5	3.0%	6.6%
Others	6	3.6%	7.9%
Total	167	100.0%	219.7%
N=76 but many households reported more than one option			

has increased, playing has become part of education/schooling itself, therefore education itself has provided more opportunities to younger generation to play.

With specific reference to women, households were also asked to compare the experiences between mothers-in-law (when they were daughters-in-law) and present daughters-in-law. The study showed that most of the households (92%) stated that the participation of women in leisure time/activities have reduced over a generation and only 4% households said the leisure time/activities have increased over this time (4% households didn't respond). The data therefore shows that the reduction in leisure time/activities over time has been more significant among women than households taken in total. These changes have happened despite the fact that participation of women in education has increased, child marriages and labour decreased, household amenities increased and overall workload on women has reduced.

The four households who reported that women's leisure time has increased over time, three said because the workload on women has decreased they have time now. On the other hand, among those households who said the leisure activities/time has reduced for women over a generation, majority of households (75.0%) stated that the patriarchal attitude has become a reason for this. Many respondents said the nature of women (*fitrat in local term*) have changed (in negative connotation) and therefore not allowed freely but many felt that the societal attitudes have changed over this time (becoming conservative in nature in some ways) doubting women's activities and restricting mobility of women around the village. One of the female respondents stated there is too much concern in the society now that girls should not blend with boys. Some felt that increasing love affairs/marriages was because of the high exposure of girls to television and other media sources now. Some people also explained that to curb the increasing love affairs many parents don't allow their women to engage in any leisure activities outside their vicinity. To add to this one lady during an interview noted, "because she and her other sister were beautiful, so more restrictions were imposed by family".

Further, 47.8% households also stated that the conflict-induced fear and insecurity also limited mobility of women and impacted their participation in leisure activities outside house. 18.5% households also said that the increased involvement of women in education has reduced time for



them to participate in leisure activities. Another 18.5% households said the women's freedom to engage in leisure time has reduced over the time (see Table 4.61). To give more insights one old woman sitting in a household during an interview said that when they were young there used come back home very late after they were done with playing but times have changed now. Another added, women had time and freedom to play and meet others but the women's freedom has reduced over time due to changing attitudes in the society. To explain why this has happened, one other male respondent said that religious awakening has increased resulting in reduced freedom to women to go out, meet neighbors and participate in folk dance or other local recreational activities.

In sum, the data has shown and as has been explained by many respondents, that on one hand women's freedom has increased in terms of improved access to health services and market (can go even independently), availability of cash has increased, their consent for their marriage is sought and participation in overall decision making has also increased but on other hand their freedom to participate in recreation has reduced.

<b>Table 4.61: Reasons for Reduction in Leisure Time for Women</b>			
<b>Reasons</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (92)</b>
Fitrat changed/ Societal attitudes changed	69	41.6%	75.0%
Insecurity/ Conflict restricted movement	44	26.5%	47.8%
Increased involvement in education	17	10.2%	18.5%
Women's freedom reduced	17	10.2%	18.5%
Others	19	11.4%	20.7%
<b>Total</b>	<b>166</b>	<b>100.0%</b>	<b>180.4%</b>
N=92 but many households reported more than one option			

#### **4.10. Concluding Remarks:**

*Overall, the data has shown that ownership of household assets and amenities has increased over a generation between 1990 and 2016. It was also argued that the drastic transformation in cultivation patterns shifting paddy and maize crops and land under other uses to apple and walnuts has been a successful experiment till now fetching substantial farm incomes to people and also helping them to access credit linkages from middlemen and banks- in both cases credit is easily available. The study also showed that the livelihood sources have diversified and gone better with majority of households drawing their livelihoods from more than one source. The*

*work availability has increased and the government jobs make a significant contribution. As a result of apple fetching good incomes, diversified livelihoods and access to credit, people have been able to invest into better housing, drinking water, sanitation, vehicles and other amenities. The data has also shown that the educational attainments have also increased over a generation which is partly because of increasing demand and partly because of improved socio-economic conditions. The households also reported other positive changes that women in particular have experienced in terms of their improved access to health services, education, food and other commodities.*

*While people perceived the overall quality of life to have improved due to the improvements in socio-economic conditions, they also recognize that life has become stressful due to conflict and the increasing demands for life. The fear and insecurity has increased due to the conflict and the exposure to trauma remains high with 82% households stating that at least one of their members has been exposed to traumatic events. Even with the increased household amenities and decreased workload, the leisure time has reduced in general and for women in particular. This is partly because the societal attitudes have become regressive towards women and partly because the conflict- induced fear has restricted mobility of women.*

*The data has also shown disparities in the progress made over a generation's time along the lines of caste and class. One of the respondents said "the quality of life and facilities have improved for those who have earned money and not all have been able to do so". The data showed those who belonged to Scheduled tribes or deprived castes or to the poor economic groups haven't made progress to the extent as experienced by those belonging to general castes or to the well-off classes. Some indicators like educational attainments, costly durables and assets and farming incomes have shown the inequality between lower and upper castes has effectively increased over a generation between 1990 and 2016. This is primarily because the progress or the economic betterment in the village has been shaped by the existing resources of land and education in particular which the lower castes/tribes possessed disadvantageously. A scheduled tribe respondent summed it up in reference to Gujjars as, "quality of life for Gujjars hasn't seen much improvement. Only few households have progressed especially those who are educated or had contacts".*

*The government's main programmes which have pushed the production of apple included 'lift irrigation' and 'KCC loans' and therefore significant drivers of progress have also unequally helped those who had more land or better placed land and didn't help most of the Scheduled tribes and small land owners in particular. That doesn't mean such interventions weren't helpful. Majority of the people have acknowledged the contribution of these programmes in the progress made by famers over the years. There has been a trickledown effect of the increasing farm incomes in shaping the local economy and creating local opportunities for businesses and work. The data has also demonstrated the impact a public policy (best example is 'lift irrigation') can make on people's resources and opportunities. If public policy was in addition also inclusive in design, it may have helped bridge the inequalities that traditionally existed but instead, it has rather only sharpened them.*

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## **Chapter 5: Health and Nutritional Status in Kashmir**

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Literature shows that improved socio-economic conditions have led to marked improvements in health and nutrition in populations across the globe. However, in Africa and India, improved socio-economic conditions have not always led to commensurate improvements in health and nutritional status. This chapter examines whether the significant intergenerational improvements in various socio-economic measures that we saw in Chapter-4, despite the years of intense conflict, have had impacts on health and nutrition outcomes. It begins by presenting data from the village on the likely determinants and pathways by which the socio-economic improvements could have influenced health and nutrition status, and then the data on inter-generational changes in heights as the summary indicator used for both health and nutrition.

The study investigated into the changes in heights over a generation (a period of 20 years) in both men and women across different socio-economic groups. It also looked into patterns of weights among men and women as well as analyzed BMI for adults. As discussed in detail in Chapter-1 the macro-level data has indicated that the state of Jammu and Kashmir has been witnessing positive secular changes in heights unlike in India where any significant increase in heights has been restricted to only a small section of population. What has led to such changes has been examined in the context of the study village.

Literature has shown, as discussed at length in the Chapter-1, that to make impact on the heights and weights of people, the improved socio-economic conditions must drastically change the food intake (quality and quantity) over time. The other ways it could impact nutritional status would be also through reducing the burden of manual work which requires people to spend lot of energy. Any significant reduction of work (thereby saving of energy) would mean availability of that energy for the body to use it for its growth. Thirdly, improved environmental conditions and thereby decline in morbidity could lead to improved heights and weights. Some of these aspects are discussed in this chapter before looking at evidence about the changes in heights and weights of people over time.

### 5.1: Food Intake and Access to PDS over Generations:

Improved access to food and thereby increased food intake by people is a likely pathway by which a rise in socio-economic status could impact the health and nutritional status of people. Respondents were asked whether there has there been any instance (for a day or more) during 1970-90 and later years that any of their family member(s) had to reduce frequency of meals or reduced intake or went hungry due to unavailability of ration at home. It was observed that access to food intake has substantially improved among people over the time from 1970 to 2016.

The study found that 84% households reported their family member/s had to reduce food intake or went hungry at times during 1970-90 (see Table 5.1). The data has further shown clear disparities along the lines of caste and class. For instance, 90.6% households from ST/deprived castes reported any of their family member/s had to reduce food intake or went hungry at times during 1970-90 as compared to 80.9% households from general castes. Similarly, 92.3% households from lower economic group reported any of their family member/s had to reduce food intake or went hungry at times during 1970-90 as compared to 81.1% households from upper economic group.

<b>Table 5.1: Reduction in Food Intake over Time</b>				
<b>Reduced Intake</b>	<b>1970-1990</b>		<b>1990-2016</b>	
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
Not reduced	15	15.0	92	92.0
Reduced	84	84.0	8	8.0
Don't know	1	1.0	0	0
Total	100	100.0	100	100.0

Those who reported reduced food intake during 1970-90 had resorted to different ways of keeping up with food shortages from experiencing hunger to rely on inferior foods or reduced food intake itself. Among 84 households who reported reduced food intake, 70.2% of households stated they had to rely on inferior foods whenever there were shortages of food and these inferior foods were not culturally appropriate and their calorific value would have been inadequate. For instance, taking just a tea instead of a meal or drinking rice water (which is usually thrown away by households) which have low calorific and other food value and not culturally appropriate. 20.2% households said they reduced the food intake and didn't take adequate food. This was followed by 9.5% households who said they had to take 'rotis' (flat bread) at times instead of

rice<sup>50</sup>. In addition, more than two third households (67.9%) stated they their family member/s have gone hungry as well at times (see Table 5.2).

The reasons for food shortages experienced by the households during the period of 1970-90 were varied, but basically related to low incomes and food shortages. 54.8% households said one of the reasons was the low productivity of land in the village, which is majorly un-irrigated. Many respondents also added that the productivity has increased over time with the use of

<b>Table 5.2: Ways of Reducing Food Intake during 1970-90</b>			
<b>Ways of Reducing Food</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (84)</b>
Less food intake	17	12.0%	20.2%
Stayed hungry at times	57	40.1%	67.9%
Ate Rotie (a snack food)	8	5.6%	9.5%
Ate/ drank Inferior food	59	41.5%	70.2%
Others	1	.7%	1.2%
Total	142	100.0%	169.0%
N=84, but some families gave more than one response			

fertilizers and availability of better seeds. 46.4% households stated that poverty (low or no adequate incomes) was one of the other reasons for reducing food intake at times. Related to this, 3.6% households also said that they were not able to find adequate work to fetch incomes. 20.2% households said that drought or other unfavorable climate conditions at times used to create shortage of food availability and thereby forcing to reduce food intakes or to go hungry at times. 9.5% households, while comparing with the recent period, stated that the government provisions for ration were inadequate then in terms of quantum of ration provided or the regularity in provisions (see Table 5.3).

On the other hand, when the respondents were asked, has there been any instance (for a day or more) from 1990 to 2016 that their family member(s) had to reduce frequency of meals or reduced intake or went hungry due to unavailability of ration at home, it was found that only 8% households reported that there were times during 1990-2016 when their family member/s reduced food intake or went hungry and 92% households reported no reduction in food intake at any time during this period (see Table 5.1).

<sup>50</sup> Kashmiris are primarily rice eating people, and take 'rotis' with tea as a snack.

The number of households (8) stating that their family member/s reduced food intake during 1990-2016 were too small to make any statistical inferences about the disparities along the lines of caste and class. However, the data showed that out of these 8 households, six belonged to ST/deprived castes and only two to general castes. Six belonged to households with small landholdings (10 kanals or less) and only two to households with

<b>Table 5.3: Reasons for Reducing Food Intake during 1970-90</b>			
<b>Reasons</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (84)</b>
Drought/unfavorable climatic conditions	17	12.4%	20.2%
Inadequate Govt Provisions for Ration	8	5.8%	9.5%
Poverty/ Low or no incomes	39	28.5%	46.4%
Low Productivity	46	33.6%	54.8%
Inadequate Availability of work	3	2.2%	3.6%
Others	1	.7%	1.2%
No response	23	16.8%	27.4%
<b>Total</b>	<b>137</b>	<b>100.0%</b>	<b>163.1%</b>
N=84, but some families gave more than one response			

larger landholdings (11 kanals or above). This suggests that even if the hunger has reduced substantially over time, a small proportion of those who belong to the ST/deprived castes or to poor class still experience difficulties in access to adequate food.

The reasons for those who reported reducing food intake or not eating at times during 1990-2016 didn't indicate any particular pattern but were very individualistic and incidental/temporary. For instance, two households reported that they experienced food shortage after the household head died who was the primary bread earner. Another household said the household members had to go hungry at times because of lack of work and/ or less wages. Another ST household recalled that because they used to take seasonal migration from Jammu to Kashmir immediately after winters were over. In one instance because of the untimely snow in April while they were on their way to Kashmir, the snow damaged their livestock and they had to go hungry due to resulting economic loss. Another household recalled that because of the severe drought in 1998 they had shifted to 'Rotis' (instead of eating rice) one time a day and sometimes went hungry.

*In overall, the study showed that the access to food intake has substantially improved among people and the incidences of hunger and reduced food intake have declined sharply over the time*

*from 1970 to 2016. Those who had to reduce food intake or went hungry at any time reduced from 84% during 1970-90 to 8% during 1990-2016. However, such data which is completely based on recalling of improvement in food intake over a generation's time may suffer from 'recall biases'. But these findings were also corroborated by the narratives from the people and are in line with the overall improvements in socio-economic conditions shown by more concrete indicators given in the earlier chapter-4.*

The respondents narrated interesting examples and gave a larger perspective about hunger experienced by the older generation earlier and how the situation has improved over time. One of the respondents stated, “The productivity of land was very low, the land was prone to drought and the incomes were limited in 1970s. There was not enough food at all then but that is not the case now, the situation has drastically improved”. Another respondent stated that because of shortages of ration during 1970s, people used to eat inferior food like ‘Maize watt’ (broken maize). He also added that the production of food has later increased and so were incomes helping people to access better quality food. Another added that paddy productivity has increased from 80 kgs to 320 kgs per kanal of land between 1970s and 2016- suggesting four times increase over this period. A few respondents said the productivity have increased after the government introduced high yielding seeds and use of fertilizers increased. Few also said because their land was largely un-irrigated which was not only less productive but also prone to drought and when hit by it they would face shortages in food availability. Another indicated the government provisions of ration was inadequate and would just provide 2.5 kgs of ration per household and people had to spend a full day to collect this ration.

A respondent recalled that during his childhood, he had to take ‘maize watt’ (broken maize) or go hungry at times almost every year during July and August months because of low production and lack of affordability. He recalled an incident that his father sold sheep and went to buy food and after three days he returned only with empty hands. There was simply no grain available which could have been easily accessed. A few respondents also corroborated that they would fall short of food every year in 1970s during a particular season (for a few months just before a new harvest). One of the respondents (who is presently holding a government job and his father was also in a government job-very rare in that generation) recalled that in 1975 half of their family



migrated with father to his place of posting due to severe shortage of food in the village. Even if one could afford, there was no food available locally. Because of the repeated food shortages during 1970s almost every year, people weren't willing to shift to apple cultivation when it was introduced by government in the village. Shifting to apple meant further decrease in food grain availability for many years.

A ST respondent suggested the trickledown effect from improvements in economic conditions of a large section has helped them over the time. He recalled his father telling him that during their childhood they have gone hungry at times because Kashmiris (majority and economically better section) were also poor then. He added, the work has increased now and even they can borrow ration anytime. Another ST respondent said during their childhood, the seasonal migration between Kashmir and Jammu (two times a year) used to take 10-15 days and during this time, they would fall short of food and even go hungry for a day or two.

#### **5.1.1. Quality and Quantity of Food:**

The study also looked at quality dimensions of food intake in terms of whether only the hunger episodes and intake of inferior foods have reduced over time or the people's access to food has also gone better over a period of last 26 years or so. The data has shown that 99% households said that the food intake has diversified and 82% households also said that the overall food intake has increased since 1990 (see Table 5.4).

Households also gave specific details of what has increased in intake. 91.0% households said the intake of ghee/oil/butter has increased over time since 1990; 82.0% said the intake of non-vegetarian food has increased over this time; 82.0% households said the intake of eggs has increased; and 78.0% households said milk consumption has increased (see Table 5.4). On the other hand, 95.0% households also said the consumption of fresh vegetables has increased, whereas 92% households also reported consumption of dried vegetables has decreased. Earlier because of snow, there was no local production of vegetables during peak winter time and people in villages used to store dried vegetables in summer to be used for winters. The consumption of these has significantly reduced with availability of vegetables in markets during winters now and increased affordability of people.

Some households also felt that consumption of few food items has reduced over this time. 15.0% households reported consumption of milk has reduced; 12% households said consumption of ghee/oil reduced; and 9.0% households said consumption of eggs has reduced (see Table 5.4).

To corroborate the increased food intake over time, many respondents narrated that because of poultry rearing at home more eggs were produced and available at home earlier but were sold to meet household expenses instead of consuming at home. Although eggs are not produced at home now (in 2016) but because affordability has increased to buy from markets, eggs are more consumed now. Similarly, some respondents

<b>Table 5.4: Changes in Quality and Quantity of Food Intake Since 1990</b>			
<b>Changes in Food Intake</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (100)</b>
Food diversified	99	13.3%	99.0%
Increased overall food	82	11.1%	82.0%
Increased ghee/butter/oil	91	12.3%	91.0%
Increased Non-vegetarian food	82	11.1%	82.0%
Increased readymade food	1	0.1%	1.0%
Increased vegetables	95	12.8%	95.0%
Dried vegetables reduced	92	12.4%	92.0%
Increased eggs	82	11.1%	82.0%
Additional Mid day meals	4	.5%	4.0%
Increased milk	78	10.5%	78.0%
Reduced eggs	9	1.2%	9.0%
Reduced ghee/oil	12	1.6%	12.0%
Reduced milk	15	2.0%	15.0%
<b>Total</b>	<b>742</b>	<b>100.0%</b>	<b>742.0%</b>
N=100; most households gave more than one response			

explained how earlier almost every household had a cow but milk was not consumed at home to the extent it is now consumed. Earlier, milk would be sold to manage other expenses. A few added to this that most households had cow/s earlier but the production of milk was less and with new breeds the numbers of cows may have decreased but the production of milk has increased and so the affordability to buy and consume milk. A few respondents also added that even the chicken were reared and available at home earlier more than now but would either be sold to manage other expense or used for guests. All these respondents also meant that people were too poor to consume eggs, milk or children even when produced at home. Similarly, a respondent exemplified how the consumption of ghee/oil has increased over time and stated they would consume 15 kgs of cooking oil a year which has increased to 150 kgs a year now – 10 times

increase. Other respondents also corroborated that the consumption of cooking oil has substantially increased over time.

An additional enquiry was made very specifically about non-vegetarian food to understand how the frequency of intake of meat (mutton, beef, chicken) has changed over the years. It was found that the frequency of intake of meat has substantially increased over time. The proportion of households who said they would take meat twice or thrice in a month has slightly increased from 14% to 16% over the time but those who reported to take meat four times in a month have significantly increased from 14% to 46% households over a generation's time. Further, not a single household reported that they would have taken meat more than 4 times in a month for the period prior to 1990, while a little less than one third of households (31%) reported they take meat 8 to 12 times a month post-1990s (see Table 5.5). The data therefore clearly shows substantial improvements

in increase in frequency of intake of non-vegetarian food over the time between old and younger generation.

Overall, the data shows that all households reported widespread improvements in both quantity and quality of

food intake over the time since 1990 with increase in overall food intake and food diversity and also in the consumption of oil, milk, eggs and meat- which are important ingredients of quality food and have bearing on nutritional outcomes of populations, especially where they earlier experienced food and calorie shortages.

The access to food during childhood in an important determinant of adult health and respondents were asked how they saw changes in quality of food intake during childhood (up to 20 years)

<b>Frequency of Intake of Meat</b>	<b>Children Generation (post 1990)</b>		<b>Parents Generation (prior 1990)</b>	
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
Occasionally	0	0.0	9	9.0
Once in two or more months	2	2.0	37	37.0
Once a month	5	5.0	26	26.0
Twice a month	11	11.0	10	10.0
Thrice a month	5	5.0	4	4.0
4 times a month	46	46.0	14	14.0
8 times a month	15	15.0	0	0
12 or more times in a month	16	16.0	0	0
Total	100	100	100	100

between the older and younger generation. The data showed that only 5% households reported that the older generation had access to better food. Among these, two stated that the food was not polluted then as is now. Three others said older generation had better food because of own production of eggs, milk, ghee, maize and chicken. On the other hand, most households (94%) reported that the present /younger generation got better access to food during their childhood (see Table 5.6). A respondent said food has both diversified and increased during the childhood of younger generation. A few respondents gave a description of food that children have now access to and included eggs, butter, snacks, milk, fruits and non-vegetarian food, which was not provided to the older generation when they were children. One respondent said other amenities including footwear, clothes, transport, health services and hygiene has also gone better for the younger generation. He added, “They even have access to pocket money to eat snacks whenever they want to”. While a few narrated that the older generation had to work during childhood with no clothes or even footwear. They had gone hungry at times or were provided low quality/inferior foods to satisfy their hunger including rice water, tea, and ‘maize watt’.

<b>Table 5.6: Food Intake during Childhood by Generations</b>		
<b>Food Intake</b>	<b>Frequency</b>	<b>Percent</b>
Children have got better food	94	94.0
Parents got better food	5	5.0
No response	1	1.0
Total	100	100.0

Another related aspect that has direct impact on children’s access to food is the workload of mothers who are primary care givers for children especially when are young. Most households reported the workload on present generation of daughters-in-law has reduced as compared to older generation of daughters-in-law (now mothers-in-law) which resulted into better care for children.

### **5.1.2. Government Support for Food and Nutrition:**

Government provisioning for food and nutrition has played an important role in supporting people to access some quantity of food. The Public Distribution System (PDS) provides fixed quantities of ration to each household at subsidized rates which are determined by three categories of ration cards provided to households- earlier called AAY, BPL and APL (before 2015) and are now known as AAY, PHH and NPHH under national food security act which was

implemented in J&K in 2015. Government is also implementing nutrition programmes for children which includes mid day meal scheme (MDMs) for school going children (in government schools) and the supplementary nutrition under Integrated Child Development Services (ICDS) to younger children up to 6 years of age. As these are important provisions for people to access minimum quantity of ration and supplementary nutrition, the study looked into access of people to these schemes over time.

The study showed that 95% households reported they had a ration card in 1990 and only 2% households did not have a ration card then. Whereas, it was found that 99% households had a ration card at the time of survey in 2016 and only one household was without a ration card because they had a gazetted rank government employee who are excluded from PDS provisions (see Table 5.7). Overall, the data shows that most of the households had a ration card both in 1990 and 2016. At the time of survey in 2016, 8% households had AAY ration card (Antyodaya Anna Yojana); 64% had PHH card (Priority household); and 27% had NPHH card (Non-priority household).

<b>Table 5.7: Ownership of Ration Cards over Time</b>				
<b>Ration Card</b>	<b>1990</b>		<b>2016</b>	
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
Didn't Know	3	3.0	0.0	0.0
No	2	2.0	1	1.0
Yes	95	95.0	99	99.0
<b>Total</b>	<b>100</b>	<b>100.0</b>	<b>100</b>	<b>100.0</b>

The study also showed that most of the households were provided ration under PDS in 1990 as well as in 2016. It was found that 99% households were able to lift ration from PDS shops in 2016 and the only one household who didn't lift ration was not eligible to hold a ration card. In comparison, 95% households reported they could access ration from PDS in 1990 also, and only 5% households said they didn't lift ration in 1990 (see Table 5.8). Three of these households did so by choice as they had sufficient production from their own land, and the other two didn't have a ration card. These two households are ST and migrated on seasonal basis. Some of the Bakerwal families (ST households)

<b>Table 5.8: Access to PDS Rations Over Time</b>				
<b>Ration Lifted</b>	<b>1990</b>		<b>2016</b>	
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
No	5	5.0	1.0	1.0
Yes	95	95.0	99.0	99.0
<b>Total</b>	<b>100</b>	<b>100.0</b>	<b>100.0</b>	<b>100</b>

used to get ration only for six months when they were in Jammu from where the ration cards were issued and wouldn't get ration in Kashmir during the summer months.

Although most of households have lifted ration from PDS both in 1990 and 2016, the regularity of ration has improved over the time. The households reported that the ration was though regularly supplied in 1990s, there were shortages occasionally. A few respondents also said because of lack of incomes they couldn't even lift ration from PDS shops. On the other hand households reported the ration is provided regularly in 2016. When asked if they lifted ration for last three months prior to survey in 2016, and out of 99 households with ration cards, 95 households had lifted ration for all the three months, 3 households reported lifting only two times but said ration was yet to reach local PDS shop for the third month, and only one households had lifted ration for one month only but because of their own choice.

The other important aspect was the quality of ration provided over time. There were strong concerns about the quality of ration received in 1990. 63% households recorded the quality of ration provided was very low then and rice was usually smelly with insects. However, the situation has drastically improved over the years. Most of the respondents said the ration provided in 2016 is of good quality and no more foul-smelling.

However, close to one third of households (33%) said the quantity of ration provided now (in 2016) is limited. This is especially after food security act was passed which has fixed the ration per household member (at 5 kgs per person) unlike the flat quota given per household irrespective of numbers of family members earlier (at 35 kgs per household). So, those who have lesser than seven family members receive a reduced quantity of ration as compared to pre-food security act. Also, because the demand for ration has increased with increasing conversion of land to apple orchards which is leaving less ration available with PDS shop keepers to be black marketed or to be sold to the people locally in the village.

In addition to the PDS scheme, 42% households reported that at least one of their children have received supplementary nutrition through ICDS or MDMS during the last six years before the survey in 2016, which was not available in 1990. MDMS scheme didn't exist then and although ICDS scheme was launched in 1976 but its coverage was very limited as compared to now. Among those who reported received supplementary nutrition through ICDS or MDMS, a higher proportion belonged to ST/deprived castes and poor economic groups. For instance, 56.3%

households from ST/deprived castes reported any of their children have received nutrition through ICDS or MDMS in the last six years prior to survey as compared to only 35.3% households from general castes. Similarly, 50% of households from lower economic group reported any of their children has received nutrition through ICDS or MDMS as compared to 39.2% households from upper economic group. The reason why children from poorer groups have had better access to supplementary nutrition is because a higher proportion of them go to a government school where mid day meal is served. The children of economically well-off families go to private schools where mid day meals are not served.

*Overall, the study has shown that the incidences of hunger or dependence on inferior foods have drastically reduced over time. Importantly, the intake of food has increased and so the diversity and quality of food especially in terms of consumption of non-vegetarian food, milk, eggs and ghee/oil. It can be therefore assumed that the increase in intake of food and improvements in quality would have resulted in better nutritional status, and whether that has happened is discussed in detail in the next sections of this chapter. These enhancements in food intake have happened because of widespread improvements in socio-economic conditions of people in the village as well as due to the direct government provisioning of food that has also improved in terms of quality of PDS ration and the provisions of supplementary nutrition for children [The PDS entitlement has also become a legal right after national food security act was passed.]*

## **5.2: Intergenerational Changes in Work Patterns:**

Work patterns have an impact on the health of people especially the nutritional status. Those who undertake continuous manual work may require more energy than those who do less manual work. This study looked at how work patterns have changed over a generation, and especially among women, and also looked at patterns of child labour over time.

### **5.2.1. Changes in Engagement in Manual Work over a Generation:**

The respondents were asked whether work patterns especially manual work changed in terms of nature of work (collecting fire wood, fetching water, travel, etc) or number of days and /or hours spent on work since 1990. The study showed a majority of households (75%) stated that work has decreased over a generation between 1990 and 2016. Only 14% households said that the

work has increased and 10% households said work has increased in some ways and decreased in other ways (see Table 5.9).

The data also indicated significant disparities along the lines of caste and class. For instance, 82.4% households from general castes reported that the manual work has decreased between 1990 and 2016, as compared to only 59.4% households from ST/deprived castes. Similarly, 82.4% households from upper economic group reported that the

<b>Table 5.9: Changes in Work Patterns over Time</b>		
<b>Work</b>	<b>Frequency</b>	<b>Percent</b>
Reduced	75	75.0
Increased	14	14.0
Mixed	10	10.0
Same	1	1.0
Total	100	100.0

manual work has decreased over this time as compared to only 53.8% households from lower economic group. The reason why smaller proportion of households from ST/deprived castes or lower economic group stated that the manual work has reduced over time as compared to general castes or upper economic group is because the latter groups have higher affordability to hire labor for manual work and own more household amenities/assets which have reduced the work for them. Meanwhile, it has increased their demand for hired labour and so the lower socio-economic groups get more work, which increases their income but also their workload.

Those who stated that the work has decreased over a generation between 1990 and 2016 underlined a variety of reasons for this change. Among the 85 households who reported work has decreased (including those who said mixed response), 83.5% households stated that work related to collecting firewood from nearby forests or fetching water from springs/canals has reduced. 80.0% households also stated that the labour requirements for cultivation of land have reduced due to use of tools/machines and decreased land holdings over time (land is shared among brothers). 75.3% households stated that livestock rearing has reduced which is because of overall reduction in livestock within the village. 30.6% households also stated that the manual work hours (for those who were casual labour) have reduced per day from close to 10 hours in 1990 to 8 hours in 2016. 45.9% households stated that the use of LPG as fuel for cooking reduced work for women. Another 8.2% households said increase in other household items/ facilities (washing machines, electric heaters, vehicles, etc) reduced work. 63.5% households also stated that because of the expansion of roads (within village and outside) and the increase in transport facilities have also decreased manual work (see Table 5.10).



Similarly, those who stated that the work has increased over a generation between 1990 and 2016 stated a number of varied reasons for this change. Among these households (including those who gave a mixed response), 41.7% households said the work has increased because of availability of more work now (in 2016) as compared to 1990. Related to this, 8.3% households said that work has diversified and multiple kinds of work is available. 54.2% households stated that because their expenses have substantially increased the need to do more work to earn more has increased. Further, 58.3% households said that because of the shift to horticulture (apple especially), the work has increased (see Table 5.11).

With particular reference to women, the study showed that

<b>Table 5.10: Reduced Work over Time</b>			
<b>Reduced Work</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (85)</b>
Collecting fire wood/ fetching water reduced	71	20.1%	83.5%
Labor requirements for cultivation reduced	68	19.3%	80.0%
Rearing livestock has reduced	64	18.1%	75.3%
Manual work hours reduced	26	7.4%	30.6%
Use of LPG reduced 'fuel collection' work for women	39	11.0%	45.9%
Household items/ facilities reduced work	7	2.0%	8.2%
Transport/roads improved	54	15.3%	63.5%
Shifting to apple/ walnuts reduced work	6	1.7%	7.1%
Others	18	5.1%	21.2%
Total	353	100.0%	415.3%
N=85; most households gave more than one response			

<b>Table 5.11: Increased Work over Time</b>			
<b>Increased Work</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (24)</b>
More availability of Work now	10	24.4%	41.7%
Work diversified	2	4.9%	8.3%
Increasing expenses forced to work more	13	31.7%	54.2%
Horticulture is labor intensive	14	34.1%	58.3%
Others	2	4.9%	8.3%
Total	41	100.0%	170.8%
N=24; most households gave more than one response			

work has reduced for women as well over the years. Households were asked to compare the experience between older generation of daughters-in-law (now mothers-in-law) and present

generation of daughters-in-law with respect to their participation in work. This enquiry was mostly directed towards the women members of the households interviewed. 90% households stated that the workload of present generation of daughters-in-law has reduced as compared to the older generation of daughters-in-law. 6% households said work has reduced in some ways and increased in other ways. Only 4% households reported that work has actually increased for women over time (see Table 5.12).

<b>Table 5.12: Work Done by Women over Time</b>		
<b>Work</b>	<b>Frequency</b>	<b>Percent</b>
Increased	4	4.0
Mixed	6	6.0
Reduced	90	90.0
Total	100	100.0

The data also showed disparities along the lines of caste and class. Whereas 94.1% households from general castes reported work has reduced for women over time, only 81.3% households from ST/deprived castes have reported the work has reduced for women over time. Similarly, 91.9% households from upper economic group have reported work for women reduced over time as compared to only 84.6% households from lower economic group. Such disparities are a function of affordability. Those with better resources have more assets and amenities available which has resulted into reduced work for women as compared to those with relatively lesser resources.

Those who reported work has decreased or a mixed response explained different ways the work has reduced for women over a generation between older and present generations. Among these 96 households, 60.4% households reported that engagement of women in manual work has reduced. 96.9% households said the time to fetch water has reduced, which is because of significant improvements in proximity of water connections. Further, an equal proportion of 96.9% households also reported that time to collect firewood has reduced over this time. The need for firewood has reduced because of the increasing use of LPG and electricity as fuel for cooking. This is also corroborated by the fact that 84.4% households reported that use of LPG has reduced the work for women (see Table 5.13). It is also partly because of increased apple cultivation in the village which itself has been a source of charcoal used for heating purposes during winters (branches pruned when burnt produce charcoal). In addition, 83.3% households also felt that the involvement of women in agriculture related work has reduced over time. Some respondents explained that this has happened because of the conversion of paddy and maize into apple and walnuts, use of machines, development of roads and availability of transport.

On the other hand, among the nine households who reported either the work has increased or a mixed picture for women over time, five of these said maintaining houses on regular basis has increased the work to a large extent. The significant improvement in housing over this time has increased the demand for daily maintenance which is mostly done by women. Another four households said the engagement in apple cultivation has increased work for women. One household said because of the single woman at home the workload for her has increased and another said the daughter-in-law also does casual labour occasionally.

<b>Table 5.13: Reduction in Work for Women over Time</b>			
<b>Reduced Work</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases (96)</b>
Manual work reduced	58	14.1%	60.4%
Time to fetch water reduced	93	22.7%	96.9%
Time to collect firewood reduced	93	22.7%	96.9%
Involvement in Agriculture reduced	80	19.5%	83.3%
Use of LPG helped	81	19.8%	84.4%
Others	5	1.2%	5.2%
Total	410	100.0%	427.1%
N=96 ; most households gave more than one response			

Other than directly impacting the nutritional status of adults, the reduced work especially for women has also implications for their young children. As mothers get time from work, they spend more time taking care of their children. The discussions with some of the respondents also provided enriched insights into the extent to which the work has reduced for present generation of daughters-in-law resulting into better care for their children. One of the respondent stated that older generation of daughters-in-law would have to leave two months old child at home and go to work. Another said, all the hard work earlier had to done by daughters-in-law. He added, “The daughters-in-law were literally treated as slaves”. Another respondent said women hardly had time to even get the child to sleep and the children would sleep on dust or fell asleep on streets. A few said there have been drastic changes in attitudes towards women over time and noted, “A sense of equality has developed between daughters-in-law and mothers-in-law which was not there a decade or two ago”. Many respondents agreed child care has substantially improved because of the ability of mothers to take care of their children due to reduction in work. Thus, reduction of women’s manual labour has meant more time for child care in most households.

### 5.2.2: Changes in Child Labour over a Generation:

The engagement of children in labour and other hard tasks has implications on their health and nutritional status and also determines their ability to access education. The respondents were asked about changes in engagement of children in labour and domestic work over the years. Among the respondent households, 87% stated that the engagement of children in labour and other domestic work has reduced over a generation and only 2% households said the engagement of children in labor and other work has increased while 10% considered it to be the same (see Table 5.14).

The study also recorded in what ways the engagement of children in labor and other domestic work has changed over a generation between the parent's generation and the present younger generation. 96.0% households said that the parents' generation would carry

<b>Child Labour</b>	<b>Frequency</b>	<b>Percent</b>
Reduced	87	87.0
Increased	2	2.0
Same	10	10.0
Didn't know	1	1.0
Total	100	100.0

out household chores when they were children and this has reduced to 81.8% households who said the present children also engaged in household work. Similarly, the children's engagement in helping their families to collect firewood has come down from 76.8% households to just 17.2%. Further, the proportion of households who engaged their children in fetching water has decreased from 77.8% during parent's generation to 37.4% during presently younger generation. The engagement of children in farming has come down from 80.8% to 66.7% and in livestock rearing from 72.7% to 27.3%. Importantly, the data also shows, the engagement of children in labour have steeply declined from 60.6% during parent's generation to 22.2% during presently younger generation. One of the elder respondents noted that in his times (parent's generation) children started working from the age of 15 years. On the other hand, those households who said children did nothing has increased from 5.1% to 10.1% over this time (see Table 5.15).

The reduction in child engagement in work is also corroborated by the increasing participation especially girls in education (as discussed in earlier chapter-4). The children who spend 6-7 hours in school will not be available for carrying domestic work during this time, thereby, reducing their engagement in labour and other domestic work.

<b>Work Done by Children</b>	<b>Parents Generation (1970-90)</b>			<b>Younger Generation (1990 onwards)</b>		
	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases</b>	<b>Frequency</b>	<b>Percent of Responses</b>	<b>Percent of Cases</b>
Household work	95	20.3%	96.0%	81	30.5%	81.8%
Collecting firewood	76	16.3%	76.8%	17	6.4%	17.2%
Fetching water	77	16.5%	77.8%	37	13.9%	37.4%
Farming	80	17.1%	80.8%	66	24.8%	66.7%
Livestock rearing	72	15.4%	72.7%	27	10.2%	27.3%
Engaged in labour	60	12.8%	60.6%	22	8.3%	22.2%
Children did nothing	5	1.1%	5.1%	10	3.8%	10.1%
Others	2	0.4%	2.0%	6	2.3%	6.0%
<b>Total</b>	<b>467</b>	<b>100.0%</b>	<b>471.7%</b>	<b>266</b>	<b>100.0%</b>	<b>268.7%</b>

N=99, but most households gave more than one response

The data therefore clearly shows that the engagement of children in labour and other domestic work has substantially decreased over a generation. This is partly because of increasing facilities/amenities at homes. For instance, the proximity to piped water has increased thereby reducing the need to fetch water from longer distances; the increasing use of LPG and electricity as fuel has decreased the need for collecting firewood; there has been an overall reduction in livestock rearing; etc. The steep decline in child marriages has also contributed to reducing work for children.

Many respondents noted that the present engagement of children in domestic work or farming, if any, is very limited. Therefore, not only the engagement of children in labour and other work has reduced in terms of numbers of children who engaged in such tasks but also in terms of quantum of work they engaged in.

Besides the decreasing child labour, the study also showed that 97% households stated that the younger generations had better experiences during their childhood because of improved access to

education, food and many other facilities which were lacking during the childhood of parents generation when poverty was widespread and children even lacked footwear.

Overall, the reduction in work for children along with the increase in food intake and other facilities would have contributed to their physical health and nutritional status.

### 5.3. Nutritional Status of Adults:

Although discussed in detail in Chapter-2, to recap, the study covered a sample of 510 households (consisting of 3204 people) for anthropometric measurements. However, the heights and weights were taken for only those in the age group of 20 to 50 years, who totalled up to 1526, including 802 males and 724 females. Among these, the heights were taken only for 1294 adults and weight measurements were taken for 1285 adults, primarily due to non-availability of other adult members at home.

The sample was also divided into three cohorts based on age and analyzed accordingly. These included those who were in the age group of 20-29 years, those who were in age group of 30-39 years and those in 40-49 years of age. These groups also corresponded to three birth cohorts. First one corresponded to those who were born between 1987 and 1996 (the period when conflict started in Kashmir), second corresponded to those born between 1977 and 1986 and third were born between 1967 and 1976- period of relatively peaceful environment in the state. The childhood of first cohort (20-29) was almost fully in conflict period, second (30-39) were partly in conflict and the third were fully raised before conflict emerged in the state. As can be seen from the Table 5.16, 505 adults in the age group of 20-29 years were measured for heights, 453 in the age group of 30-39 years and 336 in the age group of 40-49 years.

<b>Table 5.16: Sample Size by Age-Cohorts and Gender</b>			
<b>Age groups</b>	<b>Male</b>	<b>Female</b>	<b>Total (Percent)</b>
20 to 29 years	285	220	505 (39.03%)
30 to 39 years	255	198	453 (35.01%)
40 to 49 years	195	141	336 (25.97%)
Total	735	559	1294 (100%)
Heights were measured for 1294 only			

#### 5.3.1. Status of Heights:

The average height of men was found to be 169.65 cm, whereas the average height of women was 155.99 cm, which is less by 13.66 cms as compared to men (see Table 5.17). The heights of

men ranged from a minimum of 119.5 cm to 191.2 cm, whereas the heights of women ranged from 137 cm to 177.5 cms. The marked difference in heights (13.66 cms) between men and women was in line with state and national level data.

These average heights are much higher than the average heights achieved by men and women at the district and state levels as shown by NFHS-4 data. The mean heights of men were 168.35 cm at district level and 167.05 cm at state level. Similarly, the mean heights of women were 155.68 cm at district level and 155.42 cm at state level<sup>52</sup>. The reasons for such differences between the mean heights at village level, and district and state levels are because the study village has seen

<b>Male</b>	Sample	735
	<b>Mean</b>	<b>169.66 cms</b>
	Minimum	119.50 cms
	Maximum	191.20 cms
<b>Female</b>	Sample	559
	<b>Mean</b>	<b>155.99 cms</b>
	Minimum	137.00 cms
	Maximum	177.50 cms
<b>Total<sup>51</sup></b>	Sample	1294
	<b>Mean Height</b>	<b>163.76 cms</b>
	Minimum	119.50 cms
	Maximum	191.20 cms

exceptionally significant improvements in socio-economic conditions which have resulted in taller heights.

The mean heights of adults show a significant co-relation with socio-economic factors as has been indicated by a wide body of literature and macro-level national surveys on health and nutritional status. Although the mean heights of both men and women showed a similar pattern of differences in mean heights along the lines of caste and ethnicity, what is interesting to find that most of the socio-economic factors seem to have more marked effect on the mean heights of women than men?

The results of the study have shown that the average heights of those belonging to general castes is higher than scheduled tribes who are in turn taller than the deprived castes<sup>53</sup> in the village. The

<sup>51</sup> Other than gender-wise data on heights, the data has also been clubbed and presented for men and women (total) together in many places in this chapter. Keeping in consideration the methodological issues for clubbing the data for men and women together, this has been done so to see whether the patterns shown by gender-wise data hold true with a higher sample size. And, wherever the clubbed data has been presented has been done only after showing the gender-wise data on heights.

<sup>52</sup>The mean heights at district and state level are based on the analysis of NFHS-4 data collected in 2015-16 in J&K.

<sup>53</sup>Not all of these are notified OBCs and the details are given in Chapter-2

average height of men from general castes was 169.87 cms, which is higher than the average height of scheduled tribes (169.84 cms) and deprived castes (168.49 cms). The heights of women also show a similar pattern (see Table 5.18).

However, the difference in heights between men belonging to general castes and scheduled tribe was very minimal with general castes taller by only 0.04 cms. But the general caste men are significantly taller than deprived castes by 1.38 cms. The schedule tribe men are also taller than backward caste men by 1.34 cms- almost a similar margin as general castes.

<b>Gender</b>	<b>Caste Group</b>	<b>Sample</b>	<b>Mean Heights</b>
Male	Deprived Castes	110	168.49 cms
	Schedule Tribe	128	169.84 cms
	General Castes	497	169.87 cms
Female	Deprived Castes	72	154.60 cms
	Schedule Tribe	106	155.78 cms
	General Castes	381	156.32 cms
Total	Deprived Castes	234	163.00 cms
	Schedule Tribe	182	163.47 cms
	General Castes	878	163.99 cms

On the other hand, the difference in heights between women belonging to scheduled tribes and general castes was significant with general castes taller by 0.54 cms. But the women from general castes and scheduled tribes, like men, are significantly taller than deprived caste women by 1.72 cms and 1.18 cms respectively.

As seen in the previous chapters, the general castes have much better socioeconomic conditions and a better access to services than the scheduled tribes and deprived castes, and these factors are likely to contribute to their taller heights. However, the scheduled tribes have higher mean heights than the deprived castes, even when the deprived castes have relatively better socio-economic conditions and access to health services, and needs clarification. This difference is likely due to scheduled tribes being able to consume dairy products which are known to have strong positive impact on heights. Also, the deprived castes were not all OBCs and were grouped together based on ground level situation of deprivations and many of these castes were more vulnerable than the scheduled tribes.

Besides the caste based analysis, the study also collected data on various economic measures like landholdings, livelihoods, vehicle, costly durables, literacy levels, ration cards, fuel used as well



as water source, and these measures have been used as proxy to economic status to analyze the relation of mean heights with economic status, which is discussed in detail ahead.

The results of the study has shown that the average height of adults co-relate with landholdings owned by families. As the land ownership increases the mean heights of both men and women increase. The average heights of men belonging to 0-8 kanals group was 168.94 cms, which was shorter than those belonging to 8-16 kanals groups (169.47 cms) and 16-120 kanals group (170.54 cms). The heights of women also show similar pattern (see Table 5.19).

In each land group the mean heights of men are more than women, with the difference ranging from 13.53 to 13.76 cms, almost same difference of 13.66 cms as exists in the overall mean heights of men and women taken together.

While among men, those belonging to 16-120 kanals group are taller by 1.07 cms than 8-16 kanals group and 1.60 cms than 0-8 kanals group. Such

differences are almost same among women. Among women, those belonging to 16-120 kanals group are taller by 1.09 cms than 8-16 kanals group and 1.38 cms than 0-8 kanals group. *In a way, the results have shown that land ownership has a marked impact on mean heights of both men and women.* Although many women covered under the study grew up in different villages before they were married in the study village, their socio-economic conditions were assumed to be similar to the persons they were married with in the study village (the details of which are given in Chapter-2) and therefore comparisons can be made.

On the other hand, the co-relation between livelihoods and mean heights of adults show a broader pattern of heights increasing with better livelihoods among both men and women. The average heights of men with poor livelihoods were 169.28 cms which are shorter than those with

<b>Gender</b>	<b>Land Owned</b>	<b>Sample</b>	<b>Mean Heights</b>
Male	0 to 8 Kanals	266	168.94 cms
	8 to 16 Kanals	209	169.47 cms
	16 to 120 Kanals	260	170.54 cms
Female	0 to 8 Kanals	197	155.41 cms
	8 to 16 Kanals	159	155.71 cms
	16 to 120 Kanals	203	156.79 cms
Total	0 to 8 Kanals	463	163.19 cms
	8 to 16 Kanals	368	163.52 cms
	16 to 120 Kanals	463	164.51 cms
<i>Note: (1) 8 kanals are equal to 1 acre. (2) The land owned represents the total land (irrigated, walnut and apple orchards and other types of un-irrigated land)</i>			

moderate livelihoods (169.41 cms), who in turn are shorter than those with better livelihoods (169.99 cms).

However, the impact is much prominent among women than men (see Table 5.20). While among men, the mean heights of those belonging to better livelihood group<sup>54</sup> are only taller by 0.58 cms than moderate livelihood group, who are in turn taller by 0.13 cms than poor livelihood group, the height differences are almost double among women. Among women, the better livelihood group is taller by 1.04 cms than moderate livelihood group, who are in turn taller by 0.97 cms than poor livelihood group. Similarly, while the mean heights of better livelihood group are taller by 0.72 cms than poor livelihood group among men, the corresponding differences among women are 2.01 cms. *In a way, while the relative difference in the mean heights among men across the three categories is less than 1 cm (0.13 to 0.72 cms), the mean heights among women across three categories differ up to 2 cms (0.97 to 2.01 cms) and therefore indicating a more marked influence among women than men.*

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<b>Table 5.20: Heights by Gender and Livelihoods</b>			
<b>Gender</b>	<b>Livelihoods</b>	<b>Sample</b>	<b>Mean Heights</b>
Male	Poor Livelihoods	169	169.28 cms
	Moderate Livelihoods	215	169.41 cms
	Better Livelihoods	351	169.99 cms
Female	Poor Livelihoods	142	154.81 cms
	Moderate Livelihoods	171	155.79 cms
	Better Livelihoods	246	156.82 cms
Total	Poor Livelihoods	311	162.67 cms
	Moderate Livelihoods	386	163.38 cms
	Better Livelihoods	597	164.57 cms

Another indication of positive correlation between heights achieved and economic conditions comes from the ownership of costly durables by families including TV, Washing Machine, Refrigerator and Computer. As the number of such durables increase the mean heights of both men and women increase. The average height achieved by men belonging to families who didn't own any of these items was 168.75 cms, whereas it was 169.84 cms among those who owned at least one of these items and 170.46 cms among those owning two or more of these items. The data shows similar pattern with respect to heights of women and can be seen from Table 5.21.

<sup>54</sup>The livelihoods of families were diverse as well as multiple and were categorized into three groups- poor, moderate and better livelihoods on a three –tier categorization based on total score attained by households. Similarly, for sample considerations, households were categorized into only two groups of 'poor and better livelihoods' on a two-tier categorization based on total scores attained by households. Both categorization systems have been used in analysis of this chapter (see Chapter-2 for detailed discussion on this).

Again, the influence of ownership of the durables as an economic factor is more among women than men. The mean heights of adults with two or more durables was 0.62 cms more than those owning only one such item. Whereas the corresponding difference among women was 1.36 cms. Similarly, the mean heights of men owning only item was 1.09 cms more than those owning no such item, and the mean heights among women owning only item was only 0.93 cms more than those owning no such item- relatively less difference than men. However, while the men owning two or more such items were taller by 1.71 cms than those owning no such item, the women owning two or more such items were taller by more length of 2.29 cms than those owning no such item.

<b>Gender</b>	<b>Durables</b>	<b>Sample</b>	<b>Mean Heights</b>
Male	Nil	260	168.75 cms
	One item	232	169.84 cms
	Two to Four items	243	170.46 cms
Female	Nil	202	155.01 cms
	One item	198	155.94 cms
	Two to Four items	159	157.31 cms
Total	Nil	462	162.74 cms
	One item	430	163.44 cms
	Two to Four items	402	165.26 cms

The heights were also analysed in relation with the ration cards owned by the families. Although not provided strictly as per the criteria and does suffer from inclusion and exclusion errors, the ration cards represent different economic classes in the villages and showed a co-relation with the mean heights achieved by adults. Those adults belonging to families with NPHH (not poor) ration cards were taller than those with PHH ration cards (second poorest) who were in turn taller than adults from AAY families (the poorest category). The mean height achieved by men from NPHH families was 170.48 cms and were taller by 1.03 cms than those from PHH families with mean heights of 169.45 cms who were taller by 0.35 cms than those from AAY families who had achieved an average of 169.10 cms<sup>55</sup>. Although showing a similar broader pattern but the mean heights of women from PHH families were slightly shorter (by 0.07 cms) than AAY families, which may be because of smaller sample size for women from AAY families (see Table 5.22). The comparisons of adults (both men and women together) also corroborate to the view that NPHH families had taller heights than PHH who in turn were taller than AAY families.

<sup>55</sup> Although excluded families are economically well-off (they had a gazette rank government employee) and are not provided any ration card, their results can't be compared with others because of low sample size under this category.

The marked significant co-relation is shown by mean heights in relation with economic groups. As discussed in Chapter-3, the researcher also made an observational remark about the socio-economic status for each household at the time of interview and categorized households into three economic groups – lower, middle and upper— based on his overall observation of the type and maintenance of house, livelihoods, land owned, education, etc.

Gender	Ration Card	Sample	Mean Height
Male	AAV	88	169.10 cms
	PHH	469	169.45 cms
	NPHH	174	170.48 cms
Female	AAV	72	155.73 cms
	PHH	364	155.66 cms
	NPHH	120	157.21 cms
Total	AAV	160	163.08 cms
	PHH	833	163.43 cms
	NPHH	294	165.07 cms

*Sample of adults excluded from rations because of better economic conditions (N=7) was too small to be considered for comparison & was not included in table*

While analyzing the heights in relation to these economic groups, the findings show that the mean heights of both men and women increase as people move up the economic group (see Table 5.23). Men who belonged to lower economic group had an average height of 168.85 cms, and were shorter by 0.89 cms than those who were in the middle economic group with an average height of 169.75 cms. Those in the middle economic group were in turn shorter by 1.68 cms than those in the upper economic group who were 166.42 cm tall on an average. The differences were much sharper

between the upper and lower economic groups. Men from upper economic group were 2.57 cms taller than those who belonged to lower economic group.

Gender	Economic Category	Sample	Mean Heights
Male	Lower Economic Group	197	168.85 cms
	Middle Economic Group	471	169.75 cms
	Upper Economic Group	67	171.43 cms
Female	Lower Economic Group	152	154.97 cms
	Middle Economic Group	367	156.20 cms
	Upper Economic Group	40	158.03 cms
Total	Lower Economic Group	349	162.81 cms
	Middle Economic Group	838	163.81 cms
	Upper Economic Group	107	166.42 cms

However, as with many other

socio-economic factors, the co-relation between heights and economic groups is more prominent for women than men. For instance, the women in the upper economic group were taller by 1.83

cms (1.68 cms in case of men) than those in the middle economic group, and by 3.06 cms (2.57 cms in case of men) than those in the lower economic group (see Table 5.23).

Although such a division of households into economic groups based on observational remarks is arbitrary, its use in the analysis has been limited and only confirms what has been shown by a range of other socio-economic variables.

The other important evidence of the relation between heights achieved and socio-economic conditions comes from the educational attainments by adults. The correlation between educational attainments and mean heights across gender also shows a broader pattern of influence of socio-economic factors on mean heights. The mean heights increase with educational attainments across men and women. Among men, the mean heights of those who had just primary or less education (167.50 cms) were shorter by 2.03 cms than those with 6<sup>th</sup>-10<sup>th</sup> standard level of education (169.54 cms) who in turn were shorter by 1.23 cms than those who were better educated with 11<sup>th</sup> standard or above (170.77 cms).

While, the mean heights of women reflect a similar pattern (see Table 5.24), the overall differences in heights among women of different education levels are more pronounced than men. The mean heights of those women who were better educated with 11<sup>th</sup> standard or above were taller by 4.15 cms than those with just primary or less education. Whereas, the corresponding differences among men were 3.27 cms.

<b>Table 5.24: Heights by Gender and Educational Levels</b>			
<b>Gender</b>	<b>Educational Level</b>	<b>Sample</b>	<b>Mean Heights</b>
Male	5 <sup>th</sup> Standard or less	150	167.50 cms
	6 <sup>th</sup> to 10 <sup>th</sup> Standard	265	169.54 cms
	11 <sup>th</sup> Standard or above	320	170.77 cms
Female	5 <sup>th</sup> Standard or less	315	154.93 cms
	6 <sup>th</sup> to 10 <sup>th</sup> Standard	168	156.59 cms
	11 <sup>th</sup> Standard or above	76	159.08 cms
Total	5 <sup>th</sup> Standard or less	465	158.99 cms
	6 <sup>th</sup> to 10 <sup>th</sup> Standard	433	164.51 cms
	11 <sup>th</sup> Standard or above	396	168.53 cms

*The cut-offs for educational groups were decided on 33<sup>th</sup>, 66<sup>th</sup> and 100<sup>th</sup> percentile and were computed using SPSS*

Educational attainments are itself determined by socio-economic conditions, meaning, those who are privileged have better access to services and are likely able to achieve higher education levels than those who are underprivileged and may not have access

to better quality education. Therefore, the educational levels attained are proxy to socio-economic status of households and the influence of education on heights in an impact of overall socio-economic conditions than the access to education itself.

**Other Measures of Socio-Economic Status:** The study also collected data on other socio-economic measures like ownership of vehicle, types of toilets, fuel used as well as water source, and the analysis of adult heights viz-a-viz these measures showed a gradient as expected and in line with other more tangible economic measures discussed earlier. The influence of these measures on heights is also because these represent a proxy to the overall socio-economic conditions/status of families. Whether a family had a flush toilet, piped water/tube well into their dwelling or owned a vehicle or used LPG gas as primary fuel is an indication of their better socio-economic condition than those who had a pit latrine or fetched water from a public tap or spring or used dung/wood for cooking.

As expected, the data has indicated that the ownership of vehicles by families has shown a significant positive co-relation with heights achieved by adults. The adults belonging to families who owned any vehicle (car, bike, auto, tractor or equivalent) were taller than those belonging to families not owning any vehicle (see Table 5.25). The mean heights of men who owned any vehicle was 170.47 cms and were taller than those not owning any vehicle who had achieved an average height of 169.19 cms. The heights of women show a similar trend.

<b>Table 5.25: Heights by Gender and Ownership of Vehicle</b>			
<b>Gender</b>	<b>Vehicle Owned</b>	<b>Sample</b>	<b>Mean Heights</b>
Male	No Car/Tractor/ Bike or Equivalent	464	169.19 cms
	Car/Bike/Tractor/ Auto or Equivalent	271	170.47 cms
Female	No Car/ Tractor/ Bike or Equivalent	374	155.48 cms
	Car/Bike/Tractor/ Auto or Equivalent	185	157.04 cms
Total	No Car/ Tractor/ Bike or Equivalent	838	163.07 cm
	Car/Bike/Tractor/ Auto or Equivalent	456	165.02 cm

The results of the study have also shown that the mean heights achieved by adults across men and women were also co-related with the kind of fuel largely used for cooking. The mean heights

of those who used largely LPG gas as first cooking fuel was more than those who used largely dung or wood or electricity as fuel for cooking among both men and women. The average heights achieved by men belonging to LPG gas using families was 170.04 cms and those who used dung/wood electricity <sup>56</sup> had an average height of 169.44 cms. The women showed a similar trend (see Table 5.26).

Gender	Fuel Used	Sample	Mean Heights
Male	Dung/Wood/ Electricity	467	169.44 cms
	Gas	268	170.04 cms
Female	Dung/Wood/ Electricity	365	155.36 cms
	Gas	194	157.20 cms
Total	Dung/Wood/ Electricity	832	163.26 cms
	Gas	462	164.65 cms

Similarly, the results of the study have also shown that the mean heights of both men and women increase with proximity to source of water. That means those who had piped water/tube well into their dwelling were taller than those who had piped waster/tube well within yards, who in turn were taller than those who used public taps or springs to fetch water (see Table 5.27).

Gender	Source of Water	Sample	Mean Heights
Male	Spring/Community post/tube well	182	169.52 cms
	Personal post/tube well within yard	153	169.69 cms
	Personal post/tube well inside house	400	169.71 cms
Female	Spring/Community post/tube well	146	155.45 cms
	Personal post/tube well within yard	121	155.77 cms
	Personal post/tube well inside house	292	156.36 cms
Total	Spring/Community post/tube well	328	163.26 cms
	Personal post/tube well within yard	274	163.55 cms
	Personal post/tube well inside house	692	164.08 cms

It was also found that the mean heights of both men and women varied with type of toilets they used. Those with flush toilets were taller than those who used pit latrines (see

Table 5.28). The men who used flush toilets had an average height of 170.67 cms, whereas those who had a pit latrine at home had an average height of 168.96 cms –short by 1.71cms than flush users. The heights women also showed a similar trend.

<sup>56</sup> With no usage based charging electricity was cheaper fuel and therefore merged with dung/wood

*In overall, the study has indicated that the mean heights of adults show a positive correlation with various economic measures. Those owning bigger land holdings, had better livelihoods, higher educational attainments, owned a vehicle or costly durables, had flush toilets or belonged to general castes were taller on an average. That provided clear evidence of socio-*

<b>Table 5.28: Heights by Gender and Toilets</b>			
<b>Gender</b>	<b>Type of Toilet</b>	<b>Sample</b>	<b>Mean Heights</b>
Male	Pit Latrine	371	168.96 cms
	Flush toilet	323	170.67 cms
Female	Pit Latrine	279	155.27 cms
	Flush toilet	246	156.88 cms
Total	Pit Latrine	650	163.09 cms
	Flush toilet	569	164.71 cms
<i>Sample of those who defected in open (N=58) or used group latrines/flush toilet (N=17) was too small to be considered for comparison &amp; were not included in table</i>			

*economic factors contributing to the differences in mean heights of people. These findings are also corroborated by the NFHS-4 data at state level which shows that the mean height of men belonging to richest quintile of wealth index (168.37 cms) was taller by 1.17 cm than those belonging to middle quintile (167.20 cms) who in turn were taller by 2.21 cm than those in the poorest quintile (164.98 cms)<sup>57</sup>. The mean heights of women at state level also show a similar trend that those belonging to richest quintile were taller than those from middle quintile who were in turn taller than those in the poorest quintile.*

### **5.3.2. Inter-Generational Differences in Adult Heights:**

Analyzing by age cohorts, it is found that the younger generations in J&K are taller than older generations. This is in line with large macro-level surveys that have indicated a positive secular change in heights over time. The rate with which heights have increased in this study's sample is also dramatic, matching international standards. The mean heights of men in the age group of 20-29 years (called younger age-group for this study purposes) was 171.37 cms. Whereas, the mean heights of men in the age group of 30-39 years (called middle age-group for this study) was 169.20 cms and the mean height of those in the age-group of 40-49 years (called as older age-group for this study) was 167.76 cms. On an average, the younger age group (20-29 years) was taller by 2.17 cms than the middle age-group (30-39 years) and 3.62 cms taller than old age group (40-49 years). Similarly, the middle age-group was taller by 1.44 cms than older age-group. The results also show a similar pattern in heights among women (see Table 5.29)

<sup>57</sup> The mean heights at state level are based on the analysis of NFHS-4 data collected in 2015-16 in J&K.



The total increase in heights over last thirty years has been 3.62 cms for men and 3.57 for women, with an average of 1.21 cms per decade for men and 1.19 cms per decade for women. In comparison, at the national level Mamidi et al (2011) indicated that the measurements of different age groups (20-29, 30-39 and 40-49), which also represent different birth cohorts, under NFHS-3 survey in 2005-06, revealed a modest secular increase in height of 0.50 cm and 0.22 cm per decade has occurred among men and women respectively. Therefore, an increase of 1.21 cms for men and 1.19 cms for women in heights per decade in the study village is significantly higher than the average all-India experience and matching the international standards.

<b>Gender</b>	<b>Age-groups</b>	<b>Sample</b>	<b>Mean Height</b>
Male	20 to 29 years	285	171.37 cms
	30 to 39 years	255	169.20 cms
	40 to 49 years	195	167.76 cms
	All age-groups	735	169.66 cms
Female	20 to 29 years	220	157.56 cms
	30 to 39 years	198	155.69 cms
	40 to 49 years	141	153.99 cms
	All age-groups	559	155.99 cms
Total	20 to 29 years	505	165.35 cms
	30 to 39 years	453	163.30 cms
	40 to 49 years	336	161.98 cms
	All age-groups	1294	163.76 cms

The differences in mean heights across gender in each of the age-groups are broadly in line with the overall pattern of

gender differences in mean heights in the entire sample taken together. The differences in mean heights between men and women are 13.81 cms, 13.51 cms and 13.77 cms in young age-group, middle age group and old age group respectively. The overall difference in mean heights in all-age groups taken together is 13.66 cms (see Table 5.29).

The results also indicate that the increase in heights among men has been relatively more than what was seen by women in the recent times, whereas the increases among women have been relatively more than men in the earlier decade. For instance, the mean height of younger age-group of men was more than the middle age-group men by 2.17 cms, whereas, the comparative mean heights of women in the younger age-group were more by 1.87 cms than the middle age-group women. This indicates that the rate of increase in mean heights has been more for men than women in the recent past. However, on the contrary, the mean heights of middle age-group men were only taller by 1.44 cms than the old age-group. Whereas, the mean heights of middle aged women were taller by 1.70 cms than the older age-group (see Table 5.29). Therefore, this

shows that the rate of increase in mean heights has been more for women than men in the earlier decade. But the overall increase in heights over the last thirty years (three decades) has been broadly at the same pace, with men (3.62 cms) having a slight edge over women (3.57 cms) in total increase of heights.

This has happened not because the rate of increase in heights among women have slowed over time but in fact it has paced more progressively from 1.70 cms between old age-group and middle age-group to 1.87 cms between middle age group and younger age group. What has happened is that the pace at which mean heights of men have increased has more than doubled from 1.44 cms between old age-group and middle age-group to 2.17 cms between middle age-group and younger age group – an increase of 117 percent. This means, looking at corresponding birth-cohorts, that after the period of 1987, the heights of men have significantly increased as compared to women and also contrary to earlier periods. Similar findings have been revealed by Mamidi et al (2011) on analysing unit level data on heights from NFHS-3 survey, and stated that the J&K men had seen highest increases in heights (0.99 cm per decade) from 1984 to 2004, while the heights of women have increased by only 0.39 cm per decade in this period. Although the rate of increase in heights found by this study has been more than what was revealed by Mamidi et al in 2011 (which is also because this study covered a period beyond 2004 to 2017 and was likely to show more increase in heights), the fact that rate of increase has been slower among women than men is corroborating the findings of this study.

To analyze the co-relation of socio-economic measures with heights across age groups and gender, the categorization of socio-economic and age groups- used in earlier sections- was reorganized to minimize the number of categories for comparison so as to have sufficient sample size in each subcategory. For this reason, instead of three age groups (20-29 years, 30-39 years and 40-49 years), only two were created and used (20-34 years and 35-39 years), and similarly, many socio-economic measures were reduced to only two categories as compared to more than two categories used in the earlier analysis.

The caste-wise analysis of heights across different age groups indicates the underlying socio-economic linkages of the heights attained by adults. As explained the reasons, the caste groups

were re-categorized into two groups by merging ST and deprived castes into one category and the general castes were kept as they were, given their sample sizes. Although the discrimination and exclusion faced by Scheduled tribes is more intense than the deprived castes among Kashmiris, the merger was done from an economic perspective that both these groups are relatively poorer than general castes, but in no way are interpreted as the same category socially.

*The younger age-groups (20-34) are taller than older age-groups (35-49) among both men and women and across caste-groups indicating the generational improvements in heights. This means the younger group was taller than older group among ST/deprived castes as well as general castes and across both men and women. The younger men (mean heights of 170.34 cms) from ST/deprived castes were taller by 2.79 cms than older men (167.55 cms) from same caste group, and similarly, the younger men (171.25 cms) from general castes were taller by 3.16 cms than older men (168.09 cms)*

*from same caste group. The mean heights of different age-groups among women across caste groups show a similar pattern (see Table 5.30).*

*Besides, the adults- both men and women- from general castes were taller than the ST/deprived castes across age-groups, which indicate the influence of economic factors. For instance, men from general castes (171.25 cms) in the age-group of 20-34 years were taller by 0.91 cms than ST/deprived castes (170.34*

Gender	Age-groups	Caste Group	Sample	Mean Height
Male	20 to 34 years	Schedule Tribe/ Deprived Castes	142	170.34 cms
		General Castes	280	171.25 cms
	35 to 49 years	Schedule Tribe/ Deprived Castes	96	167.55 cms
		General Castes	217	168.09 cms
Female	20 to 34 years	Schedule Tribe/ Deprived Castes	114	156.34 cms
		General Castes	198	157.77 cms
	35 to 49 years	Schedule Tribe/ Deprived Castes	64	153.45 cms
		General Castes	183	154.76 cms
Total	20 to 34 years	Schedule Tribe/ Deprived Castes	256	164.11 cms
		General Castes	478	165.66 cms
	35 to 49 years	Schedule Tribe/ Deprived Castes	160	161.91 cms
		General Castes	400	161.99 cms

*cms) in the same age-group. The same pattern is reflected by other age-groups across men and women (see Table 5.30).*

The important evidence of the strong co-relation of economic factors with heights as well as intergeneration improvements comes from land ownership. The results have shown that the younger adults-men and women- were taller than older adults across landholding groups, *reaffirming the generational improvements in heights*. The men from younger age-group with small landholdings (170.05 cms) were taller by 2.25 cms than men from older age-group with same landholdings (167.80 cms), and men from younger age-group with large landholdings (171.71 cms) were taller by 3.62 cms than men from older age-group with same landholdings (168.08 cms). Similar pattern is shown by women from different age-groups (see Table 5.31).

In both age-groups, those who had bigger landholdings were taller than those with smaller holdings. The men from younger age-group who had large holdings (171.71 cms) were taller by 1.66 cms than men from younger age-group with small landholdings (170.05 cms) and so did the men from old age-group who had large holdings (168.08 cms) were taller by 0.29 cms than men from same age-group but with small landholdings (167.80 cms). Similar pattern is shown by women with different sizes of landholdings (see Table 5.31).

The results have also shown that the inequalities in heights between adults with different landholdings are more prominent in the younger age-groups than older adults. For instance, in the younger age group, men with large holdings were taller by 1.66 cms than those with small landholdings (0.83 cms for women). On the contrary, in the older age group, men with large holdings were taller by

<b>Table 5.31: Heights by Age-groups and Land Owned</b>				
<b>Gender</b>	<b>Age-groups</b>	<b>Land owned</b>	<b>Sample</b>	<b>Mean Height</b>
Male	20 to 34 years	Small Landholdings	194	170.05 cms
		Large Landholdings	228	171.71 cms
	35 to 49 years	Small Landholdings	172	167.80 cms
		Large Landholdings	141	168.08 cms
Female	20 to 34 years	Small Landholdings	149	156.81 cms
		Large Landholdings	163	157.64 cms
	35 to 49 years	Small Landholdings	124	154.13 cms
		Large Landholdings	123	154.71 cms
Total	20 to 34 years	Small Landholdings	343	164.30 cms
		Large Landholdings	391	165.85 cms
	35 to 49 years	Small Landholdings	296	162.07 cms
		Large Landholdings	264	161.85 cms
<i>Note: Small holdings include 0-11 kanals of land and large holdings includes above 11 kanals. This division was created at 50<sup>th</sup> percentile using SPSS.</i>				

only 0.29 cms than those with small holdings (0.57 cms for women). The influence of

landholdings on heights is more prominent in the younger age-groups than older adults because the incomes fetched from land have significantly increased in the recent times after apple cultivation, so more land meant more incomes and thereby creating sharper inequalities in economic conditions among farmers owning different sizes of landholdings in the present generation as compared to the previous one, which are also expressed through heights.

The co-relation of heights across age groups with the ownership of any type of vehicle-car/bike/tractor/auto or equivalent- has also shown results in line with overall influence of socio-economic factors on heights and also of intergenerational increases in heights. The mean heights of men from younger age-group owning any vehicle (171.88 cms) were taller by 1.57 cms than those who didn't own any vehicle (170.31 cms). Similarly, among the older age group, the mean heights of those owning any vehicle (168.05 cms) were more by 0.18 cms than those who didn't own any vehicle (167.87 cms). Similar patterns have been shown by women (see Table 5.32).

The results also show that among the men who owned any vehicle, the younger age-group (171.88 cms) were taller by 3.83 cms than the older age-group (168.05 cms). Similarly, among the men who didn't own any vehicle, those who belonged to younger age-group (170.31 cms) were taller by 2.44 cms than those who belonged to older age-group (167.87 cms).

<b>Gender</b>	<b>Age-groups</b>	<b>Vehicle Owned</b>	<b>Sample</b>	<b>Mean Height</b>
Male	20 to 34 years	No vehicle	251	170.31 cms
		Owned any vehicle	171	171.88 cms
	35 to 49 years	No vehicle	213	167.87 cms
		Owned any vehicle	100	168.05 cms
Female	20 to 34 years	No vehicle	203	156.62 cms
		Owned any vehicle	109	158.41 cms
	35 to 49 years	No vehicle	171	154.12 cms
		Owned any vehicle	76	155.08 cms
Total	20 to 34 years	No vehicle	454	164.19 cms
		Owned any vehicle	280	166.64 cms
	35 to 49 years	No vehicle	384	161.75 cms
		Owned any vehicle	176	162.45 cms
<i>Note: Vehicle included car/bike/tractor/auto or equivalent</i>				

Similarly, the younger women are taller than older women by 3.34 cms and 2.50 cms among vehicle owning and not owning groups respectively (see Table 5.32).

Again, the inequalities in mean heights across economic variable (vehicle owning or not owning) are more prominent within the younger age group across men and women. For instance, among younger age group men, those who owned any vehicle were taller by 1.57 cms than those who didn't own any vehicle, whereas, the corresponding different in the older age group were 0.18 cms. Similar pattern is shown by heights of women. This again points to the recent economic improvements in the village have been unequal and were discussed in the Chapter-4.

The analysis of heights across age groups and the durables owned by families show a significant co-relation between heights attained and durables owned as well as between heights and age-groups. Those who owned durable were taller than those who didn't own any durable across men and women and age-groups. Also, the younger age-groups were taller than older age groups across men and women. In a way, the results have shown both the influence of economic factors on heights and intergenerational increases in heights.

The mean heights of men in the younger age-group who owned any durable (171.52 cms) were taller by 1.81 cms than those who didn't own any durable (169.71 cms). Similarly, the mean heights of men in the older age-group who owned any durable (168.07 cms) were taller by 0.34 cms than those who didn't

own any durable (167.72 cms). The corresponding differences in the mean heights of women between those owning durables and those who didn't own any durable show a similar pattern and differences are sharper (see Table 5.33). Again, the results have shown that the difference in heights is more prominent within younger age group across men and women.

<b>Table 5.33: Heights by Age-groups and Durables Owned</b>				
<b>Gender</b>	<b>Age-groups</b>	<b>Durables owned</b>	<b>Sample</b>	<b>Mean Height</b>
Male	20 to 34 years	Nil	134	169.71 cms
		One to Four items	288	171.52 cms
	35 to 49 years	Nil	126	167.72 cms
		One to Four items	187	168.07 cms
Female	20 to 34 years	Nil	111	155.79 cms
		One to Four items	201	158.05 cms
	35 to 49 years	Nil	91	154.07 cms
		One to Four items	156	154.62 cms
Total	20 to 34 years	Nil	245	163.40 cms
		One to Four items	489	165.98 cms
	35 to 49 years	Nil	217	161.996 cms
		One to Four items	343	161.950 cms
<i>Durables included TV, Washing machine, Refrigerator and Computer.</i>				

Further, among men who owned any durable, the mean heights of younger age-group (171.52 cms) were taller by 3.45 cms than the older age-group (168.07 cms). Similarly, among the men who didn't own any durable, those who belonged to younger age-group (169.71 cms) were taller by 1.99 cms than those who belonged to older age-group (167.72 cms). Similarly, the younger women are taller than older women by 3.43 cms and 1.72 cms among durable owning and not owning groups respectively (see Table 5.33).

The analysis of data about the primary used fuel by the families also indicates correlation of heights with economic factors (fuel in this case) across age groups. The younger age-groups are taller than older age-groups across men and women and also those who used LPG gas largely for cooking are taller than those who used wood, dung or electricity. The mean heights of men from the younger age group who used LPG gas largely for cooking (171.43 cms) were taller by 0.78 cms than those who used wood, dung or electricity largely for cooking (170.66 cms), which were cheaper/free in most cases. Similarly, among men in the older age group, the mean heights of those who used LPG gas largely for cooking (168.07 cms) were more by 0.23 cms than those who used wood, dung or electricity largely for cooking (167.85 cms). The corresponding differences in the mean

heights of women between those who used LPG gas and those who used wood, dung or electricity largely for cooking show a similar pattern but the differences are sharper (see Table 5.34). The results also show the differences

<b>Table 5.34: Heights by Age-groups and Primary Fuel Used</b>				
<b>Gender</b>	<b>Age-groups</b>	<b>Primary Fuel Used</b>	<b>Sample</b>	<b>Mean Height</b>
Male	20 to 34 years	Dung/Wood/electricity	265	170.66 cms
		Gas	157	171.43 cms
	35 to 49 years	Dung/Wood/electricity	202	167.85 cms
		Gas	111	168.07 cms
Female	20 to 34 years	Dung/Wood/electricity	212	156.45 cms
		Gas	100	158.94 cms
	35 to 49 years	Dung/Wood/electricity	153	153.85 cms
		Gas	94	155.34 cms
Total	20 to 34 years	Dung/Wood/electricity	477	164.34 cms
		Gas	257	166.57 cms
	35 to 49 years	Dung/Wood/electricity	355	161.81 cms
		Gas	205	162.24 cms

are sharper in younger age group than in the older age group across men and women.

Further, among men who used LPG gas, the mean heights of younger age-group (171.43 cms) were taller by 3.36 cms than the older age-group (168.07 cms). Similarly, among the men who used wood, dung or electricity, those who belonged to younger age-group (170.66 cms) were taller by 2.81 cms than those who belonged to older age-group (167.85 cms). Similarly, the younger women are taller than older women by 3.60 cms and 2.60 cms among LPG using and wood/ dung /electricity using groups respectively (see Table 5.34).

The ration cards, although not strictly defining the poor and non-poor population, also affirm to the findings that heights are better among those who are socio-economically privileged as well as indicating to intergenerational increases in heights. As the sub samples were small, so a re-categorization was done with merging of AAY and PHH families as one category and on the other hand NPHH and Excluded (excluded don't get any card for being economically better) were merged into another category. The adults from NPHH/Excluded families- suggestive of relatively better economic conditions- were taller than those from AAY/PHH families, which are identified as poor.

As can be seen from Table 5.35, the mean heights of younger age group with NPHH/Excluded cards were significantly taller than those with AAY/PHH cards by 0.90 cms for men and 1.98 cms for women. Similarly, the mean heights of older age group with NPHH/Excluded cards were taller than those with AAY/PHH cards by 0.57 cms

<b>Gender</b>	<b>Age-groups</b>	<b>Ration Card Type</b>	<b>Sample</b>	<b>Mean Height</b>
Male	20 to 34 years	AAY/PHH	306	170.70 cms
		NPHH/Excluded	116	171.59 cms
	35 to 49 years	AAY/PHH	251	167.81 cms
		NPHH/Excluded	62	168.38 cms
Female	20 to 34 years	AAY/PHH	247	156.83 cms
		NPHH/Excluded	65	158.81 cms
	35 to 49 years	AAY/PHH	189	154.15 cms
		NPHH/Excluded	58	155.30 cms
Total	20 to 34 years	AAY/PHH	553	164.51 cms
		NPHH/Excluded	181	167.00 cms
	35 to 49 years	AAY/PHH	440	161.94 cms
		NPHH/Excluded	120	162.06 cms

for men and 1.15 cms for women. It also points to higher inequalities in heights among the younger age-group.



Further, among both categories of NPHH/Excluded and AAY/PHH cards, the mean heights of younger age-group were taller than older age-group for both men and women (see Table 5. 35).

On similar lines, the analysis of heights with respect to economic category shows a strong correlation for both younger and older age groups. The economic categories have been re-categorized into only two sub-categories of lower and upper economic groups, although actual observations made by the researcher had divided the families into three classes of lower, middle and upper. The middle and upper economic categories were merged into ‘upper economic category’ and lower economic group was kept as it was given the sample consideration. The results show that adults from upper economic group were taller than those belonging to lower economic groups across men and women.

The mean heights of adults in the younger age group from upper economic group were significantly taller than those from lower economic group by 0.87 cms for men and 1.79 cms for women. Similarly, the mean heights of adults, in the older age group, from upper economic group were taller than those from lower economic group by 0.67 cms for men and 1.20 cms for women. Again, in

line with other economic variables, this points to higher inequalities in heights among the younger age-group (see Table 5.36).

Further, the results show that the younger age groups across economic categories

<b>Table 5.36: Heights by Age-groups and Economic Category</b>				
<b>Gender</b>	<b>Age-groups</b>	<b>Economic Category</b>	<b>Sample</b>	<b>Mean Height</b>
Male	20 to 34 years	Lower Economic Group	97	170.28 cms
		Upper Economic Group	325	171.14 cms
	35 to 49 years	Lower Economic Group	100	167.47 cms
		Upper Economic Group	213	168.14 cms
Female	20 to 34 years	Lower Economic Group	90	155.98 cms
		Upper Economic Group	222	157.76 cms
	35 to 49 years	Lower Economic Group	62	153.52 cms
		Upper Economic Group	185	154.72 cms
Total	20 to 34 years	Lower Economic Group	187	163.39 cms
		Upper Economic Group	547	165.71 cms
	35 to 49 years	Lower Economic Group	162	162.13 cms
		Upper Economic Group	398	161.90 cms

are taller than older age groups among both men and women. Among men from upper economic group, the mean heights of younger age-group (171.14 cms) were taller by 3.00 cms than the

older age-group (168.14 cms). Similarly, among men who belonged to lower economic group, the mean heights of younger age-group (170.28 cms) were taller by 2.81 cms than the older age-group (167.47 cms). Similarly, the younger women are taller than older women by 3.04 cms and 2.45 cms among upper economic and lower economic groups respectively (see Table 5. 36).

The other important evidence of the relation between heights achieved and socio-economic conditions comes from the educational attainments by adults. The correlation between educational attainments and mean heights across age groups and among both men and women also shows a broader pattern of influence of socio-economic factors on mean heights. The results have shown the mean heights increase with educational attainments across men and women.

The mean heights of men from the younger age group who had passed 9th standards or above (171.07 cms) were taller by 0.54 cms than those who had passed 8<sup>th</sup> standard or less (170.53 cms). Similarly, among men in the older age group, the mean heights of those who had passed 9th standards or above (168.92 cms) were taller by 2.03 cms than those who had passed 8<sup>th</sup> standard or less (166.89 cms). The corresponding differences in the mean heights of women

between those who had passed 9th standards or above and those who had passed 8<sup>th</sup> standard or less show a similar pattern (see Table 5.37).

Further, among both categories of better educated (9<sup>th</sup> standard or above) and less educated (8<sup>th</sup> standard or less), the mean heights of younger

<b>Table 5.37: Heights by Age-groups and Educational Levels</b>				
<b>Gender</b>	<b>Age-groups</b>	<b>Educational Level</b>	<b>Sample</b>	<b>Mean Height</b>
Male	20 to 34 years	8th Standard or less	99	170.53 cms
		9th Standard or above	323	171.07 cms
	35 to 49 years	8th Standard or less	153	166.89 cms
		9th Standard or above	160	168.92 cms
Female	20 to 34 years	8th Standard or less	168	156.40 cms
		9th Standard or above	144	158.24 cms
	35 to 49 years	8th Standard or less	213	154.14 cms
		9th Standard or above	34	156.16 cms
Total	20 to 34 years	8th Standard or less	267	161.64 cms
		9th Standard or above	467	167.11 cms
	35 to 49 years	8th Standard or less	366	159.47 cms
		9th Standard or above	194	166.68 cms
<i>Note: These categories were created at 50<sup>th</sup> percentile using SPSS.</i>				

age-group were taller than older age-group for both men and women (see Table 5.37).

As discussed earlier, the educational attainments are determined by socio-economic conditions, meaning, and therefore, the influence of education on heights in an impact of overall socio-economic conditions than the access to education to itself.

Further, unlike all other economic measures, the co-relation of heights with educational levels across age-groups has shown the disparities are more prominent in the older age groups than in the younger groups across men and women. This is because although even when educational access is also influenced by socio-economic factors, the inequalities in educational attainments have reduced over the time and are lesser in the younger generation than the older, unlike all other economic measures where inequalities have grown over time.

*As we have seen that there is a clear evidence of the fact that socio-economic factors contribute to the differences in mean heights of people. But what the above analysis has also reaffirmed that even sub-socioeconomic categories of younger age groups were taller than the corresponding categories of older age groups. This has only contributed to the findings that younger generation is taller than old generation and socio-economic factors are underlying determinants for this generational change in heights. As shown by this study (chapter -4) as well as macro data that significant socio-economic improvements and reduction in poverty have occurred in the last thirty years or so- clearly visible from a range of economic measures- which were likely to help younger generations to access relatively better nutrition and services than the older generation.*

*But what has also happened that with the improvements in socio-economic conditions, the inequality and class differences have become sharper now than they existed during the childhood of older generation when most of the people in rural areas were poor and had relatively inadequate access to nutrition and services. These sharper inequalities in socio-economic conditions are likely to express in the heights as well, than in the past, and may explain why socio-economic factors show a clear and marked impact on the heights in the younger age-groups than in the older age-group.*

### 5.3.3: Body Mass Index among Adults:

As explained earlier, there were 1285 adults whose heights and weights were taken. For all these adults, Body Mass Index was calculated. BMI is an important indicator to understand weight to height ratio (kg/m<sup>2</sup>) of adults and widely accepted parameter to assess the current nutritional status of adults.

The mean BMI was 23.41 kg/m<sup>2</sup> among all the 1285 adults taken together. It was 22.54 kg/m<sup>2</sup> among men and 24.54 kg/m<sup>2</sup> among women. However, the results of the study also show that the BMI of these adults range from severely underweight to obese. As shown by the Table 5.38, only a small proportion of 0.78 percent adults had BMI falling within moderate to severe category of underweight (BMI < 17 kg/m<sup>2</sup>) and 4.20 percent were also thin for their heights with their BMI in the range of 17 to 18.4 kg/m<sup>2</sup>. In a way, a total of only 4.98 percent of adults were thin for their heights, meaning they were underweight.

Similarly, the Table 5.38 shows that a large proportion of close to two third adults (64.36%) had BMI in the range of 18.5-24.9 kg/m<sup>2</sup>, meaning they had a healthy weight for their heights. However, the data also shows that almost one fourth of adults (25.3%) were overweight with BMI in the range of 25-29.9 kg/m<sup>2</sup> and 5.37% were obese with BMI ≥ 30 kg/m<sup>2</sup>. Overall, a total of 35.64 percent of adults were malnourished- either underweight or overweight in proportion to their heights.

Thus, the results of the study show that in the study village overweight/obesity is a greater nutritional issue than being underweight. This epidemiological shift has occurred in the last

<b>Table 5.38: Status of BMI among Adults</b>			
<b>Nutritional Status/ BMI ( kg/m<sup>2</sup>)</b>		<b>Frequency</b>	<b>Percent</b>
<b>Total Thin</b> (BMI < 18.5)	Moderately/Severely Thin (BMI< 17)	10	0.78
	Thin (BMI=17-18.4)	54	4.20
<b>Normal Weight</b> (BMI=18.5-24.9)	Normal Weight (BMI=18.5-24.9)	827	64.36
<b>Overweight or Obese</b> (BMI ≥ 25)	Overweight (BMI=25-29.9)	325	25.29
	Obese (BMI ≥ 30)	69	5.37
Total		1285	100.0

decade or so as indicated by the NFHS-4 report. The NFHS-4 report shows that between NFHS-3 round in 2005-06 and NFHS-4 in 2015-16, the proportion of women in the age group of 15-49 years who were underweight/thin reduced from 24.6 percent to 12.1 percent whereas the

proportion of those who were overweight or obese increased from 16.7 to 29.1 percent during the same period. Similarly, among men in the age group of 15-49 years, the proportion of those who were underweight/thin reduced from 28 percent to 11.5 percent whereas the proportion of those who were overweight or obese increased from 6.2 to 20.5 percent during the same period.

There are significant differences in BMI status across gender. Table 5.39 shows that 6.33 percent of the men were thin, whereas only 3.23 percent women were thin, indicating that more men are thin than women. Similarly, only 20.77% men were overweight or obese as compared to 43.55% women who were either overweight or obese. This also indicates that overweight/obese is much more prominent among women than men. Overall, only 27.10 percent men were malnourished- either thin or overweight or obese- as compared to 46.77 percent of women, indicating that women are more malnourished by 19.68 percentage points than men. A similar trend has been shown by NFHS-4 report which indicates that 41.2 percent of women were malnourished as compared to 32.0 percent men.

*Although the trends shown by this study and NFHS-4 are on similar lines, the results of this study show a slightly different picture than the state level picture shown by NFHS-4 survey in*

<b>Gender</b>	<b>Total Thin (%)</b>	<b>Normal Weight (%)</b>	<b>Overweight or Obese (%)</b>	<b>Total (%)</b>
Male	46 (6.33%)	530 (72.90%)	151 (20.77%)	727 (100.0%)
Female	18 (3.23%)	297 (53.23%)	243 (43.55%)	558 (100.0%)
Total	64 (4.98%)	827 (64.36%)	394 (30.66%)	1285 (100.0%)

*2015-16, which has indicated that women who were thin/underweight were 12.1 percent and men who were thin/underweight were 11.5 percent. Similarly, on the other hand, women who were overweight or obese were 29.1 percent and men who were overweight or obese were 20.5 percent. This difference in the results between this study and NFHS-4 can be partly explained by two reasons. First, NFHS-4 has been conducted in 2015-16 and this study was conducted in 2017-18 (two years later) and NFHS-4 report has shown that between NFHS-3 in 2005-06 and NFHS-4 in 2005-15, the proportion of those who were thin has reduced from 24.6 to 12.1 percent among women and from 28.0 to 11.5 percent –an average decline of 1.45 percentage points per year. Similarly, between NFHS-3 in 2005-06 and NFHS-4 in 2005-15, the proportion*

of those who were overweight or obese has increased from 16.7 to 29.1 percent among women and from 6.2 to 20.5 percent among men – an average increase of 1.33 percentage points per year. Secondly this study has measured heights and weights only for adults in the age group of 20-49 years, whereas NFHS-4 has considered heights and weights for all those in the age group of 15-49 years. Its implications are discussed in the next section.

With respect to age, the results of this study have shown that in the aggregate, the proportion of adults who were thin (underweight) decreases with age cohort but the proportion of those who were overweight or obese increases with age cohort. Table 5.40 shows that among the younger age-group (20-29 years), 8.20% were thin, whereas among middle (30-39 years) and old age groups (40-49 years), those who were thin were only 3.33% and 2.40% respectively- indicating that underweight issues decreases with age. On the other hand, among the younger age-group (20-29 years), 21.60% were overweight or obese, whereas among middle (30-39 years) and old age groups (40-49 years), those who were overweight or obese were 34.81% and 38.62% respectively- indicating an upward trend with age. A similar trend has been shown by NFHS-4 report, which has indicated that among women that those who were thin in the age group of 20-29 years, 30-39 years and 40-49 years were 13.6 percent (11.3% for men), 6.4 percent (6.0% for men) and 5.6 percent (5.5% for men) respectively- indicating a downward trend as the age increases. Whereas those who were overweight or obese in the age group of 20-29 years, 30-39 years and 40-49 years were 19.9 percent (15.0% for men), 39.7 percent (27.3% for men) and 46.9 percent (30.8% for men) respectively-indicating an upward trend of being overweight as the age increases.

Again the trends shown by this study and NFHS-4 are on similar lines but the overall picture given by this study and NFHS-4 vary significantly. As noted earlier that NFHS-4 has measured heights and weights for people in the age group of 15-49 years and this study has done only for 20-49 years. The comparisons of NFHS-4 and this study

<b>Age groups</b>	<b>Total Thin</b>	<b>Normal Weight</b>	<b>Overweight or Obese</b>	<b>Total</b>
20 to 29 years	41 (8.20%)	351 (70.20%)	108 (21.60%)	500 (100%)
30 to 39 years	15 (3.33%)	279 (61.86%)	157 (34.81%)	451 (100%)
40 to 49 years	8 (2.40%)	197 (58.98%)	129 (38.62%)	334 (100%)
Total	64 (4.98%)	827 (64.36%)	394 (30.66%)	1285 (100%)

across three comparable age groups: 20-29, 30-39 and 40-49 years show lesser differences. Table 5.41 presents comparison of BMI shown by this study and what has been indicated by NFHS-4 at state level. The proportion of those who were overweight or obese shown by the results of NFHS-4 and this study are

similar, differing by less than a percent, whereas there is considerable difference in the results about the proportion of those who were thin, which may be compensated to a greater extent by the

Age groups (in years)	Total Thin		Overweight or Obese	
	This Study	NFHS-4*	This Study	NFHS-4*
20 to 29	8.20%	13.19%	21.60%	19.02%
30 to 39	3.33%	6.32%	34.81%	37.23%
40 to 49	2.40%	5.58%	38.62%	43.60%
Total	4.98%	8.88%	30.66%	31.56%
*Calculated from state level sex-wise and age-wise data in NFHS-4 J&K report				

time lag between these two studies. Therefore, the patterns in correlation of BMI viz-a viz other indicators may be same but the proportions of those who are thin and those are overweight are likely to be considerably different between this study and NFHS-4 data because of the age difference in the samples, as explained above.

### 5.3.4. Socio-economic factors and BMI:

The results of the study have shown a strong and clear co-relation of the varying socio-economic factors with Body Mass Index, indicating the prominent role of socio-economic factors in determining BMI. The overall pattern found is that underweight adults are dis-proportionately more among the poor classes, followed by well-off classes, whereas overweight or obese are disproportionately more among the well-off classes than among poor classes. As discussed earlier, this study relied on number of measures as proxy to represent socio-economic status of families and the analysis of BMI by these different socioeconomic variables is discussed ahead.

The results of study have shown a strong co-relation of BMI with caste (see Table 5.42). The influence of caste is intermediated by economic factors, and shows a similar pattern as indicated by economic measures. A higher proportion of scheduled tribe adults were thin (12.39%), followed by deprived caste adults (3.87%) and general caste adults (3.22%). But, on the other hand, a higher proportion of general caste adults were overweight or obese (37.82%) as compared to deprived caste adults (23.76%) and scheduled tribe adults (9.40%). The data has

also shown that the overall malnutrition burden was higher among general caste adults with 41.03% either thin or overweight or obese than backward castes with 27.62% adults either thin or overweight or obese and schedule tribes with only 21.79% adults were either thin or overweight or obese and schedule tribes.

The results of the study have also shown that BMI of adults correlates with landownership. A

Caste Group	Total Thin	Normal Weight	Overweight or Obese	Total
Schedule Tribe	29 (12.39%)	183 (78.21%)	22 (9.40%)	234 (100.0%)
Deprived Castes	7 (3.87%)	131 (72.38%)	43 (23.76%)	181 (100.0%)
General Castes	28 (3.22%)	513 (58.97%)	329 (37.82%)	870 (100.0%)
Total	64 (4.98%)	827 (64.36%)	394 (30.66%)	1285 (100.0%)

higher proportion of 6.93 percent of adults are thin /underweight among the 0-8 kanals land group, whereas only 4.40 percent and 3.49 percent were thin among 8-16 kanals and 16-120 kanals land owning groups respectively. Similarly, on the other hand, only 27.27 percent of adults were overweight or obese in the 0-8 kanals group, where as a higher proportion of 30.49 percent and 34.20 percent were were overweight or obese amongst 8-16 kanals and 16-120 kanals land owning groups respectively (see Table 5.43). *Although issues of malnutrition*

*(underweight or overweight) are significant among all irrespective of land size, the results show clearly that the underweight issues decrease with bigger land farms, whereas overweight/obesity issues increase with bigger land farms.*

Land Owned	Total Thin	Normal Weight	Overweight or Obese	Total
0 to 8 Kanals	32 (6.93%)	304 (65.80%)	126 (27.27%)	462 (100.0%)
8 to 16 Kanals	16 (4.40%)	237 (65.11%)	111 (30.49%)	364 (100.0%)
16 to 120 Kanals	16 (3.49%)	286 (62.31%)	157 (34.20%)	459 (100.0%)
Total	64 (4.98%)	827 (64.36%)	394 (30.66%)	1285 (100.0%)

A similar trend of strong correlation between being thin or overweight or obese and socio-economic factors is shown by analysis of BMI with respect to livelihoods of the families. Table 5.44 shows, those with poor livelihoods have higher proportion of underweight issues than those with better livelihoods. Similarly, those with better livelihoods have significantly higher rate of overweight or obesity issues. For instance, among the adults belong to poor livelihood class; those who were thin to



their heights (underweight) were 8.36 percent, as compared to 5.18 percent among those belonging to moderate livelihood class and 3.06 percent among the better livelihood class. On the other hand, among those belonging to better livelihood class, 36.73 percent were overweight or obese, as compared to 27.20 percent and 23.47 percent among moderate and poor livelihood class respectively.

The analysis of durables owned also corroborated the influence of socio-economic factors on BMI. For instance, Table 5.45 shows that among the adults belonging to families owning no single durable item (washing machine, color TV, refrigerator

<b>Livelihood Class</b>	<b>Total Thin</b>	<b>Normal Weight</b>	<b>Overweight or Obese</b>	<b>Total</b>
Poor Livelihoods	26 (8.36%)	212 (68.17%)	73 (23.47%)	311 (100.0%)
Moderate Livelihoods	20 (5.18%)	261 (67.62%)	105 (27.20%)	386 (100.0%)
Better Livelihoods	18 (3.06%)	354 (60.20%)	216 (36.73%)	588 (100.0%)
<b>Total</b>	<b>64</b> <b>(4.98%)</b>	<b>827</b> <b>(64.36%)</b>	<b>394</b> <b>(30.66%)</b>	<b>1285</b> <b>(100.0%)</b>

or computer); the proportion of those who were thin/ underweight was highest to the level of 6.07%, followed by 5.84% among those who owned any one item and 2.78% among those who owned two to four items. Thereby, it has clearly indicated that with the increasing ownership of durables the proportion of those who were thin decreases. On the other hand, those who were

overweight or obese were less among those who owned no single durable item (21.26%), followed by those who owned any one item (29.21%) and were much more to the level of 43.18% among those who owned two to four items, indicating thereby, that the proportion of

<b>Durables</b>	<b>Total Thin</b>	<b>Normal Weight</b>	<b>Overweight or Obese</b>	<b>Total</b>
Nil	28 (6.07%)	335 (72.67%)	98 (21.26%)	461 (100.0%)
One item	25 (5.84%)	278 (64.95%)	125 (29.21%)	428 (100.0%)
Two to Four items	11 (2.78%)	214 (54.04%)	171 (43.18%)	396 (100.0%)
<b>Total</b>	<b>64</b> <b>(4.98%)</b>	<b>827</b> <b>(64.36%)</b>	<b>394</b> <b>(30.66%)</b>	<b>1285</b> <b>(100.0%)</b>

those who were overweight or obese increased with the ownership with durables items.

Important evidence to the co-relation of BMI with economic conditions comes from the analysis of data in relation to economic category. As can be seen from Table 5.46, those who were thin

were significantly more (8.60%) among the lower economic group than those in the upper economic group (3.63%). On the other hand, those who were overweight or obese were significantly less among the lower economic group (16.91%) than those in the upper economic group (35.79%). Therefore, this has clearly indicated that the underweight adults decreased with better economic conditions with a higher burden of underweight adults in the lower economic group, whereas overweight adults increased with better economic conditions with a higher burden of overweight or obese adults in the upper economic group. In a way those who were poor had higher proportion of underweight and those who were economically better than higher proportion of overweight or obese adults. However, what is important to note that the overall malnutrition burden was much higher in the upper economic group with 39.42% of adults were either thin or overweight or obese as compared to lower economic group where only 25.50% of adults were either thin or overweight or obese.

**Table 5.46: Status of BMI by Economic Category**

<b>Economic Category</b>	<b>Total Thin</b>	<b>Normal Weight</b>	<b>Overweight or Obese</b>	<b>Total</b>
Lower Economic Group	30 (8.60%)	260 (74.50%)	59 (16.91%)	349 (100.0%)
Upper Economic Group	34 (3.63%)	567 (60.58%)	335 (35.79%)	936 (100.0%)
Total	64 (4.98%)	827 (64.36%)	394 (30.66%)	1285 (100.0%)

A similar finding comes from the analysis of BMI with respect to

ration card owned by the families. As can be seen from the Table 5.47, among the AAY/PHH families (relatively poor) the proportion of those who were thin was 5.35% as compared to 3.74% among the NPHH/excluded

**Table 5.47: Status of BMI by Ration Cards**

<b>Ration Card Type</b>	<b>Total Thin</b>	<b>Normal Weight</b>	<b>Overweight or Obese</b>	<b>Total</b>
AAY/PHH	53 (5.35%)	665 (67.10%)	273 (27.55%)	991 (100.0%)
NPHH/ Excluded	11 (3.74%)	162 (55.10%)	121 (41.16%)	294 (100.0%)
Total	64 (4.98%)	827 (64.36%)	394 (30.66%)	1285 (100.0%)

families (better economically). On the other hand, those were overweight or obese were significantly less among AAY/PHH families at 27.55% than NPHH/excluded families where the proportion of

overweight or obese adults was 41.16%. Again the data shows that malnutrition burden was higher among economically better (NPHH/excluded) families (44.90%) than those who were relatively poorer (AAY/PHH) families (32.90%).

**Other Measures of Socio-Economic Status:** The study also collected data on other socio-economic measures like ownership of vehicle, fuel used as well as water source. As these measures also represented a proxy to the overall socio-economic conditions/status of families, the analysis of adult heights viz-a-viz measures showed a gradient as expected and in line with other more tangible economic measures discussed earlier.

The study has shown a co-relation of BMI with the ownership of vehicle/s by households. Among the families owning any vehicle the proportion of adults who were thin was lesser to the level of 4.0% as compared to those owning no vehicle where those who were thin were 5.51% (see Table 5.48). On other hand, those who were overweight or obese were significantly higher (36.89%) among those owning any vehicle as compared to those owning no vehicle (27.31%).

<b>Vehicle owned</b>	<b>Total Thin</b>	<b>Normal Weight</b>	<b>Overweight or Obese</b>	<b>Total</b>
No Car/Bike/Tractor/ Auto or Equivalent	46 (5.51%)	561 (67.19%)	228 (27.31%)	835 (100.0%)
Car/Bike/Tractor/ Auto or Equivalent	18 (4.00%)	266 (59.11%)	166 (36.89%)	450 (100.0%)
<b>Total</b>	<b>64 (4.98%)</b>	<b>827 (64.36%)</b>	<b>394 (30.66%)</b>	<b>1285 (100.0%)</b>

The source of water and the primary fuel used by the families have also

shown co-relation with the BMI of adults especially with being overweight or obese. Those who fetched water from spring or public tap or tube well (thereby relatively poor) had higher proportion of adults who were thin (9.15%) than those who had water into their dwelling- thereby rich- (3.80%). On

<b>Source of Water</b>	<b>Total Thin</b>	<b>Normal Weight</b>	<b>Overweight or Obese</b>	<b>Total</b>
Spring/Community post/tube well	30 (9.15%)	253 (77.13%)	45 (13.72%)	328 (100.0%)
Personal post/tube well within yard	8 (2.94%)	178 (65.44%)	86 (31.62%)	272 (100.0%)
Personal post/ tube well inside house	26 (3.80%)	396 (57.81%)	263 (38.39%)	685 (100.0%)
<b>Total</b>	<b>64 (4.98%)</b>	<b>827 (64.36%)</b>	<b>394 (30.66%)</b>	<b>1285 (100.0%)</b>

those who fetched water from a spring or public tap/ tube well (13.72%) (see Table 5.49).

Table 5.50 shows that those who were thin were much higher among those using dung/wood/electricity- cheaper source- as primary fuel than those using LPG as primary fuel (2.63%). On other hand, those were overweight or obese were significantly more among those using LPG as primary fuel (40.92%) than those using dung/wood/electricity as primary fuel (25.0%).

Primary Fuel used	Total Thin	Normal Weight	Overweight or Obese	Total
Dung/Wood /Electricity	52 (6.28%)	569 (68.72%)	207 (25.00%)	828 (100.0%)
Gas	12 (2.63%)	258 (56.46%)	187 (40.92%)	457 (100.0%)
Total	64 (4.98%)	827 (64.36%)	394 (30.66%)	1285 (100.0%)

While looking at the relation

between BMI of adults and their individual educational attainments, the study has shown that those who were thin were relatively lesser among those who had either no education or were most educated as compared to those who had attained primary to higher secondary levels of education. On the contrary, those who were overweight or obese were relatively more among those who had either no education or were most educated. Table 5.51 shows that a higher proportion of 6.38 percent and 5.94 percent of adults were thin among those who had attained primary or upper primary and secondary or higher secondary levels of education respectively as compared to a smaller proportion of 3.60 percent and 3.68 percent of adults who were thin among illiterates and most educated (graduates or above) respectively.

On the contrary, a higher proportion of adults were overweight or obese among those who had attained either no education (35.97%)

Education Level	Total Thin	Normal Weight	Overweight or Obese	Total
No Education/ 0-4 <sup>th</sup> Pass	15 (3.60%)	252 (60.43%)	150 (35.97%)	417 (100.0%)
Primary or Upper primary	25 (6.38%)	269 (68.62%)	98 (25.00%)	392 (100.0%)
Secondary or Higher Secondary	17 (5.94%)	184 (64.34%)	85 (29.72%)	286 (100.0%)
Graduation or above	7 (3.68%)	122 (64.21%)	61 (32.11%)	190 (100.0%)
Total	64 (4.98%)	827 (64.36%)	394 (30.66%)	1285 (100.0%)

or most educated (32.11%) as compared to those who had either primary/upper primary education (25.0%) or secondary/ higher secondary education (29.72%).

A similar pattern has been shown by NFHS-4 data which has indicated that 14.5% of women (14.8% for men) with 5-9 years of schooling and 14.8% women (12.3% for men) with 10-11 year of schooling were thin as compared to 10.5% women (9.1% for men) with no schooling, 10.9% women (11.4% for men) with less than 5 years and 9.2% women (7.7% for men) with 12 or more years of schooling who were thin. *Therefore, NHFS-4 data has also suggested that a smaller proportion of adults with either lesser education (under 5 years) or highest education (12 or more years) were thin as compared to those with middle level of education (5 to 11 years).*

On a similar pattern as shown by this study, the NFHS-4 data has indicated that 31.0% of women (19.4% for men) with no schooling, 29.3% women (18.3% for men) with less than 5 years and 30.9% women (26.5% for men) with 12 or more years of schooling were overweight or obese as compared to only 26.9% women (17.1% for men) with 5-9 years of schooling and 27.1% women (18.9%) for men with 10-11 year of schooling who were also overweight or obese. *In a way, the NFHS-4 data has also indicated a higher proportion of adults were overweight or obese who had either lesser education (under 5 years) or highest education (12 or more years) as compared to those with middle level education (5 to 11 years).*

Unlike all other economic measures, the co-relation of BMI with educational attainments across gender has not shown a clear pattern. This is because the educational access itself is also influenced by socio-economic factors, and is also correlated with age. The younger generations have achieved higher levels of education and also the inequalities in education have reduced. Therefore, the influence of educational attainments on BMI is cofounded (intermediated) by the age factor and socio-economic class together.

On other hand, the co-relation of BMI with respect to highest literacy levels at household level<sup>58</sup> attained by any of the family members (which is broadly an outcome of socio-economic function) shows a clear and simple pattern in line with other economic measures. Those who were thin were disproportionately more among those belonging to families with highest literacy

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<sup>58</sup> This is different from individual educational attainments in a way that it represents the highest educational level attained by any family members.

level attained at upper primary/less followed by those with secondary or higher secondary educational level and those with graduation or above.

Contrary to this, those who were overweight or obese were disproportionately less among those belonging to families with just upper primary/less education level as compared to those with secondary or higher secondary educational level and those with graduation or above. Table 5.52 shows that 6.24 percent of adults were thin among those belonging to families with just upper primary/less as highest educational level attained by any family member, as compared to 5.66 percent among those with secondary or higher secondary education and 3.04 percent among those with graduation or above education. On the other hand, overweight or obese were only 18.94 percent among those belonging to families with just upper primary/less as highest educational level attained by any family member, and this was considerably lesser as compared

to 35.14 percent overweight or obese among those with secondary or higher secondary education and 38.08 percent overweight or obese among those with graduation or above education. Therefore, *the study shows that as the*

<b>Table 5.52: Status of BMI by Highest Literacy Level (at Household Level)</b>				
<b>Highest Literacy Level</b>	<b>Total Thin</b>	<b>Normal Weight</b>	<b>Overweight or Obese</b>	<b>Total</b>
Upper Primary or less	27 (6.24%)	324 (74.83%)	82 (18.94%)	433 (100.0%)
Secondary or Higher Secondary	24 (5.66%)	251 (59.20%)	149 (35.14%)	424 (100.0%)
Graduation or above	13 (3.04%)	252 (58.88%)	163 (38.08%)	428 (100.0%)
Total	64 (4.98%)	827 (64.36%)	394 (30.66%)	1285 (100.0%)

*education level attained by any family member increases, the proportion of those who are thin decreases but those who are overweight or obese increases.*

#### **5.4. Concluding Remarks:**

*Summarizing the findings, the results of the study have shown that the mean heights of adults in the study village show a significant co-relation with socio-economic factors, as has been indicated by a wide body of literature and macro-surveys on health and nutritional status. The study shows that those owning bigger land holdings, had better livelihoods, higher educational attainments, owned a vehicle or costly durables, used LPG as primary cooking fuel, had flush*

toilets or had water source into their dwelling or held a NPHH ration card were taller on an average. All these variables are proxy of better economic conditions, thereby, showing a positive co-relation of mean height with economic factors. Similarly, the results of the study showed that those belonged to general castes were taller than scheduled tribes and deprived castes, thereby, indicating an influence of social factors too on mean heights. The study has importantly revealed, which is also in line with macro-level surveys, that the younger generations in J&K are taller than older generations across men and women, indicating a secular change in heights over time. The rate with which heights have increased is also dramatic, higher than all-India increase in heights, and matching international standards. The study has also affirmed that socio-economic factors are underlying determinants for this generational change in heights.

It was found that the access to food intake has substantially improved among people and the incidences of hunger or reduced food intake have declined sharply over the time from 1970 to 2016. The data has also indicated significant improvements in quality of food especially the increases in the consumption of oil, milk, eggs and meat which have a strong bearing on nutritional outcomes of population. Alongside, there has been widespread reduction in engagement of children in labour and other domestic work over this time. The improvements in food and reduced engagement in manual work are likely to have contributed to better physical health and nutritional status. Such positive changes in food intake and work patterns have occurred because of the improvements in socio-economic conditions of people, thereby, showing the influence of socio-economic factors on nutritional and health status through such pathways.

The findings also indicate the phenomenon of the increasing inequalities in heights between men and women and between poor and better socio-economic groups over time. The influence of socio-economic factors have also been more marked on heights of women than men across age-groups resulting in higher differences in heights between women from different socio-economic groups than what existed between the corresponding groups of men. This is likely because of extra burden of intra-household inequalities that impact women negatively in addition to the other structural inequalities that exist in the society and impact both men and women from lower socio-economic groups. The study has also shown that heights have increased faster for men than women in the recent past between middle and younger age-groups (1987 onwards) which

*was contrary to earlier period between older and middle age-groups (1967-87) when heights have increased faster for women than men. In addition, the study has also pointed to the increasing inequalities in adult heights between poor and better socioeconomic classes in the younger age group relative to the older groups, among both men and women.*

*The study finds that a total of 35.64 percent of adults were malnourished- either underweight or overweight in relation to their heights. However, overweight/obesity is presently a bigger nutritional issue than being underweight, indicating an epidemiological shift which has occurred in the last decade or so, as also indicated by the NFHS-4 survey. There are also significant differences in BMI status across gender, with a higher proportion of women being overweight or obese as compared to men. Although the younger age groups have a higher proportion of underweight/thin adults, the overall malnutrition levels –either thin or overweight or obese- were higher among older age groups followed by middle and younger age groups. The results also show that those owning smaller landholdings, had poor livelihoods, did not own a vehicle or any costly durable, or fetched water from a spring or public tap, used wood/dung/electricity as primary fuel, or held an AAY/PHH ration card or belonged to scheduled tribe had higher proportion of adults who were underweight/ thin. On the other hand, those owning bigger landholdings, better livelihoods, better educational attainments, owned a vehicle or any costly durable, had water into their dwelling, used LPG as primary fuel, or held an NPHH ration card or belonged to general castes had higher proportion of adults who were overweight or obese. However, the individuals' educational status seems to work to limit the overweight issues, with those with higher levels of education showing lower prevalence of overweight. In a way, the study has shown the prominent role of socio-economic factors in determining heights and BMI. With decreasing under-nutrition and increasing overweight, the prevailing overall pattern is that the 'malnutrition burden' is more among the economically well-off classes than among the poor classes.*

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## Chapter 6: Discussion and Conclusions

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Health of populations has tremendously improved across the world over the 20<sup>th</sup> century. But health statistics show that the improvements have been very unequal across different nations, regions, classes, gender, ethnic groups and so on. These disparities in health status reflect the broader pattern of inequalities embedded in society. India, for example, shows that the health improvements have been disproportionately shared by upper class, upper castes and men, who hold dominant power over socio-economic status, wealth, housing, access to services, etc. The gains from high economic growth of the country after the 1990s have also not corresponded to similar levels of improvements in health outcomes of India's population groups and in fact with the increasing income inequalities the health inequalities have only increased. A wide body of evidence supporting these arguments is extensively discussed in the first chapter. The story of health improvements is also not same across the states in India indicating huge disparities in health status. There are a few states especially in the southern states where the health benefits have been overwhelming and show a much better picture on many health indicators than the northern, central and eastern states of India (see IIPS & ICF, 2017a). The state of Jammu and Kashmir (now a Union Territory), unlike most of northern, central and eastern states of India, also shows a better and a promising picture of health outcomes despite the fact the state has seen political conflict in the last 30 years since 1989. What makes it interesting is that the improvements in J&K have continued in different phases of conflict and in a not so growing state economy, providing a health status better than most states of northern, central and eastern India and also better than India as a whole.

The story of J&K may look like a paradoxical context but provides a strong rationale to believe that the increased public spending and improved people's access to food, nutrition and other services and opportunities may produce better health outcomes than only an expanding state-level economy in an unequal society. McKeown's work in 1966 and a huge body of literature on the social determinants of health suggest that socio-economic factors play a greater role in determining the health status of populations and any improvements in the socio-economic conditions and food and other services are likely to improve the health outcomes. This may provide an explanation to J&K's progress on health outcomes despite witnessing political

conflict. J&K has seen significant improvements in socio-economic conditions in the last three decades. The poverty levels have sharply declined from 25.17 percent to 5.40 percent (a decrease of 19.77 percentage points) between 1993-94 and 2004-05 in J&K, where as poverty levels in India only reduced from 35.97 percent to 27.50 percent (a decrease of 8.47 percentage points) during this time (Govt. of J&K, 2008b). The lower poverty levels in J&K were also corroborated by the wealth index developed by NFHS (based on 33 household amenities/assets) which indicated that only 2.8 percent and 12.3 percent of population in J&K were in the lowest and second lowest quintiles respectively in 2005-06 (IIPS & Macro International, 2007).

Anecdotal evidence from the rural areas of J&K also point to near absence of chronic hunger despite the fact that there has been an increasing shortfall in food production locally in the state. J&K produced surplus food only up to 1990-91 and was superseded by increasing levels of deficit in food grains up to 35 percent in 2000-01 and 20 percent in 2006-07 (Dar, 2015). With increasing shortfall in food production locally, the access to adequate food was only possible if the incomes had increased significantly enhancing the ability of people to buy food from the market. The near absence of chronic hunger and the lower poverty levels point towards the same. Therefore, as demonstrated by McKeown's work, the improving socio-economic conditions in the state were likely to have resulted in better health outcomes. But such linkages needed examination in a context of political conflict which has also had a multi-dimensional impact on people's lives. As it indicated the complexity of the determinants of population health under such conditions, the present study, as it examined the improvements in health status and the contributory socio-economic changes that have been experienced in J&K over the twenty-five year period from 1989 to 2014, also focused on the pathways and processes that have led to these changes. It attempted to examine the impact of the socio-economic changes on health, taking changes in 'heights' across generations as a proxy indicator since it is a summary outcome of health and nutrition over a long term.

The study has, as a PhD thesis, remained focused on this one dimension of health, even while there are effects of the conflict on mental health (as explained in Chapter-1) and of the rising socio-economic conditions on morbidity patterns and mortality rates. In a broader view of health, absence or presence of illness cannot qualify as objective indicators of health because health is

not just absence of illness. Besides, relying on any type of illness or a category of illnesses – physical or mental – is likely to leave a significant portion of a population out of the study (Ware, et al. 1981). In order to understand health at population levels, investigating broader health status measures becomes desirable. ‘Height’ has been a widely used indicator to understand population health and in particular to understand the developments in health over time. Also, because this study attempted to examine improvements in health status over time between 1989 and 2014, ‘height’ as an indicator was appropriate and provided the opportunity to assess changes over such a period with reliability. *The limitations of using only ‘heights’ as an indicator for examining the health status over time has been discussed along with other methodological concerns later in this chapter.*

The study investigated into the changes in ‘adult heights’ over a generation in both men and women across different socio-economic groups. It also recorded ‘weights’ of both men and women to examine the current nutritional levels. BMI was drawn for each adult, which gave status of current nutritional levels. In addition, the findings were also supplemented by the analysis of macro-data on other broader indicators of health including infant mortality rates and child nutritional levels over time.

The study relied on using both primary and secondary sources of data. It included reviewing of literature and analyzing the data from macro-surveys and official reports as well as undertaking an empirical study in a village in Kashmir region of J&K for primary data collection. The primary data formed a major part of the study and examined the dynamics of social and economic changes as well as intergenerational developments in ‘height’ as a proxy indicator to health and nutrition status over the study period. The study also analyzed the factors responsible for such changes in a wider historical and social context, linking micro, meso and macro level data for both the health status and its determinants. The study also explored the disparities in health and nutrition status along the lines of caste, ethnicity, class and gender.

The height measurements were taken for 1294 adults and weight for 1285 adults in the age group of 20-50 years. The sample was divided into three age-cohorts for analysis purposes – younger age group (20-29 years); middle age-group (30-39 years) and older age-group (40-49 years).

These age-groups also corresponded to birth cohorts representing three periods of time. First one corresponded to those who were born between 1987 and 1996 (a period of conflict and these would have witnessed conflict through their childhood), second corresponded to those born between 1977 and 1986 (raised partly in conflict) and third group were born between 1967 and 1976 (a period of relatively peaceful environment in the state).

The study showed that the average height of men (aged 20-49 years) was 169.65 cm, whereas the average height of women (aged 20-49 years) was 155.99 cm in the village. Such marked difference (13.66 cm) in heights between men and women was in line with state and national level data. These average heights are higher than the average heights achieved by men and women in Anantnag district (where the study village was located) and at state level. The NFHS-4 data has shown that the mean heights of men were 168.35 cm at district level and 167.05 cm at state level. Similarly, NFHS-4 shows that the mean heights of women were 155.68 cm at district level and 155.42 cm at state level<sup>59</sup>. The reasons for such differences between the mean heights at village level, and district and state levels are because the study village has seen exceptionally significant improvements in socio-economic conditions which have resulted into taller heights.

The study also indicated that the mean heights of adults show a significant co-relation with socio-economic factors in line with a wide body of literature and macro-level surveys on nutritional status. The average height of men from general castes was 169.87 cm and was higher than the average height of scheduled tribes (169.84 cm) and deprived castes (168.49 cm). The analysis of data viz-a-viz various economic measures also showed the better the economic status, the taller are the heights. The average heights of men belonging to households with 0-8 kanals of land was 168.94 cm, which was shorter by 0.53 cm than those belonging to households with 8-16 kanals (169.47 cm) and who were in turn shorter by 1.07 cm than those belonging to households with 16-120 kanals (170.54 cm). The heights of women also show a similar pattern. In overall, the data showed that those owning bigger land holdings, had better livelihoods, higher educational attainments, owned a vehicle or other costly durables, used LPG as primary cooking fuel, had flush toilets or belonged to general castes were taller on an average than the

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<sup>59</sup> The mean heights at district & state level are based on the analysis of NFHS-4 data collected in 2015-16 in J&K.

corresponding poor groups. That provided clear evidence of socio-economic factors contributing to the differences in mean heights of people.

The study also revealed that the younger age groups in J&K are taller than older groups indicating a secular change in heights over time. The mean height of men in the younger age-group (171.37 cm) was taller by 2.17 cm than the middle age-cohort (169.20 cm) and 3.62 cm taller than older age group (167.76 cm). Similarly, the middle age-group was taller by 1.44 cm than old age-group. The results also show a similar pattern in heights among women. The rate with which heights have increased over time is also dramatic, matching international standards. The total increase in heights over last thirty years has been 3.62 cm for men and 3.57 cm for women, indicating an average increase of 1.21 cm per decade for men and 1.19 cm per decade for women. In comparison, the NFHS-4 data shows modest secular increases in heights at 0.39 cm for men and 0.73 cm for women per decade have occurred at Anantnag district level. Similarly, the NFHS-4 data shows that increases in heights at state level were also modest at 0.16 cm for men and 0.28 cm for women<sup>60</sup>. The faster increases in heights in the study village have occurred because of exceptionally significant improvements in the last three decades prior to survey.

The results of the study also show that heights co-relate with socio-economic factors across age-groups, thereby, reaffirming the evidence of the influence of socioeconomic factors on heights. The younger age-groups (20-34 years) are taller than older age-groups (35-49 years) among all socio-economic groups and across both men and women. For instance, the younger men were taller by 2.79 cm than older men among ST/deprived castes, and also, the younger men were taller by 3.16 cm than older men within general castes. In both caste groups, the younger were taller than older age groups. Similarly, the younger men were taller by 2.25 cm than older men among households with smaller landholdings, as well as, the younger men were taller by 3.62 cm than older men among households with larger landholdings. The mean heights of women from different age-groups across socio-economic groups show a similar pattern. *These findings have*

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<sup>60</sup> These estimates at district and state level are based on the analysis of NFHS-4 data collected in 2015-16 in J&K.

*reaffirmed the intergenerational improvements in heights and that socio-economic factors are underlying determinants for this intergenerational change in heights.*

The influence of socio-economic factors have been more marked on heights of women than men across age-groups resulting in higher differences in heights between women from different socio-economic groups than what existed between the corresponding groups of men. This is likely because of extra burden of intra-household inequalities that impact women negatively in addition to the structural inequalities that exist in the society and impact both men and women from lower socio-economic groups.

The results have also shown that the inequalities in heights between adults from different socio-economic groups are more prominent in the younger age-groups than older age-groups. For instance, men from general castes (168.09 cm) were taller by 0.54 cm than ST/deprived castes (167.55 cm) in the older-age group but such differences increased to 0.91 cm between men from general castes (171.25 cm) and men from ST/deprived castes (170.34 cm) in the younger age group. Similarly, men with large landholdings were taller by only 0.29 cm than those with small holdings in the older age group and such differences increased to 1.66 cm between these two groups in the younger age group. Similar pattern has been shown by heights of women. *Such findings suggest the inequalities in mean heights between poor and better socio-economic groups have increased over time.*

*The reasons for such increasing inequalities in heights is because the significant socio-economic improvements that have occurred in the last thirty years or so –clearly shown by this study as well as state level macro-data and discussed later –were likely to help younger age-groups to access relatively better nutrition and services than the older age-groups and thereby resulted into taller heights for the younger age-groups than older groups. But what has also happened is that the improvements in socio-economic conditions have been more marked for those who were already better off relative to the poor, and so the inequality and class differences have become sharper now than they existed during the childhood of older age-group when most people in rural areas were poor and had inadequate access to nutrition and services. These sharper*

*inequalities in socio-economic conditions have been expressed in the heights as well, and further corroborate that socio-economic factors show a clear and marked impact on adult heights.*

The improvements in health and nutrition status in J&K over time as shown by changes in ‘heights’ –used as a proxy indicator –were also corroborated by the macro-data on other broader indicators including infant mortality rates as well as child nutritional levels. The NFHS surveys have shown that IMR (Infant Mortality Rate) of J&K has reduced from 65.0 to 32.4 between 1998-99 and 2015-16 indicating a decrease of 50.2 percent in last 17 years and at a much faster pace than all-India level (IIPS and ICF, 2017b). The IMR at all-India level was 67.6 in 1998-99 and reduced to 40.7 in 2015-16 with a total decrease of only 39.8 percent during this period (IIPS and ICF, 2017a). The NFHS data also shows that the proportion of children who were stunted (27.4%) and underweight (16.6 %) in J&K were significantly lower than all-India (38.4% stunted and 35.7% underweight) (IIPS and ICF, 2017a). In fact, J&K has also seen a decrease of 38.6 and 43.2 percentage points in children who were stunted and under-weight respectively during a period of 17 years between 1998-99 and 2015-16 (IIPS and ICF, 2017b and IIPS and Macro International, 2009). Whereas the corresponding decrease at all-India level was only 12.6 and 7.0 percentage points in children who were stunted and under-weight respectively during this period (see IIPS and ICF, 2017a and IIPS and Macro International, 2007). These improvements in health outcomes in J&K have occurred at a faster rate than all-India and despite the state being exposed to conflict during this time.

The primary study also recorded ‘weights’ and calculated Body Mass Index (BMI) which is an important indicator to understand weight to height ratio ( $\text{kg}/\text{m}^2$ ) and widely accepted parameter to assess the current nutritional status of adults. It was found that overweight/obesity was becoming a greater nutritional issue than being underweight in the village. Only 4.98 percent of adults were thin for their heights, meaning they were underweight, whereas, 30.66 percent of adults were overweight or obese. In total, more than one third of the adults (35.64 percent) were malnourished—either underweight or overweight in relation to their heights. This epidemiological shift in adult weights has occurred in the entire state over the last decade majorly and as a result overweight has become a major nutritional issue in the state. The NFHS data shows that at the state level the proportion of women aged 15-49 years who were

underweight/thin reduced from 24.6 to 12.1 percent between 2005-06 and 2015-16 whereas the proportion of women who were overweight or obese increased from 16.7 to 29.1 percent during the same period. Similarly, the proportion of men aged 15-49 years who were underweight/thin reduced from 28 to 11.5 percent and those who were overweight or obese increased from 6.2 to 20.5 percent during the same period (IIPS and ICF, 2017b).

The study has indicated significant differences in BMI status across gender with a much higher proportion of women (43.55%) being overweight/obese than men (20.77%). Also, the total malnutrition burden was more among women (46.77%) than men (27.10%) in the village. A similar trend has been shown by NFHS-4 survey which indicated that 41.2 percent of women were malnourished as compared to 32.0 percent men in the state (IIPS and ICF, 2017b). The study also showed that the proportion of adults who were thin (underweight) decreases with age but the proportion of those who were overweight or obese increases with age, indicating that older-age groups had a higher proportion of overweight/obese adults.

Importantly, the results of the study have shown a strong and clear co-relation of socio-economic factors with Body Mass Index, indicating the prominent role of socio-economic factors in determining BMI. The overall pattern found was that the underweight adults are disproportionately more among the poor economic groups, whereas overweight or obese are disproportionately more among the upper economic groups. Only 27.27 percent of adults were overweight/obese among the households with smaller landholdings (0-8 kanals), where as a higher proportion of 30.49 percent and 34.20 percent were overweight/obese amongst the households with 8-16 kanals and 16-120 kanals of landholdings respectively. The study also showed that a higher proportion of general caste adults were overweight/obese (37.82%) as compared to deprived caste adults (23.76%) and scheduled tribe adults (9.40%). General castes were economically better than deprived castes and scheduled tribes and therefore have higher proportion of adults who were overweight/ obese.

Thereby the study has shown that total malnutrition burden was becoming higher among general castes with 41.03% adults either thin or overweight/obese than deprived castes with 27.62% adults either thin or overweight/obese and schedule tribes with only 21.79% adults either thin or



overweight/ obese. Similarly, the total malnutrition burden was higher among those with larger landholdings or had better livelihoods, owned more durables, owned a vehicle or belonged to upper economic group than those who belonged to the corresponding poor groups.

*While the increased stature (height) and improved infant mortality rate and child nutritional levels are positive signs of long term access to better quality food, reduction in infections and access to services, the epidemiological shift in adult weights over the last decade with overweight emerging as a major nutritional issue in the state has also implications on health status at population level especially for the rising non-communicable diseases (NCDs) which is discussed later in this chapter.*

The study has shown that these changes in health and nutrition status have been brought about by the significant socio-economic improvements that have occurred in the last thirty years and were clearly visible from a range of economic measures. It was found that although J&K's economy was hit very badly in the 1990s due to the conflict, it has been a revenue surplus state by receiving high levels of central assistance which has taken care of its increasing fiscal deficit (see Chapter-1 for detailed analysis). Such central assistance has helped the state government to ensure that the basic services including Public distribution system, health services, electricity, piped water and others are not derailed due to lack of funds. The macro-data as well as the study conducted by this researcher for MPhil dissertation have also shown that despite the fact that the physical mobility was hindered at times, the access to health services has remained relatively better in J&K than India as a whole with a larger section of population able to access public health services (Dar, 2012). Public distribution system (PDS) has been universal and fairly functional in ensuring most of the households have access to subsidized rations (Dar, 2015). A large proportion of households in J&K have electricity connections and use piped drinking water. The primary study for this PhD thesis also corroborated that people were largely able to access these services and other government interventions which are discussed later. The accessibility to functional services is also a means of social protection for many especially those who are poor and may also impact the poverty levels by helping people to save some money which otherwise had to be spend in absence of such programmes. PDS provides a convincing example of the level of impact of such programmes. Dreze and Khera (2013) estimated that the PDS reduced rural

poverty ratios by 11 to 16 percent and poverty gap-index by 18 to 22 percent at an all-India level using Tendulkar poverty line and CPI-AL poverty line respectively. The corresponding reduction in rural poverty was 45 to 26 percent and poverty gap-index 35 to 41.5 percent in J&K. Dreze and Khera (2013) also stated that such levels of income transfer are roughly comparable to one-week earnings from MGNREGA work in India.

This explained partly how the impact of conflict on state economy and public spending through social protection schemes was mitigated, but the steep decline in the poverty levels and increase in ownership of assets as shown by NFHS data have happened in J&K with drastic changes at the societal level which increased incomes to people significantly and were examined through the primary study. The study looked at diverse socio-economic measures including basic amenities and assets, educational attainments, land use and cultivation patterns, livelihoods, access to food, work patterns, housing, sanitation, and drinking water facilities and so on. The methodology adopted for this study is detailed in Chapter-2.

The study indicated that diversification of livelihoods has occurred in the study village and households were drawing their incomes from multiple sources. It was found that most of the households (85%) had two or more sources of livelihoods and only 15% households had a single source of livelihood. Diversification of livelihoods was a positive indication that households were able to find multiple jobs and thereby fetching incomes from different sources. That is why a majority of households (89%) felt that they make a better living now (2016) in terms of incomes from their livelihoods as compared to a generation ago in 1990. Although households mentioned multiple factors, the study indicated two main factors have contributed significantly to improved livelihoods in the study village: 'government jobs' and 'horticulture incomes'. These two were significant sources in terms of bringing money to the village and thereby also created a trickle-down effect and opportunities in other sectors.

The government jobs constituted almost one fifth (19.4%) of total livelihoods reported by all households in the study village and 38% households had at least one family member who had a government job (32% had formal jobs and 6% had daily wage jobs). This meant not just these 38% households were assured of their monthly incomes from government but they also brought

incomes to village and supported other livelihood opportunities by their spending in different ways: undertook construction activities thereby created demand for labor, hired labour for agricultural work, purchased household items from local shops, invested into their children's education, etc. Not all of those who worked on government jobs found these jobs only in the last 26 years, some of them had got these jobs prior to 1990s but because the salaries have increased substantially after 1990s, and they had come to attain higher ranks in jobs by 1990s (through promotions), the government jobs were thereafter impactful.

At the state level also, the government has been one of the primary stakeholders in providing jobs to people in J&K. There were 3.97 lakh people engaged in government jobs<sup>61</sup> in J&K in 2019 (actual number would be higher<sup>62</sup>) and assuming that these provided livelihoods directly to at least 3.97 lakhs households would mean that at least 18.73% households have assured monthly incomes in the state<sup>63</sup>. Police and education departments are two main departments which have engaged almost half of the total government employees in the state. Because the education department relied on a policy of village based recruitment for teachers<sup>64</sup> for a long time (such recruited teachers constitute almost half of total teachers) and most of the police jobs are low ranked which are not favored by well-off classes, such employment opportunities have trickled down to villages at large.

The government jobs are also likely to have contributed to greater economic well-being by providing the stable incomes required to off-set the time lag in the shift from the previous agriculture crops to apple cultivation. About ten years are required between planting trees and getting a harvest.

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<sup>61</sup> The data about government jobs is based on the personal discussion with a few government officers who had fair knowledge about the total job situation in government.

<sup>62</sup> Because the estimated 3.97 lakh jobs doesn't include those who work with state corporations or on daily wages/contractual basis with government

<sup>63</sup> There would be many households with more than one person holding a government job but because the figure of 3.97 lakh doesn't include all those who work with government, so the multiplication of jobs by many households would be balanced by those who are excluded from the total number of government employees.

<sup>64</sup> Such teachers were called Rehbar-e-Taleem teachers who were provided an honorarium of only Rs 3000 per month but were regularized after completing five years of service (see Mannaan and Dar, 2017)

Agricultural land has also emerged as an important resource for shaping livelihoods of people in the entire study village which has become possible with the drastic transformation in cultivation patterns over time especially after 1990s. The 'horticulture crops' and in particular 'apple' which has achieved prominence in cultivation has led to significant increases in incomes to farmers. People cultivated mainly four crops in the village by 1960 including paddy, maize, almonds and walnuts but the cultivation patterns drastically shifted thereafter with the beginning of apple cultivation. Although apple cultivation has started in 1968, the conversion of land under different crops to apple has happened largely in the last 26 years after 1990. The study showed the acreage under apple and walnuts (horticulture cash crops) increased from 36.67% to 94.73% of total land reported between 1990 and 2016. As a result, the acreage under maize declined from 35.58% to 1.29% and paddy from 16.67% to 1.1% of total land over this time. The proportion of households who cultivated apple in any portion of land also increased from 42% to 92% between 1990 and 2016 and the average landholdings under apple cultivation almost doubled from 4.29 to 8.41 kanals over this time.

The initial cultivation of apple in the village started on un-irrigated land with the sanction of what is famously called in village as 'Hallan Plan' by government in 1968 through which the households were provided support to grow apple. The acreage under apple picked up growth only when people witnessed good outcomes from the initial orchards planted in 1968 which boosted confidence among farmers for another phase of apple plantation in 1980s, and acreage under apple increased significantly in this decade. But the cultivation of apple on un-irrigated land reached its peak in 1990s when the land brought under apple was 95% more than what was brought under apple in 1980s, thereby, also limiting availability of un-irrigated land for further conversion. As apple witnessed high growth in acreage on un-irrigated land in 1990s, a few households had also converted their paddy land to apple then. But most of the households were though initially keen to convert only un-irrigated land to apple because un-irrigated land was not very productive and this trend continued till 1998-99 when a severe drought hit the village and heavily damaged the un-irrigated apple orchards. As a result, people then also started converting their paddy land to apple –paddy had assured irrigation and was not prone to drought. Others factors also contributed to such trajectory. The increasing demand for apple and better rates had made people realize that it was financially better to increase apple than any other crop. Also, the

availability of un-irrigated land to be brought under apple cultivation was shrinking in the village posing limitations to the further expansion of apple cultivation unless other crops were replaced by apple. In such a context, the drought became a precursor for the village to start converting their paddy land to apple. The data also showed that only 3.4% households had converted paddy land (a total of 11 kanals) to apple during 1990-99 and the conversion of paddy land to apple only picked up later but immediately reached its peak during 2000-09 both in terms of numbers of households converting paddy to apple as well as the actual acreage converted to apple (59% of total paddy converted to apple was done during 2000-09).

This drastic transformation in cultivation patterns was driven by a strong economic rationale. All households except one who converted any portion of paddy or un-irrigated land to apple stated that there were very limited earnings from cultivation of paddy or any other crop. On the other hand, all of the 92 households who were growing apple in the village stated that apple has proved to be much more financially beneficial and that returns from apple are very high as compared to paddy or any other crop. It was very clear that all households preferred apple over other crops if land was suitable for apple.

Whether farmers especially with small and marginal landholdings earn significant incomes from agricultural outputs has been a debate especially in the recent times at the national level. Therefore, given that most households owned marginal to small landholdings in the study village (average landholdings were 15.48 kanals), apple has been able to fetch high returns as claimed by all households was corroborated by the estimates of the incomes fetched by farmers. The estimates made with the help of local group of farmers showed that the households fetched an average income (savings) of Rs 3308 per kanal of land with paddy and Rs 1500 per kanal of land with maize crop. On the other hand, walnuts fetched an average income of Rs 3968.80 per kanal of land and apple crop fetched an average income of Rs 22353.34 per kanal of land (Rs 1.79 lakhs per acre of land). Although the paddy and maize cultivators were too small in number to make a comparison with apple and walnut orchards, the study does indicate that the average incomes (savings) from apple are very high than walnuts, paddy or maize. The savings from apple were 5.6 times more than walnuts, 6.7 times more than paddy crop and 14.9 times more than maize.

This explained therefore why there was a preference for apple crop in the study village and most households had converted maize and paddy land to apple even when it requires very high input costs, apple trees require a wait period for 5-8 years to grow to start producing crop, rates are relatively volatile and crop is very sensitive to weather conditions. Although walnut is second most cultivated crop after apple in terms of acreage under it and incomes fetched from walnuts are much lesser than apple, it may still justify having walnuts because the land used for walnuts (usually sloppy, dry or rocky and vulnerable to drought) is in many cases not suitable for apple.

To give a holistic perspective on what these incomes meant at household level, the study showed that the average incomes (savings) fetched by landowning households (95% of sample households owned land) from all crops taken together was estimated to be Rs 2.12 lakhs on annual basis, which is significantly high<sup>65</sup>. Such higher incomes from farming are likely to have a significant impact on reducing the poverty in the village. It was also found that the apple orchards contributed 85.9% to the total farm incomes and were also owned widely by households in the village (92% sample households owned apple orchards), thereby, it can be inferred that it was the 'apple cultivation' that has enhanced the ability of a large section of households to improve their living conditions<sup>66</sup>. This was also corroborated by 82% households which stated that 'horticulture incomes' have improved their livelihoods. Further, the data has also shown that 65.8% of the total farm incomes came from the apple which was cultivated post 1990<sup>67</sup> (because of acreage under it). That suggest the apple cultivation post 1990 has actually led to increased incomes to the farmers and thereby to the village.

The study also showed that if estimates on farm incomes of sample households are extrapolated to apply to the entire village which had more than 1450 households, the farming alone may be fetching close to Rs 29 crores to the village on annual basis. That suggests the farm incomes were not just substantiating the livelihoods of farmers but also likely to have a trickle-down effect on the overall economic opportunities in the village and thereby supporting local businesses to

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<sup>65</sup>If all the 100 households are considered including 5 landless, the average savings would be Rs 2.01 lakhs per household.

<sup>66</sup>68% households had incomes of at least Rs 70,000 or more from farming suggesting the impact of farm incomes was widespread and significant.

<sup>67</sup>In total, 85.9% of the total farm incomes came from entire apple cultivated before and post 1990.

thrive and also creating demand for labour. That explained how more than 50 cabs sustained their livelihoods in the village by ferrying people between village and districts headquarter.

With the changes in cultivation patterns, agricultural land has not just been limited to a source of food grains but has emerged as an important resource for boosting incomes and shaping livelihoods of people in the entire village, thereby, determined the overall socio-economic conditions of people in the study village. Such phenomenon is likely to have occurred in many parts of state and is corroborated by the macro-data which shows that the apple cultivation has also seen an extraordinary and increasing growth over time at the state level. The total acreage under apple cultivation increased by 44.06% from 1975-76 to 1989-90 but 47.65% from 1989-90 to 2003-04 and 63.26% from 2003-04 to 2017-18. This shows that the rate of increase in apple cultivation post 1989 has been higher (especially in the last 14 years) than the period before 1989 (Govt of J&K, N.Dc), in line with the pattern shown by the village study. *In total, the acreage under apple at state level has increased by 141.07% between 1989-90 and 2017-18 (Govt of J&K, N.Dc).* The growth of apple has also been much faster than growth in other fresh fruits taken together. Land acreage under all fresh fruits (minus apple) increased by only 27.51% and land under apple increased by 51.05% between 2004-05 and 2016-17<sup>68</sup> (Govt of J&K, 2016-17). Dar (2015) suggested that the phenomenal increase in acreage under apple in J&K is partly because of increasing conversion of land under food crops to apple as was also shown by this study. The structural transformation in land use with increasing cultivation of apple over time which has occurred in the study village also seems to have been a phenomenon at the state level. *Such structural transformation can also be assumed –as shown by the village study—to have made widespread impact on the socio-economic conditions of people at state level especially in Kashmir region which produced 98.09% of total apple in 2016-17 in J&K (Govt of J&K, 2016-17).*

*Overall, the study showed that the horticulture incomes and government jobs boosted livelihoods of entire village in the last 26 years thereby marking a significant intergenerational change in overall socio-economic conditions. Also, because the income sources were diverse to most*

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<sup>68</sup> The data was not available before 2004-05

*households (85% households had two or more livelihood sources), the actual incomes would be higher than just the farm incomes and/or government jobs. Given the high number of people engaged in government jobs at state level and extraordinary growth of apple in Kashmir valley, it may be assumed that such factors are also likely to be the primary reasons for the significant improvements in socio-economic conditions in many parts of Kashmir valley post 1990, and, thereby, also helping people to mitigate the impact of conflict on them in many ways.*

The increased incomes from livelihoods also had a positive impact on people's living conditions. The incomes from farming alone which were fetched by most households were significantly high (average of 2.12 lakhs on annual basis) to the extent that these were likely to leave some cash available to invest into household assets and amenities to improve their living conditions. In addition to these direct incomes, the apple cultivation has also enhanced the ability of farmers to use credit linkages from middlemen and banks under a government Kisan Credit Card (KCC) scheme. 52% households had borrowed money from middlemen and 34% households from KCC scheme between 2012 and 2016. Majority of farmers would use such credit linkages because the apple cultivation is resource intensive and requires high input costs for each crop. But it also helped 54.55% farmers to make investments in either constructing a house or for education of children or used for livelihood generating activities like purchase of transport vehicle, opening a grocery shop and so on or purchase of land or car or bike. That shows the access to large sums of money at any time from middlemen and/or KCC has helped many households to make investments or use it for improving their living conditions and purchase of assets.

Such enhanced access to incomes through direct and indirect ways has resulted in increase in household amenities and assets over time and is corroborated by the data collected from the study village. The study showed there has been a significant increase in ownership of basic household items<sup>69</sup> among the sample households from an average of 3.55 to 7.11 items between 1990 and 2016. Likewise, the ownership of costly durables (TV, Washing Machine, Refrigerator and Computer) has also seen significant growth in the village. Not a single household owned any of these durables in 1990 and whereas 73% of the households owned at least one of these items

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<sup>69</sup> The list of such items can be referred from Chapter-4



in 2016. Besides, those who owned any vehicle in 1990 were only 4 households and increased to 37 households in 2016. Unlike basic items, the durables and vehicles are costly and reflect the increased affordability of the households over time. The study has also shown significant improvements in the housing structures over time. Only 23% households had pakka houses in 1990 which increased to 91% by 2016. Katcha and Kotha type houses (inferior housing), which constituted 34% houses in 1990, have vanished completely and not a single household had such types of houses in 2016. There have also been significant gains in number of rooms owned by households over time from an average of 3.88 rooms in 1990 to 4.97 rooms in 2016. Most households (93.5%) reported that the increased incomes over this period have been one of the main factors that helped them to improve their housing conditions. Besides, the ability of 26.1% households to borrowed money or avail KCC loan (against apple crop) has also helped improve their housing conditions.

Other household amenities have also increased between 1990 and 2016. The households using piped water have significantly increased from 10% to 96% over this period. Those who had invested into bringing water pipeline into house to fetch water has increased from just 2% to 51% over this period. The increased proximity to water sources through pipelines is partly because government has invested into such facilities but partly also because of the increased economic ability of households to invest into bringing water pipes closer to house and pay fee to government. Besides, the access to toilets has significantly increased between 1990 and 2016. Open defecation has decreased from 48% to just 4%, whereas the households who used flush toilets have significantly increased from just 2% to 51% over this time. In absence of any access to government scheme, the increased flush toilets are a clear indication of the improved economic conditions of a significant proportion of households over this time. *Such preventive public health measures including improvements in housing and increased access to piped drinking water and improved toilets are known to play a greater role in improving health status by reducing infections especially among children.*

Most of the households (88%) have also observed improvements in educational attainments over time. The average number of school years attended by parent's generation was 2.83 years, which has increased to 7.74 years for children's generation, showing an increase of 4.91 school years

over a generation. The age-group wise data also shows that the younger the age group the higher is the educational attainment. Those who were in 20-34 years at the time of survey had attended school for an average of 7.69 years, as compared to only 4.03 years attended by those in the age group of 35-49 years, who are in turn followed by those who were 50 years or above and had been to school for only 2.62 years on an average. Although 48.9% households said the overall demand for education increased and 11.4% felt the improved access to government schools have helped the younger generation to achieve more education but almost all households also indicated that the enhancement in incomes have made it possible to send children to school.

In addition to increase in amenities and assets, the improved socio-economic conditions have also substantially improved the food intake (quality and quantity) for most people in the study village since 1990. 99% households said that the food intake has diversified and 82% households also said that the overall food intake has increased since 1990. Consumption of oil, milk, eggs and meat— which are important ingredients of quality food and have bearing on nutritional outcomes of population have also significantly increased. 91.0% households said the intake of ghee/oil/butter has increased over time since 1990; 82.0% said the intake of non-vegetarian food has increased over this time; 82.0% households said the intake of eggs has increased; and 78.0% households said milk consumption has increased. The proportion of households who would take meat four or more times in a month has increased from 14% to 77% post 1990s. In addition, most households (94%) also said that the younger generation had better access to food during their childhood. These findings were also corroborated by the narratives from the people. *Such increases in food intake and quality were likely to have impact on the health and nutritional status of people.* These enhancements in food intake have occurred despite an increasing deficit in food grains in J&K especially over the last 26 years beginning in 1990s (Dar, 2015). That clearly indicates the increased food intake by people is a result of widespread improvements in socio-economic conditions that have occurred in the village and have increased their affordability to access quality food. The government provisions have also improved especially in terms of quality of PDS ration and the provisions for supplementary nutrition for children over this time.

Alongside, there have also been widespread changes in work patterns over time, which were likely an outcome of the enhanced household amenities and assets and because of government's investments in roads. The study has shown that work has decreased for a majority of households (75%) between 1990 and 2016 in different ways: collecting firewood from forests or fetching water from springs/canals has reduced; livestock rearing has reduced; increase in household assets and amenities has also reduced work; the expansion of roads (within village and outside) and the increase in transport facilities have also decreased manual work; labour requirements for cultivation of land have reduced due to use of tools/machines and decreased land holdings over time; and the manual work hours for casual labour have reduced over time. *In particular importance was the finding of the study that engagement of children in labour and other domestic work has reduced drastically over a generation which is also corroborated by the increasing participation especially of girls in education.* The research has shown any significant reduction of manual work (thereby saving of energy) would mean availability of that energy for body to use it for growth. Therefore, the reduction in work along with the increase in food intake and other facilities were likely to contribute to the physical health and nutritional status of people in the village. Another related aspect that had direct impact on children's access to food is the workload of mothers who are primary care givers for children especially when they are young. As most households reported that the workload on present generation of daughters-in-law has reduced as compared to older generation of daughters-in-law (now mothers-in-law), it has translated into a better care for children, therefore, contributed to better health and nutrition status.

Another positive impact of the improving socio-economic conditions has been on the access to essential services especially the health services. The macro-data as well as the empirical study undertaken by this researcher for MPhil dissertation have shown a relatively better access to health services in J&K as compared to all-India, which was a result of the better public provisioning in the state and people's affordability to spend money on health services (Dar, 2012). The access to maternal and child health services including antenatal care, institutional delivery, basic vaccinations to children, treatment for diarrhea or ARI symptoms has also been better in J&K (and is detailed in the Chapter-1). The MPhil study also showed even while the conflict creates barriers to utilization of available services, the enhanced socio-economic

conditions have been able to help people reduce such impact and improved access to health care (Dar, 2012). The better access to health services and in particular to maternal and child health services is also one of the factors for reducing infections and impact of illness among children and thereby contributes to better nutritional status.

*In summary, the study has shown that significant improvements have occurred in the socio-economic conditions which were clearly visible from various economic measures, and through different pathways the improved socio-economic conditions have also resulted in better health outcomes in the village. Such improvements in socio-economic conditions were significant and widespread and have been driven by the drastic changes in cultivation patterns in the village over the last three decades since 1990 and also supplemented by the government jobs which have been one of the important and sustainable sources of livelihoods for people at large in the state.*

*However, what also needs to be recognized is the role of the political processes and public policy—especially the creation of lift irrigation projects which have boosted the apple production in the village—but the influence of such factors remain invisible and intangible. The implementation of land reforms in 1950s have paved the way for a relatively egalitarian society and shared the precious resources (land) with some of the most disadvantaged. In the recent past (between 2002 and 2018), the government has also developed three major lift irrigation projects in the village which have structurally enhanced access to irrigation especially for un-irrigated apple orchards and reduced its vulnerability to drought. Thereby, increased confidence of farmers to invest on un-irrigated apple orchards and making such cultivation more sustainable. These projects have also helped in increased productivity, enhanced growth of apple trees and improved quality of fruit. The lift based irrigation had huge impact and wide coverage. 70% households were benefited with some portion of their land covered by lift irrigation. The other major assistance extended by government was the credit linkages for apple cultivation under Kisan Credit Card (KCC) scheme. Its coverage was increasing and was gradually replacing middlemen from the equation.*

The government has also helped people in other ways and played an increasing role in improving access of people to water facilities, education and livelihoods over time. The access to piped water which increased from 5% to 93% between 1990 and 2016 was partly because the government established network of pipelines through the village. 60% households also stated that the access to schools has improved over this time. Schools are now located in almost every major hamlet in the village including those inhabited by ST population. Government has also played an increased role in employment generation over time especially with respect to creation of opportunities for casual work. 15% households reported that public works (including MGNREGA) have helped in creating opportunities for work locally during the present generation which didn't happen earlier.

This village provided an interesting example of the impact government's policies can have on people's choices and access to resources and opportunities and also enhanced their ability to fetch better incomes. However, the impact has been differential with STs, deprived castes and those economically poor don't enjoy equal access to lift irrigation, credit and other support structures as compared to the general castes and those economically better who enjoy disproportionate access to government benefits. 50% households from ST/ deprived castes didn't have access to lift irrigation as compared to only 5.9% households from general castes. Similarly, 53.8% households from lower economic group didn't have access to lift irrigation as compared to only 8.1% households from upper economic group. Such disparities also existed in the KCC loan and government jobs held by household members.

These disparities in access to public infrastructure, jobs and services are an outcome of the structural inequalities that are embedded in the society and continue to exist in different forms. The structural inequalities in access to resources and opportunities, and unequal access to public services have been major forces that have helped to sustain disparities in many ways. That is the reason why despite the widespread progress experienced by people in the study village disparities continue to exist in access to resources, farm incomes, household assets and amenities along the lines of gender, caste and economic groups.

The average landholdings owned by ST/ deprived castes were 12.38 kanals as compared to 16.94 kanals by general castes. Similarly, the households from lower economic group owned an average of 5.78 kanals of land, as compared to 18.89 kanals owned by households from upper economic group. Such disparities also existed in the ownership of apple orchards. The study has also shown that more than half of scheduled tribe/deprived caste households (53.17%) didn't own any of the costly durables (TV, Washing machine, refrigerator and computer) as compared to only 14.7% households from general castes who didn't own any such durable. Further, 35.3% households with smaller landholding (0-10 kanals) didn't own any durables, whereas only 18.4% households with larger landholdings (11 kanals or more) didn't own any durable. Similarly, only 18.8% households from ST/deprived castes owned a vehicle whereas 45.6% households from general castes owned any vehicle. 36 out of 37 households who owned any vehicle belonged to upper economic group and only one household with vehicle belonged to lower economic group.

The study also showed only 18.8% households from ST/deprived castes as compared to 66.2% general caste households and only 11.5% households from lower economic group as compared to 64.9% households from upper economic group had piped water into the house. Similarly, only 25% households from ST/ deprived caste households as compared to 63.2% general caste households had flush toilets. Only 7.7% households from lower economic group had flush toilets as compared to 66.2% households from upper economic group who also had flush toilets. The study also showed that 94.1% general caste households as compared to 84.4% households from ST/ deprived caste had a pakka or concrete house. Similarly, 93.9% households with larger landholdings had a pakka house as compared to 88.2% households with smaller landholdings. The study has also shown that the general castes and better economic groups were engaged in better paying and quality livelihoods than those belonging to poor economic groups or deprived castes/STs.

*In fact the study has also shown that inequalities in certain economic measures have increased along the lines of caste, gender and economic groups.* The households from general castes owned an average of 1.48 rooms more than ST/ deprived castes in 1990, and this gap increased to 1.89 by 2016. Similarly, the households from upper economic group owned an average of 1.6 rooms more than the households from lower economic group in 1990, and this gap increased to

2.97 rooms by 2016. The study also shows that the school years attended by men increased by an average of 5.05 school years over a generation as compared to women who saw an average increase of 4.95 school years over this time. The continued disparities in educational attainments have resulted in a gender gap of almost one generation. The average schools years attended by female children (5.38 years) - representing a younger generation- have reached close to father's level (5.0 years) - which is representing an older generation. The study also suggests that the inequality in education in terms of numbers of school years has also increased over time along the lines of caste and class. The data shows that the gap in average school years attended by general castes and ST/deprived castes was 1.62 years in the older age-group (50 years & above), and has sharply increased to 1.87 years during the younger age-group (20-34 years). Further, the upper economic group was ahead of lower economic group by an average of 1.92 school years in the older age-group, but this gap increased to 3.84 years in the younger age-group.

The farm incomes (savings) have also shown a strong gradient along the lines of caste and class. The average income fetched by general castes from farming of all crops was Rs 2.42 lacs on annual basis, which was much more than the average income of Rs 1.14 lakhs fetched by ST/ deprived castes on annual basis. Similarly, those with better livelihoods fetched an average income of 2.99 lakhs from all crops on annual basis which was much more than the average incomes of only 94.8 thousands fetched by households with poor livelihoods. The transition to apple cultivation though made a significant impact on reducing poverty but it has also led to disproportionate benefits to upper economic groups and general castes leading to increasing inequalities. The general caste and upper economic groups on an average had older apple trees (invested on apple trees early so got first mover advantage) and have larger landholdings under apple, both of which are important determinants for better apple production, and therefore are able to fetch much better incomes than ST/ deprived castes and poor economic groups. Such levels of inequality that exist in farm incomes now (2016) would not have emerged in absence of apple as paddy and maize which were main crops before were fetching only low incomes.

*These disparities in socio-economic conditions have continued in the village primarily because the progress or the economic betterment has been shaped by the existing resources of land and education which the deprived castes and STs possessed disadvantageously. The changing*

*cultivation patterns with transition to apple also favored the upper class and general castes disproportionately sharpening the existing inequalities in various socio-economic measures including education, livelihoods, housing, durables & other resources between ST/deprived castes and general castes and between poor and rich. The unequal access to public infrastructure and services especially the life irrigation has also exacerbated such disparities.*

The rising inequalities in the socio-economic conditions as observed in the study village may have implications for population health in J&K. The effects of relative deprivation on health have been widely analyzed and the literature has shown even when the basic needs are met the inequality in socio-economic conditions has detrimental effect on health (see Wilkinson 1999; Hatton, 2013; Shaw et al. 1999).

The study also showed that people's perception about the overall quality of life was not completely in consonance with the substantial improvements in living conditions that have occurred and was likely due to the background of the conflict in the state. While 83.0% households felt the overall quality of life has improved (facilities/resources have increased) over a generation's time, 98.0% households also stated, at the same time, that life has become stressful due to conflict and 69.0% households also felt insecurity and fear has increased. This was also corroborated by the findings that the ongoing conflict has increased exposure of people at large to traumatic events and a majority of them have also faced ill-treatment and/or torture which have possibly overshadowed the perception about the improvements in socio-economic conditions. Related to this was also the observation that despite the increasing household amenities, decrease in work, reduction in child marriages, increased participation in education and other socio-cultural changes, the leisure time/activities have reduced over a generation's time. The study showed that a majority of households (76%) stated that the leisure time/activities have reduced over the time. With specific reference to women, most of the households (92%) also stated that the participation of women in leisure time/activities have reduced over a generation. The reduction in leisure activities/time (which also meant spending time with peers/neighbors/etc has decreased) in a stressful and traumatic environment may have implications for the mental health of people. There are studies that have indicated the increasing psychological distress in J&K (see Jong, K. et al. 2006; MSF, 2016; Hussain, et al. 2016). The



research has also shown that the pro-longed stress is likely to have serious implications on health, and may result into depression, increased vulnerability to infection, diseases, high blood pressure, high cholesterol levels, etc. A study done by ActionAid and IMHANS in 2015 indicated that 11.3% of adult population suffered from mental illness (mostly depressive and anxiety related disorders) in the Kashmir valley (Hussain, et al. 2016).

Another important health issue that the study has indicated was the epidemiological shift in adult weights that overweight/obesity was a major nutritional issue than being underweight in the study village. This epidemiological shift in adult weights has also occurred in the entire state over the last decade majorly and as a result overweight has become a major nutritional issue in the entire state (details already given earlier). As the results of the study have shown a prominent role of socio-economic factors in determining BMI and the overweight or obese adults were disproportionately more among the upper economic groups, this epidemiological shift in adult weights is an outcome of the enhanced socio-economic conditions. It has also implications on health status at population level in terms of the escalating burden of some of the non-communicable diseases (NCDs). For instance, the NFHS surveys have shown that the number of persons (aged 15-49) per 100,000 who reported that they have diabetes have increased from 540 to 1,925 for women and from 278 to 2,953 for men between 2005-06 and 2015-16 (see IIPS and ICF, 2017b; IIPS and Macro International, 2009). Such implication would need further exploration.

Summarizing the findings, the study has provided a clear evidence of the significant improvements in health and nutrition outcomes that have occurred over the last three decades from 1989 to 2018 despite the period coinciding with conflict in the state. As suggested by the literature, the study also indicated the conflict is likely to follow different trajectories depending on the social organization, public provisioning of services, relations between different classes, social cohesion and support, access to resources, livelihoods and opportunities, etc. That is also the reason the impact of conflict on health and particularly nutritional status has shown different experiences in the world and there is an evidence of both positive and negative impact on health. Many European countries provide convincing evidence of experiencing higher rates of increases in heights during trans-war period (when they witnessed two world wars and the great economic

depression) even when the growth in GDP was slower (Hatton, 2013). Therefore, conflict may not necessarily lead to decline in health outcomes which are ultimately determined by an overall accumulative impact of a combination of factors. The developments in health would result from a balance between conflict related effects and changes in socio-economic conditions in the society. But what also needs to be recognized that pathways may be very different in different contexts.

The economic impact in J&K at state level does not seem to have deteriorated public provisioning in J&K. In fact, conflict became an alibi for the governments to continue with a universal Public Distribution System in J&K even when it was limited nationally in 1997 to cover only poor. A higher proportion of people hold government jobs in J&K, a significant number of those are in police whose higher strength is directly an outcome of conflict. The study has also shown that there have been drastic changes in cultivation patterns and apple has emerged as a major crop fetching very good incomes to farmers. As major part of apple cultivation has been undertaken post 1990, 65.8% of the total farm incomes came from the apple which was cultivated post 1990. It can therefore be assumed that the changes in socio-economic conditions experienced in J&K over the last three decades are more pronounced and likely to have outweighed the negative effects of conflict, resulting into better health outcomes in general and significant improvements in heights in particular.

### **6.1. Scope and Limitations of the Study:**

- a) The study provides deep insights into the socio-economic improvements that have occurred in the last three decades despite the state witnessing conflict using data from primary study and large macro-level surveys. Thereby, it contributes to the literature on the impact of conflict on socio-economic conditions of people building on an alternative perspective that conflicts doesn't necessarily lead to decline in health outcomes which are determined by a combination of factors and also depends on the pathways followed.
- b) It has also looked at the impact of the socio-economic changes on the health outcomes and, thereby, contributes to the discourse on determinants of health providing insights on the linkages of socio-economic conditions and health.

- c) It also highlighted the importance of the role played by government and the impact a public policy can make on people's resources and opportunities but also underlined that if such policies are not inclusive in design and implementation they will further accentuate inequalities that traditionally existed along the lines of caste and class.
- d) It examined the changes in health and nutrition status over a generation using 'height' as a proxy indicator for both. That provided an opportunity to examine the developments in health and nutrition status over time (and retrospective in effect) from 1990 to 2016. The infant mortality rate and child nutritional levels which are important indicators of health status were only analyzed through macro-data which has limited the scope of analysis. Also, the likely impact of conflict on certain morbidities and also of the rising socio-economic conditions on morbidities and subsequent impact on mortality may need to be examined to gain a broader perspective on health status. Due to the feasibility concerns, such issues were not looked at and have remained a limitation of the study.
- e) The primary (field) study was conducted in two parts. The first part included interviewing a sample of 100 households focusing on understanding socio-economic changes over time. The sample though small but was selected using systematic random sampling and represented diverse backgrounds in terms of caste, ethnicity and economic groups; therefore the results are fairly representative of the village. The second part included taking anthropometric measurements of adults in the age-group of 20-50 years from 510 households which were selected using systematic random sampling & also represented diverse backgrounds. This provided adequate sample size for the anthropometric measurements (1294 adults for heights and 1285 adults for weights) and to make inferences to help understand the extent of linkages of socio-economic variables and heights as well as changes in heights over time.
- f) However, given the wide disparities in the socio-economic, political and ecological conditions between the three different regions of state (Jammu, Ladakh and Kashmir), the generalizability of the findings of study which was undertaken in a village in Kashmir remains limited and can only be applied to the other two regions –Jammu and Ladakh –with some measures to verify its validity in these two regions.

- g) Given that the study was undertaken in only one village in Kashmir with high apple cultivation which formed the basis to explain the socio-economic changes experienced by people in the last three decades, the generalization of any inference to other parts of Kashmir especially to areas not growing apple have to be done with caution, and considering the socio-economic and political context of such areas.
- h) There were chances of under-reporting especially of land and other assets owned by the households as the methodology involved recording the data only on self-reported basis. However, the probing questions put to the respondents during data collection improved reliability and accuracy as possible.
- i) To understand the changes in socio-economic conditions over a generation's time, the study looked at diverse socio-economic indicators and recorded information not only about the current situation but also the situation which existed 26 years before to be able to make comparison and assess changes over time. Therefore, there were chances of 'recall bias' to remember the situation that existed 26 years before. However, the methodological framework adopted was conscious of possibility of such 'bias' and only such indicators were used where the chances of 'recall bias' were minimal. Additionally, the data collection process required interviewing the elder household members who were older enough in 1990 to recall the household situation. Second, what has also improved the data quality on these indicators was the rigorous process followed for data rectification. After the first part of study was concluded all the filled schedules were checked to note any contradictions, missing data or any additional information required. As all households were revisited during the second part of study to carry anthropometric measures, the researcher would begin the interview to make rectifications in the data collected under first part of study. It was observed that this process has improved quality of data to a great extent.
- j) The study used a mix of tangible and perception based indicators to assess the changes in socio-economic conditions. The perception based indicators were only few and such information was corroborated by the qualitative data as well as by other tangible indicators.

## **6.2. Issues for Future Research:**

This study had raised some important questions around the issues of socio-economic development and health outcomes and provided deeper insights into such issues. There are however many research questions which this study has further raised and thereby providing an agenda for future research around the issues of socio-economic development and health.

- a) The study showed that despite the widespread improvements in socio-economic conditions in J&K, the inequalities in many indicators (like education, heights, housing space, farming incomes, vehicle and other costly durables) have actually become sharper along the lines of gender, caste and class. The literature shows that not only absolute material conditions are important but relative deprivation also plays a significant role in determining health outcomes even if basic conditions do meet, as was found in Europe. Wilkinson (1999) also showed that the improvements in economic conditions does not necessarily result into improving health conditions if the growth is not egalitarian, otherwise it will have a negative impact on population health. In a way, with or without high levels of poverty and destitution, if relative deprivation is increasing, it will have an additional negative effect on the population health. Therefore, how the increasing inequalities in socio-economic conditions in J&K interact with the health outcomes needs to be investigated.
- b) The conflict has created many structural constraints that shape the access of people to resources and opportunities especially to livelihoods and services. Though the conflict has affected all sections of population, its impact is more on disadvantaged groups who lack resources to cope up. Therefore, to what extent the conflict is contributing to the growing inequalities in socioeconomic conditions and health outcomes needs to be explored.
- c) The study concluded that because the improvements in socio-economic conditions have been more pronounced than the negative impacts of conflict which have resulted into overall better outcomes over the last generation. The question stills remains whether any improvements in health were compromised by the negative impact of conflict which needs a more systematic consideration and analysis.

- d) The literature has shown that conflict can potentially change the existing power dynamics in the society. Such impact of changing power dynamics and social organization due to conflict on socio-economic conditions needs to be explored.
- e) The study has pointed to the epidemiological shift in adult weights that has occurred in the study village as well as at the state level and as a result overweight has become a major nutritional issue in the entire state. This is likely to be an outcome of the rising socio-economic conditions but its implications on health status at population level in terms of the escalating burden of non-communicable diseases (NCDs) need to be examined.
- f) The study has shown the impact the public policies have made on people's resources and opportunities building their resilience to drought and improving sustainability of apple crops on un-irrigated land in the village. But the village exerted huge political influence which was likely to have determined the infrastructural availability in the village. It would therefore require examination in other areas as well whether such policies are widespread and impactful throughout the Kashmir region.
- g) As noted earlier, the data has shown there are significant disparities in socio-economic, political and ecological conditions between the three regions of the state of J&K. Therefore, the findings of this study needs validation in other two regions whether the improvements in socio-economic conditions have led to better health outcomes in such regions as well. That can be done by undertaking a similar study in these regions. What has led to the socio-economic changes in such regions may also need to be examined.
- h) In fact, a further validation of the findings of this study from other districts of Kashmir may reinforce the conclusions of this study and may provide a basis for generalizing these to at least the Kashmir region.

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## Annexure-- A: Interview Schedule for Intergenerational Changes in Socio-Economic Conditions<sup>1</sup>

### Introduction and Informed Consent

*Greetings (in local language),*

My name is Tanveer Ahmad Dar and I am doing PhD at Centre of Social Medicine and Community Health, Jawaharlal Nehru University, New Delhi. As part of my PhD, I am conducting a survey about the changes in the socio-economic conditions, food quality and work patterns over the last 25 years.

I would very much appreciate the participation of your household in this survey and would like to ask you some questions about your household and access to services. The interview usually takes about one hour to complete. Whatever information you provide will be kept strictly confidential. Participation in this survey is voluntary and you can choose not to answer any question or all of the questions. However, I hope that you will participate in this survey since your participation is important.

Do you want to ask me anything about the survey?

May I begin the interview now? : Agreed to be interviewed... 1      Not agreed to be interviewed...2

**Note:** (1). Respondents can be any adult male and/or female of a household; (2) For some questions, multiple answers are possible. In that case, encircle multiple codes or fill multiple codes in boxes as applicable but separated with vertical lines; (3) In case the space provided in any section is not enough, use additional sheets but mention it on the questionnaire.

### Section 1: Identification

		H. No.		
	Name of Respondents:	Relationship with Household Head:		
	1. M:	1.		
	2. F:	2.		
	Name of H. Head:	Date of Interview:		

### Section 2: Household Members<sup>2</sup> Information

1	Caste ____	SC_1/ ST_2/ OBC; OSC_3/ General_4	
2	Nature of Family (Nuclear __1/ Joint __2/ Nuclear-extended __3)		
3	Nature of Family in 1990 (write description also)		

[Nuclear is husband-wife and unmarried children, nuclear extended is husband-wife, unmarried children and parents-in-law (either or both), Joint is husband-wife, parents-in-law, unmarried children and others]

<sup>1</sup> A portion of this schedule (especially Section 3) has been guided by the interview schedules of NFHS surveys.

<sup>2</sup> Only those persons will be recorded whom does the household record as members of family. But the information about the married daughters will also be recorded in the H.H member's information table.

**4. Record information about all members in the table below** (In case the household is headed by a person who is between 20 to 30 years, record information of his father and mother as well, and in case headed by a widow, record information about her late husband as well). Also indicate highest earning member in the table.

ID No	Name (Start with H. Head)	Relation to H. Head	Sex M/ F	Age (in cmplt years)	Marital Status	Highest Level of Education If currently studying, mention	Main Occupation (Use Codes)	Subsidiary Occupation (Use Codes)	Main Occupation in 1990 for those above 40 yrs (Use Codes)
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

**Codes:** Under-age/6 yrs \_\_1; Studying \_\_2; Charity—3; Household work \_\_3; Domestic worker \_\_4; Cultivation/farming \_\_5; Tending Animals \_\_6; Casual Labour \_\_7; Skilled labour \_\_8; Artisan \_\_9; Govt. Salaried employment \_\_10; Prvt. Salaried employment \_\_11; Retired pension holder \_\_12; Contractor \_\_13; Nothing in Particular \_\_14; Other Self Employment (specify).....15; Others (specify).....16

**Section 3: Household amenities and Ownership of Assets**

5	Do you have a ration card? Yes / No	2016:	
		1990:	
6	If yes, what kind of a card do you have? NPHH/PHH/BPL/AAAY/None or APL/ BPL/ Antodaya/None	2016:	
		1990:	
7	Extra info, if any:		
8	During the last three months did you buy any item from the PDS? Yes / No	2016:	
		(1990):	
9	Extra info, if any:		
10	During the last three months, how many times did you purchase the following from PDS? ____ times	11. In 1990, what were the PDS supplies? <i>write yes or no in the boxes against items</i>	
		a) Rice	
		b) Wheat/Atta	
		d) Sugar	
		e) Kerosene	
		f) Other	
12	In 1990, were the supplies regular? Yes / No		
13	What kind of a house do you live in? <i>Houseless/ Kachha / Semi-pakka / Pakka / Pakka and concrete/ Other</i> _____	2016:	Owned/Didn't own/rented
		1990:	Owned/Didn't own/rented
		1970:	Owned/Didn't own/rented



14	How many rooms you have in your house? <i>Including kitchen if bigger in size</i>	2016:		
		1990:		
15	Was the house shared by your larger family in 1990s? 1. Including parents of H. head 2. Including married & unmarried siblings 3. Including unmarried siblings 4. Including children of siblings			
16	Whether the present house has roof with colored tin sheets?	Yes/ No-Simple tin/ Thatches		
17	Whether the house in 1990 had roof with colored tin sheets?	Yes/ No-Simple tin/ Thatches		
18	Has the overall maintenance (in terms of material used, wardrobes, furnishing, kitchen, etc) changed in your house over this time – 1990 to present? 1. Same                      2. Improved                      3. Deteriorated			
19	When and who has constructed the house of 2106?	_____ by		
20	When and who had constructed the house of 1990?	_____ by		
21	When and who had constructed the house of 1970?	_____ by		
22	What are the main sources of water for members of your household? <i>Piped water/ Tap; Tube well or borehole; Dug well ; Water from spring; Tanker truck; Surface water (river/Lake/ pond/stream /canal); Other (specify)</i>	2016:		
		1990:		
23	What are the main source of water used by your household for other purposes such as cooking and hand washing? <i>Use above options</i>	2016:		
		1990:		
24	Where is the water source located? <i>In own building; in own yard; Outside home</i>	2016:		
		1990:		
25	Do you treat your water in any way to make it safer to drink? <i>Yes/ No / Don't Know</i>	2016:		
		1990:		
26	What do you usually do to the water to make it safer to drink? <i>Boil; Use alum ; Add bleach/chlorine tablets ; Strain through a cloth; Use water filter (ceramic/sand/composite/etc.);Use electronic purifier ; Let it stand and settle; Other (specify)___; Don't know</i>	2016:		
		1990:		
27	What type of fuel does your household mainly use for cooking? <i>Wood; Dung cakes; Kerosene; LPG; Electricity; Coal; Others ___ (specify which is used more and less, if different types are used)</i>	2016:		
		1990:		
28	Do you have electricity in your house? <i>Yes / No</i>	2016:		
		1990:		
29	What kind of toilet facility do members of your household usually use? <i>Flush or pour Toilet; Pit Latrine; Dry latrine; No facility/use open space; Other (Specify)___</i>	2016:		
		1990:		
30	Is the toilet facility in your house or shared with others? <i>In house; in yard; Community toilet; Shared with other few households; Other (Specify)___</i>	2016:		
		1990:		
31	Does your family own any agricultural land? <i>Yes/ No/ Don't Know</i>	2016:		
		1990:		
32	How much agricultural land does your family own?____ Kanals <i>(irrespective of type of cultivation)</i>	2016	1990 (Ind. Share)	1990 (Joint family)
		_____ irrigated	_____ irrigated	_____ irrigated
		_____ un-irrigated	_____ un-irrigated	_____ un-irrigated
		_____ apple orchards	_____ apple orchards	_____ apple orchards

33	Does your household own any of the following animals?				2016	1990
	1) Cows/bulls/Buffaloes					
	2) Goats/Sheep					
	3) Chicken/Ducks					
	4) Horses/Donkeys					
	5) Other _____					
<i>If yes, write the number of animals owned. In case of none, write '0'</i>						
34	Do you or anyone in your household own any of the following? <i>Yes / No</i>					
	Items	2016	1990	Items	2016	1990
	Mattress			Any other type of telephone		
	Pressure cooker					
	Chair			Water pump		
	Cot or bed			Animal-drawn cart		
	Table			Colour TV		
	Electric fan			Refrigerator		
	Watch or clock			Computer		
	Radio or transistor			Motorcycle/ Scooter		
	Black and white TV			Car		
	Sewing machine			Thresher		
	Mobile telephone			Tractor		
	Bicycle			Washing Machine		
35	Does any usual member of this household have a bank account or a post office account? <i>Yes/ No/ Don't Know</i>				2016:	
					1990:	
36	Does this household have any mosquito nets that can be used for sleeping? <i>Yes/ No/ Don't Know</i>				2016:	
					1990:	
37	Did you use any other method to get rid of mosquito? <i>Mosquito repellent/Insecticides/Smoke/others__</i>				2016:	
					1990:	

#### Section 4: Changes in access to Education

38. Has there been any improvement in educational attainments over a generation? *Yes / No*

39. If no, why your children have not been able to attain higher levels of education than you had attained, even when education has generally improved in your area?

1. Family couldn't afford their education given the weak economic situation	2. Family couldn't afford tuitions for them
3. Children didn't had an aptitude/interest for education	4. Daughters had to take care of younger siblings
5. Daughters had to do household work	6. Daughters education was not a priority given the weak economic situation
7. Father had died, so the children had to work to make a living	8. Others __

40. If yes, how the children have been able to achieve higher levels of education than what their parents have?

1. Parents got employment, so could afford their children's education	2. Parents were able to get adequate labour work to be able to afford their children's education
3. Socio-cultural factors/ patriarchy changed and encouraged girl children to acquire education	4. With overall changes in economic conditions and improvements in household facilities, mothers were able to take care of younger siblings, so daughter got free to go to school.
5. The overall demand for education has increased, there is a strong need felt and education has become must	6. Schools became accessible for children
7. Other education provisions like free text books and uniform helped	8. Govt. improved facilities in schools like drinking water and toilets which encouraged children to attend schools
9. Other education provisions like scholarships helped	10. Parents were able to get adequate labour work/employment to be able to afford private education for children
11. Others _____	

41. What were the reasons for the parents for not being able to achieve similar levels of education as their children have done later?

1. Family couldn't afford their education given the weak economic situation	2. Parents had to work when they were children
3. Parents didn't had an aptitude/interest for education	4. Mother had to take care of younger siblings
5. Mother had to do household work	
6. Socio-cultural factors/patriarchy didn't encourage girl children to acquire education	7. Education for women was not a priority given the weak economic situation
8. Labour work was not available adequately for the grandparents to be able to earn enough and afford parent's education	9. The overall demand for education was very less in the villages, there were no need felt
10. Father had died, so parent's had to work to make a living	11. Others ____

42. Is there anything you feel that Government has helped you or your children in attaining education?

<b>Children's Generation</b>	<b>Parent's Generation</b>
1. Provided Scholarships	I. Provided Scholarships
1. Provided Free Uniform	II. Provided Free Uniform
2. Provided Free books	III. Provided Free books
3. Provided Free education or at minimum fee	IV. Provided Free education or at minimum fee
4. Improved accessibility to schools	V. Improved accessibility to schools
5. Improved facilities in schools like drinking water and toilets	VI. Improved facilities in schools like drinking water and toilets
6. Quality of education has improved now, so less failures and repeaters	VII. Quality of education was better then, so less failures and repeaters
9. Nothing at all	VIII. Nothing at all
10. Govt. mobilized society and created demand for education	IX. Govt. mobilized society and created demand for education
11. Provided MDMS	X. Others _____

12. Others _____	
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**Section 5: Changes in Land ownership and cultivation**

43. If the family neither had land in 1990s nor have now, why not when most families in village have?

1. Didn't had any ancestral land	2. We had migrated to this area and never owned land here
3. Never got benefited under land reforms	
4. Our ancestors had sold land much earlier	5. Had only a small piece and constructed house on that land
6. Others _____	

44. If they didn't have any land in 1990 but have land now or the land has increased over this time, how they have been able to buy land?

1. Labour work became adequately available	2. Labour wages increased substantially
3. Children got salaried employment (private/Govt)	4. Established a new business or old business went well.
5. Multiple jobs became available _____	6. Our agri. productivity increased substantially
7. More than one in the family could work because of availability of employment/labour	8. Prices of our agri. products increased substantially
9. Conversion of paddy land into apple gave substantial incomes	10. Mother got a share of land from her parents/brothers
10. Others _____	

45. If they had land in 1990 but don't have any land now or the land holdings have decreased over this time, how has that happened?

1. Constructed house on a portion of land	2. Sold land to pay back debt/loan
3. Sold land for marriage of any family member	4. Sold land for Health illness/costs
5. Sold land for offering dowry/gifts to daughter's in laws	6. Sold land to set up business/self employment _____
7. Sold land for Construction of house	8. Sold land to buy other assets _____
9. Sold land for Education of children	10. Sold land to pay bribe for emplt of children
11. Sold land to purchase car	12. Sold land to go to Umrah/Hajj
13. Sold land for Funeral costs	14. Others _____
15. Govt acquired a portion of land for _____	

46. Do you remember any history of ownership of land by your family like when land was transferred to your family, etc?

1. All our land was transferred to us in 1950s under land reforms _____	2. Part of land was transferred to us in 1950s under land reforms _____
3. All our land was taken from Pandits in 1990s after their migration _____	4. Part of our land was taken from Pandits in 1990s after their migration _____
5. We have purchased all our land	6. Part of our land was purchased _____
7. All Ancestral Land	8. Part of land is ancestral
9. Others _____	

47. Has any land transfer occurred during 1970-90 in your family? No / Yes (explain below)

---

48. Does the family grow apple on any portion of its land? No (skip to 54) / Yes

49. Did you convert any paddy or un-irrigated land into apple orchards?

a. No, it has always been apple land since _____	b. Converted paddy land (part/full) into apple
c. Converted un-irrigated land (part/full) into apple	

50. If converted, when did you start growing apple on converted portion? \_\_\_\_\_

51. Why did you do so?

1. Paddy land doesn't benefit much/ limited earnings from paddy production	2. Un-irrigated land doesn't benefit much/ limited earnings
3. Apple returns are very high	4. Apple is not labour intense
5. High input cost required for paddy as compared to its returns	6. With household farming, paddy production was cheap but with labour dependence it has become cost intensive.
7. Paddy requires too much water, and was getting difficult to ensure water	
8. Paddy is labour intense	
9. Others _____	

52. Why you didn't make this shift earlier?

1. Apple production increased only during this time	2. Didn't had money till then to make investments to convert land into apple orchards
3. Apple prices increased only during this time	4. Water was available adequately till then
5. Used to cultivate land at our own with no engagement of labour but with education/employment labor dependence increased and paddy became cost intensive	6. People didn't grow apple here, and only when others started, we also converted
	7. Wasn't aware about fruit potential and its revenue
8. Others _____	

53. If you still have any un-irrigated land or paddy land, why you are not converting it to apple orchards?

1. Left portions of land cannot produce good apple	2. Don't have money to invest. It needs good amount of money to grow trees
3. There is increasing risk over apple production, so want to have a portion of land for other crops	
4. Increasing apple failures/damages due to climatic conditions	5. Want to produce paddy for our own consumption
6. Can't afford to grow apple trees without any returns for many years initially	7. Others _____

54. If the family doesn't grow apple on any portion of its land, why not when apple is believed to paying much more returns than other local crops? \_\_\_\_\_ (Use codes from Q. 53)

55. How much you are able to save per kanal of apple land vs. per kanal of paddy land vs. per kanal of un-irrigated land (as applicable)?

Apple orchard	Irrigated Land; Crop: _____	Un-irrigated; Crop: _____
Land under cultivation (Kanals) _____	Land under cultivation (Kanals) _____	Land under cultivation (Kanals) _____
Save: Rs _____ per Kanal	Rs _____ per Kanal	Rs _____ per Kanal

56. If the returns are minimal from the cultivation of paddy/other crop, why you are still cultivating it?

1. Investments are intermittent but returns are onetime, and therefore, helpful	2. Able to consume our own produced rice/vegetables, which are nutritious
3. By continuing cultivation, land remains under own control	4. Apple production is not viable here
5. Even minimal returns are helpful/supplementary	6. Others _____
7. No other opportunity available to invest labour/energy on	

57. Has the mother and daughter in laws received any share of land from their parents, and whether your daughters have been given any share in land that family owns?

<b>Mother</b>	<b>Daughter-in-laws</b>	<b>Married Daughters</b>
1. Received due share of land	1. Received due share of land	1. Received due share of land
2. Received only a portion of her share in parent's land	2. Received only a portion of her share of land	2. Received only a portion of her share of land
3. Received other assets _____ With or without land	3. Received other assets _____ With or without land	3. Received other assets _____ With or without land
4. Others _____	4.	4.

58. Is there any way that Government has helped you in your landownership or in cultivation of land at any point of time?

1. Received _____ Kanals of orchard/irrigated/un-irrigated land under land reforms in _____
2. Rs _____ was subsidized against a loan for farming of _____ in _____ year
3. Others _____

### Section 6: Changes in Employment, Migration and Debts

59. In your opinion, who has got better employment/occupation in terms of earnings? Parents / Children

60. If your source of employment/occupation has improved/diversified since 1990, what are the reasons for this?

1. Son/other members became skillful : Artisan/ Tailor/ Mason/Carpenter/ _____	2. Employment availability has increased in the public sector, and children were able to get it
3. Employment availability has increased in the private sector, and children were able to get it	4. Improvements in education increased chances to get an employment, and children were able to get it
5. Public works have increased, so availability of labour/contractor work	6. Private construction and related works have increased, so availability of labour work
7. We were able to set up our own business/self employment _____	8. Business opportunities/ entrepreneurship flourished, so were able to get a job
9. NREGA works increased the availability of labour/contractor work	10. Improvements in overall prosperity of villages, created many opportunities for work _____
11. Salaries in Govt sector have substantially increased since 1990s	12. Substantial increase in agri. productivity/prices helped to produce more employment
13. Cultivation of apple instead of paddy/other crop helped to produce more employment	14. Others _____

61. If source of employment /occupation has reduced/degraded since 1990, what are the reasons?

1. Employment availability has decreased in the public sector, and children were not able to get a job	2. Employment availability has decreased in the private sector, and children were not able to get a job
3. Improvements in education increased competition, and children were not able to get a job	4. Private construction and related works have decreased, so availability of labour work
5. Public works have decreased, so availability of labour/contractor work	6. Business opportunities/ entrepreneurship declined, and children were not able to get a job
7. Our own business/self employment _____ deteriorated	8. Deterioration in overall prosperity of villages, reduced opportunities for work _____
9. Children didn't pursue education, and had to engage in low occupation	10. Father/other family died, which led to deterioration of livelihood source
15. Cultivation of apple instead of paddy/other crop led to decline in employment	16. Decrease in agri. productivity/prices led to decline in employment
11. Others _____	

62. If source of employment /occupation has remained same (labour to labour class) since 1990, what are the reasons for not being able to improve, when many have seen improvement?

1. Children didn't pursue education, and had to engage in labour work/low occupation	2. Father/other family died, and children had to leave education and engage in labour work/low occupation
3. Couldn't afford investments into children education so that they could attain higher levels of education. Education has become expensive.	
4. Due to health issues of father, children had to leave education and work as labourer	5. Children are young and pursuing education still
6. Use codes from Q. 61 _____	7. Others _____

63. Does any member of the household migrate to the District Headquarter or other parts of the state or country for the work/job now or has done so in the recent years- last 4 years? Yes / No

64. If yes, where \_\_\_\_\_, seasonal \_\_\_\_\_ / throughout year

65. Why so?

1. Work is not locally available on regular basis/adequately	2. Work is not locally available during winters on regular basis/adequately
3. Work is available locally at less wages	4. No good opportunities available locally
5. No opportunities available for educated people locally	6. High wages given in areas where a person has migrated
17. Cultivation of apple instead of paddy/other crop led to decline in work/employment	18. Decrease in agri. productivity/prices led to decline in employment/work
7. To flourish own business/self employment _____	8. Others _____

66. Was any member of the household migrating to District Headquarter or any other part of the state or country for work/job around 1990? Yes / No

67. If yes, where \_\_\_\_\_, seasonal \_\_\_\_\_ / throughout year

68. Why so? \_\_\_\_\_ (Use codes from Q. 65)

69. If migration has reduced over the time, what has led to this change?

1. Work/ employment is available on regular basis/adequately in locality now	2. Work/ employment is locally available even during winters on regular basis/adequately
3. Work is available now at appropriate wages	4. Work opportunities have diversified even locally
5. Use codes from Q. 60 _____	6. Others _____

70. Do you have any debt (borrowings) presently or had in the last 4 years taken from people or bank?

Yes / No

71. If yes, for what purpose, you had taken this debt?

1. Marriage of any family member	2. For offering dowry/gifts to daughter's in laws
3. Construction of house	4. Purchase of land
5. Health illness/costs	6. Purchase of car
7. Education of children	8. To set up business/self employment _____
9. To pay bribe for employment of children	10. Going to Umrah/Hajj
11. Funeral costs	12. Others _____

72. Were you able to pay it back easily?

1. No, I haven't returned yet \_\_\_\_\_
2. Yes, I have paid back easily
3. Yes, but to return it I had to sell an asset \_\_\_\_\_
4. Yes, others \_\_\_\_\_

73. Did you had any debt or had borrowed money in 1990 from people or bank? Yes / No

74. If yes, for what purpose, you had taken this debt? \_\_\_\_\_ (Use codes from Q. 71)

75. Were you able to pay it back easily?

1. No, I haven't returned yet \_\_\_\_\_
2. Yes, I have paid back easily
3. Yes, but to return it I had to sell an asset \_\_\_\_\_
4. Yes, others \_\_\_\_\_

76. In the last 4 years, did you sell any asset like land, trees, and livestock?

1. Yes- Paddy/ Apple/ Un-irrigated Land.
2. Yes- Trees.
3. Yes- Livestock.
4. No

77. If yes, why did you do so?

1. Marriage of any family member	2. For offering dowry/gifts to daughter's in laws
3. Construction of house	4. Purchase of land
5. Education of children	6. To set up business/self employment _____
7. Purchase of car	8. Going to Umrah/Hajj
9. Those Trees had reached to peak age, and had to be sold	10. Livestock reached to peak age or were not beneficial, and had to be sold
11. Health illness/costs	12. Acquired and compensated by Govt under its projects
13. Funeral costs	14. Others _____



78. In 1990s, did you sell any asset like land, trees, and livestock?  
 1. Yes- Paddy/ Apple/ Un-irrigated Land. 2. Yes- Trees. 3. Yes- Livestock. 4. No

79. If yes, why did you do so? \_\_\_\_\_ (Use codes from Q. 77)

80. During 1970 to 1990, do you remember selling land or any other asset? No / Yes (Explain below)

81. Is there anything that Government has helped you with your employment/occupation/debts?

Parents Generation-1980-90	Children Generation-1990 onwards
1. No help in any way	2. No help in any way
3. Work was created by Govt under _____	4. NREGA created work
5. Parents got employment in public sector _____	6. Children got employment in public sector _____
7. Public works were increased	8. Public works were increased
9. Given contractor work	10. Given contractor work
11. Provided loan for self employment _____	12. Provided loan for self employment _____
13. Subsidized a debt/loan _____	14. Subsidized a debt/loan _____
15. Others _____	16. Others _____

### Section 7: Housing, Drinking water and Sanitation

82. Has there been any change in the type of house, space or in the maintenance of house over this time?  
 Yes / No

83. If there is any downward move/deterioration in type of house they have now as compared to what they had in 1990s (like from pakka to semi-pakka) or in quality of house (in terms of maintenance) or space in house (in terms of rooms), why they haven't been able to construct or continue with same type of house as they used to have in 1990s?

<i>A. Our parents had a big house, and was difficult to built a similar one with our level of earnings</i>	
<i>B. Didn't feel necessary to built a similar type of house or didn't require that space</i>	
<i>C. With incomes, many other expenses have increased so not able to built a similar house _____</i>	
<i>D. Reduction of incomes due to the following reasons:</i>	
1. Employment availability has decreased in the public sector, and children were not able to get a job	2. Public works have decreased, so availability of labour/contractor work
3. Employment availability has decreased in the private sector, and children were not able to get a job	4. Private construction and related works have decreased, so availability of labour work
5. Business opportunities/ entrepreneurship declined, and children were not able to get a job	6. Our own business/self employment _____ deteriorated
7. Improvements in education increased competition, and children were not able to get a job	8. Children didn't pursue education, and had to engage in low occupation
9. Agricultural returns diminished with low productivity/ low prices/ crop failure	10. Father/other family died, which led to deterioration of livelihood source
11. Deterioration in overall prosperity of villages, reduced opportunities for employment/work _____	12. Others _____

84. If there is any upward ward move/improvement in type of house (like from katcha to semi-pakka) or quality of house (in terms of maintenance) or space in house (in terms of rooms) over the time, how they have been able to construct new or improve maintenance of their house as compared to what they had in 1990s?

A. Sold _____ and then were able to improve the house	
B. Received Govt. support like _____	
C. Due to improvement in incomes due to the following reasons:	
1. Employment availability has increased in the public sector, and children were able to get a job	2. Son/other members became skillful : Artisan/ Tailor/ Mason/Carpenter/ _____
3. Employment availability has increased in the private sector, and children were able to get a job	4. Public works have increased, so adequate availability of labour/contractor work
5. Due to improvements in education, children were able to get a job in _____ sector	6. Private construction and related works have increased, so availability of labour work
7. Business opportunities/ entrepreneurship flourished, so were able to get a job	8. NREGA works have increased the availability of labour/contractor work
9. We were able to set up our own business/self employment _____ or old business went well.	10. More than one in the family could work because of availability of employment/labour
11. Livelihood diversified, multiple jobs became available _____, so adequate work	
12. Improvements in overall prosperity of villages, created many opportunities for employment _____	
13. Labour wages increased substantially	14. Salaries increased substantially
15. Conversion of paddy land into apple gave substantial incomes	16. Prices of our agri. products increased substantially
17. Our agri. productivity increased substantially	18. Others _____

85. Has there been any change in the source of water they have used over this time? Yes / No

86. If there is any downward move/deterioration in source of water they had (like from piped water to stream) or in distance from which the water was fetched over the time, why has that happened?

1. Due to reduction in incomes for reasons related to _____ (use codes from Q. 83 D)	2. Water source (tube well/ spring/ _____) was damaged
3. Water supply stopped through Govt pipeline	4. Public pipeline post/tap was removed
5. Constructed a new house, which is yet to be completed, so using stream/spring/ _____ temporarily.	
6. Moved to a new house, and the water source changed	7. Others _____

87. If there is any upward move/improvement in source of house they had (like from stream to tube well) or in distance from which the water was fetched over the time, how they have been able to do that?

1. Due to improvement in incomes for reasons related to _____ (use codes from Q. 84 C)	2. Water source (tube well/ spring/ _____) was damaged and had to built a new one
3. Govt put a pipeline, so used a public post/tap or a took a personal connection	4. Due to pollution, quality of the water source used earlier deteriorated & had to upgrade to piped water
5. With changing work priorities, women don't have time to fetch water from long distance, so had to bring piped water to house/yard	6. With changing times, women don't want to fetch water from long distance, so had to bring piped water to house/yard
7. Others _____	

88. Has there been any change in the type of sanitation they used over this time? Yes / No

89. If there is any downward move/deterioration in sanitation over the time (like from flush type to pit latrine) or in the distance at which a toilet is located, why has that happened?

1. Due to reduction in incomes for reasons related to _____ (use codes from Q. 83 D)	2. Shared/community latrine was demolished, so using open space
3. Constructed new house, which is yet to be completed, so using pit latrine/open space/etc temporarily	
4. Due to lack of water supply, we use open space/pit latrine	5. Others _____

90. If there is any upward move/improvement in sanitation over the time (like from pit latrine to flush type) or in the distance at which a toilet is located, how they have been able to do that?

1. Due to improvement in incomes for reasons related to _____ (use codes from Q. 84 C)	2. Consciousness of privacy has increased, so had to upgrade
3. With increasing population, there is no privacy in open defecation, so had to upgrade	4. Increased consciousness/information about hygiene, so upgraded
5. Due to insecurity and fear to go far off, had to upgrade	6. Govt put a pipeline in the village, so could construct a flush system
7. Govt helped through Swach Baharat Abhiyan _____	8. Others _____

91. Is there anything that Government has helped you with your housing, sanitation or drinking water facilities?

Parents Generation-1970-90	Children Generation-1990 onwards
1. No help in any way	1. No help in any way
2. Support for construction of house , Rs _____	2. Support for construction of house , Rs _____
3. Support for repair of house , Rs _____	3. Support for repair of house , Rs _____
4. Compensation against damage of house due to natural calamity, Rs _____	4. Compensation against damage of house due to natural calamity, Rs _____
5. Provided land for construction of house	5. Provided land for construction of house
6. Support for construction of toilet, Rs _____	6. Support for construction of toilet, Rs _____
7. Water Pipeline close to house, and could get a personal connection easily then	7. Water Pipeline close to house, and could get a personal connection easily then
8. Water public post/tap close to house	8. Water public post/tap close to house
9. Others _____	9. Others _____

### Section 8: Food intake and Quality

92. How many meals do you usually take in a day? \_\_\_\_\_ times

93. Since 1990, has there been any instance (for a day or more) that your family member(s) had to reduce frequency of meals or went hungry due to unavailability of ration at home? Yes / No

94. If yes, could you please recall why that had happened?

95. In your memory (especially after 1970), has there been any such instance (for a day or more) that your family member(s) had to reduce frequency of meals in a day or went hungry due to unavailability of ration at home? Yes / No

96. If yes, could you please recall why that had happened?

97. Since 1990, how did you see changes in quality and quantity of food intake?

1. Food has diversified for better/variety increased	2. Increase in intake of oil/ghee/butter
3. Increase in frequency of non-vegetarian food	4. Increase in intake of spices
5. The dependence on market for food, where food is adulterated/treated with chemicals, has degraded the quality of food intake	6. Increased intake of snacks/readymade foods by children
8. Due to the fresh vegetables & other items available, intake of dried vegetables has reduced during winters	7. Increased intake of vegetables
	9. Increase in intake of overall food
11. Additional intake by children through MDMS	12. Increased intake of milk
13. Decreased intake of _____	14. Others _____

98. What about frequency of meat (mutton, beef, chicken) in a week or month?

Parents Generation-1990 before	Children Generation-last 5 years
1. Once in a week	1. Once in a week
2. Twice a week	2. Twice a week
3. 3 or more times in a week/frequent	3. 3 or more times in a week/frequent
4. Once in a month	4. Once in a month
5. Twice a month	5. Twice a month
6. Others _____	6. Others _____

99. Since 1970 (between you and your children), how did you see changes in quality of food intake during childhood (up to 20 years)? (use codes from Q. 97)

Parents Generation-1970-90	Children Generation-1990 onwards
1.	1.
2.	2.

100. Since 1990 (between mother and daughter in laws), has nature of work changed for mothers (primary care givers for children), which has helped children access food on time? Yes / No

101. If yes, how?

1. Reduction in manual work	2. Reduction in time to fetch water
3. Reduction in time to collect firewood	4. Limited involvement in agricultural work
5. Usage of LPG has also helped	6. Others _____

102. If your children have been in the private school presently (or in the last 10 years), do you feel they go hungry at times because of no MDM being provided at school?

1. Not applicable, children are in government school	2. Yes, they go hungry at times
3. No, they have enough money available to eat at school	4. No, they carry meals to school

103. If your children have been in the government school presently (or in the last 10 years), has MDM helped in any way to the nutritional status of your children (like weight/height)?

1. Not applicable, they are in private school/not in school	2. No, MDM was not given then
3. No, they don't like MDM and eat at home	4. Yes, MDM has helped
5. No, MDM has actually helped to save food at home	6. Others _____

104. Is there any way that Government has helped you with your rations/food grains over the time?

Parents Generation-1990 before	Children Generation-2010s
1. No help in any way	1. No help in any way
2. Ration was available regularly/irregularly and we used to lift it	2. Ration was available regularly/irregularly and we used to lift it
3. Ration was available but we used not to lift it	3. Ration was available but we used not to lift it
4. Sugar was provided	4. Sugar was provided
5. Kerosene was provided	5. Kerosene was provided
6. Supplementary food schemes like ICDS/___ also benefited	6. Supplementary food schemes like ICDS/MDMS/___ also benefited
7. Others___	7. Others___

105. Have you received any other benefit from government since 1990 that you could recall? E.g. *any major discount given on electricity fee, solar lights, marriage assistance, material for house, etc.*

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### Section 9: Work Patterns

106. Since 1990, has work patterns especially manual work changed in terms of nature of work (collecting fire wood, fetching water, travel, migration, etc), number of days and /or hours spent on work? Yes / No

107. If yes, how?

1. Manual work has increased due to availability of more work now	2. Manual work has increased due to availability of work even during winters
3. Manual work hasn't reduced but wages have increased substantially	4. Work has increased due to increasing life demands
5. Activities like collecting fire wood, fetching water have reduced	6. Labour requirements for cultivation have reduced due to use of tools/machines and due to reduction in average land holdings
7. Activities like rearing livestock has reduced	
Household items and facilities have also increased leading to reduction in work	8. Manual work hours per day have reduced (from 10 hrs to 8 hrs) for labourers
9. Migration to other parts of state/other states has also reduced	10. Use of LPG (partly or fully) has reduced work for women
11. Women's role in farming has also reduced	12. Others___

108. Has any change been experienced by women in the household over the time (between mother and daughter in laws)? Yes / No

109. If yes, how? \_\_\_\_\_ (Use codes from Q. 107)

110. Since 1970 (between you and your children), has engagement of children in labour and domestic work changed over the time? Yes / No

111. If yes, how?

Parents Generation-1970-90	Children Generation-1990 onwards
1. Children participated in household work	1. Children participated in household work
2. Children participated in collecting firewood	2. Children participated in collecting firewood
3. Girl children were engaged in fetching water	3. Girl children were engaged in fetching water
4. Children participated in farming	4. Children participated in farming
5. Children participated in livestock rearing	5. Children participated in livestock rearing
6. Children were engaged in labour	6. Children were engaged in labour
7. Children never did anything	7. Children never did anything
8. Also consider codes from Q. 107 _____	8. Also consider codes from Q. 107 _____
9. Others _____	9. Others _____

112. Since 1990, has leisure time and activities changed over the time? Yes / No

113. If yes, how?

1. Life has become demanding, leaving not much time for leisure activities	2. Changes in the relations between people in the neighborhood, which has restricted leisure and going to each other's houses
3. Increase in employment among men and women	
4. Insecurity and conflict has restricted movements	5. Increase in TV watching has also restricted time to spent on other leisure activities
6. Restrictions on women's freedom have increased.	
7. Increasing business attitude, everyone wants to earn	8. Increasing involvement in education has also limited time for leisure
9. Decreasing participation in sports/physical exercises	10. Others _____

114. Has any change been experienced by women related to leisure time and activities (between mother and daughter in laws)? Yes / No

115. If yes, how? \_\_\_\_\_ (use codes from Q. 113)

116. Since 1970 (between you and your children), how has participation of children in sport related activities changed over time? Yes / No

117. If yes, how?

Parents Generation-1970-90	Children Generation-1990 onwards
1. Not much demand for education, so children were mostly free	1. Increasing involvement in education has limited time for sports
2. Local customs encouraged children to play sports	2. Increase in TV watching has also restricted time for sports
3. Not much opportunities for fun other than sports	3. With increasing gadgets, children don't prefer playing outside
4. No fear existed with lot of freedom to move anywhere. This encouraged children	4. Insecurity and conflict has restricted movements so the participation
5. Boys and girls played together	5. Restrictions on girls have increased, which have discouraged them from sports
6. Also consider codes from Q. 113 _____	6. Also consider codes from Q. 113 _____
7. Others _____	7. Others _____

**Section 10: Overall Quality of Life and Trauma**

118. Since 1990, how has the experience of living/quality of life changed over the time?

1. Life has become stressful due to increasing demands	2. Overall quality of life has improved
3. Life has become stressful/ depressed due to conflict	4. Facilities/Resources have increased
5. Life has become easy and comfortable	6. Insecurity and fear has increased
7. Leisure time and activities have reduced	8. Freedom on movements has reduced
9. Restrictions on women’s freedom have increased	10. Children are not able to enjoy and play
11. Children have lived a life of fear	12. Others ____

119. Has there been any positive impact on women during this time?

1. Women’s freedom have increased	2. Participation of women in education has increased
3. Participated in manual labour has decreased	4. Collecting firewood and fetching water from long distances have reduced now
5. Child marriages reduced	6. Access to health services improved
7. Access to food and nutrition improved	8. Participation in employment and other paid work has increased
9. Access to clothes/other commodities have increased	10. Also consider codes from Q. 118 ____
11. Others ____	

120. Between you and your children, how has childhood experiences changed? \_\_\_\_\_ Use codes from Q. 118 and 119.

121. Has anyone in the family ever been exposed to any conflict induced traumatic event? Yes / No

122. If yes, please explain: \_\_\_\_\_

123. Has anyone in your family suffered from below listed incidents due to conflict related reasons?

Died/Killed: No / Yes ____ No.	Disabled: No / Yes ____ No.
Disappeared: No / Yes ____ No.	Injured: No / Yes ____ No.
Sexual Assault No / Yes ____ No.	Severely tortured: No / Yes ____ No.
Detained (period _____): No / Yes ____ No.	

**Section 11: Child marriages and Pregnancies:**

124. Enquire about all married women in the household	Age at Marriage	Age at First Pregnancy
Woman 1:		
Woman 2:		
Woman 3:		
Woman 4:		

125. Is any child in the household presently married? No / Yes \_\_\_\_ No.

126. If yes, why so? \_\_\_\_\_

**Section 11: Discrimination: Only for ST/OBC/OSC and other lower castes**

127. If applicable: Why you have not been able to improve your living standards in terms of food intake, drinking water, sanitation, education, occupation at par with most households in your village?

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128. If applicable: Why don't you own the same level of land that most households have in your village?

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129. How were the caste relation in 1990 and how are now?

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130. Do you perceive (or have experienced) any kind of discrimination/marginalization exists in your neighborhood that hasn't been encouraging to you to improve your socio-economic conditions?

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131. Do you perceive (or have experienced) any kind of discrimination exists within government services that hasn't been encouraging to you to improve your socio-economic conditions or benefit from the government schemes?

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132. Any other comment \_\_\_\_\_

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## Annexure- B: Interview Schedule for Socio-Economic Characteristics and Measurement of Heights/Weights

**Introduction and Informed Consent:** Give a proper introduction to the respondent/s and explain the purpose of the study. After the respondent/s agrees to participate in the study, please ask the questions below and take the measurements.

*Note: In case of Section 1 to 3, any adult member of the household can be a respondent. However, with respect to section 4, all adult members have to be measured.*

### Section 1: Identification

<b>H. No.</b>				
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Name of Respondent:	Relationship with Household Head:
Name of Household Head:	Date of Interview:
<b>Caste</b> _____	SC_1/ST_2/OBC_3/ General__4/ OSC__5
<b>Nature of Family</b> (Nuclear __1/ Joint __2 / Nuclear-extended __3)	

**Section 2: Socio-Economic Characteristics of household:** *(Tick the relevant score against each option after thorough investigation only. In case of any confusion, please take detailed notes)*

Socio-Economic Index							
<b>1</b>	<b>Type of House</b>					<b>Score</b>	
		Houseless				<b>0</b>	
		Kutchha				<b>1</b>	
		Semi Pucca				<b>2</b>	
		Pucca				<b>3</b>	
		Pucca and concrete				<b>4</b>	
<b>2</b>	<b>Land Holdings (in Kanals)</b>						
	<i>(Also write land in absolute numbers and record output)</i>						
		<b>Irrigated/ Paddy Land</b>	<b>Un-irrigated Land (maize)</b>	<b>Walnut Orchards</b>	<b>Apple Orchards (only apple producing)</b>	<b>Ind. Score</b>	<b>Final score</b>
		Nil holdings	Nil holdings	Nil holdings	Nil holdings	<b>0</b>	
		Less than 2	Less than 4	Less than 1 Kanal	Less than 1 Kanal	<b>1</b>	
		2 to 4	4 to 8	1 to 3	1 to 2 Kanals	<b>2</b>	
		4 to 8	8 to 16	3 to 6	2 to 4 Kanals	<b>3</b>	
		8 to 12	16 to 24	6 to 9	4 to 6 Kanals	<b>4</b>	
		More than 12	More than 24	9 to 12	6 to 8 Kanals	<b>5</b>	
				12 to 15	8 to 12 Kanals	<b>6</b>	
			More than 15	More than 12 Kanals	<b>7</b>		
	Total score						

	<b>Means of livelihood</b>		<b>No. of Persons involved</b>	<b>Ind. Score</b>	<b>Final Score</b>
	<b>3</b>	Living on Alms/Begging/Charity			<b>0</b>
Casual labour/Domestic Worker/ Livestock rearing/ Artisan-Handicrafts			<b>1</b>		
Farming/Skilled Worker/ Small Business Enterprise			<b>2</b>		
Low salaried (equivalent to 4th class in govt.)			<b>3</b>		
Middle Salaried/ Medium Business Enterprise			<b>4</b>		
High Salaried/ High Business Enterprise			<b>5</b>		
Total score					
<b>4</b>	<b>Sanitation</b>	Open defecation		<b>0</b>	
		Group Pit latrines with no or irregular water supply/ Community Latrine		<b>1</b>	
		Pit latrine (only used by this household)		<b>2</b>	
		Flush, with support from Government		<b>3</b>	
		Flush		<b>4</b>	
<b>5</b>	<b>Ownership of Consumer durables</b>	<b>Viz: Colour TV, Refrigerator, Computer, Washing Machine</b>			
		Nil		<b>0</b>	
		Any one item		<b>1</b>	
		Two items only		<b>2</b>	
		Any three		<b>3</b>	
		All items		<b>4</b>	
<b>6</b>	<b>Literacy status of highest literate</b>	Illiterate		<b>0</b>	
		Up to primary/passed 5th		<b>1</b>	
		Up to middle/passed 8 <sup>th</sup>		<b>2</b>	
		Completed secondary/passed 10th		<b>3</b>	
		Higher Secondary/passed 12 <sup>th</sup>		<b>4</b>	
		Graduate/Professional		<b>5</b>	
		Post Graduate/Professional		<b>6</b>	
<b>7</b>	<b>Status of Children (5 to 18 yrs)</b>		<b>Number of Children</b>	<b>Individual Score</b>	<b>Final Score</b>
	If anyone not going to school and is engaged in child labour			<b>0</b>	
	If anyone not going to school but is also not working as child labour			<b>1</b>	
	All going to Govt. school			<b>2</b>	
	All going to Private school			<b>3</b>	
<b>8</b>	<b>Main Source of water</b>	Stream/river/spring		<b>0</b>	
		Piped water/tube well (community) to be fetch from distance		<b>1</b>	
		Piped water/tube well (personal) inside the yard		<b>2</b>	
		Piped water/tube well (personal) inside the house		<b>3</b>	
<b>9</b>	<b>Cooking fuel</b>	Dung Cake/ Wood collected from forests or around village		<b>0</b>	
		Wood purchased		<b>1</b>	
		Kerosene		<b>2</b>	
		LPG		<b>3</b>	

<b>10</b>	<b>Ownership of costly durables</b>	No tractor	<b>0</b>
		Tractor or equivalent	<b>4</b>
		No Car	<b>0</b>
		Car or equivalent	<b>3</b>
		No Motor Bicycle/scooter	<b>0</b>
		Motor Bicycle/scooter	<b>1</b>
<b>11</b>	<b>Observation Remarks</b>	Poorest of the poor	<b>0</b>
		Poor	<b>1</b>
		Middle class	<b>2</b>
		Upper class	<b>3</b>
<b>12</b>	<b>Ration card (just for comparison)</b>	None	<b>0</b>
		AAY	<b>1</b>
		BPL/PHH	<b>2</b>
		APL/NPHH	<b>3</b>
		No Ration Card/Excluded Category	<b>4</b>
		<b>Total Score (to be calculated after the survey is completed)</b>	

**Section 3: Demographic Characteristics of all members of the household:**

<b>ID No</b>	<b>Name</b> <i>(start with H. Head)</i>	<b>Rln with H. Head</b>	<b>Sex</b> M/ F	<b>Age</b> (in complete years)	<b>Marital Status</b>	<b>Highest Level of Education</b>	<b>If studying, which class</b>	<b>Main Occupation</b> <i>(Use Codes)</i>
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

**Note: Also indicate the highest earning member in the table.**

**Codes:** Under-age/6 yrs\_\_1; Studying\_\_2; Charity—3; Household work\_\_3; Domestic worker\_\_4; Cultivation/farming\_\_5; Tending Animals\_\_6; Casual Labour\_\_7; Skilled labour\_\_8; Artisan\_\_9; Govt. Salaried employment\_\_10; Prvt. Salaried employment\_\_11; Retired pension holder\_\_12; Contractor\_\_13; Nothing in Particular\_\_14; Other Self Employment (specify).....15; Others (specify).....16

**Section 4: Height and Weight Measurements of adults in the age group of 20 to 50 years**

<b>ID No</b>	<b>Name</b> <i>(start with client)</i>	<b>Height</b> <i>(cms/ Feet.inches)</i>	<b>Weight</b> <i>(Kgs.gm)</i>	<b>In case of women, if currently pregnant</b>	<b>Status</b> <i>Measured/ Refused, Not available, others</i>

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## Annexure –C: Interview Guide - List of Questions for Discussion

No.	Questions
1.	Was any part of your land covered under the Hallan Plan? If yes, what benefits were provided by the government to you for supporting apple cultivation under this plan?
2.	What convinced your family to plant apple trees in any portion of land as part of the Hallan Plan?
3.	Did you have almonds in any portion of land before 1990? If yes, why did you shift cultivation from almonds to other crops?
4.	Will you prefer apple trees over walnuts if opportunities are created that support the apple cultivation on the land presently covered under walnuts? If yes, why would you do so and if no, why not?
5.	Have you been benefited under any Government programmes especially lift irrigation, support for apple cultivation, housing support, employment, etc.
6.	How has lift irrigation helped in apple cultivation?
7.	Do you avail KCC loan from banks? If no, why not and if yes, has it been helpful in any way?
8.	Do you take advance from middlemen against apple crop? If yes, why don't you avail KCC loan instead?
9.	Do you feel the freedom of women has changed over time comparing younger generation with older generation in terms of going to market or health facility, availability of cash with them and consent sought for their marriage?
10.	Are there other ways in which the freedom of women has changed?
11.	Do you feel the experiences of Infant and under-5 mortality has changed over a generation? If so, in what ways and what has led to such changes?
12.	Can you give specific information about any such death experienced in your family over time?
13.	Has the access to health services improved over time? If yes, what has led to such improvements?
14.	Do you feel daughters-in-law now get a better care and treatment during their pregnancy? If yes, in what ways?