

GREEN REVOLUTION AND WOMEN'S PARTICIPATION IN AGRICULTURE

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PREFACE

Industrialisation which began in the eighteenth century in the West became the key word for development. Use of machines completely changed the concept of production in that more could be produced in shorter time with greater efficiency than before. Agricultural development was also structured along the same principles of production and growth as industrial development. The 'Green Revolution Technology' was developed to transform a traditional sector into a modern one. While Charles Borlough's 'miracle seeds' (High yielding variety seeds -HYV) increased crop production manifold new set of mechanical equipments ensured greater efficiency in handling of production (subramanium,1976). In India the Green Revolution Technology was adopted to increase production in selected areas of the country like Punjab and Haryana in the north and Tamil Nadu, Kerala and Andhra Pradesh in the south. This was mainly to tide over the food crisis that plagued the country in 1966. It was also assumed that the benefits of Green Revolution Technology viz,increased production, would benefit all regions and people specially the poor within it. It would provide the poor with employment, food and security- the three things that the poor want (Chambers, 1981). Apart from record breaking production every year, the expected positive effects of Green Revolution Technology never trickled down to the poor. The very people who were expected to benefit by the Green Revolution were infact the worst hit. The inefficiency of the public distribution system prevented the poor from getting their ration of the stocks. Further, the use of Technology reinforced

rather than bridged the inequalities in the social structures specially in terms of ownership of land. Hence, the rich became richer and the poor poorer. Among the poor the landless agricultural labour were the worst affected. Mechanization offset the labour using tendencies of the HYV- seed - fertilizer package and in effect displaced agricultural labour. To the extent seasonal activities like harvesting and threshing were mechanized, casual labour which predominates in these activities was displaced (sen, 1985). Since it is women from landless households who work in seasonal operations as casual labour the latter were displaced faster than men. While men who were displaced from agriculture migrated to towns and cities in search of jobs, the women stayed back in the village taking upon them the burden of running the poor household . And the burden of poverty increased in absence of any alternate means of livelihood outside of agriculture (Aggarwal, 1986). Poverty of these 'defacto' women headed households increased the ill-health amongst the family members specially the children (Aggarwal, 1986). The last two chapters then conclusively establish that women's wage labour has experienced displacement from activities in which they were traditionally in all regions that have adopted the Green Revolution Technology. And that their displacement and hence unemployment has increased poverty and ill-health in their households, specially when the latter depend on women's wages for sheer survival (Aggarwal, 1986).

Studies on the effects of Green Revolution Technology have been influenced by 'Employment-productivity-income' framework and

hence have concentrated on specific category of women - women's wage^{Labour}. Hence, these studies have been exclusively concerned with the economic effects of the Green Revolution Technology on women's wage labour in agriculture. Only a few have been concerned with the social effects of Green Revolution Technology specially on women. Bina Aggarwal for instance, has provided detailed analysis of the indirect consequences of Green Revolution on women. According to her, the inequal sharing of poverty within the household has increased manifestations of systemic biases against females. Female children are either killed at birth or are not provided with adequate nutrition. Also incidences of bride burning because of low dowries have become rampant not only in the north which has historical precedents of anti female bias but also in the south. The ecological degradation that has followed in the wake of Green Revolution induced urbanization, has increased the labour time of poor women in subsistence activities thereby reducing their time for wage work or to look for wage work. For example, women have to walk long distances in search of wood fuel specially when cow dung is increasingly used up as manure and hence cannot be dried for fuel (Bina Aggarwal, 1989). The overwhelming increase in women's burden of helping its family survive is at a great cost to their own health and lives. These social effects of Technology can only be gauged if we look at the time these women allocate to each activity and the primacy they give to one or more activities. Reduction in the wage labour time of women's wage labour is detrimental to their living itself and this in turn would determine the nature of Technology.

Chapter I involves an analysis of the traditional framework which has influenced most empirical studies on the consequences of Green Revolution Technology on the labouring class. These empirical studies have in turn highlighted the inadequacy of the traditional framework in 'mapping' the effects of Green Revolution Technology on women. Since women's 'unpaid labour' in the family is inextricably mixed with their wage labour, it is not only changes in their income that would characterized a Technology but the change that Technology has brought about in the way they allocate time to different activities within and outside their homes. Amit Bhaduri's 'Time Allocation Framework' then allows for a gender based evaluation of Technologies. However much empirical work still requires to be done within this framework.

The next three chapters however do not boast of filling in this gap. Instead the second and third chapters look at the effects of Green Revolution Technology on women's wage labour in the south and north India respectively. They look at studies which have been conducted within the traditional framework of assessing Technologies. The review of studies is done on the premise that in both the regions Green Revolution Technology has displaced women's labour from their traditional activities in agriculture. Their displacement has increased not only poverty within their households but also in general terms. Poverty in turn has increased rural ill-health specially when they have depended on women's wages for survival.

If women wage labourers have been 'squeezed out' from their seasonal activities in agriculture and there are no government initiated policies to intervene effectively into these women's problems, then how do these women survive ? Alternately, what are the survival strategies the women adopt to survive ? The fourth chapter then tries to answer this question in a very preliminary way through the narratives of poor, landless women in a small village of Gurgoan in Haryana.

For this project I would like to thank, Dr. Gurpreet Mahajan, without whom this would have been a less than modest endeavour; I have to also thank the nine wonderful women whose life-stories infused meaning into this endeavour. And most of all I would like to thank my mother for being always there for me.

Shubh

CHAPTER I

Green Revolution Technology has negatively affected the labour class (Roy, 1990; Khan, Lipton, Bardhan, 1989; Aggarwal, 1980; Harris, 1979; Boserup, 1970). It has reduced or taken away its sources of income. The Green Revolution Technology was developed in the west in an attempt to modernize agriculture, specially in the context of rapid industrialisation. Agricultural production had to be increased to keep pace with industrial development. After much reaserch, 'Charles Borloug', now probably known as the 'Father of Modern Agriculture', developed the 'Miracle Seeds'- The High Yeilding Variety Seeds (HYV). The development of HYV seeds necessiated the development of chemical fertilizers, new and artificial means of irrigation and labour saving mechanical equipment to handle the increased production. Together this was the 'Green Revolution Package'. The success of this package in developed countries like the U.S.A, inspired the developing nations to experiment with it. The developing nation like India were also newly independant nation struggling with the problem of feeding their 'teeming millions' specially in the wake of recurring calamities as droughts and famines. In 1966 north India witnessed the worst food riots in 20th Century India, as scarcity conditions became acute . This prompted the Indian Government to experiment with Green Revolution Technology in selected areas of the country. These areas were those which had the basic infrastructure to adopt this technology. The infrastructure included banking institutions, unequal land structure, artificial means of irrigation etc. Punjab and Haryana were areas identified in the

North and Tamil Nadu in Southern India. The experiment was a huge success specially as it increased production manifold and for the first time in India there were buffer stocks of wheat and rice.¹ The experiment also enabled India to stop import of PL 480 wheat stocks from the United States. However, the experiment had serious fallouts not only in terms of regional imbalances in agricultural development but also in terms of increasing poverty. The technical change that the Green Revolution technology induced in the mode of production did not significantly change the relations of production to benefit the labouring class. In fact the rich became richer and the poor poorer as a consequence of agricultural development. The studies that were conducted to assess the impact of technical change in agriculture on labour were studies inspired by the "Employment, Productivity, Income Framework". The studies themselves highlighted the inadequacies of this framework to assess the impact of technology on women. For example, the framework completely ignores 'unpaid family labour' despite the latter being the largest contributors to agricultural production.² This necessitates then developing an alternate conceptual framework to assess how technical change affects women. One such framework thus mooted is a "Time Allocation Framework".³ Technical change here is evaluated according to its

1. C. Subramaniam, "New Agricultural Strategy: Its Implications", Marwah Publications, New Delhi, 1980, pp.25-28.

2. Amit Bhaduri, "Technological Change and Rural Women: A Conceptual Analysis", in I. Ahmed (ed), "Technology and Rural Women: Conceptual and Empirical Issues", George Allen and Unwin, London, 1985, pp.18-20.

3. Ibid. p.19

effects on the time that women allocate to different activities within and outside home. However much empirical work has still to be undertaken within this framework. This chapter then begins with a critique of the traditional "Employment Productivity Income Framework" for its "gender blindness". Empirical studies have shown the inadequacy of this framework to assess the impact of Green Revolution Technology on women. With its emphasis on class income as a unit of analysis, it marginalises women's 'unpaid labour' in the household. This work is unpaid in the sense that there is no notion of direct return for work done either in cash or in kind. Though unpaid this labour is in no way insignificant from the point of its contribution to agricultural production. This category of women's labour is recognised within the "Time Allocation Framework". And this framework is a step towards conceptualising "Gender as a system of inequality and hierarchy". Within the "Employment Productivity Income Framework", technical change is negative if it decreases wage rates vis-a-vis profits and positive if wage rates vis-a-vis profits increase. What this framework then assumes is a) that class is the basic unit of analysis to characterise technologies and technical change. b) that all economies are wage employment economies, and c) that labour is the homogenous class category. However, within a socio-cultural context, category of class is too restrictive to assess the impact of technical change on it. It is not just class hierarchy which determines what class does what but also caste and gender hierarchy. Caste is an important social category in Third World societies as India, whose economies are not neces-

sarily wage employment economies. For example, a low caste labour is bound by the norms of caste hierarchy to perform non remunerative work for his higher caste landlord within the existing mode of production. Any technical change that feeds into this hierarchised, caste based, non-remunerative work relationship, can not significantly alter it according to the principles of market. Similarly, within the gender hierarchy women are subordinate to men. Men do not do what women do, that is men do not work as unpaid family labour. All activity that men engage in has a monetary value attached to it, but what women do are culturally ordained but economically unvalued.⁴ If all men are wage-earners then it does not follow that all women are also wage-earners. In economic parlance, women's wage-labour is seen as a 'supplementary' activity rather than as a primary activity⁵. And it is not independent of the economic status of the class to which she belongs. Economic necessities like scarcity of food, may necessitate her entry into the labour market but once the crisis tides over, the women are expected to be 'good' housewives and mothers. Hence, women from rich, landed households remain at home. But remaining at home where home, as men see it, is a place for leisure, means increased 'unpaid family labour' for women. The time they spend on household labour is enormous (an average of sixteen hours a day). Technical change then, if is introduced within the existing gender-hierarchy only increases the work burden of women

4. Amit Bhaduri, op cit, 1985,p.18.

5. Gita Sen, "Women Agricultural Labourers: A Study of the Indian Census", CWDS, Working Papers, Series I,p.2.

irrespective of the class they belong to. For example, introduction of threshers in agricultural production process displaces women's wage-labour to the extent they are involved in threshing. Displacement increase their burden of earning a 'decent' income through combination of activities. This ofcourse is in addition to the regular household work. Displacement of women's wage-labour however is compensated for by the intensive use of women's unpaid family labour in landed household. Hence, if technical change affects different classes differently, then even within these classes women are affected differently than men. Labour then is not a homogeneous category. This of course stems from the sex-based division of labour and of responsibilities of each within and outside the household. Effects of technical change on women's wage-labour has been a theme of many studies (Olin, 1977; Germain, 1976; Zeidenstein, 1975; Palmer, 1975; Dey, 1975). These have helped to recognise gender-based inequalities at the social and conceptual levels. Under the influence of the 'Employment Productivity-Income' framework, these studies recognise women only as member of the labouring class rather than as 'gendered subjects' in the socio-cultural context. Consequently, unpaid family labour finds no mention in these studies. Unpaid family labour is not a class-specific activity though this is specially what women from landed households engage in. But for women from landless agricultural labour households, this is one of the many activities they perform as part of their obligations. In both cases, within the 'Employment-Productivity-Income' framework effects of technical change cannot be evaluated, unless the

category of unpaid family labour is transformed into a class category. However this transformation would only hide the specific characteristics of this kind of work. There is no basis for comparison between the work that a woman factory worker does and that a women family labour does. What one is then arguing for is a framework to map the effects of technical change on women as a gender category and specially women's unpaid family labour. Apriori, technical change for women would be positive if it reduces the time spent on unpaid family labour, wherein women have both the time to relax or to look for alternative wage-work. How women utilize the released time from unpaid family labour would depend on the class to which they belong. Thus according to Amit Bhaduri 'Time-Allocation Framework' can be useful to studying the effects of the technical change on women.

According to the framework, to assess the effects of the technology on women, their 24 hour day can be divided in terms of hours they spend in the following three kinds of activities: (i) Remunerative or commercial activities which are income generating that is, those activities which have an exchange value. Let time spent on this activity equal to H_c . If W is a corresponding earning rate per unit of time then total earning (Y) is equal to $W.H_c$ from a certain commercial activity. (ii) Most of the time spent by women in a day is on 'unpaid housework'. This is non remunerative that is, has no exchange value for work done. Let time spent on unpaid household activities be H_u . (iii) There is also residual time spent in non remunerative every day activities like sleeping, eating etc. Let time spent on these activities be H_r . Hence the total time allocated for different activities (H)

is equal to $H_c + H_u + H_r$. "This kind of classification helps to understand the effects of specific technical changes on time allocation for women on different activities and whether this change is welfaristic or not". For example, easier availability of drinking water taps in homes reduces women's every day travelling to wells/ponds in search of water, thereby reducing time spent on unpaid family labour (H_u). Though how much of this reduced time and hence released time from housework is spent on earning and income or on residual activities depends on the women's need for paid employment and the opportunities available for it.

Amit Bhaduri explains his model by another example. Here, if hours spent on commercial activities (H_c) reduces due to technical change at a given earning rate then it negatively effects income-earning of capacities of rural women. For all rural women reduction in income-earning capacities is not welfaristic. For women's agriculture labour, loss in ' H_c ' and increase in ' H_u ' and ' H_r ' is not relieving as it is for women's family labour. For women's agriculture labour, the introduction of harvesters means displacement and hence destitution, rather than more leisure. Greater leisure may be thus, enjoyed by women's family labour, however this too may be a misnomer. Leisure for latter is always constitutive of 'unpaid' house hold chores and numerous homstead agricultural activities.⁶ Rural women, by and large, then cannot

6. Amit Bhaduri, "Technological Change and Rural Women: A Conceptual Analysis", in I. Ahmed, "Technology and Rural Women: Conceptual and Empirical Issues", George Allen and Unwin, London, 1985, pp.19-20.

afford leisure as men can . There is then, no leisure time at their disposal. The residual activity hours are always inextricably mixed with unpaid family labour hours and also with a search for new income-earning opportunities especially for women's agriculture labour. Hence, technical change that reduces the Hc for woman is not essentially welfaristic for all rural women. Leisure for women's agriculture labour can be gainful only if there is no or less reduction in hours of gainful employment opportunities for them as a consequence of technical change. In terms of formula then,⁷ according to Amit Bhaduri,

Let y_i be the income of 'i' group of women, before technical change.

Let H_{r_i} be the residual time at the disposal of 'i' group of woman before technical change.

Let Y_i be the income of 'i' group of women before technical change.

Let $H_{r_i}^-$ be the change in residual time of 'i' group of women after technical change.

Let Y_i^- be the change in the income of 'i' group of women after technical change.

then,

$$\frac{Y_i^-}{Y_i} = R_1 \quad \text{and} \quad \frac{H_{r_i}^-}{H_{r_i}} = R_2$$

these two ratios give an estimation of the impact of technological change on income and time disposition of these women, on different activities,

7. Amit Bhaduri, op cit, 1985, p.21.

i i

- If $R_1 > 1$ and $R_2 > 1$ when it implies income-leisure augmenting change for 'i' group of women.

i i

- If $R_1 > 1$ and $R_2 < 1$, then it implies income-augmenting but leisure-reducing change for 'i' group of woman.

i i

- If $R_1 < 1$ and $R_2 < 1$, then it implies income-reducing but leisure-augmenting change for 'i' group of women.

If harvesters (as an instrument of technical change) are introduced on the farms then rural women who belong to landed families and who were initially working on family farms as unremunerated labour are withdrawn within the house according to prestige considerations. Then, they experience a leisure-augmenting but income-reducing consequence of technical change. The consequence itself is not welfaristic for women from landed households. Leisure is inextricably mixed with unpaid family labour. Leisure here in no way means relaxation from work. "Unremunerated -culturally imperative work" continues within the precincts of household. On the other hand introduction of harvesters has a both income reducing and leisure-reducing effect on women's agriculture labour. The harvesters displace the latter from the harvesting activity in which they are primarily concentrated during the season. Displacement of women's agriculture labour has tragic consequences of destitution, malnutrition etc. on the family to

which they belong and who's survival itself is based on the daily seasonal agriculture income of women's agriculture labour. Harvesters displace them, thereby reducing their primary sources of income. And the leisure that displacement induces is essentially utilized by women's agricultural labour in searching for job/wage opportunities to sustain their family. Leisure, here, becomes a defunct category. Hence, the problem with the above classification to understand the effects of technology on the welfare of rural woman include the following,

(i) It takes unpaid family labour time as constant for all rural women. (ii) It does not see the inextricable links between unpaid family labour time and residual activities. The two overlap to such an extent that even their distinction as conceptual categories seems too disparate. He realizes then that in actual empirical studies, then, the assumption that unpaid family labour remain constant to capture the validity of the effect of technical change on women's leisure, does not apply. Apart from the overlapping between unpaid house-work and residual activities of rural women, the consequent change in time-disposition of different activities after technological change will effect all the three elements, unpaid family labour time, commercial labour time and residual activity time. Hence, the comparisons based upon a constant level of 'Hu' (Unpaid family labour) become difficult to apply in actual situations. In spite of these serious difficulties in empirical application, the essential common sense underlying an analysis of technological change that tries to combine 'income considerations' with 'time disposition' consideration should not be lost sight off. To highlight this procedure, 'Bhaduri outlines

a classificatory scheme of innovations in terms of its impact on rural women's leisure time,⁸

(a) If at a constant level of income (i.e- $R_c = 1$), leisure hours of rural woman increase as a result of technological change, then it will be considered labour-saving,

(b) If at a constant level of income, leisure hours of rural woman decrease as a result of technological change, then it will be considered 'labour using'.

(c) If at a constant level of income, leisure hours of rural woman remain constant, then it will be considered neutral.

Ideally, at a constant level of income, situation 'a' is most advantageous for any particular group of women considered. But then again, conceptually though this seems ideal but can not be applied in actual empirical situations. "Any technical change will change the level and extent of income-earning opportunities." Income cannot be a constant variable in the event of technical change⁹ For women's agriculture labour then increase in leisure at the expense of income-earning opportunities is synonymous with involuntary, forced unemployment. Leisure in the sense of relaxation would be true only for women's family labour. Even here, relaxation, again, is a misnomer especially if the extent of family based work within the household is gauged. True, the pressure of 'supplementing' household income is missing

8. Amit Bhaduri, Ibid, p.25.

9. Ann Whitehead, "Effects of Technological Change of Rural Women: A Review of Analysis and Concepts", in I.Ahmed, "Technology and Rural Women: Conceptual and Empirical Issues", George Allen and Unwin, London, 1985, p.39.

in this context, but the burden of their work increases. Apart from regular domestic chores which they themselves perform or supervise as done by servants, women's family labour also supervise homestead agriculture activities like cutting and storing of hay, storing of threshed grains, taking care of animals-bathing and feeding them, making and storing of cow dang cakes etc. Some women's family labour also supervise the agricultural operations in the absence of their men-folks.

Through the Time Allocation Framework then what is attempted is the "deconstruction" of the concept of Household as a class unit where the interests of its members are assumed to converge.¹⁰ The Employment Productivity Income framework recognizes the latter but did not attempt to analyze it. However, the "deconstruction" of the unit of household to specifically look at the "time allocation of each individual activity that members do within and outside the family, the income earned and spent on the family as part of their responsibilities towards the family, is crucial to seeing the exploitation inherent within a family and how it centres around the woman. Palmer, in fact conceives of " marriage-relation as a labour relation" that has potential for women's exploitation, especially where-in it is men who command and control the labour of the women and children. However, exceptions do exist. According to Dey, the Gambian men do not control their wives's labour and women are not obligated either to labour on their husband's private rice farms or to contribute their

10. Ibid, p.47.

income to the "marital fund".¹¹ But this again is unthinkable in the "budgetary implications of marriage" for example, in the Hindu conception of a woman's place in a joint family. Marriage here is "simple labour relation" where women's labour is unremunerated and the control of men over it is complete. They decide whether their women should earn wage-labour in addition of course, to the latter's unpaid family labour". Even if women earn wages, their responsibilities towards the household prevent them from using their wages for personal consumption-expenditure. Where men contribute only 86% of their wages to household expenses, women contribute the entire amount towards basic necessities as food and clothing.¹² Any technical change that impinges on the existing realities of women's exploitation within the household can not be beneficial to them. For example, the "MWEA" Development scheme in Africa (Hanger and Morris, 1973) prevented women from maintaining their subsistence production while men had no obligations to spend cash on provisioning the household. Hence, as long as women are "dependent" as not "independent" producers within the households technical change would not be beneficial to them. Technical change would only increase their work load without compensatory release in time for relaxation. Technology then benefits only that class of household which has the productive capacity to use it. And women have no access to or rights to productive resources like land.¹³ Her rights if any are

11. Joan.P. Mencher, "Landless Women Agricultural Laboureres in India: Some Observations from Tamil Nadu and Kerala", in "Women in Rice Cultivation", IRRI, 1983, p.363.

12. Ann Whitehead, op cit, 1985, p.48.

13. Ibid, p.56.

not legal but use rights gained through their relationship with brother or father or husband in marriage and if these relationships dissolve so does a woman's rights over it. Women do not inherit these use-rights to land. Even if the "right to land" is legal for women customs deprive her of it. Thus, individual ownership, control and use of land lies with the male head of the household. The ability of 'Beti' and 'Yoruba' tribesmen to profit from cocoa farming is dependent on the concept of individual ownership to the extent that it is men who possess the product to which their wives' labour has contributed.¹⁴ Similarly, in 'Mexico' men have effective ownership of use-rights over land to produce cash-crops with the help of their wives. Wives do not enter cash-cropping as cultivators because they lacked any possession of land.

To sum it up then, consequences of technical change on women as a gender category had been neglected by the "Employment Productivity Income" framework. The framework had failed to conceptualise "gender as a system of inequality and hierarchy"¹⁵ and hence could not provide an analytical base to the difference in effects of technology on men and women in different classes. The "Time Allocation Framework", however tries to compensate for this inadequacy. It analyses the effect of technical change on women in terms of how it significantly alters the time women

14. Ibid, p.60.

15. Ibid, p.46.

allocate to different activities, viz: Commercial activities, unpaid housework, and "residual" activities. If income and leisure are, a priori, indices of welfare for women then depending on which activity is prioritised by which class of women, technology can be termed welfaristic or detrimental. So what the "Time Allocation framework recognises is the category of "unpaid family labour", which was missing in the erstwhile framework. The problems, however with the Time Allocation framework are -1) It keeps the category of income constant to assess the effects of technology on women's leisure time. II) It assumes "Leisure Time" as a period of relaxation for women. III) It assumes that technology which increases leisure for women is socially acceptable and hence adopted. However, income cannot, empirically, be a constant variable. Any technical change will change the level of income of any class of women.

Leisure for women is not relaxation as it is for men. For wage earning women, increase in leisure means displacement from work and for the family labour it means inter-mixing of household work with homestead activity. Hence increased labour does not mean increased welfare, though for wage-labour it may hold true depending on the availability of income opportunities. Even if it is assumed that a technical change can release women from "unpaid" household labour then its acceptance has nothing to do with women. That is, its adoption and hence use is not contingent upon what women say or do, but on what men say, especially from the landed class who can afford use of the technology. It is the decision of the powerful that matters and men from the landed

class have the power to decide use of what technology to simplify work for profits. Hence, the "Time Allocation" criterion then is a class criterion rather than a gender criterion.

Another problem that can be hinted at here, with the above framework is that though it recognises the category of "unpaid family labour", it continues to regard "unpaid family labour" as exploitative.¹⁶ This is to the fall in line with the "Employment Productivity Income framework. The women members engaged in such activity do not themselves see it as exploitative in so far as they do not see marriage as a "simple labour relation". Instead, the "conjugal contract" (Whitehead, 1981) constitutes a series of responsibilities and rights within the house for women, most of which is not connected to any reward or wage. Women themselves regard household work as a duty, as their own work. "If we do not do our work, who will?" For the landed class women, unpaid family labour does not seem a burden simply because it does not generate any income. But for women from the labouring class it poses a serious problem of survival especially because it reduces time for wage-work.

Despite its fallouts, the integration of 'Income and Time allocation' criterion brings out the enormous variations in the costs of technology on different categories of women. Still there is lack of much empirical work within the Time-allocation criterion and these gaps need to be filled if technologies have to become welfaristic vis-a-vis women. Bina Aggarwal uses the labour

16. Ibid, p.53.

time - criterion to assess the effects of mechanization of agriculture on different kinds of labour in Punjab (Aggarwal, 1980).

This study does not attempt to fill in such a gap. Instead it tries to provide a consolidated picture of the effects of Green Revolution technology on women's wage labour in the rice and wheat producing states of North and South India. The study recognises the significance of assessing the impacts of Green Revolution technologies on women's wage labour, especially when the latter's wage are crucial to the survival of the members of the agricultural labouring households to which they belong.¹⁷ Green Revolution technology is known to displace women's wage labour. Thus impoverishing further these households. What this study then ultimately does is to single out a village in Haryana to find out about the human costs of Green Revolution technology on women's lives and how each life has struggled to deal with these costs through adoption of 'survival strategies' that women's wage labour adopts in their 'post displacement' phase in agriculture. The empirical study lists out the wage activities that women from labouring households engage in, especially in the time released due to their displacement from agricultural labour. The study, then though tentatively, also tries to assess

17. Bina Aggarwal, "Neither Sustenance Nor Sustainability: Agricultural Strategies, Ecological Degradation and Indian Women in Poverty", in Bina Aggarwal, (ed) "Structures of Patriarchy: State, community and Household in Modernising Asia", Kali For Women, New Delhi, 1988, p.86.

the change that Green Revolution technology has wrought upon the time allocation of each activity that women's wage labour performs and how technology has only negatively affected them.

The second chapter then deals with the effects of Green Revolution technology to the extent it was introduced on women's wage labour in rice producing state of Tamil Nadu, Andhra Pradesh and Kerala in South India.

CHAPTER II

In this chapter an attempt is made to examine the hypothesis that "Green Revolution Technology" adversely affects women's wage-labour in rice production in south India specifically the states of Tamil Nadu, Andhra Pradesh and Kerala.

The hypothesis is based on the general belief that rice cultivation is associated with the presence of women's wage-labour in East and South India¹. The reason for this is that the cultivation of rice itself generates many tasks that are labour intensive. In India, women's wage-labour as a proportion of women as workers are found chiefly in the rice producing states of south India. Women perform most tasks in rice cultivation; from broadcast sowing to harvesting. Ploughing is the only exception in that only men plough the land in the rice cultivation². That women form a greater portion of the agricultural labourers in the rice cultivation can be specifically attributed to the gender specific division of labour within the social organization of rice cultivation. This gender specific division of labour is further determined and reinforced by the "local cultural norms complex", which includes class and caste hierarchies. To the extent that social organisation of rice cultivation differs from one state to another, so will the participation of women in wage-labour in these states. Hence, it is the social organisation around the rice cultivation that determines the participation of

1. Joan P. Mencher, "Agriculture and Social Structure in Tamil Nadu", Tavistock Publications, New York, 1977, p.200.

2. Gita Sen, "Paddy Production, Processing and Women Workers in India", CWDS, Working Papers, Series II, 1981, p.1.

the wage-labour in the latter and not rice as crop per se. There is then no simple association between rice as crop and participation of women's wage-labour in its cultivation. The association is determined by "local cultural norms complex". Consequently women wage-labourers do the "hardest" and the "dirtiest" of tasks like transplanting in rice cultivation which neither gives them compensatory benefits nor keeps them in good health. Such were the state of affairs within which the Green Revolution Technology was introduced in 1970's in the three southern states identified above.

Various studies have shown that Green Revolution Technology in India has "sharply increased concentration of land ownership, dispossessed small landholders of their land, increased the number of landless workers and hence increased rural unemployment". Significantly the technology has also reduced labour force to about one fifth of that involved in traditional farming.³ It can be further hypothesized that if in traditional rice farming women's wage-labour predominates then the use of the Green Revolution Technology would displace them. This further shows that it is not technology per se that displaces women's wage-labour but its interaction with the "local cultural norms complex" which in turn is "gender discriminatory". Women as the poorest of the poor⁴, then face the threat of unemployment and hence impoverish

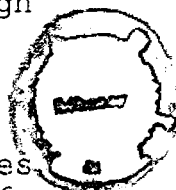
3. Maria Mies, "Indian Women in Subsistence and Agricultural Labour", ILO Publication, Geneva, 1986, p.12.

4. Bina Aggarwal, "Women and Technological Change in Agriculture: The Asian and African Experience", in I. Ahmed (ed), "Technology and Rural Women: Conceptual and Empirical Issues", George Allen and Unwin, London, 1985, pp.73-74.

ment. How then the burden of poverty is shared within a household would depend on the "household politics"- on the gender division of labour, gender differentials in the nature and extent of work undertaken and gender differentials in consumption expenditure. Obviously then it is the women who carry the burden of poverty and the use of the Green Revolution Technology only increases the burden. But to see the Green Revolution Technology as essentially labour displacing is to see it as a 'homogenous package' which it is not. Different components of it would affect labour, specially women's wage-labour, differently. For example the "Biological Chemical Component" helps in growing high yielding variety (HYV) crops which augments labour use. This is because the HYV crops require greater care than traditional crops.⁵ Also the HYV crops are short duration crops and this permits the farmer to grow two to three crops in a year. The increase in a number of crops grown in a year generates demand for more labour. Sometimes labour use may be 70% to 100 % more than that used in traditional farming. This increase in the demand for labour then may have a positive effect for women's wage-labour in so far as it may involve an increase in the demand for it. Considering that rice cultivation involve women intensive tasks, HYV rice farming would increase the employment of women's wage-labour. However, this increase in the use of women wage-labour is possible only and to the extent women specific tasks are not mechanized. "Use of machines turns women's tasks into men's tasks".⁶ If the use of wooden plough

5. Bina Aggarwal, op cit, 1985, p.81.

6. Gita Sen, "Women Workers and Green Revolution", in Lourdes Beneria (ed), "Women and Development", Praegar, New York, 1985, p.46.



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characterises ploughing as men's task than it is men who would use mechanised rice transplanters once they are introduced, and not women. Women only have their hands and feet as working instruments⁷. Even if women's wage labour is retained in the event of mechanisation of rice cultivation then it is only guided by profit motive. Women's wage-labour is easy to manipulate, more than men's wage labour specially because of their lack of collective bargaining power.⁸ Thus mechanisation may displace women's wage-labour in rice cultivation faster than the use of 'Biochemical Component' can absorb it, thereby offsetting the positive effects of the latter on women.

To examine the hypothesis then it is pertinent to look at the social organisation of rice cultivation in the three states identified earlier. The social organisation of rice cultivation would differ from one state to the other as the three states provide a sharp contrast to each other in terms of history, social structures and ecology.⁹

7. Joan. P. Mencher and K. Saradamoni, "Muddy Feet and Dirty Hands", in "Economic and Political Weekly" v.17, n.52, December 25, 1982, p.A-253.

8. Maria Mies, "Indian Women in Subsistence and Agricultural Labour", ILO, Geneva, 1986, p.74.

9. Joan. P. Mencher and K. Sardamoni, op cit, 1982, p.322.

TAMIL-NADU

According to the 1971 census¹⁰, in Tamil Nadu the population is divided into the following castes -Brahmins, Non-Brahmins and Schedule Castes. The Schedule castes, in 1971, were 21.06% of the whole population. Their percentage was the highest in Chingleput district (28%), followed by South Arcott (25%) and Thajavur (23%) . It was the lowest in in Salem (15%) and Coimbatore (15%). According to the 1981 census there was marginal increase in the percentage of schedule caste in the total population. From 21.06 % in 1971 it increased to 21.85 % in 1981.

Regarding the **OCCUPATIONAL STRUCTURE** the 1971 census stated that,48% of the state population of were main¹¹ workers engaged in productive labour. Of which 56.02 % were men and 15.09 % were women. Percentage of the workers in the population was less than the state average in Thanjavur (42%) and Chinglepet(43%),whereas the largest percentage was in Tiruchirapalli (49%),Coimbatore(48%) and Ramanathapuram (48%). In both Thanjavur Chinglepet, the extent of land under rice was very low whereas more land was under rice for the latter three. Hence , areas where more land was under rice cultivation there was also greater concentration of labour in these areas. According to the 1981 census there was

10. This is the census to which most studies on social organisation of rice cultivation in Tamil Nadu, Andhra Pradesh and Kerala have referred to. A perusal of 1981 census shows no significant change in the patterns of social organisation in the three states from 1971 census.

11. A main worker is one who has worked for no less than 183 days in a year in one or more economic activity.Census of India, 9181.

a decline in percentage of men involved in any main activity to 55.85 % (from 56.02 % in 1971). For women however there was a significant increase in participation in any 'main activity' to 22.36 % (from 15.09 % in 1971). The main workers were primarily involved in agricultural wage-labour. Hence, on an average agriculture labours has formed a significant proportion of the total main workers in the population of Tamil Nadu. In 1971 their percentage was 18 % of a total main workers. The percentage was highest in Thanjavur (33 %) south Arcott (29.%) and Chingleput (25%), which are also districts with the largest cropped area under rice (32 %). The percentage of agriculture labour increased to 24.93 % in 1981 of which men were 12.98 % and women were 11.95 %. The change can be attributed to increased requirement of labour due to the use of HYV rice on various farms in Tamil Nadu in 1970's.

The following inferences can be drawn from the data given above-

There is then a tendency on part of those, in a socially superior position in the caste hierarchy to abstain from any productive work. Consequently the number of lower caste among workers specially agricultural labourers is likely to be greater than their proportion in the population and the number of higher caste among workers would be less than their proportion in the population. According to the 1981 census of the total of 7,090,664 schedule caste persons in Tamil Nadu almost all were workers. But the number of men as workers (2,118,776) was more than women as workers (1,356,406) in the schedule caste population.

Self cultivation of rice is chiefly done by higher caste men viz Brahmins and Mudaliars.¹² Hence self cultivation was valued more than agricultural labour. The numbers of those in agriculture labour was more and was drawn from schedule caste population in the state.

If the members of the higher castes are mainly land owners and the lower castes are agricultural labour, then 'given' the gender-hierarchy, where 'the male is superior to the female', women of the higher caste, landowning households, may not work on the fields, however they will work on the homestead in field-related activities. It will be women from the lower caste, agricultural labour households who would be employed in field-related and also field work itself. Women agricultural labourers form the lowest category in labour hierarchy.¹³ They are then employed in the 'meanest' of the jobs like transplating (which is literally back-breaking). Majority of the scheduled caste women (between 15 to 50 years of age) work in the fields and so do women from poor, Vanniyar families and Shepherd caste families.¹⁴ Since these castes together account for over 25% of the population, the percentage of women's agricultural labour is quite high in Tamil-Nadu. Hence rice cultivation is characterized by the extensive

12. Joan.P. Mencher, "Agriculture and Social Structure in Tamil Nadu", Tavistock, New York, 1977, p.190.

13. Gita Sen, "Women Workers and Green Revolution", in Lourdes Beneria (ed), "Women and Development", Praeger, New York, 1985, p.46.

14. Joan. P. Mencher, op ct, 1977, p.223.

use of women's wage-labour which is largely drawn from schedule castes. The use of women wage-labour however would differ from one activity to another in rice cultivation. This is because traditionally the nature of each activity involves use of different kind of wage labour. The different activities in rice cultivation include ploughing of land, planting of crops, transplanting of seeds to the main fields, weeding, applying manure to the fields, harvesting and threshing of the rice crop.

Ploughing is the first step in preparing the land for cultivation.¹⁵ It is done with two or three teams of bullocks working together, one behind the other. Most ploughing is team ploughing. Given the low value attached to manual labour, even a household with one acre of land would employ labour to plough its fields. And the labour for ploughing would be drawn from among schedule castes. Ploughing is essentially a male job; It requires handling of tools an ability which men are supposed to be naturally equipped for. And it requires 'more energy', which unfortunately 'women do not' have given her gender.

Planting and Weeding are the next two activities in rice cultivation. There are three methods of planting rice : sowing broadcast, semi-dry sowing with seed-drill and transplanting.¹⁶ Usually nursery beds are planted by broadcast sowing and then the seedlings are transplanted to the main field. Transplanting is a slow, labourious 'back-breaking' job where stalks

15. Ibid, p.201.

16. Ibid, p.205.

are pulled out by men and seedlings are put in by women.

In order to transplant a field, it must be completely drained of water, then the seedlings would be put in very rapidly, but carefully, so that the new field can be flooded the same day. Even very small landowners must hire additional women's help to do transplanting. Usually, five to six women work in the field for transplanting. Among the poor, there is exchange of labour, but it does not cross caste lines. Once again women's Agricultural labour is drawn from the scheduled castes for large, middle, and small landed households.¹⁷

Weeding is also done by five to six women on large farms (the acreage would differ from state to state). These women are also drawn from lower castes households (again the acreage will differ from state to state). But very few small landed households employ women's agriculture labour for weeding. Instead they use women's family labour. Women's from large landed households do not work in the fields.

Application of traditional manure (animal, esp. cow-refuse) is done by a group of three to four women from the scheduled castes, but by a different set of women altogether (i.e. who have not participated in the previous, field-activities).

For the landless, harvest wages are the main source of income for the year, since pay during other seasons is quite low. Even small landowners, who have completed their harvesting, will try to work

17. Ibid, p.205.

for others in order to earn as much as possible. Harvesting is carried out by large groups working together in the same field. Among the lower castes (untouchables, Naickers, Rouders) there is a tendency is to employ a relative or a close friend and give them higher wages, even more than a landlord would.¹⁸ Women do not harvest alone or even as groups of five or nine. They are always accompanied by a male member of the family. Hence, women agricultural labourers who are not accompanied by men-members do not get employment in the harvesting seasons. There is a taboo on women working with 'strange men'. Widows, single women heading their own households would inevitably be discriminated against for employment.¹⁹

ANDHRA PRADESH

In the Caste Structure in rural Andhra Pradesh Hindus living in the state, in different districts, have been divided into eighteen castes; the dominant castes are the Reddis and the Brahmins. These two castes are economically dominant, in that a Reddi may own as big as 25 acres of dryland and 20 acres of wetland (for rice-cultivation).²⁰ Below, in the hierarchy, there is a conglomeration of various schedule castes which includes Harijans, Muslims, Gouds, Golla, Vaddiru, Mangalu etc.. Their proportion in the population differs from district to another within the

18. Ibid, p.208.

19. Ibid, p.231.

20. Maria Mies, "Indian Women in Subsistence and Agricultural Labour", ILO, Geneva, 1986, p.37.

state.²¹ The total population of schedule caste in Andhra Pradesh is 7,961,730 forming 14.87 % of the total population of the states (1981 census). This is an increase from 13.27 % of the schedule caste population to the total population in 1971.²² More than 85% of the schedule castes are engaged in agriculture either as cultivators or as agricultural labourers as against 17% of the population engaged in these main activities (1981 census). Of the schedule castes Harijans have been traditionally agricultural labourers. Some may own land but very small tracts, which are economically not viable for production. Harijans are also bonded labour. The other middle classes were peasants or artisans, who sold their labour in agriculture. The caste hierarchy then determines the occupational structure in Andhra Pradesh. The workers (both men and women) can be divided into the following categories-cultivators, Agricultural labourers, Household industry workers and 'Other workers'. According to the 1971 census, cultivators were 32.18 %, of the total workers in the population; men as cultivators were 37.35 % and women as cultivators were 19.43 % of the total workers in the population in Andhra Pradesh.

Agricultural labourers were 37.92 % of the total workers 27.73% of the agricultural workers were men and 63.08 % were women agricultural labourers. Total workers in household industry

21. Ibid, p.40

22. Census of India, 1981, Series 20, Andhra Pradesh, part II-B, Primary Census Abstract, pp.23-26.

were 48.5 %, of which men as workers were 5.09 % and women as workers were only 4.24 % of the total workers. Briefly then one important observation can be that while majority of the men are cultivators, women are primarily agricultural labourers in Tamil Nadu. The 1981 census however draws a different picture. The percentage of cultivators in population declined to 17.61 % and so did the percentage of men as cultivators (26.85 %) and women as cultivators (8.21 %). The percentage of agriculture labour also declined (19.27%) for the whole population and for men (18.73 %) and most drastically for women's agricultural labour (19.87 %) from 63.08 % of them in 1971.²³

Like men's agricultural labour, women's agricultural labour are drawn from Harijan castes and such castes as Goud, Golla, Muthiraju etc. Of the total percentage of schedule castes as workers (51.33 %), (59.33 %) were Men, and (41.28 %) were women. The percentage of both men and women as agricultural labour however was nearly the same, that is 38.98% and 38.41 % respectively. Men unlike women in the castes mentioned above (except Harijans) are divided among cultivators and agricultural labourers, which only reflects class-polarization among these communities. Women, continue to work on land either as family labour, or as exchange labour or as hired labour. Men also belong to the

23. This may be attributed (i) to the inclusion of new category of workers, the marginal workers, in 1981 Census. (ii) to the removal of areas restriction within Andhra Pradesh vis-a-vis the list of scheduled castes and scheduled tribes, see Census of India, 1981, A Potrait of Population, Andhra Pradesh, p.190.

category of the "other workers" (i.e. they might migrate to the urban areas, seeking employment). But women continue as agricultural labourers, supplying their labour for wages to feed the family. Migration for women is impossible, due to the social taboos that restrict female mobility. And this is a direct consequence of the gender-division of labour, where a women's "domain" is the household and any attempt to work outside this domain is considered an extension of the household work and like household work it is "undervalued" and "underestimated". The extent and intensity of women's work in the fields as well as the gender division of this labour varies with agricultural seasons and crops sown.

In Andhra-Pradesh, the agricultural year consist of three seasons; Kharif season (July-Nov), Rabi-season (Dec-Feb), slack season (March-June). Rice is grown in the Kharif season and since rice-cultivation is labour-intensive, hence the rice season is a peak season for labour. This is especially when transplanting and weeding have to be done. As wet-rice cultivation depends on either rain or artificial irrigation, it is crucial to transplant when the fields are still under water. Every farmer needs labour during this time and the demand for women labour is the highest during peak seasons in rice-cultivation. In fact the labour time spent by women in the latter amounts to 70-80 % of the total yearly labour.²⁴

Operations incurring the use of machinery and draught

24. Maria Mies, op cit, 1986, p.31.

animals are performed by men; these include preparation of the fields, ploughing, harrowing, and levelling of the fields (Tool-wooden planks drawn by bullocks).²⁵ Digging of the wells and of the small rice-irrigation canals between rice-fields and bunds around the fields is also men's work. But where the very same operations demand direct manual labour, such as putting mud from the canals on the bunds, or removing stones and thorns from the field, the work is usually done by women.²⁶ Harvesting is done by men and women. The rice is cut by sickle and bound into sheaves which is then left on the fields to dry and then taken to the threshing ground by head load. Threshing is done on threshing ground in the fields. Usually, it is men who drive animals over rice.

More or less, the social organization of rice-cultivation and the gender-division of labour on the field, is the same in Andhra Pradesh as in Tamil Nadu. However, in Andhra-Pradesh transplanting is exclusively a farm-job, undertaken by women's agricultural labour whereas in Tamil Nadu it is shared with men. Men pull out the stalks and the seedlings are then transplanted in the main fields by the women.

KERALA

The Agrarian hierarchy in Kerala till about 1950 was of a three to four-tier system of ownership and infeudation.²⁷The

25. Ibid, p.37.

26. Ibid, p.37

27. C.V.Kala, "Female Participation in Farm Work in Central Kerala", Sociological Bulletin, v.25, n.2, 1976, p.15.

Janmi, the owner was at the top, of the caste hierarchy. His right over land was a form of absolute ownership and he usually held vast estates. 'Kanam' tenants were mostly, from the middle range of castes. Majority of 'Kanam' tenant households got parcelled out under the sub-tenancy known as 'Verumpattam' which in most cases was verbal. Sub-tenants were in large measure self employed and they also hired labour on their farms rather than engage in manual labour themselves. This is because manual labour was/is held in low esteem. Hence, majority of the farm labour is supplied by untouchable castes as 'cherumans' and 'Tandans', especially by women belonging to these caste households.²⁸ The activities in which these women participated include weeding transplanting and such activities as carrying baskets of cow dung, clearing the cattle-shed every morning, spreading the traditional manure on the fields, harvesting and threshing. Some tasks are so sub-divided that a part of it is done by men and part of it, by women. These are, threshing, and winnowing. This allows the married couples to work together and the men kin, then have a certain pattern of control over the conduct of the women working on the fields, in that they are able to restrict their mobility.

There is a qualitative difference in the gender-specific roles of men and women. In all the field related tasks, which are exclusively women's tasks or optionally done by them at the level

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28. Ibid, p.18.

of the field, the planning of the tasks and thinking over issues in the successful completion of it, are all done by men. Once the women start weeding or transplanting they expect directions from the men supervisors. A woman is seldom conceived as capable of estimating the materials, time and sequence of the work to be done and similar considerations related to farm labour.²⁹ Occasionally if women exhibited such abilities of team leadership it is not recognised or encouraged. One important feature of rice cultivation in Kerala is that employers generally employ an entire household for work. The work not only includes rice field work (Krishipani) but also work in the household compound (Todipani) in well to do households with one to two acres of garden crops and outdoor work (Purampani) which is linked to every day household chores.³⁰ This division of work then determines who does what i.e. women of agriculture labouring households were engaged primarily in Todipani and Krishipani to the extent the work involved did not require use of any 'strength'. According to the Kerala Census 1981, there is low women's participation in cultivation. Only 35,166 women in the population of the workers are cultivators whereas 301,826 numbers of the men from the population of workers are cultivators. In agriculture labour number of men is more (1,00,953) than women (31,034). However more women are marginal workers (4,97,278) than men (4,82,767) signifying the

29. Ibid, p.26.

30. Ibid, p.20.

casual and seasonal nature of womens work specially in agriculture. The above data has special significance vis-a-vis low status of women when we look at the fact the population of females is more (12,95,913) than males (12,527,767). The population of the women despite this positive sex ratio is concentrated in marginal activities as casual labour in agriculture. The agriculture labour are drawn specifically from schedule caste population and concentrated in various field operations of rice cultivation. Even among the schedule caste population women as marginal workers are more (80,565) than men (53,473). In kerala ploughing that sets the setting for further inputs of labour is a men's job. It requires 'muscular' strength to loosen the soil. The men here are drawn from low caste agricultural households. Tasks which needs sedentry or semi-sedentry attention such as transplanting and weeding are predominantly women's tasks.. Although rice cultivation is generally believe to be consisting of unskilled works however it is not fully true. Regular performance of one kind of work by one gender from selected castes leads to a dextrous handling of it. For this reason some tasks are caste specific, in that women's wage labour is drawn from schedule castes for transplanting and not from the 'Panans' who devote themselves mainly to the craft of making leaf umbrellas.³¹ Within the caste specific and gender specific division of labour then tasks that are 'unpleasant', in this sense they are arduo^us and literally 'back

31. Ibid, p.31.

breaking, are done by women. For example in transplanting of rice women have to stand in knee deep water for an average of twelve hours without any break. This often leads to severe back and leg pains.³²

Such then were the social organisations around rice cultivation in which the Green Revolution Technology was introduced in these three states in the early 70's.³³ Tamil Nadu and Andhra Pradesh are the principal adopters of HYV rice in the south. In Kerala, however the extent and spread of HYV rice has been more restricted than Andhra-Pradesh for two reasons: There has been a lack of assured irrigation (same reason can be attributed to Andhra-Pradesh as well), and also a general lack of inclination towards production of HYV rice by the farmers. The Green Revolution Technology was a complex package and the farmers owing to general lack of knowledge of its use or benefits preferred to grow the tradition rice varieties .

If women's wage-labour occupied the lowest position in social organisation of rice cultivation then Green Revolution Technology which has increased rural unemployment would also negatively affect women's wage-labour.

Most studies on the effects of Green Revolution Technology on Women's agricultural labour in rice cultivation, apriori hypothesize that the overall employment of women's wage-labour measured

32. Joan.P. Mencher, "Muddy Feet and Dirty Hands", Economic and Political Weekly, v.17, n.52, December 25, 1982, p. A-225.

33. Ibid, p. A-226.

in person days is larger in rice cultivation with the use of HYV 'Biochemical seeds, Fertilizer, Water for irrigation' package. (Patkar and Sarthi, Aggarwal, Mencher, Saradamoni, 1983). HYV rice would increase the overall labour requirements because (i) It is accompanied by a new package of practices requiring greater care of the yield, and hence, more intensive use of labour. For example HYV's are transplanted, whereas traditional varieties are sown broadcast. "The HYV require intensive weeding, greater use of fertilizers and greater need for irrigation and management of crops" (ii) Frequent positive yields of HYV rice would require more labour during harvesting and threshing (iii) Many HYV crops are for a shorter duration and hence can give two to three yields in a year. This would increase crop intensity and labour use intensity on farms. (However, use of weedicides, mechanically operated threshers in the production of HYV rice would negate the positive labour demands of HYV rice).³⁴

Introduction of HYV rice might increase the requirement of casual seasonal labour, because of higher peak labour needs for transplanting, weeding and harvesting (Aggarwal, 1983, Sen, 1985). In so far as these are operations in which women's wage labour is primarily used, expectant increase is forecasted in the use women's casual wage labour in HYV rice producing farms. Its equivalence to increase in demand for men's wage labour would depend on the degree to which women are preferred over men for

34. Bina Aggarwal, "Rural Women and High Yielding Rice Technologies", in "Women in Rice Cultivation", IRRI, 1983, p. 311.

HYV rice cultivation and the supply of women casual labour in the region. Also, along with the demand for casual labour specially women's casual labour, demand and use of permanent labour might increase because it is a security against no or low availability and supply of casual labour during the peak season (Aggarwal, 1983, 1986). Use of permanent labour would be made affordable by the increase in the income of landowners as a result of higher and frequent crop yields. Studies show that labour force per hectare of net sown areas increased for all the three states (Patkar and Acharya, 1983).

Table 1 Labour force per hectare of net sown area.

STATES	1964-65	1974-75	% CHANGE
A.P	1.27	1.34	5.5
T.N	1.64	2.01	22.6
KERALA	1.20	2.09	74.2

Source : Pravin Patkar and Sarthi Acharya, "Technological Infusion and Employment Condition of Women in Rice Cultivation Areas", in 'Women in Rice Cultivation', IRRI, 1983, p.294.

TABLE 1 (a)

Percentage change in labour force per hectare of net sown area for men and women.

STATES	MEN	WOMEN
A.P	11.4	-3.5
T.N	20.0	26.6
KERALA	64.6	95.12

Source : Pravin Patkar and Sarthi Acharya, "Technological Infusion and Employment Condition of Women in Rice Cultivation Areas", in 'Women in Rice Cultivation', IRRI,1983, p.294.

According to the above tables the percentage of labour force per hectare of net sown areas increased for all the three states it was the highest in Kerala (74.2 %) followed by Tamil Nadu (22.6 %) and Andhra Pradesh (5.5 %). There is a greater percentage of women's labour per hectare of net sown area than men in both Tamil nadu and Kerala (22.6 %, 95.12 % respectively), though in Andhra Pradesh it has gone down (-3.5 %)

Also percentage of women's wage-labour increased in all the three states from 1964-65 to 1974-75. 1964-65 was considered as 'pre-technology time' and the period extending from 1974-75 to 1977-78 is 'post technology period' when HYV rice was evolved and introduced in the three states.

Table 2 Women agricultural labourers as a percentage of total agricultural labourers in agriculture labour households (1964-65 and 1974-75).

STATES.	1964-65	1974-75
Andhra-p	42.3	43.58
T.N	45.0	45.71
Kerala	37.7	41.07

Source : Pravin Patkar and Sarthi Acharya, "Technoligical Infusion and Employment Condition of Women in Rice Cultivation Areas", in 'Women in Rice Cultivation' IRRI, 1983, p.292.

Obviously then HYV rice has a positive effect on women's wage labour employment in all the three states. Women as percentage of agricultural labourers increased substantially in Kerala from 37.7 % in 1964-65 to 41.07 % in 1974-75. In Tamil Nadu the increase was minimal. The increase in percentage of women agricultural labours in 1974-75 was 45.71 % which was only 0.7 % more than there percentage in 1964-65 (45.0 %). Similarly, in Andhra Pradesh percentage of women's agriculture labour increased from 42.3 % in 1964-65 to 43.58 % in 1974-75.

However, women's wage labour participation did not increase in all agricultural activities. Rather it increased only on those activities which were traditionally women specific activities.

TABLE 2 (a) Percentage distribution of days of wage paid employment of regularly occupied men and women in different agricultural operations.

1964-65 (I)

STATES	PLOUGHING	SOWING	TRANSPLANTING	WEEDING	HARVESTING
	M/F	M/F	M/F	M/F	M/F
A.P	21.18/3.90	2.55/3.99	5.87/10.48	5.10/10.39	25.26/33.90
T.N	22.02/2.50	0.80/2.50	2.42/4.30	5.11/23.48	23.59/37.19
KERALA	30.15/2.50	1.51/1.42	0.60/14.47	1.21/12.77	8.44/21.99

1974-1975 (II)

A.P.	12.43/0.72	2.07/3.62	4.66/15.95	9.33/21.74	28.80/38.41
T.N.	18.92/1.69	0.68/5.08	6.08/19.49	8.78/22.88	20.95/33.08
KERALA	32.61/1.85	1.48/3.70	1.45/21.30	2.17/18.88	9.43/31.48

Source : Bina Aggarwal, "Rural Women and High Yielding Variety Rice Technology in India", in 'Women in Rice Cultivation', IRRI, 1983, p.324.

Part-I (1964-65) basically shows the operations where there is predominance of women's agriculture labour over men. Ploughing is essentially men's domain. Ratio of the percentage of men in ploughing to women is higher (21.18:3.90) in Andhra Pradesh, (22.02:2.50) in Tamil Nadu and (30.15:2.50) in Kerala. In all the three states percentage of men involved in ploughing is more than women. Sowing is women's task. Percentage of women involved in sowing is more than men for all the three states. The ratio of percentage of women in sowing is higher than men in Andhra Pra-

desh (3.99: 2.55), in Tamil Nadu (2.50: 0.80) but the ratio is skewed in favour of men in Kerala, though only marginally (1.42: 1.51). Transplanting also is exclusively a women's job and so are weeding and harvesting in all the three states. (refer table 2a, part I)

Part-II 1974-75 shows that men's wage-labour employment in ploughing declined in Tamil Nadu (18.92%) and Andhra Pradesh (12.43%) but increased in Kerala (32.61%). This only means that in Tamil Nadu and Andhra Pradesh, the land control by owners has risen over time. (Ploughing is an operation normally controlled by owner cultivators). In sowing, weeding, transplanting and harvesting women's wage-labour employment had increased in all the states. Thus we see that women prone jobs have large proportion of women involved in them than men in both the periods (1964-65, 1974-75). Differences regarding participation of women in rice cultivation is contingent upon not only their traditional roles in it but also the labour market situation. Hence, a fall in the proportionate share of women's wage-labour in rice cultivation has been due to mechanization of activities in which women were traditionally involved.

Women's agriculture labour is always casual, seasonal agricultural labour whereas men's agricultural labour may be either casual, attached or permanent labour. Women are never employed as permanent labour. (Aggarwal, 1983; Sen, 1985). Since transplanting, Harvesting and threshing are seasonal and women specific activities, the use of HYV rice than increases use of women casual agricultural labour along with other kinds of labour. Use of women's casual agricultural labour increased in the all three

states except Andhra Pradesh where there was an increase in use of permanent labour.³⁵

Table 3- Labor use by type of labour : A.P. ('74-'75'), T.N ('76-'77') Kerala ('77-'78).

TYPE OF LABOR	PERCENTAGE LABOR TIME		
	A.P.	T.N	Kerala
Women family labour	2.1	4.5	-
Women casual labour	45.9	49.5	73.30
Men family labour	17.8	15.1	-
Men casual Labor	25.8	23.7	51.35
Men permanent labour	8.0	6.4	-

Source : Bina Aggarwal, "Rural women and High Yielding Variety Rice Technology in India", in 'Women in Rice Cultivation, IRRI, 1983, p.316; Praveen Patkar and Sarthi Acharya, "Technological Infusion and employment Condition of Women in Rice Cultivation Areas" in 'Women in Rice Cultivation', IRRI, 1983, p.300.

In Andhra Pradesh, Tamil Nadu and Kerala the percentage age labour time of women casual labourers in agriculture is the highest (i.e. women casual labour is the most used per hectare sown of HYV rice in three states). This is followed by men's casual labour. They together provide the largest portion of total labour time in rice cultivation. Their labour time is 71.2 % in

35. Ibid, pp. 320-321.

Andhra Pradesh ,73.4 % in Tamil Nadu and 73.30 % in Kerala.

Women's casual labour time is 95.6 % of the total labour time in Andhra-Pradesh and 90.9 % in Tamil Nadu. It is divided (on % age terms) among four traditional women's agricultural operations viz sowing/ Transplanting (A.P.-30.7 % of the total female labour-time, T.N.- 18.4 %), weeding (A.P. 31.0 %, T.N 39.1 %), Harvesting (A.P. 27.7 %, T.N. 31.5 %), Threshing (A.P. 83 %, T.N. 8.0 %).

In all the three states, women do not undertake ploughing at all and no women is employed as a permanent, agricultural labour. "The task-specific nature of these activities means that women's casual labour dependent on these operations for their livelihood would be the first to be affected by the use of such techniques as rice transplanters, weedicides, power-operated rice-mills which would decrease the demand for women's labour in such operations (Modern rice mills have no women labourers in it)".³⁶

Labour use by rice-variety, shows that with introduction of HYV, relative to traditional rice-variety, for all farm sizes in Andhra-Pradesh, there is less use of women's and men's family labour, but there is increase in men and women casual labourers. The higher use however is of men permanent labourers (91.5 to 147.6 days of permanent labour employment per hectare shows a positive association between crop-yield income).

In T.N, there is higher use of labour from all categories of labour including women's family labour. With HYV variety, there is an increase in overall labour time, and type of labour used would depend on the farm size). Here, then the income per

36. Ibid, p. 316.

yield is offset by the positive labour requirements of HYV crop

production. Also in Tamil Nadu the percentage of marginal holdings (LE-2 hectares) is greater than in Andhra Pradesh which makes it harder for the marginal land holders to substitute family labour for hired labour.³⁷

However, the positive effects of the use of HYV rice vis-a-vis use of labour are reversed with the use of labour saving mechanical equipment in that the latter displace labour already employed in certain agricultural operations. (Aggarwal, 1983; Sen, 1985). The mechanical equipment is also known to change women's tasks into men's task. (Patkar and Acharya, Aggarwal, Mencher, Saradmoni, 1983; Sen, 1985). For all the three states then with the use of mechanical equipments in rice cultivation wage labour requirements for both men and women declined.

Table 4

Average annual full days of work and other employment of men and women in agricultural labour households

States	Wage-labour		Self-emp.		Total Engagement	
	'64-65'	'74-75'	'64-65'	'74-75'	'64-65'	'74-75'
	M/F	M/F	M/F	M/F	M/F	M/F
A.P	231/118	214/148	24/14	28/18	255/142	242/166
T.N.	208/149	171/126	18/9	22/18	226/167	193/140
Kerala	187/157	150/114	11/8	19/14	198/168	169/128

Source; Pravin Patkar and Sarthi Acharya, "Technological Infusion and Employment Conditions of Women in Rice Cultivation Areas", in "Women in Rice Cultivation", IRRI, 1983, p. 293.

37. Ibid, pp. 321-322.

For all the three states, wage labour for men and women declined,

the self cultivation increased for both and is quite high in relative terms (to men) in Tamil Nadu and Kerala. The overall intensity of employment per person has fallen for both men and women in all three states. However in Andhra Pradesh the intensity of women's employment has risen in 1974-75. In percentage terms intensity of women's employment (number of days worked per person per year) is more than men (5% to 20% was the percentage increase in employment of men and 16% to 28% for women). Also the number of idle days for want of work increased for women's agriculture labour from 1964-65 to 1974-75.

TABLE 5 Average number of days not worked by regularly occupied men and women workers in agricultural labour households.

STATES	WANT OF WORK	
	'64-65' M/F	'74-75' M/F
A.P.	16/98	60/101
T.N.	103/152	96/138
Kerala	102/106	122/153

Source: Pravin Patkar and Sarthi Acharya, "Technological infusion and employment conditions of women in rice cultivation areas" in, "Women in rice cultivation", IRRI, p.297.

Through mechanisation of rice production process there has been then increased unemployment of women's agricultural labour. And this displacement of women's agricultural labour has not been followed by other employment opportunities created through specific policy initiatives. (Saradmoni, 1983). In Kerala the

villages with the fewest days of work for women's agricultural labour are in the main rice growing regions. This is because traditional rice varieties do not require intensive labour use. However with the use of HYV rice there were potentialities for increase in the use of women's agricultural labour. However, this potentiality is again 'scuttled' away by the use of machines in very same activities that women do. Hence women face acute unemployment due to mechanisation of rice production process. For example the use of rice mills in rice areas of Tamil Nadu and Kerala has completely replaced hand-pounding which is traditionally done by women's agriculture labour. (Mencher and Saradmoni, 1983). This loss of employment is greater than that lost by men through introduction of tractors. This is because hand-pounding took so many days whereas ploughing was limited to a much shorter period of time and involved fewer men hours of work.³⁸ Further in the rice areas of both Tamil Nadu and Kerala one can still find many bullocks and buffaloes still being used in ploughing the fields, whereas hand-pounding has disappeared altogether. Mechanisation of hand-pounding then means taking away one important source of women's employment without providing for any alternate means of wage earning. The displacement effects of agrarian technology on women's agriculture labour puts a premium on the very survival of their families specially if women's

38. Bina Aggarwal, "Women, Poverty and Agricultural Growth in India", in Journal of Peasant Studies, v.13, n.4, July 1986, p.207.

income is a primary source of their sustenance.³⁹ As already reiterated the effect of technology on women's wages has been negative even more so than its effects on men's wages in all the three states.

Daily real earnings (in Rupees) from agriculture wage work of women declined more for women than men from agriculture labouring households from 1964-65 to 1974-75, in Andhra Pradesh and Tamil Nadu but not in Kerala. In Kerala however the increase in real wages of women's labour was insignificant.

Table 6 (a) Daily earnings from agriculture wage work of

States	Female		Male	
	(1964-65)	(1974-75)	(1964-65)	(1974-75)
Andhra Pradesh	0.85	0.76	1.21	1.03
Kerala	1.23	1.48	2.11	2.08
Tamil Nadu	0.85	0.79	1.39	1.24

Source: Bina Aggarwal, "Women, poverty, and agricultural growth in India", in "Journal of Peasant Studies", vol. 16, n.4, July 1986, p.208.

But annual real earnings (in Rupees) from agriculture wage work of women in agriculture labour household increased for Andhra Pradesh though it declined in Tamil Nadu and Kerala from 1964-65 to 1974-75. This only means that women were idle for most days in a year.

39. Joan Mencher and K. Saradomani, op cit, 1982, p.A-250.

Table 6 (b) Annual real earnings from agriculture wage work

of agricultural labourers in agriculture labour households (in Rupees)

	female		Male	
	(1964-65)	(1974-75)	(1964-65)	(1974-75)
Andhra Pradesh	88.4	104.8	246.8	198.2
Kerala	180.8	159.4	365.0	286.5
Tamil Nadu	121.1	93.4	269.7	183.9

Source: Bina Aggarwal, " Women, poverty and agricultural growth in India", in "Journal of Peasant Studies", v.16,n:4, July 1986,p.209

Comparatively then the decline in the daily and annual earnings of men's wage labour to women's wage labour was less in all three states and it further declined in 1974-75. However the differential in the annual women and men's earning from agricultural labour decreased from 1964-65 to 1974-75 for all the three states.

Table 6 (c) Differential in ratio of male to female earnings (in rupees).

States	1964-65	1974-75
Andhra Pradesh	2.79	1.89
Kerala	2.02	1.80
Tamil Nadu	2.17	1.97

Source : Bina Aggarwal, "Women, Poverty and agricultural growth in India", in "Journal of peasant studies", Vol 16,no.4, July 1986, p.209.

This decline in differential in wage of men and women agriculture labour households in the three states may be related to limited application of agrarian technology or non mechanization of womens tasks. Non mechanization could also be coupled with increased demand for women's agricultural labour specially in womens specific tasks as transplanting. However, for both survey years the differentials per se are substantial with women's earnings being about half or less than half of men's earnings in most cases. The wage differential have a traditional root often reinforced by legislation: for example, according to the Tamil Nadu wages act (1-9-81), wages for men for ploughing was rupees nine per day whereas for transplanting, weeding or other agricultural operations it was specified at one rupee eighty paise per day, though ploughing hours are only five and that for others more than eight hours. Despite low income of womens agriculture labour the propotion of their income contributed to the households is far higher than that contributed by the men folks (Mencher and Saradmoni, 1982). In Kerala the percentage contribution of womens earning to the households is 76 % however that of men is lower still (51 %). In Tamil Nadu the percentage of income contributed by the wife to household expenditure is a whopping 99 % whereas that of men is 87 % . Most of the women contribute the largest portion of their wages in household expenditure because mens earnings are never sufficient. There expenditure outside of the house is taken for granted, whereas a women does not siphon her money off any where except probably for betel nut and food while at work. (Mencher, 1983; Gulati,1975).

Therefore use of labour displacing technology in rice culti-

vation would increased the povery of household as well as illnesses due to lack of minimum level of nutritional intake of its members. Buying of fruit and its intake by various member of households becomes the priority issue. The "intra household gender based division of food consumption" would determine who gets what of the limited food bought. And often the consumption of food by females is way below that of males in the house (Aggarwal, 1986). Gulati (1975) in her study of agricultural labour households in Kerala compares the daily calories intake of the household heav and his wife with(ICMR) recommendations. On days when both men and women are employed , short fall in womens calorie intake vis-a-vis(ICMR) recommendation is 20 % and that of men is 11 %. When both are unemployed the relative short falls are 50 % and 26 % respectively.

Also female child mortality rate in the age group of 0 to 4 years due to mother's ill-health during pregnancy or post pregnancy and due to medical neglect of weak female infants, is higher than male children in Andhra Pradesh and Kerala, though not in Tamil Nadu. This female mortality rate is even more depressing when one knows the survival strength of female child is more than that of a male child (Aggarwal, 1986)

Table 7 Deaths per thousand of Children by state and sex in 1978 (0 to 4 years ; rural)

States	Females	Males
Andhra Pradesh	38.1 %	43.6 %
Kerala	13.6 %	12.6 %
Tamil Nadu	45.8 %	42.5 %

Source : Bina Aggarwal, "Women, Poverty and Agricultural Growth in India", in "Journal of Peasant studies", Vol 16, no.4, July 1986, p.174.

The two states of Kerala and Tamil Nadu clearly show the changing trend in the south regarding discrimination against females. These states are beginning to show patterns of discrimination akin to those against female in north-western India specifically in states of Punjab and Haryana. (Aggarwal, 1986)

Table 7 (a) Female mortality rate in Punjab and Haryana (1978) (0-4 years; rural).ls 1

States	Females	Males
Haryana	39.6 %	31.0 %
Punjab	42.2 %	35.6 %

Source : Bina Aggarwal "Women, Poverty and Agricultural Growth in India", in "Journal of Peasant studies", vol 16, no.4, July 1986, .174.

These patterns of discrimination against females in the southern states may be cosely related to the increase in cases of dowry giving at a daughter's wedding which in turn could be related to their increasing displacement from agriculture labour, which in turn reduces their incomes (Aggarwal, 1986).

Hence, briefly then the studies shows that--Women as casual agricultural labourers pre-dominate in all states.

In Andhra Pradesh, women casual labour time is 95.6 % of the

total labor time and in Tamil Nadu it is 90.9 % and in Kerala 91.2 %. They^{thus} suffer from instability of unemployment. Though the HYV rice initially increases the overall demand for agricultural labour (though demand for different kinds of labour will differ from state to state), mechanisation reverses these positive effects on labour by displacing it specially women's casual labour. In Andhra Pradesh the demand for men as permanent labour goes up, but in Tamil Nadu demand for women's family labour increases, with introduction of HYV rice. This is related to the greater proliferation of small landholdings in Tamil Nadu than Andhra Pradesh, which necessitates use of family labour rather than any hired help. Women and men as casual labour are in great demand on large landholdings in all states. The demands for women's casual labour should logically,, go up especially in activities of rice-cultivation that are traditionally that of women. But this would happen only where the extent of mechanization is restricted (for example in Raigir (A.P) demand for women's agriculture labour did not decline with introduction of HYV rice because,

- (i) The women's tasks were not mechanized and
- (ii) A large pool of women's agricultural labor was, available for tapping. Mechanization converts women's tasks into men's task, thereby displacing these women from employment. Displacing these women from employment adversely affects the income and consequently, the nutritional level of the household to which they belong. In the absence of alternate employment or rather even the skills for any other job except agriculture, women face acute unemployment. A household dependant largely on women's

income (because a women does not siphon off her earning in extra-household expenditure), would suffer from malnutrition and impoverishment.

(iii) These studies offering their own suggestions to the problem of women's displacement from agriculture, as a consequence of the use of technology, suggest that there should be : diffusion of technology so that the social relations of production favour the underprivileged, rather than allow the bureaucracy to maintain a status-quo. Use of technology should be such that it is also skill oriented in that women should be taught skills of the trade. New policy-perspectives for providing other sources of employment for women should be formulated and implemented, if agriculture now is completely 'saturated' with machines.

A women's collective movement like that in Andhra-Pradesh to create their own source/institutions (co-operative) and fend for themselves is extremely important if the negative effects of Green Revolution Technology have to be offsetted.⁴⁰

40. CROSS was responsible for creating women's 'Sangams' in Andhra Pradesh to provide women a formal collectivity to fight against the effects of Green Revolution technology. see, Maria Mies, Indian Women in Subsistence and Agricultural Labour, ILO, Geneva, 1986, p.101.

CHAPTER III

In the previous chapter empirical studies have conclusively established the negative consequences of Green Revolution Technology on women's wage-labour in rice cultivating states of Andhra Pradesh, Kerala and Tamil Nadu. One important consequence of Green Revolution Technology has been the displacement of women from their traditional activities like transplanting in rice cultivation. The displacement from these activities has been responsible for increased poverty of their household, specially when the women's wages are crucial to the very survival of these households.

It would be interesting then to compare the effects of Green Revolution Technology on women's wage labour in rice producing states with its effects on women's wage labour in wheat producing states of Punjab and Haryana in Northern India. A comparative study of two regions would be interesting for one important reason. The northern states provide a sharp contrast to the southern states not only in terms of ecology but also in terms of their social structures.¹ Together the ecology and social structures of these two regions have determined the kind of crop to be grown and the kind of labour required for its production and management. Hence, rice is traditionally grown in southern India involving intensive use of schedule caste wage labour. This is because the high caste men 'devalue' manual labour.² Of the

1. Bina Aggarwal, "Women, Poverty and Agricultural Growth in India", The Journal of Peasant Studies, v.13, n.4, July 1986, p.211.2.

2. Joan P. Mencher, "Agriculture and Social Structure in Tamil Nadu", Tavistock, New York, 1977, p.215.

schedule caste wage labour, women's wage labour is concentrated in labour intensive tasks as transplanting. Similarly, the wage labour for wheat cultivation in the north is drawn from the schedule caste population because high castes abstain from any manual work on the fields. However, women's wage labour is not drawn essentially from schedule caste population in Haryana. Even women from landed households hire out their labour for wages during harvesting and threshing of wheat. This ofcourse is in addition to the unpaid labour they expend on their own farms. Traditionally then, women in Haryana have been involved in all activities of wheat production except ploughing, irrespective of social divisions³. This is in sharp contrast to low women's participation in agriculture in Punjab⁴. It is only women from schedule caste population who hire out their labour for wages in wheat cultivation. The high caste women abstain from doing any field work. However, they are involved largely in homestead agriculture related activities as storing of grains, storing of hay, looking after the cattle etc.. To put it simply then, women's wage labour in Haryana is drawn from all classes and castes whereas in Punjab they are primarily drawn from the schedule caste population. Traditionally the Sikh Jat farmer in contrast to the Hindu Jat farmer considers it below his dignity to allow women to participate in outdoor field activities.⁵ This statewide dif-

3. Prem Chaudhary, "High Participation, Low Evaluation: Women and work in Rural Haryana", Economic and Political Weekly", December 25, 1993, p.A-135.

4. Ibid

5. Raj Mohini Sethi, "Female Labour in Agriculture", Chandigarh, 1977, p.12

ference in women's participation specially women's wage labour in wheat cultivation emerging out of a certain socio-cultural set up, would determine the nature of the effects of different components of Green Revolution Technology on Women. To examine then the above hypothesis it would be pertinent to first look at the social organisation of wheat cultivation in each state and then at studies which have specifically analyzed the effects of Green Revolution Technology on women's wage labour in Punjab and Haryana.

PUNJAB

If we look at Punjab the cultural milieu in which the villager exists and the resulting social stratification, we can see that the latter affects both the rate of labour force participation and the characteristics of those who participate in it. Hence as alluded to earlier an enquiry into the nature and conditions of women workers, esp. Women's wage labour, requires an understanding of the social background from which these workers are drawn.

According to the 1971 census⁶, 37 Scheduled castes were identified in Punjab, viz. Ad-Dharmi, Bangali, Barar, Batwal, Bauria, Bazigar, Bhanjra, Chanal, Dagi, Darain, Dhanak, Dumna, Dogri, Handil, Kabirpanthi, Khatik, Kori, Marecha, Mazhabi, Megh, Nat, Od, Pasi, Perna, Pherera, Sanhai, Sanhal, Sansoi, Sanoi, Sapela, Sarera, Sikligar, and Siriband. According to the 1971 census the scheduled castes were 27.6% of the total population in

6. Census, 1971, is the base year for most empirical Studies analysing the effects of Green Revolution Technology on Social Organisation in and around wheat cultivation.

rural areas , of which 27.77% % were men and 27.48% were women. In numerical terms , Ramdasis and the Mazhabis constituted the largest propertion of scheduled caste population in Punjab, followed by Ad- dharmi and the Balmiki.⁷ In the same order , these four schedule castes also form the largest propertion of total workers in the population of Punjab, as well as non- wokers (i.e those who have not been engaged in any productive activity for at least 173 days/year). Again in the same order, the said four castes form the largest propertion of agricultural workers from the total population of workers in Punjab Though there are cultivators from these castes and they together form the largest proportion of cultivators of agricultural land in Punjab , however, their numerical strength as agricultural labourers far exceeds their numerical strength as cultivators. This is largely symptomatic of the increasing land-augmentation and subsequent decrease in the economic viability of land-size of five or less than five acres (for Punjab) with the introduction of new agrarian technology in early 70s' in the region.⁸

Hence, the predominant category for the scheduled caste workers is agricultural labour, followed by cultivators. The proportion of the scheduled castes in agricultural labour is higher than the national average; 64.91 in Punjab compared to 55.3 % for India as a whole.⁹

7. Census of India, 1981, Serial 47, Point-II-A, Point-IIB, Punjab, General Population Tables and Primary Census Abstract, pp.51-55.

8. Ibid, p.57.

9. Raj Mohini Sethi, "Female Labour in Agriculture", Chandigarh, 1977, p.35.

Numerically, if the total population of the aforesaid four schedule castes as workers is split into men and women workers, then for all the four castes men as workers far exceed women as workers. The ratio of men's wage labour and men as cultivators to women's wage labour and women as cultivators respectively, favours men in that there are more men as wage labour than women as wage labour and more (exceedingly) men as cultivators than women. But of the total population of women as workers, the population of women's wage labour far exceeds that of women as cultivators.

Also, the population of women as non-workers far exceeds men as non-workers. This only points towards the undervaluation of women in family labour in the census as it is not socially recognized.

The above can be related to the following table :-

TABLE 1

Industrial classification of persons as workers and as non-workers by sex for four scheduled castes (SC), in Punjab (state census 1971)

	NAME OF S.C.	TOTAL			TOTAL WORKERS	
		P	M	F	M	F
1.	Ad- Dharmi	383,078	204,423	178,655	98,043	1,214
2.	Balmiki	293,127	155,877	137,250	84,076	1,598
3	Ramdasis	860,643	167,557	393,085	244,650	3,203
4	Mazhabi	886,436	4775,785	410,651	256,551	3,701

NAME OF S.C.	AGRICULTURAL LABOURERS		CULTIVATORS		NON-WORKERS	
	M	F	M	F	M	F
Ad-dharmi	49,731	400	12,669	81	106,380	177,391
Balmiki	58,086	564	9,663	38	71,380	135,652
Ramdasis	148,721	830	30,102	134	222,907	389,882
Mazhabi	202,886	1,978	21,440	90	219,234	406,950

Source: Census of India, 1971, General Population Tables, Part II-A, Punjab.

If we look at women's work participation to total work participation in Punjab and of women's agriculture labour to total agriculture labour it is just nominal. Women's work participation is 1.14% (lowest of all the states in India) and women's agriculture labour to total agriculture labour is 1.00% (lowest of all the states in India).¹⁰ However, this anomaly can be removed substantially when we look at the proportion of scheduled caste women's agriculture labour to total women's agriculture labour in the state. The proportion of scheduled caste women's labour is substantive in the state (66.4%)¹¹. This is higher than the national average (61.91%). This confirms the assumption that major portion of women's agriculture labour in Punjab is comprised of the scheduled caste labour. Reasons for this include the prevalent

10. Raj Mohini Sethi, op cit, 1977, p.46.

11. Ibid. p.46.

taboo against women's employment among the higher castes in agricultural farm work in rural areas, and high scheduled caste population in the state. In fact the scheduled caste population in Punjab is the highest in the country (27.64%).¹² However it was only agricultural labour that is devalued in Punjab by the higher castes and not participation in production processes of urban based enterprises. The large number of women from higher castes in manufacturing and allied activities (41.62%) is a pointer to this fact.¹³ There are of course inter district variations in the proportion of scheduled castes women's agriculture labour to total women's agriculture labour. For example the proportion of scheduled caste women in agriculture labour in Bhatinda district is the highest in the state (85.04%), whereas in Sangrur it is as low as 9.38%¹⁴. And this variation can be attributed to a number of reasons as proportion of population of scheduled castes in the district, the sex ratio, the cropping pattern (cultivation of rice and cotton in Bhatinda district involves greater participation of women because both rice and cotton are labour intensive crops), degree of urbanisation, literacy etc. Predominance of women's wage labour in wheat cultivation does not logically mean that they predominate in all the activities involved in wheat cultivation. According to Billings and Singh (1970), the activities in wheat cultivation include ploughing, planning and levelling of ground, manure application,

12. Ibid. p.43.

13. Ibid. p.44.

14. Ibid. p.47

bunding and making water courses, irrigation, planting and sowing, hoeing and weeding, harvesting, threshing, winnowing and transportation of wheat grains in gunny sacks. The following table (2) refers to women's participation in wheat cultivation in the three districts of the erstwhile Punjabi suba, which later became three different states of the Union of India. The mountainous district is today comprised in the state of Himachal Pradesh. While the south west district now form the state of Haryana, the central district form the state of Punjab.¹⁵

Table 2: Participation of women's agriculture labour in various operations involved in cultivation of wheat in the three districts of Punjab. (M = Mountainous district, S-W = South- West Districts, C = Central Districts.).

	Task/Operation	WALP			Remarks
		M	S-W	C	
1.	Ploughing	NO	NO	NO	In some part esp. in the hills women do take part in ploughing.
2.	Planning and levelling	Yes	Yes	No	Women, whenever participate in farm-work help in levelling
3.	Manure application	Yes	Yes	No	Women help in loading, unloading and spreading of farm-yard manure.
4.	Bunding and Making water courses	Yes	Yes	No	

15. Martin Billings and Arjan Singh, "Mechanisation and the Wheat Revolution: Effects on Female Labour in Punjab", Economic and Political Weekly, v.52, December, 26, 1970, pp.A-170 toA-172.

5.	Irrigation	Yes	Yes	No	Women help in application of water in fields.
6.	Planting and Sowing	Yes	Yes	No	Largest portion of this task falls on women A.L. They help in preparing and sowing seeds.
7.	Hoeing and Weeding	Yes	Yes	Yes	
8.	Harvesting	Yes	Yes	Yes	Women help in harvesting wheat. Women also take active part in cotton-picking, cane-stripping, groundnut harvesting.
9.	Threshing	Yes	Yes	Yes	
10.	Winnowing	Yes	Yes	Yes	
11.	Transportation	Yes	Yes	No	In South-West districts women only help in unloading of the produce.

Source: Martin Billings and Arjan Singh, "Mechanisation and Wheat Revolution: Effect on Female Labour in Punjab", Economic and Political Weekly, v.52, December 26, 1970, p.A-171.

What is then observed in the above table is that:-

(i) By and large, women in all the three regions do not participate in ploughing. Ploughing is the only, exclusively man's task.

(ii) Planting, sowing and harvesting, though not women's-specific tasks, however engage women's agriculture labour more than in other operations, in the three regions.

(iii) In all the operations (except the aforesaid), women are

seen as helpers to men that is they are regarded as "surplus labour", to be used only when the task requires division of labour.

(iv) Hence, if one looks at the central districts and assess the extent of women's participation in agriculture labour, then in six out of eleven operations, participation of women is "NIL". This alludes to the earlier contention that there is greater taboo on women's participation in agriculture in Punjab than even in Haryana or Himachal Pradesh, in North India.

If we look at the agrarian milieu of Haryana then since the colonial times, the socio-cultural ethos of the state came to be "coloured" and determined generally by the dominant agriculturist castes and in particular by the landowning castes.¹⁶ Among them, Jats emerge as the dominant castes. After the Jats were other castes as Rajputs, Pathans, Sayyeds, Gujjars, Ahirs, Bilochs, Rors, Moghals, Malis, Tagas, Sainis, Chauhans, Arains, Gaud Brahmins and Qureshis, (these were all landowning castes).¹⁷ Economically and numerically stronger than any other caste, the Jat satisfied yet another norm of the dominant caste that is they did not occupy a low ritual status. Numerically, they are found in large numbers in the five districts of Ambala, Gurgaon, Hisar, Karnal and Rohtak, forming nearly one-third of the

16. Prem Choudhary, "The Advantages of Backwardness: Colonial Policy and Agriculture in Haryana", The Indian Economic and Social History Review, October to December, 1986, p.264.

17. Prem Choudhary, "High Participation, Low Evaluation: Women and Work in Rural Haryana", Economic and Political Weekly, December 25, 1993, p.A-137.

population. They also hold the bulk of the agricultural land as proprietors that is 80 % of the land is under the Jats in Haryana.

"The accepted superiority of Brahmin, in the ritualistic framework of caste-hierarchies did not exist in Haryana".¹⁸ Brahmin may be sacerdotally superior yet socially he was not. Hence, the norms in the agrarian society in Haryana have never conformed to the ritualistic standards and have been necessarily related to the amount of land that was in the possession of a particular caste, especially the Jats.

According to the 1971 census,¹⁹ the number of scheduled castes enlisted for Haryana were 37, same as in Punjab. This similarity vis-a-vis proliferation^{OF} schedule caste in the two states stems from the fact that the two were part of the Punjabi Suba before they were reorganised as separate states .

The percentage of scheduled castes to total population in rural areas in 1971 was- 18.89% and increased to 20.73% in 1981. Among the scheduled castes, Chamars/Rehgars/Ramdasis/Ravidasis, ranked first in terms of population = 1,295,796 (numerical terms) followed by Balmikis = 490,1621 (numerical terms).²⁰

The following is a classification by literacy, industrial category, sex of workers and non-workers according to main activity among scheduled castes, in Haryana- census, 1971.

18. Prem Choudhary, "Customs in a Peasant Economy: Women in Colonial Haryana", in Kumkum Sangari and Sudesh Vaid (eds) "Re-casting Women: Essays in Colonial History" Kali For Women, New Delhi, 1989, p.303.

19. Census of India, 1971, A Potrait of Population, Haryana, p.22.

20. Ibid, p.24.

Table 3

State Haryana		Persons	Total Men		Women
Rural		1,698,626	905,834	792,792	
Urban		1,97,307	107,642	89,665	

State Haryana	Workers		Total Cultivators		Agri' Labour	
	M	W	M	W	M	W
Rural	434,987	28,382	79,042	3,201	239,366	16,626
Urban	49,585	4,696	943	66	4,590	629

Source: Census of India, 1971, Series 6, Part II-B, Economic Tables, Haryana.

According to table 3 of the total population of scheduled castes, maximum number of them are in rural areas of which the men's population (905,834) is higher than women's population (792,792). Of the total workers in rural areas among scheduled castes, men as workers (434,987) far exceed women as workers (28,382). More men than women are cultivators (79,042 and 3,201 respectively) and more men (239,366) than women (16,626) are agricultural labourers. But more women than men are non-workers (764,410:470,847 respectively).

In absolute terms, women worked more as agricultural labourers (22.1%) in 1981 than men (15.9 %). However, more men are cultivators, than women) i.e, largest incidence of scheduled

castes women is in agriculture as labourers, i.e. 52.4 % of the total women workers are drawn from the schedule castes. (these are scheduled castes who are the poorest of the poor, because any increase in the economic status of a household will have a consequent effect on women's labour participation, in that her labour would be relegated to the household and not used for wages on other farms).

" Women, in Haryana, even from the colonial times have worked harder than men"²¹. Though women from both higher and lowest castes in the hierarchy did not plough, dig or drive cart, however they did engage in heavy tasks of bringing in wood, fuel and water; they cook food for the normal household of at least six persons and carry food to the fields for their men-folk, they have to watch the crops, and fill in "extra" time with such homestead activities as looking after the cattle, making cow/buffalo dung-cakes for fuel or stacking hay for fodder for the animals.²² According to Prem Chaudhary, the colonist's praise for the Jatni (as an ideal contributor to crop-production, especially revenue which the Jat deposited with the colonial revenue department), somehow has got translated into / affected the notion of economic status for women in Haryana. Women's family labour came to have a greater social status than women's agriculture labour. Hence, wheat cultivation in Haryana was not specifically characterized by the use only of women's wage labour where the latter was derived from the schedule castes. Women from higher

21. Prem Choudhary, op cit, 1989, p.305.

22. Ibid, p.302.

caste like the Jatni participated in the field work. There were however castes groups in Haryana who were land holding, but did not encourage their women to work outside their homes and these included the Brahmins, Bania, Khatri and Rajputs among the Hindus and Pathans, Biloch, Sayyed, Sheikh and Ranghar or Rajput among Muslims.²³ But the use of Green Revolution Technology however encouraged participation of women from these castes as we shall later see.

Though women came to be recognized and coveted as an economic necessity it was only as part of man's property and were equated with food, house and animals. Customs as dowry and the legalisation of the custom of the 'Karewa' (Widow remarriage) further reduced the status of women to an economic liability.²⁴ Women provided labour for the household, as well as for cultivation and for animal husbandry, all of which operate inside the male-dominated norms of the "purdah culture".

The Green Revolution Technology then was introduced within this social organisation of 2 states which at time of introduction was one state of Punjab.

Punjab and Haryana were singled out for the introduction of Green Revolution Technology because of their geo-climate, technical and institutional advantages. These states were/are in a positive position in terms of spread of co-operatives, credit institutions, extension networks, rural electrification, surface transport and inequal productive relations characterised by sharp

23. Prem Choudhary, op cit, 1989, p.306.

24, Ibid, p.306

inequalities in landownership and possession of other productive resources.²⁵

However, initially Haryana consistently lagged behind Punjab in the diffusion of Green revolution technology.²⁶ Despite differences in total cropped area, increase in the percentage of wheat land planted with HYV seeds was similar in both states. In Punjab, the increase in HYV cultivated land was from 3.58 to 99.50 to Haryana's increase from 1.73 to 95.20 during 1967-84. However, increase in total percentage of irrigated area was substantially lower than for Punjab. 58.8% of the total cultivated area was irrigated in 1968-69 for Punjab and the same increased to 80.7% to 80.7% in 80-81. For Haryana too, the irrigated land increased from 37.8% to 59.2%, though not as dramatically as it increased in Punjab. Fertiliser consumption for Punjab increased dramatically during 1970-71 (40.3 k.g per hectare) to 1980-81 (133.2 k.g. per hectare). For Haryana, the fertiliser consumption increased but minimally as compared to Punjab, from 17.3 kg/hectare to 42.0 kg/hectare for the same time period as above. Even with respect to tractor use, in 1977, Punjab had 66,700 units in operations as compared to Haryana where 30,400 units in operation have been enumerated. But tractor-use per HYV acre in Punjab was less than Haryana (Punjab's .18 tractors/acre to Haryana's .37^{tractors} per acre).

This initial difference in the adoption and use of technology

25. Zarkovic, "Issues in Indian Agricultural Development", Moscow University Press, 1985, p.55.

26. Ibid, p.57.

gy can be attributed to the difference in demand and supply of agricultural technologies in the two states. And the difference in demand for agricultural inputs can be attributed to the average size of the land-holdings.²⁷ Also, the initial difference in demand for agricultural inputs in the two states relates specifically to mechanical inputs and not HYV seeds since the HYV seeds are scale neutral ; they could be /were adopted by even small farms (less than 4 acres) in both states.²⁸ Hence the similarities amongst the two states regarding percentage of wheat land under HYV seeds in the 70's - Punjab :73.06% of the total cultivable land was under HYV wheat and in Haryana : 67.79%. However, mechanical implements are not scale neutral and are not cost-effective on small farms.²⁹ In Haryana, in 1960's 30.7% of cultivable area was under operational holdings of less than one hectare in size to 42.4% in Punjab. Hence, more operational holdings in Haryana could adopt mechanical equipments like tractors than in Punjab. Tractor use for Haryana was consequently greater than that for Punjab in 1970-71 (Punjab 18tractors/ HYV-acre , Haryana: 37tractors/ HYV-acre).³⁰

But there were changes in farm-sizes in late 70's specially in Punjab. The percentage of operational landholdings under one hectare decreased to 19.2% from 42.2% as observed a decade earlier .For Haryana , the percantage remained unchanged. The inequality in land - holdings and asset holding intensified in the 70's

27. Ibid, p.58.

28. Ibid, p.58.

29. Ibid, p.59.

30. Ibid, p.59.

i.e concentration of landholdings in agriculture simultaneously existed along with small farms.³¹ The reason for concentration of landholdings can be attributed to the increased resumption of tenanted land by landowners.³² This was not so much to evade land reform legislation as to engage in profitable cultivation with hired labour. Hence ,the initial difference between the two states: Punjab stressing on the biochemical aspects and Haryana stressing on the mechanical aspects , converged in the 70's.

One other reason for this convergence can be attributed to the supply of mechanised inputs in Punjab in the 70's.³³ Punjab was an important producer of agro-inputs . In the 70's the nature of mechanical inputs supplied to the market altered . Pumpsets, threshers , tractors became smaller in scale and therefore, more appropriate for local conditions , and thus enabled even small farmers to mechanise.

It can thus be hypothesised that because of the initial differences in technology - adoption in the two states, the labour - absorbing tendencies would again be different for the two states. Punjab's agriculture was infact, more labour onten- sive because of the initial use of biochemical aspects of tech- nology. Percentage of Punjab's labour force employed in

31. Gita Sen, "Women Workers and Green Revolution", in Lourdes Beneria (ed), "Women and Development", Praeger, New York, 1985, p.37.

32. Resumption implies the return to "personal cultivation" of previously tenanted land by larger farmer having the new technology and hired labourers, see Ibid, p.39.

33. Zarkovic, op cit, 1985, p.60.

34. Ibid, p.63.

agriculture was more labour displacing because of the adoption of mechanical implements of production .The percentage of Haryana's labour force employed in agriculture decreased from 71.4% (1961) 66.8% (1971). However, by 1981 the relative proportions of agricultural workers were similar for both states 59.2% in Punjab and 61.4% in Haryana i.e. in both states the use of mechanical implements of production converged by 1970's and consequently both states the labour use declined.³⁵

The statistics for these three census years (1961,1971 and 1981) however have not fully captured the effects of agrarian technology on labour participation.This owes to the changes in definition of workers from 1961 to 1981. The census of 1961 included both 'main and marginal workers' under the definitional category of worker, as one who has "worked" for major part of the season say for no less then 175 days in a year or the preceding two weeks before the enumeration. 1971 census excluded "marginal workers". It only included as main workers those who "worked" for the major part of the year were enumerated as workers. The 1981 census reverted back to the 1961 census definition of a 'worker' and included a third category of a 'non-worker', that is one who has not engaged in any remunerative activity at all, whether for the season or the preceding two weeks before enumeration. Hence, the 1961 census data on labour participation in the two states is not strictly comparable to that of 1971 census, but is comparable

35. Government of India, Office of Registrar General and census Commissioner, Indian Census, New Delhi, 1961, 1971, 1981.

to that of 1981 census on labour-participation in Punjab and Haryana. The labour participation in agriculture for both main and marginal workers was 37.93% in 1961 (in Haryana). The labour participation in the same sector dipped in both "71" and "81". However, the decrease in labour use in 1971 (30.44%) can be attributed to only main workers because the 1971 census excluded marginal workers from its purview. The 1981 census however, records the percentage of workers (main + marginal) who were retained in agriculture (33.57%), [Zarkovic:63]. A significant point to be noted is that in 1961 no specific distinctions were made between main workers and marginal workers. None of the workers enumerated were listed under either of these categories. The 1981 census, however, specifically uses the categories of main, marginal and also non-workers. (Sen, 85).

The changes in the participation of labour force in agriculture can not be attributed merely to biases in the census reports,³⁶ which obviously emerge from the skewed system of power-relations in a socio-cultural context. Real changes in age-structure, urbanisation, decline of traditional avenues of employment, changes the labour-force participation patterns within the sector and between sectors (i.e, there is a shift from one sector to another in search of employment, for example, agrarian technology displaces agricultural labour which then migrate to nearby towns seeking work), specially men.

36. Four main biases and subsequent undercounting in Census can be identified, see, Gita Sen, "Women Agricultural Labourers: A Study of the Indian Census", Working papers, Series 2, CWDS, 1985, p.2

Technology has been the central cause for changes in labour force participation and labour-use since its introduction in the late 1960s' in Punjab and Haryana (especially as these are the states which this study identifies as its locale). In Punjab, the initial use of biochemical aspect of technology had increased the labour force participation from 56.9% in 1961 to 63.7% in 1971. Men's casual agriculture labour time increased by 65.39 hrs/hect. and women's casual agriculture labour time increased by 83.61 hrs/hect. in Punjab (Ramesh Chand, etc). In Haryana, the initial emphasis on mechanical aspects of technology decreased labour force participation from 71.4% in 1961 to 66.8% in 1971.³⁷ In the late 70s', mechanization had reached its high point in both states. For example, both the states had almost identical rates of tractor use on HYV- wheat fields, .025 in Punjab and .023 in Haryana.

Mechanization as a cause and effect of increasingly resumption of cultivable lands from tenants, increasingly marginalised the erstwhile cultivators; the tenants. Hence, between 1971 to 1981, the participation rates of 'main workers' only (primarily cultivators) dipped for both states. In Haryana the decline was from 30.4% in 1961-71 to 2.9% in 1981. In Punjab, it declined from 32.9% to 29.0% for the same time period. ^{However} Agricultural labourers increased in numerical terms during the same period.³⁸

37. Zarkovic, Op.cit, 1985,p.63.

38. Ibid,p.62.

They were potential workers who were either not absorbed on land or were displaced. From 1971 to 1981 in Haryana per centage increase in agriculture labour was 24.2% to 26.7% respectively and from 32.0% to 38.6% respectively for Punjab. The high absolute per centage of agricultural labourers in Punjab can again be attributed to the initial effect of "labour-intensive technology".³⁹

The existence of offsetting tendencies of the labour-intensive and labour-displacing components of agrarian technology in the two states plus the changes in definitions of workers from one census year to another, makes it difficult to assess the impact on participation of labour force in agriculture. But the "net impact of these offsetting tendencies on labour force participation within and between states has never been zero".⁴⁰ At different points in the introduction of technology certain tendencies in the labour force participation have prevailed. In Punjab, labour-intensive tendencies prevailed in "71" because of the large scale adoption of "bio-chemical" aspects of technology. But from 1977 onwards labour-displacing tendencies have been prevalent because of large scale adoption of mechanical equipments was widespread (Bina Aggarwal) and most of the equipment was hired not owned, hence once did not have to own an equipment to use it. Though, biochemical aspects are known to increase demand for all kinds of labour (family, casual, permanent, attached) , mechanization displaces only a certain kind of labour, specifically

39. Ibid,p.65.

40. Ibid,p.60.

casual labour. Mechanization of seasonal tasks as harvesting employing casual labour only displaces the latter. There is instead an increasing tendency for the use of permanent labour.⁴¹ Bina Aggarwal (Mechanization in Punjab, 1980) provides a detailed analysis of the effects of mechanization of different operation in HYV wheat cultivation in Punjab, on different kinds of labour. One important point of observation in her analysis is the use of the concept of 'labour time. According to her this concept is crucial to understanding the effects of mechanization on different kinds of labour. While decrease in labour time may be beneficial to family labour it would adversely affect casual wage-labour. This is because casual wage labour is employed for a short period of time in a specific task in a given crop season. A reduction in time for which it is employed literally means displacement from this activity.⁴²

41. Gita Sen, "Women Workers and Green Revolution", in Lourdes Beneria (ed.), "Women and Development" Praeger, New York, 1985, p.44.

42. Bina Aggarwal, "Mechanization in Indian Agriculture", Delhi, 1980, pp.57-58.

Table 4

Percentage use of labour in hyv wheat cultivation by farm-size, operations, techniques and type of labour.

Operation/Technique Type of Labour	Farm-Size All	Categories LE-4	Hectare GT-20
1. Ploughing			
(a) Bullock Plots			
Family	70.9	89.3	12.9
Permanent	27.2	10.7	63.6
Casual	1.9	0.0	23.5
(b) Tractor Plots			
Family	64.9	100.0	71.2
Permanent	33.0	0.0	23.2
Casual	2.1	0.0	5.6
2. Sowing			
(a) Bullock Plots			
Family	70.8	89.2	17.3
Permanent	26.0	8.0	74.0
Casual	3.2	2.8	8.7
(b) Tractor Plots			
Family	31.7	59.4	20.4
Permanent	48.3	11.4	52.6
Casual	20.0	29.2	27.0
3. Interculture			
(a) Manual			
Family	52.4	77.3	22.7
Permanent	24.2	6.3	39.9
Casual	23.4	16.4	37.4

(b) Bullock			
Family	58.6	89.1	30.9
Permanent	24.7	5.7	29.9
Casual	16.7	5.2	39.2

Operation/Technique Type of Labour	Farm-Size All	Categories LE-4	Hectare GT-20
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4. Irrigation

(a) Canal

Family	67.0	95.4	35.9
Permanent	32.4	4.6	64.1
Casual	0.6	0.0	0.0

(b) Tubewell

Family	58.1	86.7	17.4
Permanent	39.5	12.6	66.5
Casual	2.4	0.7	16.1

5. Threshing

(a) Bullock

Family	59.9	82.5	33.3
Permanent	16.5	4.2	66.7
Casual	23.6	13.3	0.0

(b) Tresher/Tractor

Family	55.0	79.5	18.0
Permanent	24.8	6.4	50.5
Casual	20.2	14.1	31.5

Source : Bina Aggarwal, "Mechanization in Indian Agriculture",
1980, pp.64-66.

LE = Less than

GT = Greater than

What is observed in the table above is that except for ploughing, where tractor-use on all farm-sizes increases the use of

family-labor time (LE-4 = 100.0, GT-20-71.4 %) and thereby it neutralizes the decrease observed in family labour time with decrease in farm-size. For all other operations which have been mechanized the permanent labour-time increases and that of family labour decreases (casual labour time increases depending on the task-specificity of the operation), e.g-for sowing and inter-culture, the casual labour in GT-20 category is the highest, (i.e on tractor and bullock using plots for each operation, respectively), 27.0 % and 37.4 % respectively. Increase in casual labour on farms is a result of the increase in their labour time on farms.

Hence if one looks at the over all effect of mechanization on composition of labour-time -i.e. in each operation of HYV Wheat cultivation, then the kind of labour displaced is different. Hence, in effect what Aggarwal alludes to is the fact that the kind of labour used due to increasing mechanization of agricultural techniques differs from that used in traditional agricultural techniques. Hence, the techniques compared in the study are ploughing and sowing: Tractor with bullock; Irrigation: Tubewells with canals, Threshing: Thresher/ Tractor with bullocks

(i) Ploughing (seed-bed preparation)

With the introduction of Tractors in ploughing, the use of family labour was discontinued first for farm-sizes of LE-4 hectare, but with the increase in farm-size the use of family labour increases for (GT-20) hectare than for LE-4 hectare. Hence for farms with LE-4 hectare family labour time declines by 81.2 hr/hectare, and for farms with GT-20 hectare use of family labour time increases by +1.0 hr/hectare).

The labour time/ hectare (L/H) for permanent and casual labour increases with increase in farm-size but with the introduction of tractors, the displacement of family labour is higher than displacement of permanent and casual labour

LE-4 = -10.4 hr/hect. (Displacement of permanent labour)

GT-20 = -57.7 hr/hect. (-----do-----)

LE-4 = (-) hr/hect. (Displacement of casual labour)

GT-20 = -21.9 hr/hect. (-----do-----)

(mechanization effect has been measured by subtracting the mean labour used with the traditional techniques from the mean labour used with the modern technique, for each operation, on plots belonging to forms of different size-groups.)⁴³

(2) Sowing - Tractorization tends to displace family labour first on the smallest farms and permanent labour on largest ones.

(3) Irrigation- Increase is recorded in all kinds of labour-time. Family-labour time increases more for LE-4 hectare (+82.9 hrs/hect) than for GT-20 hect. +6.2 hrs/hect. Permanent labour records a substantial increase with increase in farm-size i.e. for LE-4 the increase in permanent labour time is +16.8 hrs/hect. for GT-20, the increase in permanent labour time is +59.2 hrs/hect. Casual labour also increases with increase in farm-size for LE-4 = 1.1 hrs/hect, for GT-20 = +21.9 hrs/hect, But it is more task specific.

(4) Threshing - Only casual labour increases with use of

43. Bina Aggarwal, "Mechanization in Indian Agriculture", Delhi, 1980, p.69.

power-threshing on large farms. However, both family and permanent labour decline

Casual Labour for LE-4	=	-0.7 hrs/hect.
Casual Labour for GT-20	=	+1.3 hrs/hect
Family Labour for LE-4	=	-4.9 hrs/hect
Family Labour for GT-20	=	-1.6 hrs/hect
Permanent Labour for LE-4	=	-0.3 hrs/hect.
Permanent Labour for GT-20	=	-2.6 hrs/hect.

Thus (i) on the relatively small farms, the L/H displaced through introduction of tractors for ploughing and sowing consist primarily of family labour and to a limited extent of permanent labour. There is a slight increase in the use of casual labour time. (ii) Introduction of tubewells however, on these farms increases the use of all labour, but particularly of family labour and less of permanent and casual labour time. Both tractors and tubewells, together increase the use of permanent labour time (also casual, but to lesser extent) and decrease that of family labour.

(iii) On the larger farms of over 12 Hec., tractor ploughing and sowing leads primarily to the displacement of permanent labour time and to a lesser extent of family and casual labour-time.

(iv) Addition of thresher on farms using a tractor and a tubewell, would lead to further reduction in use of family labour time. And increase in use of permanent labour time would at least partly be negated, though would also reduce casual labour time on

farms of all sizes.

Hence, the use of tractors for seed-bed preparation reduces the demand for casual labour time and for casual labour, while the use of threshers reduces harvest demand.

Labour time required for a given operation is different considerably between different techniques. In both ploughing and sowing, exclusively bullock using plots use more L/H per hectare than partially mechanized or fully mechanized tractors. The latter uses minimal L/H per hectare. From exclusive bullock-using in ploughing to exclusive tractor-using plots, L/H decrease from as much as 81.4 %, in sowing it is 59 %. Tractor use employs 1/5th L/H of that used by bullock-ploughing.

This reduction in casual labour employment necessitates employment of permanent labours, they can then serve as security in times of labour-shortage and use machines on the large farms. The highest proportion of permanent labours^{et} to regular casual labourers was found in the most advanced Green Revolution areas in 1972-73. S. Bhalla (1976) found that in Haryana in the Green Revolution areas, 2/3rd of the hired agricultural labour was permanent labour on large farms, that is, in the farm-size category of 10-15 acres. In Punjab, 52.1% of permanent labour was employed on farms greater than 20 hec., specifically for ploughing. The percentage of permanent labour increased for sowing (64.9%) and irrigation (63.8%). For harvesting, however, the percentage of casual labour employed on large farms (GT-20 hec) is greater (58.9%) than permanent labour (28.3%).⁴⁴ Again, this

44. Bina Aggarwal, Op.cit, 1980, p.71.

would be contingent upon the availability of casual labour in the region.

Hence, the mechanization effect impinges differently on different kind(s) of labour. It is the combined effect of the nature of technology and the hierarchy of labour which affects different labour differently. Who is a permanent labour and who is a casual labour is determined by the sociology of the region i.e., the social organization of agriculture in the region. The determining categories of this social organization of agriculture are Caste, Class and Gender. In the hierarchy of labourers-permanent over regular, casual over seasonal casual-women workers are at the lower ends of the new technology. Except for one percent of the women labourers in most advanced regions of Haryana, all women labourers in all regions are casual labourers-seasonal or regular.⁴⁵ The casual women workers are not only at the end of gender-hierarchy, but also belong to land poor/landless households who are the bottom of caste/class hierarchy. 66.47% of the total women workers employed in agriculture in Punjab are scheduled caste workers. In Haryana 43.7% of the total women workers belong to the scheduled castes (1981 census). Though traditionally, women have been cast only in the role of housewife, whereas men have been meant to take on the world, ^{poverty} forces women to seek wage labour. The patriarchal "Purdah mentality",⁴⁶ that limits the

45. Shiela Bhalla, "Technological Change and Women Workers: Evidence from the Expansionary phase in Haryana Agriculture", Economic and political Weekly, v.24, n.43, October 28 1989, p.567.

46. Zarkovic, Op.cit, 1985, p.85.

nature and location of women's activities to the home is diluted with the decrease in the economic status of the households. The Green Revolution Technology then feeds into the social sanctions against women to displace them from agriculture.

Technology per se does not determine women's participation in agriculture, rather it is the cultural factors interacting with the responses to employment opportunities that create and determine women's wage labour participation. Gita Sen puts it differently. According to her patriarchy is too powerful for technology to break down its proscriptions against women. Instead it intensifies these proscriptions while accommodating within itself the effects of technology.

Technological change then associated with Green revolution affects the women's wage labour force in two ways. On the one hand, it increases the income and wealth of some households, which then enables these households to withdraw their women's labour from the labour market. Economic growth is associated with the voluntary withdrawal of some women from the agricultural labour market (it might also occur in the event of a tight labour market, where women concede their remunerative work to men). On the other hand, technological change also affected the women's labour force directly. Women, esp. from poor agricultural labouring households, who were to work for wages were displaced from farms; displaced primarily through mechanisation of production activities (indirectly, too, women wage labourers was displaced as a result of the shift of men into other activities when their work becomes obsolete or as a result of their loss in the competition against men). According to Ghosh and Mukhopadhyay (1984),

the principle cause of the decrease in women's wage labour participation as well as the marginalisation of the women from the labour-force is the involuntary displacement. This is due to the bias in technology which causes "a smaller expansion of the sector where women have an advantage", and the "employment effect" which relates to situations in which there is little employment opportunity and men are the first to "grab what there is". This factor alone accounts for upto 48% of the decrease in the women's labour force, in Haryana (Ghosh and Mukhopdhyay 1984:2002). In Punjab, voluntary withdrawal has been more pronounced. This is because here the percentage of women's participation in agricultural labour has been traditionally very low (5.50% in 1961).⁴⁷

Voluntary displacement may superficially signify increased "leisure" and "comfort" for the women in landowning households. However, for most landed class women it signifies domestic work combined with increased requirement of supervision of household agricultural activities like threshing in the absence of their men folk. Involuntary displacement signifies increased impoverishment of agricultural labour households, especially when the latter are dependent on women's wage-labour for survival in the absence of a regular men's earnings if the latter is wholly contributed to the household consumption expenditure.

However, it is not as if mechanization essentially displaces

47. R.C. Chandna, "Female Working Force of Rural Punjab", Man Power Journal, 1967, p.60

only women wage-labourers. Tracterization so far has affected men's agriculture labour. This is because tractor have been use mainly for ploughing which is an almost exclusively male specific operation (Aggarwal, 207). But than most of the tasks created by the new technology especially those having to do with operation of machines or careful regulation and measurement of doses of water are "required" to be done by men wage labourers/permanent labour, whichever is available and/or affordable. Women wage labourers do not have the "skills" to operate technology. And thus have been either displaced from agriculture or are increasingly limited to those traditional jobs that are/have been minimally affected by the new technology. Women's wage labour was displaced in both Punjab and Haryana where mechanization had been as if "completed" by 1980s. There was large-scale introduction of and use of technological innovations as pumpsets for irrigation, wheat threshers, tractors and wheat reapers; for example, tractors used per HYV acres in 1983-84 in Punjab and Haryana was .030 and .028 respectively, and it reduced demand for casual women's wage labour by 33% in 1983-84 in Punjab only! (Billings and Arjan Singh, 1969). 19.5% of womens labour of the total casual labour was displaced primarily in inter-cultlure, weeding and hoeing operations, in which women's wage labour is predominantly used in Punjab.

Hence, the high premium on women's wage-labour participation in Punjab combined with the large-scale mechanization of agricultural production, practically "wiped out", women agricultural labourers from agriculture. (Women agriculture labour was only

1.9 % of the total per centage of women workers in Punjab in 1981.⁴⁸

If traditionally women have been engaged in various agricultural operations from time to time and mechanization has either displaced them or "narrowed" down the extent of their participation, where do they, then seek "work" to "feed" their families? Inevitably and because of lack of "skills" to seek work other than agriculture, women wage-labourers "crowd" around the seasonal harvesting operations. The excess of supply to low demand of women wage labourers in agriculture has led to relatively low wages in these jobs even in excess of the traditional disparity between wage rates paid to men and women. (Wage rates in general have not kept up with productivity increases in Punjab). Women casual wage rates as per centage of men casual wage rates for Punjab in wheat production fell from 100 to 86 per cent in 1977. For Haryana it fell from 100 to 81.8 percent of the average wage rates. Also, women wage labour's average days employed as per cent of men wage labour days for wheat production in Haryana decreased to 30.6 per cent. The two phenomena together lowered the employment of women wage-labour^{er}s altogether in the two states in the same period. For the same periods (1970s) there was a dramatic decrease in women's agricultural labour participation, their participation declined to 4.2% from 31.5% in Haryana. In Punjab the trend was similar :from 7.5 to 0.5 % (1961-1977).⁴⁹ For households (especially agricultural labour households)

48. Census of India, 1981 (Series 17, II-A and II-B), Punjab, General Population Tables and Primary Census Abstract, p.63.

49. Zarkovic, Op.cit, 1985, p.75.

dependent on women's agricultural wage-labour for survival, displacement would mean malnutrition and ill-health, in the family and also at the level of rural community where instances of women as "de facto" heads of family abound.

Greater the economic distress, greater is the possibility of nutritional deficiency and greater then the susceptibility of children especially to infections that abound in such poor living conditions. Systemic bias against girls and women in the households in terms of food consumption are generally manifested in the higher deprivation in diet of girls vis-a-vis boys/men.⁵⁰ Clinical responses of Punjabi children under the age of five years, in a study conducted by Bina Aggarwal, in July 1970, revealed that 15 per cent of the men/boys and 25 per cent of the girls/women were malnourished. Sex-differentials in food intake may not be confined to poor labour households, but are closely related to poverty.⁵¹ Sex-differentials intensify if and when there is a sustained unemployment status of women in the households and where wage-differentials are high amongst men and women. The wage-earnings/employment capacities of men and women determine their contribution to the household consumption expenditure and their access to consumption items. However, culturally this pre-requisite does not impinge on men within the family household to contribute the entire amount of their income to household consumption expenditure. A significant portion of their

50. Bina Aggarwal, "Women, Poverty and Agricultural Growth in India", The Journal of Peasant studies, V.13, n.4, July 1986, p.167.

51. Ibid, p.181.

income is used for beedis, liquor, women and other "frivolous pastime". However, women almost always expend their earnings on the family, especially for food (Mencher, Sardamoni, 1982; Gulati, 1978). According to Gulati's (1978) and Kumar's (1978) findings that the children's nutritional shortfalls in an agricultural labour households were much directly related to whether or not the mother was employed, than to the father's employment; daughters in particular were left much worse off than the sons on the mother's non-working days. Mother's non-working days in agriculture are seen to be always more than men because of the seasonal nature of women's employment due to the relatively greater task-specificity of women's work. (Women's labour tends to be concentrated in specific operations for example : weeding, harvesting, threshing), while men's labour is much more evenly spread across operations (concentrated maximum in ploughing). This would mean that women agricultural labourers would have access to wage income only at certain times of the year, and during the slack period they would be exposed much more to the risk of undernourishment and starvation than men. Also, the wage income that women get is very low as compared to that of men's wage income. The earnings' differentials for men's agricultural labour and women's agricultural labour have increased for at least six states since 1970-71 which include not only the poor, technologically backward eastern states of Bihar, Orissa but also the high growth- rates, new technology adopting states of Punjab and Haryana. The increase is specially sharp in Punjab, where for 1974-75 the differential was the highest = Rs.2.58. Annual earnings for (FAL) in 1964-65 for both Punjab and Haryana was

Rs.250.8/year. In 1974-75 the decrease in the women's wages was to Rs.239.5/year. For men's labour, however, the wages/year increased from Rs.600.7 in 1964-65 to Rs.618.1 in 1974-75. In Haryana, however, the differential decreased to/by Rs.1.91. The wages/year for women's labour decreased from Rs.250.8 (in 1964-65) to Rs. 213.3 in 1974-75 and for men too wages/year decreased from Rs. 600.7 to Rs.406.8 for the same period.⁵²

The differentials in wages of men and women labour for the two states can again be attributed to the qualification of women's labour as in "supplementary" labour. The differentials in wages for men and women labour are not similar for the two states (in Punjab there is an increase [2.5] in differentials but in Haryana the differentials decrease [1.9]) for the periods "64-65" and "74-75".The reason is that initially Punjab's absorption of labour was more than in Haryana, because of adoption of Green-Revolution technology especially its biochemical aspects. While culturally there is greater premium on women's employment in wage-labour in Punjab. Men's employment had increased (52.86 in "71" from 52.83 in "61"). While there were more men labour earning through agricultural activities, there were decreasing percentage of women labourers who were earnings lesser (5.50 % in "61" to 1.18 % in "71").⁵³

In Haryana, the initial use of mechanical implements as part

52. Bina Aggarwal, op.cit,1986,pp.209-210.

53. Ibid, p.210.

of the "Green Revolution" package, displaced both men and women's wage-labour from 1961-71 (52.18 % to 47.28 %). Hence, the percentage of both men and women wage labourers earning wages from agriculture was less and hence the wage differentials decreased for the same period, though were not mitigated altogether. This differential in gender-based "work" wages only validates the pre-set cultural notions of what a woman's "work" entails and can her "work" be defined as "work" and evaluated accordingly? As her "work" outside of the household is seen merely an "extension" of her household "duties" as a woman, principally, and then as a wife, mother, daughter-in-law etc., the wage-differentials have only intensified the "anti-female bias" in rural households in North- India. For a region that has historical precedents of female infanticide, the Green Revolution has impinged on this systemic gender-bias and intensified it, much to the detriment of the welfare of the girlchild for example in Punjab, girl children were breast-fed for a shorter time and given less supplementary and solid food in solid food than male children.⁵⁴

In high growth-rate states like Punjab and Haryana, especially Haryana the largest percentage of women's wage-labour are drawn from the scheduled castes for agricultural wage labour. However, the high participation rate of women's wage labour is not equal to sustained employment. Also, women's wage labour is concentrated in seasonal specific tasks say harvesting, which char-

54. Amartya Sen and Sunil Sen Gupta, "Mal Nutrition of Rural children and the Sex bias", Economic and Political Weekly, Annual no, May 1983, p.171.

acterizes their labour as casual, seasonal, never permanent. Breaks in economic employment have only increased the bias against women whether in terms of food intake or greater medical care in case of serious ailments like Bronchitis or tuberculosis, that is, expost indicators of inadequacies in food and medical care for all females of all ages.⁵⁵

Hence, Punjab and Haryana inspite of being high growth rate states owing to the "Green Revolution" technology, show no changes in the cultural bias against women's wage labour participation, in their access to consumption/expenditure and their physical health and well-being through prompt medical attention in cases of acute/chronic illnesses. Poverty in no way means less discrimination in the North, unlike the way the opposite of this was hypothesised for rice-producing Southern states (Bardhan, 1984). In the south, the greater participation of women's wage labour in rice-production because of certain women specific tasks like transplanting, there is less difference in male/female marriage costs than in North and hence less incidence of practice of female infanticide, less preferences for sons (because of high female labour participation in rice-cultivation in the south). Hence, need for transmission of family name through the sons is weak or non-existent amongst the poor in the south than in the north. This together would mean less discrimination against women in poor labour households in the south (Bardhan, 1984 ; Miller, 1981). However, actual evidence is contrary to expecta-

55. Bina Aggarwal, "Neither Sustenance nor Sustainability", in Bina Aggarwal, "Structures of Patriarchy", Delhi, 1989, p.103.

tion. The male/female differences in child survival rates are higher among the landless than the landed (Rosenzweig and Shultz). Bardhan adds to it the suggestions that amongst the propertied classes the fatality rate of female children would be less though the sex-based differentials would continue in terms of nutrition.

Hence, both in the (North and South) i.e, in terms of the states identified and studies within these encompassing categories sex-based differentials continue at all levels whether in terms of employment, wages , consumption expenditure on food and medical attention. These differentials have intensified against women wage-labourers since mechanization of agricultural production, which has displaced largely women's wage labour. For households dependant on womens wages for survival, agricultural growth has only increased the burden of poverty on women, without any alternate "skills" or sources of employment to alleviate their suffering. The latter then is the theme of the fourth chapter, where narratives of landless women from of small village of Gurgaon, refocus on the adverse effects of Green Revolution Technology on them and its impact on the socio-cultural norms of a community. The attempt however is not merely to repeat a story already told in the previous chapters but to extend this story to include strategies of survival that these women adopt in such adverse conditions of unemployment and poverty.

CHAPTER IV

Green Revolution Technology has displaced women's wage labour in all the regions of India (Ref. Chapter 2 and 3). If women wage labourers have been 'squeezed' out from their seasonal activities in agriculture and there are no government initiated policies to intervene effectively into these women's problems and provide them with alternate means of livelihood, then how do these women survive? Alternately, what are the 'survival strategies' that these women adopt to survive? The following narratives of nine fascinating women in their own way answer the above question. These women through their own narratives confirm the human costs of the Green Revolution Technology on their lives and how they have managed to survive against odds as heavy as these.

All the respondents belong to small village called Gurgaon in Gurgaon district of Haryana. Haryana and within it Gurgaon village were selected as locales of studies because both are 'representatives of the Green Revolution experience in India; Haryana as a state which was identified for use of Green Revolution Technology in late 60's and Gurgaon as a village in Haryana, which today 'boasts' of the use of every possible mechanical equipment in agriculture. The village was identified for study for more personal reasons as well. Researcher's proximity to and familiarity with the people in the village was crucial to the economical use of the limited time and resources for an M.Phil level study. Paucity of time and resources also limited this study to nine women respondents in the village. Apart from the economics of it, the researcher was reluctant to treat the field and the respondents as merely 'cogs in the wheel'. The research-

er recognises that the respondents are people with feelings, with a certain way of doing and living life and from whom much needs to be learnt. The researcher also recognises that rapport-building is a time bound process and it is too much to expect from people to instantly open out to strangers. Hence, within a time period only nine interviews could be completed. This was after knowing that these interviews are not a complete representation of the village. Also, most these interviews were not taken at stretch. They were normally spread over a period of time i.e a day or two, even more, depending on the time the respondents could take out of their busy working schedules. A couple of the interviews were taken while the respondents worked.

This empirical study was done in Gurgaon village of Gurgaon tehsil in Gurgaon district of Haryana during the month of March. (1 to 29, 1994). A pre-test of the field was done during the last week of February to locate and set rapport with respective respondents before specific questions were introduced for their answers. Needless to say, I was greeted then with suspicion though not fear. These women were quite bold and articulate in their questioning of my presence and even told me not to waste their time, asking silly questions! "Tu Ghana Tem Barbaad Kare se" (you are wasting a lot of your time). Needless again to say, I was a little teary-eyed when I came back from the village and I had fearful visions of not being able at all to even begin my empirical work! But then as the famous saying goes, I had to try again.

A Questionnaire was formed containing a total of 23 ques-

tions. The questionnaire was divided into two sections. One section broadly dealt with questions on 'Displacement' and the second section broadly dealt with questions of 'Survival Strategies'. (See Appendix)

From the second visit to the village from March 1, 1994 onwards to March 29, 94, I was able to complete nine interviews with nine extremely fascinating women with an equally fascinating yet often painful life stories. The interviews spread over days and progressed only according to the convenience of the respondents I did not want to hurry them because then it would merely be subject neutral study, without any care for the respondents. It always took them time to put their faith in me and try and articulate about their everyday living, which according to them, was not anything worth to listen to or write about, rather was full of sorrows and struggles. Everyday living to my respondents was such a burden and to articulate the bleakness of one's life world to one's own self, let alone to a complete stranger, is quite unnerving. The monotony of accepting one's situation as unchangeable was suddenly broken when these women started to talk about themselves and they actually reeled a little relating their life's bleakness. But always by the end of the interview, the women themselves felt unburdened by talking thus and always a little stronger in the knowledge that they have weathered crises with calm and fortitude in their otherwise "mundane" existences.

Before I list out the basic profile of the nine respondents it would be pertinent to contextualise these narratives within the social, cultural and economic profile of the village to which these respondents belong.

According to the 1991 census, the present Gurgaon district comprises of the tehsils of Gurgaon, Nuh and Ferozpur Jhirka. Tehsil Gurgaon has 288 villages and seven towns. The towns include Gurgaon, Gurgaon (rural), Jhirsa, Farukknagar, Haileymandi, Pataudi and Sohna. The town of Gurgaon of the same district is about 40 kms from Delhi and Gurgaon is now a well known industrial city on the suburbs Delhi, what with multinationals invading the once sleepy town. Now there are even plans of an electronic city coming up alongside that of the Maruti car manufacturing unit. This is the Gurgaon that most people know about, what many do not know about is the Gurgaon village where ten years back its people had not even stepped out of their village homes. It is about 1.5 k.m from Gurgaon town and is famous for its "Mata Sitla Devi Mandir" where a fair is held every Monday and Tuesday. People of Gurgaon village till late 1991 were mainly flourishing on the money that came from that offered at the Sitla Mata Mandir. The annual income from the Mandir is more than 55 lakhs in a season. The entire money is distributed in the village amongst its members according to their landed status, that is those who have lands have more percentage in the money than those who have no or less land. Invariably then, the high caste families get a greater share of the offerings than the land poor or the landless.

The village was declassified as part of Gurgaon town in the 1981 census. Villages, including this one, that shared the characteristics of urban areas in terms of development i.e-which owing to Green Revolution and five-year plans have undergone significant changes, were included within the category of the town. Gurgaon village with a population of 14,398 persons (Male

7,683, female 6,765) is one of the richest villages of the district, both in terms of the availability and use of Green Revolution technology like HYV seeds, fertilizers, tractors, harvesters and threshers, by the landed rich Jat peasantry and the availability of basic, "Modern" amenities of drinking water and water for irrigation, power supply, pucca houses and pucca roads approaching and connecting the village to the town or other villages. Almost all the villagers use "modern" amenities in their homes as Coolers, T.V., Fridge etc. Many have even sold their lands to earn quick money. Many of the houses that I saw in the village were pucca houses irrespective of who they belonged to in terms of castes, though the houses of the richest in the village clearly were not just pucca but lavishly constructed and garishly decorated. One such house was that of the Sarpanch, a Jat landed peasant, Rajinder Singh kataria, and quite amazingly also that of a Scavenger (CHUDA, CHAMAR) family who are at the lowest rung of the caste hierarchy. Infact this is classic of whole of Haryana, where there is no strict adherence to the 'Varna system of Manu'. The brahmins do not hold a coveted place of prestige at the top, but the Jats, who are landed class of peasantry since colonial times. In Haryana then, he who owns land (Jats) is over and above the rest of the field. Also, the (SCs) have not necessarily been poor and a deprived lot. The (SCs) like the "Chamar" have made immense money through sale of pig meat, however the economic prosperity has in no way helped them travel upwards in the caste hierarchy and 'colour' themselves with the prestige that the higher caste enjoy. The caste hierarchy in

Haryana may have been 'shuffled' to place Jats on top, followed by Brahmins, the Vaishis and (Sc) like Chamars, Sainis and Balmikis. However, this hierarchy also has a history and its history has legitimized it today. At the same time, the legitimacy has also placed a prestige value on the position of each caste within its structure, which is a social and historical prestige and not essentially economic. Hence, the (SCs) despite their economic prosperity remained alienated from the higher castes. The widespread richness of the Village has still not brought about a sense of community amongst the people. Also because the richness remains heavily skewed in favour of the Jats. Hence, one could not help observing that the rich, high caste/class household were bunched together near the centre of village, where as those of the scheduled castes were bunched up at the outskirts of the village, near the "Jhod" (a community pond for bathing buffaloes in the village). Again, it was not as if the village itself is virtually split into two sections- each occupied by the higher castes and SCs respectively. The caste households were spread over, across the village and normally, because of the need for familiarity with their own, members of households of a particular caste are bunched up together. Though their interaction is still very constrained. During my field study, I would often watch women from rich, high caste households respond to the "Ram Ram" (a common way of greeting) of the SC women, passing by on their way to work in the town and ask them about their life-worlds. But (i). the conversations were always short and brief (ii) The conversations would always happen across a distance and no attempt was made by either of the conversants to map the dis-

tance and chat in the compound and away from the public gaze. Even if these women come over to work for the high caste, Jat/Brahmin household, during their moment of relaxation-these women would sit on the floor on their haunches or cross-legged and a little distance away from the lady-members of the household if the latter happened to be present ! In my house too, these cleaning women always sat hidden near the water tank, outside in the compound, to drink tea. They never used chairs that lay there, even when asked to.

The caste composition in the village is such that Jats and to some extent the brahmins form the largest category of the high landowning castes. For a village that has approximately 100 to 150 household (An estimation made by one of my women respondents), the Jat and Brahmin households are not less than 50 households. The rest are households belonging to the other castes. Amongst the population of 2,966 SCs in Gurgaon (R), the SCs in the village include Chamars, Bhangi, Harijans, Bhadbhujas (who make roasted grams), Yadavs, Vaish and Balmikis, (all these SCs are ^(Census,1991) not necessarily poor in the class-hierarchy, some households are economically well off like that of Chamars and Yadavs though their brethren are still poor and deprived. Comparatively. the Jats are en-masse, well-off, large-landed caste households. Jats are not poor in this village. All agricultural land is divided amongst Jats and brahmins, none amongst the SCs. The Sarpanch 'Raj Singh' is a Jat and owns about 25 to 30 acres of agricultural land in this village plus another 50 acres of land in other villages, making his total land ownership to 100 acres! which is

per capita even higher when we see the increasing depletion of agricultural land by the formation of new urban colonies in the vicinity of the village. Again, it is the Sarpanch who has availed of the Green Revolution Technology apart from a bullock cart (he has two bullocks), he has a tractor with all its accompaniments; a land tiller, a metal hoe, a trailer to transport crops to the market. He also has three buffaloes and two goats. Two other Jat families in the village have a tractor with all its accompaniments. Other families who cannot afford to buy the tractor or other mechanical equipment hire tractor during the crop-cycle. This is essentially for tilling the land, sometimes for transportation of sacks of crops to the market-place, i.e. if it is not possible to stow the entire produce on a wooden bullock cart and if there is paucity of time to transport the stuff for sale and the bullock-cart of its slowness is of no use.

The villagers primarily grow wheat, though Bajra and Maize are also grown along with seasonal vegetables like Cauliflower, cabbage, brinjals, sugercane for commercial use in the "Mandi" in the town. Wheat as a commercially viable crop has replaced the coarser grains which only have a use-value. Hence, what is striking then is the change in the staple diet of the villagers from "Bajre ki Roti" and "Khichari" to wheat rotis and "tea" not even "lassi" (butter-milk). (Information; father and old women of the village, also my respondents). Agricultural Modernization however has not meant greater employment on farm either of the members of the household (s) who own it nor of those who are hired as wage-labour. The owners of agricultural means have diversified from agriculture as an occupation. Especially the second generation of

Green Revolution is either being educated beyond secondary levels or is already employed in the town. With this generation refusing to pitch in to help in agriculture, the greatest burden of agriculture work falls on the women of the family. Women in these households work a minimum of 12 to 15 hrs a day combining both household and farm work. Though derived primarily from SC, women's agricultural labour is prominent during harvesting, and threshing however this is the only time they supply labour and get employment for a maximum of 15 days, even less. The availability of tractors and tube-wells have reduced use of women agricultural labour for most agriculture activities in a crop-cycle. The reduced use of women's agricultural labour reduced its dependence on agricultural labour for sustenance and hence they combine a number of economic activities with seasonal wage-labour in harvesting to sustain their families. With men [husbands do and sons] either deceased or working on their own small farms which is uneconomical or working and living outside of the village in nearby towns, Delhi or towns far away from their place of residence the burden of survival falls on the women and they have to strategize in order to live and let their families live.

The sample of nine respondents is drawn from the above socio cultural set up. This sample is a mixed sample in that they all do not belong to a general category of households that is the landless agricultural labouring households. A few belong to small landed households as well, that is, households who have one to six 'bighas' of land belong to this category. This is to compare the narratives of both categories of respondents to see how similarly

or differently has Green Revolution technology affected these women and how each has coped with it. The comparison is also meant to bring into sharper focus the almost pathetic survival conditions of landless women.

Following is a basic profile of the nine respondents:

i) Santosh, belongs to a landless Saini caste and is around 30 years. She is illiterate and is married with three kids (two sons and one daughter) Santosh has no specific or one occupation neither the skills for any other, except agriculture. She works on the sarpanch's farms mainly during harvesting of wheat or helps in picking ripe vegetables from the sarpanch's lands for their household (in the process even gets some vegetable for her own family) or cuts fruits and vegetables in a "dehydration unit" (a rural enterprise) for rate Rs.30 a day whenever called to do so. However, the rural enterprise is now shut due to the lack of finances, so there is no work for Santosh again. These income generating, though very meagre, activities are obviously in addition to regular household work. Her husband works part-time as a peon in a hospital in the town and earn 400/-per month.

Bala, is a landless, Ahir caste woman. She is 30 yrs of age, is a sixth-class literate, and is married with 2 children, one son and one daughter, aged 6 and 8 years respectively. She says after marriage she did not work, however two years back when her husband contracted Jaundice she had to work. She now only washes clothes in houses in town, including ours. She says she does not hire out labour during the harvesting season in the village because (i) married women do not help out in field work in their

husband's village, rather return to their parents place to help-out and hence takeback more material/ good for their in-laws that is earn their dowries. (ii) There is not much left in agriculture because of the use of new machines and depleting agriculture' land and one has to find other jobs in the town to survive.

(iii) Harbeji is from a chamar caste and is aged around 60 years. She is illiterate, and has 6 children (3 sons and 3 daughters, all of whom are married). She works only in one house in the town for Rs. 250 a month. She works as a cleaning woman. Her husband, she says, does nothing except roam around on his bicycle in and around the town. Once upon a time he was in the army as a Jawan. Harbeji never worked even when she lived in her shanty shelter in the town near our house. Her sons, daughters and daughter-in-laws worked alternatively in the four to five houses in our area. Harbeji only came over to collect money like the heavy matriarch and always got into hassles over it with her daughter-in-laws, who always demanded their fair share of wages for work they did. Though she in her life time has worked as agricultural labour on agriculture' farms in her parent's village as well as in Gurgaon village. But scavenging was their profession hence agriculture labour was a side activity which diminished more with increasing use of machines and depleting agriculture land for cultivation. (The fact that agricultural activity has become side-activity is very prominent). Other jobs are preferred to the non-profitable labour on land.

(iv) Gita is also from landless, Ahir caste. She is 30 yrs of age. She says she failed her class 6th exam (because she was always made to work at home before and after school). She did not

study further. She is married with 3 kids one daughter and 2 sons aged 12 yrs, 10 yrs respectively. Her husband works at the air-force station on the outskirts of the Gurgaon town. She says she works maximum as a cleaning women in the town (also at ours place) i.e. (and she's very specific about it) washing clothes cleaning and sweeping the inside and the outside of the houses. She works on farms during harvesting and threshing season but not throughout the year. This is the only time, labour is required and most women go out to work and earn in the village. She also says she worked along with her mother, much more on their own-farms in her village than she does here (where she got married). Now she does not go back home during harvesting because the sections of their lands have been sold off and whatever is left is rented to a 'share-cropper' who cultivates on her father's land and gives them half the produce.

(v) Samina, is aged 20 yrs, is a muslim, she is an emmigrant to the village along with her husband (HAMID) and her 1 yr old daughter. They had practically run away from 'Jind' Village in Haryana during the 'Hindu-Muslim riots' in the wake of Dec 6, demolition of Babri Masjid. (Jind has the largest population of muslims in Haryana). She has only worked as agriculture labour in Jind on the farms of a rich Jat family, especially. during harvesting. In this Village, she tried to approach a woman labourer to get her some work during harvesting of wheat last April. She did work but only for 4 days at Rs. 20 per day, and got no grains-stalks to carry home. She feels she was discriminated against, "people think we are weird, just because we are

muslims". She hoped to try for agricultural work during harvesting again this April because she cannot leave her child behind to go and clean and work in other peoples houses in the town. Also because she knows her husband would not allow her to travel all alone to work in town. Her husband works as a 'Bhishti' (who sells water in a goat skin bag to drink or wash hands and fee) in the village, especially during the Mata Ka Mela. In Jind he used to sell vegetables in the near by Mandi and earned a good amount of money, even 100/- or more a day. Both Samina and her husband are illiterate.

(vi) Misri is a Jat, and is aged around 30 years. She has had no formal education, she says she never really wanted to go to school. She got married at the age of 20 yrs. and from Rohtak village came to Gurgaon Village. She lives in a joint family i.e she, her husband her two daughters aged five and six years respectively along with her brother-in-law and sister-in-law who share the same house. They have 6 1/2 bighas of land in the village which all the family members participate in cultivating. Misri and her sister-in-law Usha also work for a wage on other farms including that of the Sarpanch during the harvesting season. They also participate in threshing and cleaning of wheat-grains before they are packed into gunny-bags and transported to the market/Mandi for sale. They generally sell their produce in Hailey Mandi, an important town in Haryana. They have only one buffalo. To till the land then, the men hire the oxen and the wooden plough from the Sarpanch because the cost of its hire is much less (50 Rs an hour.) than that of a tractor (Rs.200 an hour.). Misri's husband is a full-time worker on his land. The

brother-in-law, is however, now seeking a job in town/ Delhi
(he's class 10/pass)

(vii) Raj, is a Sindhi emigrant to this village and is aged 36 yrs. She is the most educated in that she's class 12 pass in 2nd division from Rohtak university. She has been married for 12 yrs in Gurgaon village and has two children one son, aged 6yrs and daughter 5 yrs respectively. She combines working as a school teacher with washing clothes in two houses in the town and seasonally as wage labour esp. during harvesting of wheat. She teaches in the town Girl's Higher Secondary School where her daughter is enrolled as a student and her son studies in the boys vocational, higher secondary school. Her husband is currently unemployed and on bed suffering from paralysis of his limbs on the right. Initially he worked as a car mechanic in a car repairing shed.

(vii) Kesar is a Gujjar caste woman and is of 50 yrs of age. She is illiterate and has never attended school but she says she knows more about life than I could ever do by just reading books." To live on your own, for a woman is like carrying a mountain on your shoulders, it is just so difficult. Books can never teach you to deal with real problem". Kesar is a widow as well as single in that her only son also does not live with her. He left her to work in some hotel in Sohna district of Haryana (She does not have specifics of his employment). Her husband died of a heart-attack, though Kesar says he died of heavy drinking. In her younger years when her husband was alive, she was much happier. They had 10 bighas of land. Then according to her "we worked hard

on the farm. I help in everything sowing seeds, to irrigation to harvesting and threshing. We hired female labour for Rs. 2 per day those days to help in harvesting and threshing". Kesar said that part-time, in the evening from 5 to 9 p.m., her husband also worked in the colouring department of a cloth mill on 'Khandasa Road' near Jaipur-Delhi highway. Though there seemed no need for him to work so much, according to Kesar, he insisted on it. When Kesar insisted on his working only on their farms (she had begun to suspect another woman, she says) he, in anger, gave up all the 10 bighas on rent to a chamar family. Kesar says she was shocked but could not right his wrong. And her husband even continued to stay away from home and anytime he did come back he would only come back to give her some money and check out on the cultivation of his lands and the share he would get. He started to demand cash value of his part of the produce. Kesar says that made her go out to work on farms as wage-labour during harvesting and threshing of wheat or Bajra / more of Bajra then. Now (i.e after her son also left her) she sometimes goes to the mela at Mata Sitla Devi's mandir to sell 'Puja Ke Pattal' at Rs. 1 for each. She says she has now begun to go to the Mela more often (on both Tuesdays and Fridays). That, she says is good source of income. She earns 10 to 15 rupees per day on each of these days. Enough to tide her over for the week. Sometimes her son also sends her money but she is wise enough not to depend on it. These are very infrequent spells of her son's generosity.

(viii) Sajjo is also a Jat and is around 30 yrs of age. She is married with two kids; one daughter-age 12 yrs and son age 7 yrs. She says she studied till class 6, but then dropped out. They have

3 bighas of cultivable land which she and her husband cultivate. She says she only helps, the hardwork like ploughing is done by her husband. She says during harvesting her friends like Misri and Misri's sister-in-law help out without wage in the work. She says she only gives them lunch for the day and at least 2 bundles of unthreshed stalks (less than 1/4th Pondi) to take home Sajjo also works for wage on farms during harvesting and threshing. Maximum number of days she has ever worked for, are 15 days in a season. Sometimes she says she gets work only for a week. Her husband, she says, plans to find some work in the town or take a loan and open a shop in the market-place. He feels there is no money in agriculture and what with 2 children, especially a daughter whose marriage itself would be so costly. Hence, more money has to be worked for. Sajjo does not wish to work in the town, its far and she does not like to clean for other people saying that only chamars do, not them.

These nine respondents can be classified into two broad categories, the landless and the landed. The landless can be further classified into the following sub-categories to assess how the Green Revolution Technology has changed their work patterns and lifestyles over time-(a) parental home landed but marital home landless (b) Both parental and marital homes landless (c) Parental home landed, now landless; marital home landed, now landless (d) Both parental and marital homes landed.

Bala, Gita, Raj belong to category (a). Their parental home were landed households and they worked as family labour on their own farms. However, they married into landless households. This

should not be construed to mean that marriage patterns show a distinct crossing of caste lines. Landlessness of households in the village are not associated with complete powerlessness. The Green Revolution has 'unleashed' a process of migration of mains from rural areas to urban areas in search of work in Haryana (Prem Chaudhary, 1993). From among the respondents' husbands, majority of them were employee in 'extra-agricultural' activities. And this is not only because they have no work in agriculture but because they do not want to work in agriculture and urbanization has given them alternate choices. Also, those marital homes which were earlier landed either lost all the land in paying debts or deliberately sold of the lands to set up businesses. However, the lands which were deliberately sold off were not large holdings instead they were less than one acres, quite unviable for production for commerical purposes. This is of course in keeping with the shrinkage of lands of erstwhile cultivators that Green Revolution technology unleashed (Prem Chaudhary, 1989). Hence non economic landholdings were normally sold off to the landlords thereby adding to the concentration of landholdings with the few Jat families in the village. According to Sen (1985), in Green Revolution areas this phenomena is quite apparent. Normally small landholdings coexist with large landholdings.

Thus, category (a) is quite akin to category (c). In that Green Revolution technology has either reduced the erstwhile cultivators to complete landlessness or have drastically reduced their landholdings.

Women's work significantly changed within the parameters of these changes. Their work pattern changed from that in their

parent's home to that in their landless marital homes. The household work for women continued as before, however due to the absence of land women after marriage did not work on farms as unpaid family labour. However, this in no way means more leisure for these women in their marital homes. In fact, all the three women in category (a) were/are working harder than before. However, all three began wage work because of their husbands' illnesses; Raj in fact worked more for more wages. The intensity and extent of their work depended on their need. For example Raj initially worked only as a school teacher but after her husband's illness and that of her in-laws forced her to begin washing clothes in the nearby town. The fact that these women were/are working outside of their village and not in agriculture is symptomatic of the general 'squeeze' in the employment of labour in this 'post-contractionary' phase in Haryana (Bhalla, 1977). Though these women still hire out their labour during the threshing and harvesting in the village but they are employed on an average of a week or less, never more. This average holds true for those days in the season when there is a general power shortage and power threshers can not be operated for threshing. Dependency in agriculture as the main activity does not hold true for either of these women. In fact it is a marginal activity. But then they are not marginal workers because they have regular and alternate source of income. This source of income from the 'unorganised sector' may not be secure in absolute terms but is enough to keep the 'chullha' (Hearth) burning. This income is crucial for all the three respondents especially when the men are bed ridden

with some illness or the other. For example, Bala's husband has not been working regularly since he contracted jaundice two to three years ago and Raj's husband is paralysed on the right side of his body.

Hence the illnesses of their husbands plus absence of wage work in agriculture has extended women's labour time in all activities; commercial, households and subsistence. While women have no manual help except those of their daughters (specially Raj and Bala), they do own domestic labour saving devices like kerosene stoves. However these are used sparingly because their incomes do not permit them every day use of these devices. Hence, wood is still a chief source of fuel which is either bought by these women or collected from houses in which they work i.e. as unused wooden crates, cardboard boxes etc.

Santosh and Samina belong to category (b) i.e. landless agriculture labouring households. They have a family history of agricultural labourers who hired out their labour for wages. Both the parental and marital households are not only landless but are also involved primarily in agricultural work. Their main activity is agricultural labour in which they have been increasingly marginalised because of mechanization of agriculture. Santosh tries to get wage work during the season in harvesting and threshing and offseason she works on the Sarpanch's vegetables gardens, looking after and picking dried vegetables for their household use. Samina is an emigrant to the village and has yet to find any work. She ofcourse cannot hope to find any in agriculture and she is too unfamiliar with the village and its surrounding to venture out looking for livelihood. Moreover, her

husband and child would not allow her to-both for different reasons. In both cases men are primary earners but not primary contributors. They determine how much should be given for household expenditure and the rest is used for either beedis or liquor. Since both women are not primary wage earners but have to fulfill the food requirements in the house, they spend the larger percentage of the time in subsistence activities like picking wild fruit for eating, wood or twigs for fuel or collect cowdung from the street to be dried and used as fuel.

Hence, if in category (a) women's income is crucial to the household survival, here in category (b) women do not even earn for week. While women from category (a) are not dependant on their men's income, those in category (b) are. The situation of women in category (b) is even more pathetic if we recognize that (1) they are marginalised wage labourers, (2) they have no alternative means of livelihood nor do they have any consent from their husbands to travel to the town for works, (3) with no wage work available in the village then, these women spent time in subsistence activities. The nutritional level of these women is quite low given the frailty of their health. Santosh felt ill with high fever after two days of working in the sarpanche's gardens. She did not have money even to buy medicine for herself.

Kesar and Harbeji belong to category (c) i.e both their parental and marital households were earliar landed but are now landless. Their present landlessness is characterized by the frivolousness of their husband who sold it for money to invest in other jobs or enterprises. Kesar had 10 bighas of land on which

she worked herself during the harvesting and threshing apart from other jobs as sowing, weeding etc.. But her husband sold it piece by piece, took the money and left the village. On both her parents and marital home farms, Kaser supplied her labour for no wages but situation worsened for her after her husband sold off the land and disappeared and so did the son. She instead of being a family labour began to hire out labour for wages during the season. Harbeji too worked on her parents and in laws farms as family labour but in each case the lands were sold off to pay off debts incurred on marriages and liquor. This affected the kind of labour each woman could hireout .Since agricultural labour provides no security of employment, hence they both looked for new avenues. Kesar after her husband and son had nobody to look after except herself; she took up selling sacred items at the mandir while Herbeji set up a make shift place to stay in and work as a cleaning woman in the town. Today she works in one house as a cleaning women primarily to eat and live herself. Both woman unlike the previous two categories do not have large families to take care of. Hence the wages they earn are adequate for one person. However, they are both old women. Even taking care of oneself is a chore and they often wilt under it, In that they remain ill with one ailment or the other without attempting to get medical attention.

Hence of the three categories of landless woman :-

--- All hire out their labour for wages during harvesting and threshing without exception.

--- But agricultural labour is not their main activity in that they are engaged on an average of one week or even less during

the season at an average of rupees 20 per day.

--- Except women from category (b) all the others enmasse work as cleaning women in the town. This is their main activity.

--- All women before marriage have worked as family labour either on their farms or those of others but after marriage they have hired out labour for others for wages.

---Most women combine two or three activities with everyday household work and subsistence activities. This combination is/was necessiated by either illness of spouse/in-laws or desertion by spouse/son. The latter then made/makes women's wages as crucial to the survival of the household and its well being.

--- The most pathetic situation is of women in category (b) that is, who have no history of landedness. It is pathetic not because women's wages are crucial to the well beign of the household but because they earn no regular wages. Agriculture is no longer a source to depend on for survival, however these women are dependent on agriculture for wages simply because they have no option.

Hence, absence of regular or even seasonal employment from agriculture plus strict restrictions on their mobility has affected the poverty and general health of these women and their children. While women from other categories have alternate survival strategies however, Santosh and Samina do not even have these. Survival then for these women is a minute by minute tussle.

Misri and Sajjo both belong to the category of those households who have small agricultural landholdings. Misri belongs to household which has six and half bighas of land which the family

together cultivates. Sajjo's marital family owns three bighas of agricultural land. Both Misri and Sajjo work as family labour on their own farms as they did on their parents farms before they got married. The only difference is that in their marital homes they hire out their labour during the harvesting and threshing seasons. Women's wage labour is important for these small landed households as it allows them to use the Green Revolution technology on their farms. These women do not hire out their labour for any other activity than agriculture. Both the women agree that Green Revolution technology has reduced the number of days of employment and hence they are not employed for more than a week during the season. These women also participate in subsistence activities like collecting of woods and cowdung cakes for fuel and water from the well or the community taps.

Thus, the Green Revolution technology has by reducing casual labour time in agriculture has displaced casual agriculture labour. However, it has intensified the use of family labour on small and medium size landholdings (small landholdings fall in the range of 0.25 to 2 acres and the medium landholdings fall in the range of 2 acres to 5 acres where an acre is equal to 0.7 bighas). The use of women's family labour is not restricted to their own lands but is also hired out on lands for those of their kin and friends. This employment of women's family labour has only further diminished the wage employment of the landless women during the season. Their landlessness is not inherited in that many of the presently casual labour were erstwhile landed households. The payment of debts due to marriages of their daughters has been the chief cause of landlessness in their parental

homes. The custom of bride price is now completely replaced by dowry. Bride price that is price paid by the husband to the bride established women as an economic necessity in the household specially for agriculture. But this custom was prevalent only among the lower castes and hence never rose to respectability. Instead it came to be replaced by the custom of dowry giving. This was prevalent amongst the Jats who could pay the dowry amount (Prem Choudhary, 1989). Dowry is today a financial drain on the small landed households and have led to selling off of assets like land. Landlessness in the women's marital homes has been the consequence of men's heavy drinking and their obsession with urban based work as they feel that the latter lends them greater respectability than agriculture (Prem choudhary, 1993). Green Revolution has unleashed a certain degree of urbanisation which fascinates and beckons these rural men. Land then are sold off for 'better' jobs in the city. Even in landed households the second generation of Green Revolution has already shifted to higher education or urban based enterprises. Land however, continues to be their basic security at least that is what Green Revoltion has reinforced for them. Hence the work pattern of women from landless households show changes according to the economic status of their households. Though a majority of them have shifted to 'cleaning' jobs in the city, they have done so in duress. They no longer depend on agriculture for survival though they continue to hire out their labour for wages in the season. Women then are more burdened without compensatory benefits for carrying the responsibility of such a bruden in whatever way

they can.

The following is a detailed question wise analysis of women's answers to the questions the researcher put to them.

question-wise Analysis

(i) To the first question 'do you work for a wage'? all the respondents answered in 'yes.' Samina, Misri, and Sajjo, are agricultural wage labourers during harvesting and threshing of wheat. Misri and Sajjo also work on their own (rather legally their husbands) farms. The other respondents combine at least 2 to 3 activities along with to agriculture to earn for themselves and their families. **Santosh** works as wage labour during harvesting seasons (though not for the entire season) picks up vegetables and fruits for the sarpunch from his compound cut vegetables or fruits in a dehydration unit in the village whenever required (the unit however is out of work now). **Bala** works primarily and on a daily basis in the town as a washer-woman. She works as family labour on her parents' farms during the harvesting season but does not hireout labour here. **Harbeji** works as a cleaning woman (Cleans toilet and drainage systems in only one house in the town). She had atleast 5 houses 3 yrs back at where her family worked for Rs. 250/- month. Sometimes and when in need of money she works as AL during the season in the village, though has only worked as family (labour on her parents farm when she was young, **Gita**, primarily washes clothes, sweeps and polishes floors in the town and also hires out labour for wage during the season but maximum for a week. **Raj**, combines three wage activities, she works as a school teacher, washes clothes in two

houses in the town at Rs. 350/ per month and also during the season, hires out labour for harvesting and threshing. Kesar works as a seasonal agriculture labour in harvesting only and sells "Pooja Ka Pattal" at the fair near the Mata Sitla Mandir on Tuesdays and Fridays.

The most important observation to be made here is that Agriculture' labour is no longer a primary means of earning and sustenance. Mostly these women began work to supplement the incomes of their husbands and in case of husband's death, or unemployment due to sickness, the women run the entire household singlehandedly. Santosh, Gita, Samina, Misri, and Sajjo work to bring in "extra " income than what their husbands earn, either from a profession in town or from production on their small landholdings. But Bala began working both as a washing woman and as paid Agriculture labour during harvesting after her husband contracted Jaundices 2yrs back and has not been able to recover from the attack since then. Harbeji now works in one house because her body cannot take work beyond a point. She had to shift temporarily to the town in a shanty, make-shift shack to earn by cleaning bathrooms and drainage since her husband retired from the army in 1980. The husband became her dependent after retirement and still has no inclination to find work. Raj was initially, i.e after 3 yrs of marriage, working as a school teacher in a girls higher secondary school. However on her husband's paralytic attack and his being bed-ridden, she had to extend her work to cleaning clothes in the town and to hireout labour during the harvesting season. Kesar too had to hire out her labour during harvesting plus sell sacred items' at the Mela near the 'Mandir'

after her husband's death and even more when her only son left her to work in Sohna. He has not come back since he left home

Ans. (ii) Presently, the afore mentioned activities of my respondents are continuing. For women who have only worked in agriculture either as family labour at their parents place or as agriculture' wage-labour in the village (where they come after marriage), problems of earning from seasonal Agriculture labour alone are apparent and acute, esp. when they for one reason or the other (esp. caste) cannot go to town in search of work. **Santosh** worked as family labour when she was unmarried at her parents place, both of whom were agricultural labour. They had no land. Santosh sometimes helped her mother in the field but mostly worked in and around the house, cooking , cleaning and looking after her 4 sisters all of whom are younger to her. It was after her marriage that she began to work as wage-labour during harvesting and threshing seasons. She even helped out during sowing in those days (late 60's). However now because of tractors, her worked along with those of others has diminished. Even for harvesting, she says, she is not employed for the whole season, only for a week, maximum. She says that her husband does not allow her to work outside the village and if she ever brings up the question he gets angry with her. **Bala**, too worked as family labour on her parents 2 acre land, when she was unmarried. Her sisters also helped out on the land and in the households. She used to go and helpout on the land during harvesting and threshing till her parents did not sell it to pay for her younger sister's dowry. She does not hire out labour during harvesting in this village

she feels there is not much work to do because of machines. The Agriculture Labour itself is seasonal and not monthly and hence gives very inadequate wages. Apart from the husband's illness, the above was an important reason for Bala to look for work in the houses in the town. She now has 4 houses, in which she washes clothes Rs.250 per month. Harbeji belongs to a generation when in rural areas everyone worked on farms or any agriculture related activity. She worked along with her mother as agriculture-labour though she never got paid for the work. She was seen as only helping her mother, not as an independently hired labour. Though they are "chamars" (Scavengers) by castes, they never worked as 'cleaners' outside of the village. They also hired out labour in any agriculture activity that required hired labour for digging mud, sowing, harvesting, threshing, making bundles of threshold hay on the farm etc. . When she got married into this village. her-in-laws had 2 bighas of land and she was required to help in cultivation. She remembers a time ,when she had to carry atleast four earthen pots of water from the well to water the fields and then also it would be only partially irrigated . They were then dependent so much on rains. But after the sale of these 2 bighas for want of money for liquor and other debts, her family life suffered. Her husband was away in the army and she had to provide for her 6 children. It was then that she began to work in the town as a cleaning women and this work has continued for her since then though now she lives with an unemployed husband and of age works only in one house at Rs. 250/- p.m.. Very rarely does she go for harvesting, atleast has not for the last 2 years. Gita too worked as a family labour on her parents farms (Bighas) along

with her mother and sisters. Though she went along with her mother when her mother went to look for work during harvesting, she never got paid separately for her efforts. Gita, anyway was responsible for running the household. When she got married, she did not immediately seek work. Her husband's income from working as a sweeper at the "Airforce Station" was sufficient to keep her and her-in-law. But with children and Father-in-law's sickness, the expenses increased Gita says she tentatively asked her husband if she could work but was shouted at in return. But after his anger died down, he not only relented but also looked for work for me. Gita's first house was that of the 'Chopras'. She washed clothes at their place for rs. 150/-p.m.. Gradually she had 5 houses to work in. She had to stop working a year back because she was expecting her 3 child. Now, she's back after the birth of her 3 son and her operation and is looking out for work. It was the time she started working at chopras that she also hired out labour during harvesting. She continues to do so during the season, if she gets the job. But does not necessarily depend on it as her main source of income. Samina worked as family labour in her parents house in that she used to help in the fields (they had none of their own) and in the home. She got married in Jind Village and there worked as wage-labour on the field during harvesting and threshing of wheat/rice/ Bajra and also helped in the homestead with storing of grains with neem leaves. She says that the Jat family which employed her was kind to her, especially the wife, who always gave her a extra rs. raw or cooked rice to take home. In this village, however she needs

to familiarize herself with the people and their work. Though she got wage labour during the month of April last year, it was only for 4 days at rs. 20/- per day. She could not get more work for more days. For Samina then her work has not continued the same way as in Jind. Misri too worked as family labour on her parents farm (5 bighas of land). After marriage, apart from housework, she and her sister-in-law both work on their fields. They have 6 1/2 bighas of land. Apart from this, they go to harvest and thresh for a wage on the Sarpanch's farms or merely to help out her friend like Sajjo on her family farms (like she does on theirs) because they can not afford to hire labour. So their work has continued from their adolescence, though now they feel they do not get enough wage-work because of the tractors especially in sowing and tending of crops, which they did when they were newly married into the village and do on their family farms. But the later ofcourse is wage-less and is a part of their household duty. Raj is a sindhi refugee rather her parents were. They had 10 bighas of cultivable land in Taran Taran in Punjab (where they had settled). Raj had worked on the fields since she was 13yrs of age along with studying in a school. She got married in Gurgaon she was not actually staying in the village but in a rented house in the camp area of Gurgaon. They moved out when her husband constructed a small 'Kholi' at the entrance of the village (he could afford to, while he was well and owned his car garage). She initially worked part-time as a school teacher in girls school, but after her husband's illness, she had to combine teaching with washing clothes for people in the town and to hireout labour during harvesting season in the village (she

admitted this quite reluctantly and emphasized that she did not need the money from agricultural labour). Kesar, too was a family labour on her parents farms and that of her husband (10 bighas). However, she was forced to look for wages by working on other peoples farms during the seasons when her husband sold of lands to pay off debts on liquor and then later died and her only son left her to work in Sohna. Seasonal work, according to her is difficult to find because of all these tractors' that have come" and even if she does, it is only for a week . Also, her body cannot take more than 4 days of cutting the stalks while moving along on her haunches. This labour is combined with selling of "Pooja ka Pattal" at the Mata Sitla Devi fair on every Tuesdays and Fridays. And this works continues for her.

Sajjo too helped out on her parents farms (15 bighas) when she was unmarried. Now she divides time between working on her land and for a wage on other peoples land esp. during harvesting. "Working for a wage helps to run the chulha day and night". She feels that the intensity of work on her own farms has immersed for her because everything has become expensive". To plough the land, to rent a bullock cart itself is too expensive. Buying new seeds, fertilizers cost money which we don't have. We can't just produce for ourselves, we need money for other things too. Whatever we produce we need to sell to get money for these things- clothes, ration, fees for school- there are so many needs."

Q& Ans iii For two of Santosh's friends, Imarti and Gita, the shift in work has been from seasonal wage-AL to washing clothes in peoples' houses in the town . Bala has seen women of her age

in the village who also come to work in the town every morning as washing women. They also work on farms during the season but that is not their main activity. Harbeji's friend Kailash also worked in the town and has a similar story of desertion by her three sons as Harbeji. Kailash had to work like Harbeji to survive but according to Harbeji she was a weak woman. She died last year because of an acute asthma attack. Kailash earlier (when her husband was alive - worked as Govt. sweeper) had 1 house, but with none to support her, she had to work in at least 3 houses. She often went to find work during harvesting as well but had to leave it half way because of her asthma problem. Gita's sister-in-law started working only after she saw Gita go to town. She needed the money what with five children to feed and bring up and another one on its way. Her husband though seemed to earn well at a chemical factory (Rs. 1200 per month), however he gave very little in the house for daily consumption expenditure. She (sister-in-law) works with Gita as wage labour during harvesting and threshing season but like Gita does not think it her main activity. Samina is only 1 year old in the village and hence still to find her bearings here. In her previous village, she saw a few women from Harijan families go to the town to work in other's houses, but the number she says was few (though she is not 100% sure about it). Both Misri and her sister-in-law along with working on their family farms, also work as wage-labour during the season of harvesting and threshing and help out on their friend Sajjo's farms. During the season they are extremely busy combining household work with three levels of labour on land. Misri only knows about Sajjo, who also works like them. They all say their work-load has

increased triple in the last 6 to 7 years and all the three say because of agriculture getting expensive especially the machines, which everyone with land cannot afford."Only those with bigger lands can." Raj says she does not have many friends so she does not know about them. Only 'Vijay' has been somebody she talks to about her "sorrows and happy times". Vijay, like her, washes clothes in the town and unlike her does not teach either but more actively than Raj hires out labour during an crop season in the village. Also, the no of houses where she washes clothes has increased from 2 to 4 in the last 2 and 3 yrs and in at least 3 of the 4 houses. Apart from washing clothes, Vijay also washes their utensils and sweeps and polishes the floor. Kesar's friend Sudesh's husband suffers from a disabling disease, which has made him bed-ridden. She hence had to work in town as a cleaning women- looking for wage labour during harvesting was not enough after her husband's illness. The cost of medicines was too much and he never even got well. Sajjo, says that the 'chamar' women have extended their work from agriculture labour during the season to working as cleaning women in the town. Ofcourse some 'chamars' families have become rich through sale of pig meat, their women do not go out to work. But others do. Their husbands too get good salaries as their work as govt. sweepers in the municipality. 'They are in better position than us. But we can not do what they do'.

Q IV ANSIV

Santosh's family since her grand-parents have been agricultural labourers. Her parents worked on the Sarpanch's land for a

wage in village Tikli in Tehsil Gurgaon. Her mother even worked as a masseuse to the Sarpanch's wife. They never owned land in Bhadurgarh village. Bala's parents owned 2 acres of land which they cultivated themselves along with the help of their daughters. The land however was sold to pay for the youngest daughter's dowry. So the parents are landless. They are too old to work and are looked after by their sons, who have jobs in the town. Harbeji's parents had their own land in Sholapur village in Gurgaon Tehsil (she, however does not remember the numerical value of the land) but all that land was sold long time back. Her parents are no longer alive.

Gita's parents together cultivated 1 Bigha of their land in their village Jhirsa in Gurgaon district. Her mother also worked as wage-labour during the season to earn money. She could earn 40 rs. per day plus a bundle of unthreshed stalks. " However, the land was sold off ultimately to marry off my youngest sister". For Gita's marriage it had been mortgaged with the Chaudhary in the village he owned about 19 bigha of land.

Samina's parents were Agriculture labour in Jind, They even worked for a wage on construction sites, carrying bricks etc. They had no land.

Misri's parents owned 5 bighas of land, which they cultivated themselves, even used hired labour during harvesting. But 2 bighas of land were sold to the Government to build a factory on it. The other 3 bighas have been now rented out to a 'share-cropper' because the parents are too old to work on it. "And we all are now married" The share cropper is cheating her parents, feels Misri since there was no written agreement, the tenant is

cheating her parents of their rightful share in the produce and nothing can be legally done.

Raj's parents had 10 bighas of land in Taran Taran village of punjab which they themselves cultivated. Most of the land has either been sold to the local landlords, or given on rent or forcibly attached by landlord's sons. Hence her parents now only have 2 bighas of land, which they have given to a tenant. They are old and cannot take the burden of cultivating their lands themselves or even supervising its cultivation.

Kesar's parents now dead, were big land owners. Her grandparents supposedly owned a number of villages in what is today Gurgaon district. Her Parents too owned a lot of land (does not know too exact number/value). " Now the land is with my uncles sons. We got nothing as our share in the land except dowries which enabled my husband to buy land. But he too let all of it go". Sajjo's parents owned 5 bighas of land in village "Ballabhgarh" which they cultivated themselves. But have only 2 left, they had to pay off debts after the drought in 1987 and to marry off all the 3 sisters.

QiAns.i. Practically all the respondents do not see agricultural labour as a sustaining activity now. All the women respondents work for wage during the harvesting and threshing season. But this is only seasonal and casual labour i.e they are employed for specific activity (say threshing) for a small period of time (a week or 15 days) and where wages are paid on a daily basis (Rs. 20 to Rs. 40 per day , depending on the caste of wage-labour, the total produce on the land, the specific activity undertaken

etc.). Practically all the respondents have worked on their parental farms (if they owned any) but never for a wage on other's farms during the season or otherwise in the agriculture 'processes while they were unmarried. After marriage (always in different villages than their parental once) most women, apart from working on their husband's farms (if any) or helping out their friends' on theirs invariably hired out labour during the harvesting and threshing season. But activity schedule for the rest of the year apart from the seasonal casual labour, differed from one-respondent to the other and the difference emerged from their implication in the social structure of the village. If caste deterred women from working outside of agriculture labour to supplement income of their household, the distance to the town (1.5 km) from the village to the town, deterred others from working outside of the village. But where wages was the sole^e consideration and top priority to either survive themselves and sustain their families, the women worked in town mostly as cleaning women; their activities ranged from cleaning utensils, cleaning clothes, washing and sweeping the house. They either combined all these activities in one or more houses or different combinations or only one activity in different houses. Cleaning houses in the town are a main source of income for most of these women from what one of women said, "If I only worked in harvesting, I would never earn enough for a month even, to even buy 'Atta' for chapatis". It is obvious that agriculture no longer provides a livelihood for those who are wage-labour. During their parents times, most women allude to the absence of machinery on land, no availability of more land and maximum no. of people working on

these lands throughout the crop-production process. Now they observe a spurt in use of tractors by rich, greater concentration of cultivable lands with the rich in the village like the Sarpanch combined with depleting availability of land itself (agriculture land too is increasingly used for development of more urban colonies) women being women in that they singlehandedly look after whatever is left of agriculture especially those activities which have not yet been mechanized. Despite being the single largest group contributing to total agriculture production in the village, the women neither own land,, nor are economically independent in terms of their earnings or use of it.

Hence, women continue to work for wages during harvesting but do not regard this as their only means to earn for the family because it is practically and logically impossible and dangerous to depend on it for the survival of a family.

Santosh says that if she were dependent only on agriculture then she would not be able to buy even a handful of atta for a chapatti! Bala is the most cynical about agricultural labour than either of the other women. She has not actively looked for wage work after she got married. She feels there's nothing in agriculture' " No work, no money, what can one eat from working in agriculture". " There are machines now. Why do they need us". Harbeji pointed to her cemented house and said ' because i have worked in the town that today i have a strong roof over my head. What and how much can you earn in agriculture and for how long. If i had been doing agricultural labour, then today i would be a beggar.' Gita however, is very philosophical about agricultural labour.

She feels that the money she gets during the seasons, Rs.40/ per day, is good money but the work is seasonal.' That is the problem i cannot depend on it for money. That is why i clean people's houses. At least every month i get money for sure". Samina is dependent on agricultural labour for wages. In Jind she used to earn by working on the farms of a Jat family. She knows of no other work. In this village the work is the only work she can do. Her husband does not allow her to travel at all in this strange of new village or its surroundings.

Misri is an agricultural labourer. She feels that in a village there's nothing but agriculture. "we are agricultural people. Those who cannot do agriculture leave the village anyway'. Raj being a school teacher gave a rather sophisticated argument about agricultural labour and machines. She prefers to be called a school teacher and says the other two activities are to earn extra money only. She places agricultural labour at the lowest rung in her list of priorities." agricultural labour is no work. It does not assure a regular, monthly, salary. Anyone can die if she depended only on agriculture'. Kesar would work only in agriculture if it paid her for the entire year! She does not work for more than 4 days, maximum a week during the season because her body cannot take a lot of hard work. She even cannot see very well, often cuts her hand with the "Darati" while cutting the hay. Sajjo, however, says she knows only about agriculture esp. harvesting and threshing. She does not have the skill to do anything else.' There is here no question of preference. I have to do this work.'

ANS(vii) All respondents say that there is less work to be done

now than earlier (the now refers to 1994) and the earlier refers to times when these women were unmarried and helped out, as a part of family labour either on their parents' farms or those of others (as helpers to their parents) i.e when these women were young there was more work to be done in agriculture and more people were involved in Agriculture. Though the two older women, Kesar and Harbeji, did not even see the kind of machines there are now during their younger work years, either on the farms of their parents or those of others. The youngest of the lot, Samina, is a migrant to the village. She has no work in agriculture partly because she's new to the village and hence employers have less faith in her capacities to return good amount of work and largely only those women continue to be employed who have been supplying labour for quite sometime in village during the season only and with whom the employers are familiar . Also, women are employed largely in harvesting and threshing of wheat/ Bajra production process. Tractors or bullock carts and tube wells are used by men to take care of tilling, sowing, irrigation, carrying the packed grains to the Mandi. (Though women do all this, when they are part of family labour on their husband's farms where machines are too expensive to use).

Santosh feels that tractors make too much noise "Gadi Awaj Kare Hai". "It can do anything , plough transport grains why do they need us?". She says there's less to do than before. Bala does not work in Agriculture anymore i,e since her marriage). Machines according to her have replaced labour and only men use the tractors "we can not use them. They are huge and heavy and

look difficult to operate".

Harbeji ofcourse feels that with machines, there is no need for their labour. "what is the use of manual labour now". Gita is quite categorical in her assertion that with machines (Tractors) the use of labour is only in harvesting and threshing. But she does not sound bitter, rather very wisely says if "rich do not buy machines who will, definitely not the poor. The poor cannot dream of such a possibility" Samina says, yes to machines means no to us. According to her the rich have tractor to plough the land with, electrical tubewells to pump out water with, fertilizers in cans,"so why they do need us?". Samina gets very intense suddenly and wishes that she were rich and could drive her own tractor, if she had one . But immediately laments over her poverty and helplessness. Misri feels that the rich have bought machines because they work well and faster. And with these machines, "we do not get enough work too, only during harvesting and threshing". "But we do not have machines we have land (6 1/2 bighas) but too small to buy a tractor though we hire bullock cart to plough our land from the sarpanch. We can barely afford bullocks. Sometimes even i help out in the digging and making "Kiyaria" in applying fertilizers cutting and threshing and packing grains. But there is less work for wages on others land now". Raj knows that machines on farms are the reason for other people's displacement esp. those dependent on it. "Thank god I'm not" she says. Only on farms where there are no machines that labour is required but then their family members do all the work. Hired labour is very expensive". According to Kesar at home people, men and women both worked so much in agriculture but not

now. Most men work in the city there's more money there than in agriculture. Even women in the village who still work in agriculture for a wage do not work so much of machines. Maximum work is only during harvesting and threshing which still requires them. She says that if there were all machines, then so many poor families would get hungry for want of a wage. "There was so much to do then (when she was young), but now very little. No wonder my parents are very tired people today".

Q.viii to xiii. All the respondents are from poor landless or small landed households who do not use or own agricultural machinery. All women respondents know about the agricultural implements (are familiar with names and their use), but have neither wanted to use them nor have had the courage to use or even touch this equipment. They see the equipment as being used only by men and not them because they are too big and difficult to understand. And most women express surprise at my asking such a question, something which they have no thought or questioned and is most obvious.

Santosh has never touched a tractor she feels afraid to touch them even, though she knows all about the machines used in the village viz. Tractors and Tubewells. Tractors are used for tilling the land, sowing and for transporting rice and the electrical tubewells provide for irrigation". All these are owned and used by the rich, even our men do not use them". **Bala** knows about the tractors, the tubewells, the machines to cut green hay, but has never either wanted to use them or touch them. She thinks machines can be best handled by men. She no longer works for a wage

in agriculture so cannot say whether these machines have taken the place of these activities that women initially did. Harbeji too knows about the tractors, the "Guvar Katne ke Machine", but has had neither the inclination nor the courage to ever want to use them herself. She says she feels scared to use them, esp. when she has her arms and feet for work. To use these machines is possible by men". Gita says, "ofcourse not i have never used mechanical implements. How can i even when my husband has not". She knows about tractors. "Guar Katne ki Machine" but has never used them. She wanted to plough the land with bullock and a wooden plough when she was a kid. But these new machines look forbidding, only the men know how to operate them, not women, esp. the rich men like Sarpunch. The Sarpunch sends his sons to plough the fields with the tractors. They did not employ men for it, she says, the tractors now till the land while making neat lanes too for sowing, which was earlier done by hand. She remembers helping to dig and till and "makeland" by hand on her parent's farms. "Tractor are so quick, while by hand every work takes so much time".

Samina" knows that tractors are meant to plough the land, the tubewells are meant to pump out water from the ground for irrigation and also insecticides, pump machine to spray insect-killing sprays. But she herself has never used any of the three but wishes of a time for a herself when she would. And her family has a piece of land, and tractor which she could not drive, she however finds the tractor too big to operate by herself. She feels that these machines have made work easy but only for those who own them. Misri says that she knows how to milk and wash a

buffalo but has never used a tractor. She says she has a weak heart for machines. She feels the tractor are complicated to use, she would feel scared to even touch the steering wheel lest it drives by itself. She says only men use machines even the fertilizer pumps, but to scatter grains during sowing, to disinfect the soil and make it ready for the next crop, is done by women. Harvesting and Threshing are only done by women still. " But the day a new machine is made to do all this work, we would not get any work during the season " Raj says that she has not used either a tractor or operated a tubewell or fertilizer spray or cut green hay for cattle fodder on the cutter, though she knows about their use. She feels she would not have been asked this because she does not like to be called a agriculture labour anyway. "I have not seen any women use these implements, only men, always them, the landlords use their tractors themselves". Most of these machines have displaced what was earlier done by hand e.g. digging mud (upturning the earth). Kesar was mystified at my question and asked me" why do i want to use machines? . I have not. I do not need machines, when i have my hands, why do not you use them, if you are so eager to,you do it. "Sajjo too put across a counter-question, " Why would i want to touch those machines, what would it do?." She says what is not hers she does not use,. For women, she says, only hands help. " If the sar-punch's wife does not operate tractors, then how can i when i do not have one? Ofcourse tractors do more, quickly than we do by hands on our fields, but what else can we poor do?."

Santosh's husband works at a hospital in the town for rs

60/-month. Her's is a nuclear family-two sons who study in class 5 and class 10 in the city and daughter, who's the oldest-14yrs of age and has studied only till class 4th. Santosh combines a no, of agriculture work like harvesting and threshing during the season and can earn only during the season on a daily basis and the wages differ from rs. 10 per day to rs. 40/ day during harvesting and threshing. According to Santosh, " In this day of rising prices, do you think all this is enough?"

Bala too has a small family of two children one son and one daughter age 6 and 8 yrs. respectively and her husband used to work as a watchman at the community-centre (night-time duty) at rs.500/- per month, till jaundice struck him and he has not recovered from the attack henceforth. Bala had to begin work as a washing women hence, she has 4 houses where she only washes clothes at rs. 150/ month. Hence, she collects a total of about rs. 600/- per month. Initially when her husband earned she had no problem of running the household, even 600/- month were sufficient to run the households, pay for the children's education, buy kerosene oil, buy new clothes, get medicines etc."

Harbeji's household initially comprised of her six sons and daughters (3 each),, herself and her husband. Though now she lives alone with her unemployed husband. Harbeji's source of work and hence income were her daughters and her daughters-in-laws. Her eldest daughter had come away from her-in-laws place in protest against their increasing demands for more money and dowry and were inflicting violence on her. She (Gita) used to work as a cleaning-woman in 4 to 5 houses in the area when we live and handover the money to her mother as compensation for keeping her.

But when Gita went back to her husband (After her mother-in-law come to get her) and her daughter-in-laws made separate homes with their husbands , Harbeji's sources of income depleted. She too shifted back to the village from her makeshift place in the area. She now works only in one house in the city for Rs.250/ month. She cannot do more work because of old age. She is not dependant on her husband. He is good for nothing after he retired from the army. Her sons run their own families. She feels her income from the household, and from seasonal wage labour from harvesting is enough for her to eat two meals and day and there's nothing more she could ask for.

Gita is married with three kids- one daughter aged 12 yrs, two sons 10 yrs and 1 yrs respectively. Her husband works as a sweeper at the air-force station at Rs. 800/ month. Apart from her husband and kids, her-in-laws also stay with us. Gita primarily earns as a washing-woman in the town .She feels that she and her husband earn enough to live in peace and not poverty. She earns extra during harvesting and threshing (Rs.40/ per day. 1/4 bundles of unthreshed grains that she cuts). Her husband often gets dal, rice etc. from the station ration-shop at very economical rates. Samina's family consists of her, her husband Hamid and her 1 year old daughter. In Jind they both earned enough to support themselves. Her husband was a vegetable -seller and earned about 100/ per day. She earned as wage- labour on the Jat's lands and through helping out on the Sarpunch's house in storing grains,. In this village, he works as a 'Bhisti' and earns a maximum of 2/- per 'lotta' of water and about 15 to 20

Rs. per day. And Samina has yet to begin work during harvesting. So she stays at home. Sometimes they go without food/ one meal a day.

Misri's household is big. Apart from her family, of her husband and two little girls, her brother-in-law and sister-in-law both stay with them, along with their kid sons. Her husband and his brother till and cultivate their own land. They decide what to sow, when how and from whom to rent bullocks etc. The women only do what they are told to, including earning a wage during harvesting and threshing " Money is always more than welcome". Sometimes with a bad crop, the saving grace is money/ wages of these women from harvesting/ threshing." Sometimes our wages keep the chulla burning". Their men do not work for a wage only on their own land, while the women do both. Her husband now plans to find some other work in the city. Agriculture for them is not suitable. Raj's husband and two children a son and a daughter and her mother-in-law live in a 'Kholi' in the village. Raj's husband is bed ridden after a paralysis attack, so Raj is the sole earning member of the family. Her husband initially worked as a mechanic in car-garage earning enough to feed and clothes too a month the family. But Raj had to increase her work after he was bed-ridden she earns approximately rs. 1000/- per month (600 from school per month plus 400 from working at Anand's) plus RS. 150/- per week in harvesting and threshing. Apart from basic needs, she has to get medicines for her husband and ageing mother-in-law who herself is bed-ridden, which is a big strain on her earning and physically on her health. Kesar has no one staying with her now. Her husband died a year back and her son left her to go to Sohna

to work in some hotel there. She lives alone and fends for herself by working during harvesting and threshing and during the mela at Mata Sitla Devi Mandir. She sells "Pooja ke pattal" outside the Mandir and earns about 15 to 20 rupees for the day. Her son sometimes sends her some money but it is very erratic and she's stopped depending on his charity.

Sajjo lives with her husband and her two kids, a boy and a girl. Her husband is a cultivator and looks after their land (3 bighas). Sajjo helps out on the land as well as hires out labour during the season of harvesting and threshing. Sometimes their earning from the crop are good but sometimes it is not. Wages from her work during threshing helps in bad times." But we always earn enough to eat meals and wear one set of clothes. We ask for nothing more".

Most of the women respondents do not spend at all on themselves, whereas the men do esp. on liquor. Most of their money is spent on the family, on food primarily and hence their wages are crucial to the well-being of their family.

Santosh says that she does not spend on herself but her husband does. "He recently got new pajama's stitched for himself. I use, re-use this one suit that i have, even my children do the same." He even uses money to drink and then he fights with her. Santosh knows that if she does not work at all, then the chulha might never burn. **Bala** spends the largest amount of her 600 Rs. on family and food, not on herself. She has one pair of suits which she alternates between and the only money she spends on herself is on cosmetics, lipstick, powder which she buys cheap at

mela. But they itch her a lot (I then gave her a used lipstick and a sindoor box while telling her to stop using poison on her skin). She cannot think of not working esp. when her family's well being depends on her. (Her husband bed-ridden). Harbeji says that if she does not earn where can she eat from. She spends money only a Paan and Tobacco, not on buying new clothes. Her husband uses his pension money to buy new clothes like caps and pants and for liquor and cigrattes. He does not contribute anything to the household. Gita does not feel the need to spend on herself especially clothes. She often gets second hands from houses in which she works. She only uses money to buy ration for the kitchen. Her husband does not spend on liquor or clothes but on paan. Gita feels that she earns to keep fit and only to add to savings for contingencies, though her husband can look after the family single handedly! Samina spent on clothes every two months in Jind when both her husband and she earned well. But here she's glad that she's even wearing what she is !she needs work to atleast eat two square meals. Her husband hardly earns enough to spend on himself, except beedis "work is a must to live". Misri feels she has to work to save for times like a bad crop. She gets angry especially when her husband wastes money on liquor." There is always never enough to eat or wear and these men waste on drinking.They have no responsibility towards their families". "Sometimes when he's late and gets home drunk , I just lock myself in a room and sleep off!". Raj cannot think of not working."I have to feed my family,bring up my children,get my husband well. All this needs money". She says her husband, when was well and earning, loved spending on new shirts and cigarettes but

never spent on us."I am happy to have two suits.I can always wash one and wear the other. I only need two meals a day for myself and my family. We can't afford anything else." She says she doesn't have money to spend on herself and hasn't for so long now.

Kesar knows she has to work to live. All her money is spent on herself but not for clothes, only food. She doesn't have the inclination to spend on herself. It all went away with her husband and son.

Sajjo feels they do not have money to waste on luxuries. She spends mostly on food. Her husband also spends on food or gives her money for it. He also spends on liquor. Sajjo says she no fights with him over his drinking, otherwise she only gets beaten up. And she has to work and according to her, the tell-tale marks of violence on her face only causes get embarrassment amongst her friends.

Almost all respondents combine household work with work outside the house. And none of the respondents thought of the housework as a 'waste' rather as a duty which they cannot shirk. They see housework as something they have to do, are programmed to do.

Almost all women work on 10 hrs a day in the house hold and outside work.

Santosh works for 7 hours in a day i.e. along with household work, if she has a wage-work. Housework includes sweeping the house in the morning, cooking breakfast, getting water for drinking and washing either from the well or community taps, getting

cows/buffalo dung from the streets to use for making fuel-cakes and for smearing the 'porch' once in while to keep the mud together and prevent it from cracking , getting wood as in 'keekar' shrubs or broken twigs from roadside tress for fuel. Santosh's daughter helps out in collecting wood and cow dung. And if Santosh cannot go for collecting wood and cow-dung then her daughter does but not too far, only, till the 'Ber' gardens within the village. Santosh does all wood-dung collecting for fuel only after work (i.e if she has any). She needs this fuel for her mud-chullha to cook food on so she does not have any time saving cooking media at home. Housework hence becomes a full time job, something that has to be done everyday. Santosh says, her entire life is so difficult that now she does not even think about it.

Bala says that her housework never seems to finish. She gets up at 6.00 p.m. in the morning sweeps her house, warms water on the chullha (the igniting of which takes its own time) to give her children a bath before they for school, cooks food for breakfast, she then at 8.00 p.m. goes out to work in the houses in the town. She's back home at 1.00p.m. after finishing her work and fetching her kids back from school. She cooks again for the family, eats herself and then again gets back to work. She cleans the house again and if finds no wood in the house goes looking for it in the afternoon itself. She has to get the edge of the village, near the roads to collect wood, there's no tress left in the village, its so dry. Even her kids collect whatever twigs they can their way back from school. Bala's day she says never ends, esp. the whole process of lighting up the chullha (it takes time about 10 minutes to burn well i.e. if the wood is dry) and

cooking food 3 times a day takes so much time and energy. Water can be filled from the taps or the well. The taps, in summer are often dry. She again has to get water as well. Her kids are too small to do anything and her mother-in-law refuses to help out. "She only knows how to complain 24 hrs a day" She says housework is a must who else is do it otherwise. Harbeji's household work involves cooking for herself and her "good for nothing" husband. She however does not cook on an earthen chullha but a kerosene stove. But to get kerosene from the ration shop itself is a "back-braking job".

According to Harbeji her husband still does not help. She gets up early, fills up water at the community taps for bathing, cooking, eats and leaves for work in the town. Her husband sometimes drops her off at the house on his bicycle. She says she has no one to work for and with her in the household and in town-work. She especially misses Sunita, her eldest daughter exactly for this.

Gita wakes up at 5.30 in the morning, lights the chullha (though she has a kerosene, stove, she use it very sparingly esp. when she has not been able to collect enough wood or make enough dry-dung flakes. "Kerosene is so expensive"), makes tea for her husband and parents-in-law. She dresses up her kids, gives them breakfast and sends them to school. Then gives breakfast to her husband and parents-in-law. She eats herself and then gets out to work in the town gets back only 2.30 or 3.00p.m. after which she comes back home to cook again for the family. Her husband sometimes does not comeback for lunch, instead he eats at the sta-

tion. Evening again she has to begin all over again. During the harvesting and threshing her work just increases 3 times the usual. After cooking and eating lunch, Gita goes to the fields to cut and thresh till 5 or 6 in the evening in the blazing April sun. She says even during such times, nobody helps her. Her mother-in-law could only bicker and find faults with her and her cooking. Gita feels housework is no luxury and that there is no escaping it. Husband never works in the house and mother-in-law only take out her frustration on me". Gita has to collect wood-fuel for her chullha and stand in the lines for ration of kerosene. Sometimes her husband gets wood from the station there are a no. of trees there for water winters are no problems. The community taps tend to overflow but in summers they remain dry. Then the well is used extensively."The rich households use pumps in the main-line of which there is no water in the taps and causes us great difficulty" Sometimes Gita fills water from the chaudhary's tube-well.

For Samina there is not much work to do in this village. Her household work includes cooking and filling up water for drinking and feeding her 1yr. old kid. She sometimes collects twigs from the "Ber" gardens for fuel. Sometimes her husband does the cleaning and collecting (has no money to buy wood, which they could when they earned well in Jind). She stays all day and night in her make-shift, thatched home all day, though would like to find work during the season, but work only in agriculture and that which does not take her away from the village.

For Misri too housework never finishes. it begins at 5 or 6

is only cooking or cleaning. She even has to look after buffalo, to give her food, bathe her, milk her. She is helped only by her sister-in-law in the housework, they sometimes alternate duties esp. during the season of harvesting and threshing depending on who's working when. They cook on earthen chullha which requires wood or dry cow-dung flakes. The wood according to Misri is scarce and hence she depends a lot on dry buffalo dung cakes for fuel. To make them and dry them and store them is another problem and a task in itself. They obviously do not expect the men to help out in housework but complain about their 'landlord' life style and comfort of having someone to look after them.

Raj spends about 6 to 7 hrs. in only her housework apart from her teaching, washing clothes in other people houses and working as wage-labour in the season! So during the season Raj works on an average of 20 hrs a day ! Her daughter helps sometimes, though Raj does not want her to. She feels that her daughter anyway would have to do all this (housework) when she grows up. And Raj wants her to be happy in her childhood and not be burdened by adult work. Raj does not shrink any of her household duties, from cooking to cleaning and washing clothes, she does everything. " It is my house after all. If i do not look after it, who will ?. Definitely not my neighbours ! she has a cooking gas at home, so she has no problems in cooking. She however has no tap in her house and has to do her washing at the community taps. She has to fill water and bring back for drinking etc. to the house. It was hardwork during the times she sprained her back. But then there is nobody to help her.

Kesar looks only after herself, she has no family to cook

for or clean for after her husband's death and after her son left home to work in Sohna. She cooks for herself twice a day, fills up water (one earthen pot) for drinking and another for washing etc. from the taps. She washes clothes at the well along with other caste women.

She says that collecting wood for one person is no problem. She often borrows buffalo-dung cakes from her neighbours to cook on her earthen chullha. For her living itself is a burden, not housework "My life alone seems such a mountain".

Sajjo's work in contrast, according to her, is a 24 hrs work "It never ends". She has to get up early before dawn, cook, clean, give fodder to her buffalo, send children to school and during the season. She only works for a wage on harvesting and threshing . During the season again, she feels the strain of so much of work but has to do it. She gets no help from her husband or children. She cooks on an earthen 'chullha' and uses wood and dry-cow-dung flakes for fuel. The wood is collected from the trees or shrubs at the crossing on the road-side. She herself goes picking, sometimes accompanied by her children She fills 3 earthen pots of water from the taps in a day for drinking purposes and washes clothes at the well. The taps remain dry in summers causing much inconvenience to the villagers. The water at the well is considered to be unhygienic for drinking purpose. So for drinking, water scarcity is more in summers than winters. Sajjo does not for a moment think about her housework as a burden that she does not want to carry, rather as a burden she has to deal with. But burden, yes.

Hence all the women have worked as unpaid family labour on their parents agricultural lands before marriage and sometimes now. (Which were either very small or were made as so in the process of paying off debts after the marriage of their daughters). They have all together married in villages other than their own. Here, they have all worked as housewives, as family labour on their own farms if any, as paid agricultural labour on others farms esp. during harvesting and threshing of grains and as cleaning women in the near by town. Largely, the greatest subsistence is derived from working as cleaning women, because of lack of earning opportunities through agriculture in the village, esp. with the introduction of tractors and threshers on large farms esp. that of the Sarpanch (he has a total of 100 acres in the village). Most women sought wage-work because of economic deficiency in the family caused either by lack of inadequate assets like land or illness/ death of spouse in the family or desertion by son. And most (i.e those who are not single but have families to support) combine together a no. of economic activities and not merely one. Most women have sensed a decrease in intensity and extent of participation in agricultural farm work from the time of their childhood to today, after marriage and kids and they believe the change has been owing to the introduction of mechanical implements on farm that have replaced human labour. They also feel that men no longer seem interested in farmwork, instead prefer to find work outside of the village, in the nearby town. Its only the men who have the large tracts of land and machinery who stick to agriculture. However even here, the second-generation of Green Revolution does not prefer agri-

culture to the lure of professionalism in the town. On the whole then, the introduction of mechanical implements have replaced human labour. On the whole then, the women in the village take on the agriculture (of both landed and landless households) activities (i.e. only that which is performed by hands and feet and not machinery), they take on the household chores and that of feeding the families through any kind of work which fetches money. Most of the respondents had parents who had land but was sold off because of marriages of their daughters and the daughters were married into families with uneconomic land-holdings. Because of this they had to sellout their labour (as unmarried girls did not work for a wage, but as married women they did/ had to). In agriculture the activities that were not mechanized were done by women, esp. harvesting and threshing. More of the women have never used, touched, wanted to touch the tractors, the most visible agricultural machinery in the village. Most of them felt scared to even touch them and saw it merely as something operable by the men. They saw their hands and feet as the most dependable and safest-means to work with. The women workers then, have alienated themselves from the new technological innovations and this alienation is acute esp. in face of complete lack of state initiative in creating women's orientations programmes towards social acceptability of this technology. The state assiduously maintains the cultural division of labour in terms of class and gender. Technology then has alienated women's from its use and taken over agriculture activities which could be income-earning for these women. Hence, with no letup in price-rise, illnesses/

death in the family, uneconomic landholdings, no money to buy new technology, its has not been easy for these women, to say the least. They have combined atleast 3 wage-activities to continue to sustain the family they have contributed every penny to the welfare of the family which essentially means food. Most of them have not spent for ages on themselves, while their husbands have-primarily on liquor, beedis and clothes. The amount spent-on the family by the husbands is often less than half of the salary, without even knowing what the total consumption expenditure is in the family. There is always a superior sense of assumption about family maintenance expenditure that they carry. This assumption also emerges from the belief in the "taken-for-granted" kind of quality to the wife's role in providing for the family anyway and anyhow. Apart from earning for the family, the women have to work almost singlehandedly with often the daughter helping out inside their homes, cooking, cleaning etc. Often the women also walk distances to collect the increasingly sparse wood and water. Together then, the women work a minimum of 16 to 20 yrs. a day for 365 days in a year! Sounds melodramatic, but there's nothing as culturally, physically and emotionally draining as this, and would never be. And the worst part of this is the fact that women take it as their cultural and moral duty and obligation, rather than see it as part of and manifestation of the exploitation of the larger patriarchal system. If women were to see their work as exploitative and calculate their exploitation in economic terms, then we would do probably see an overturned, "no-longer-skewed", patriarchal system and there would be chances of women receiving their due. But then patriarchal-capitalist system functions/

thrives only on subjection of women-their housewification and consequently, undervalues and derogates their work. For a system that lays primacy on economic terms, concepts and valuation, surprisingly, excludes women from these categories (overstating its links then, with the patriarchal system). 'Housewification' has meant extraction of labour without payment; the sheer economic category here is then linked with cultural ideal-types vis-a-vis women i.e.-women labour for the family, not with the expectation of reward but with the innate need to shower love and happiness on members of the family. Hence, women labour within homes and outside without expectation of the "true values" of the labour. While working outside, women's work is undervalued because she's normally not expected to be anything but a housewife. And since she is essentially that and not an earning member, which is just a temporary phase, she cannot be enumerated as a worker. And hence, she is paid less/displaced without qualms. Technology espouses these very beliefs and hence when introduced within a cultural environment as above, it cannot help but displace women (unless it is meant to intervene specifically in women's work). It displaces women outside home thereby increasing poverty without any relief from their spouses. They then, try and survive literally against all odds.

CONCLUSION

As we have already seen, the unemployment that women's wage labourers suffer due to mechanization of agricultural operations in which they are involved, further impoverishes the households to which they belong. Their impoverishment stems from their dependence solely on the wages of their women for survival which in turn stems from the inequality between men and women in sharing the burden of poverty. The initial difference between men and women determines who does what in and outside the household. Women's work does not only include housework or wage labour but also subsistence activities as woodfuel gathering [90% in Northern India depend on wood for fuel]. This combination of work is necessitated through the responsibility the women bear and on whom lies the responsibility of nurturing the next generation of labourers. It is women who contribute all that they earn from the limited sources of employment to which they have access like agriculture. Men only contribute a portion of what they earn, the rest is siphoned off in their extra-curricular activities. Displacement of women from wage labour not only makes the households poorer in income terms but drastically reduces the consumption / nutritional levels of food intake of its members. And these consumption levels would again differ by gender. [Batliwala: Karnataka, In rural areas women have an intake deficit of 100 calories and men have a surplus of 800 calories.]

Consequently, instances of malnutrition, mortality and morbidity would be higher amongst females who belong to these landless households. (Aggarwal, 1986)

Agricultural modernization then has increased rural poverty and rural ill health. And any challenges to these consequences in the form of policy initiatives have to recognize the gender-based inequalities in the household and how they usually centre around the women. In other words household then has to be conceptually 'deconstructed' to first recognize the poor and the exploited within it and then to identified them as target groups for policies. This is to say that if women are the poorest and most exploited in the family in terms of access to income and consumption and excess of labour-time in different activities without compensation, then it is they for whom policies for employment should be made. More so, because the wages of these women are the mainstay of the household to which belong. Policies intending to alleviate people suffering from poverty should alleviate women first.

However, the whole policy-process is skewed in favour of the powerful classes and target groups merely remain so on paper. If top down effort is fret with so many problems, then the efforts to help themselves should come from the women. The case of 'Women Sangams' in Andhra Pradesh is a shining example of women's collective need to fight for their rights and those of their children with the help of CROSS, women were able to institutionalize their togetherness and through it press for loans for small enterprises which they could collectively run and benefit from.

Simply then, women's collective movement has to 'smash' the patriarchal-capitalist nexus for a better life.

BIBLIOGRAPHY

ARTICLES

- Aggarwal, Bina, "Women, Poverty and Agricultural Growth in India", The Journal of Peasant Studies, v.13 ,n.4 ,July 1986.
- Aggarwal, Bina, "Rural Women and High Yielding Variety Rice Technology in India", "Women in Rice Cultivation", IRRI, 1983.
- Aggarwal, Bina, "Women and Technological Change in Agriculture: The Asian and African Experience" in I.Ahmed (ed.), "Technology and Rural Women: Conceptual and Empirical Issues", George Allen and Unwin, London, 1985.
- Anonymous, "Sexual Division of Labour", Economic and Political Weekly, August 26, 1989.
- Bardhan, Pranab, "Some Employment and Unemployment Characteristics of Rural Women", "Economic and Political Weekly", September 4, 1985.
- Bardan, Kalpana, "Agricultural Growth and Rural Wage Labour in India", "South Asia Bulletin", v.9,n.1, 1989.
- Bhaduri, Amit, "Technological Change and Rural Women: A Conceptual Analysis" in I. Ahmed (ed.) "Technology and Rural Women: Conceptual and Empirical Issues", George Allen and Unwin, London, 1985.
- Bhalla, Shiela, "Technological Change and Women Workers: Evidence from the Expansionary Phase in Haryana Agriculture", "Economic and Political Weekly", v.24,n.43, October 28 1989.
- Bhalla, Shiela, "New Relations of Production in Haryana Agriculture", "Economic and Political Weekly", v.11,n.13, March 27, 1977.
- Bhalla, Shiela, "Changes in Acreage and Tenure Structure of Land Holdings in Haryana", "Economic and Political Weekly", v.12,n.13, 1977.
- Billings, M.H. and Arjan Singh, "Mechanization and Wheat Revolution: Effects on Female Labour in Punjab", "Economic and Political Weekly", v.52, December 26, 1970.
- Chakravarthy, Shanti "Farm Women Labour: Waste and Exploitation", Social Change, v.5, 1975.
- Chandna, R.C., "Female Working Force of Rural Punjab", "Man Power Journal", v.47,n.62, 1967.
- Chen, Martha, "Women's Work in Indian Agriculture By Agro-Ecological Zones: Meeting Needs of Landless and Landpoor

Women", Economic and Political Weekly, October 28, 1989.

Choudhary, Prem, "The Advantages of Backwardness: Colonial Policy and Agriculture in Haryana", The Indian Economic and Social History Review, October-December 1986.

Choudhary, Prem, "High Participation, Low Evaluation: Women and Work in Rural Haryana", Economic and Political Weekly, December 25, 1993.

Choudhary, Prem, "Customs in a Peasant Economy: Women in Colonial Haryana" in Kumkum Sangari and Sudesh Vaid (eds), "Precasting Women: Essays in Colonial History", New Delhi, Kali for Women, 1989.

D.Souza, V.S, " Changing Socio-Economic Conditions and Employment of Women", Simla Research Review, v.7, September 1967.

D.Souza, V.S, " Family Status and Female Work Participation : An Empirical Analysis", Social Action v. 25, n.3, July to September, 1975.

Goyal, G. and G. Bajwa, " Women in Agricultural Operations in Punjab", in R.K. Punia, ed, "Women in Agriculture", v.2, 1990.

Hanumantha Rao, C.H, " Agricultural Development and Ecological Degradation : An Analytical Framework ", Economic and Political Weekly, December 24, 1988.

Mencher, Joan, " Landless Women Agricultural Labourers in India : Some observations from Tamil Nadu, Kerala, " in "Women in Rice Farming", IRRI, 1983.

Mencher, Joan, " Conflicts and Contradictions in The Green Revolution : The case of Tamil Nadu ", "Economic and Political Weekly , v.9, n.6, January-March, 1974.

Mencher, Joan, " Muddy Feet, Dirty Hands", "Economic and Political Weekly, December 25, 1982.

Nath, Kamla, " Female Work Participation and Economic Development", Economic and Political Weekly, v.5, n.21, May 23, 1970.

Patkar, Pravin and Sarthi Acharya, " Technological Infusion and Employment Condition of Women in Rice cultivation Areas ", in "Women in Rice Cultivation", IRRI, 1983.

Sandhu, H.K, " Technological versus Economic Contribution of Women in Rural Punjab ", Social Change , v.6, n.3 & 4, September-December, 1976.

Sen, Gita, " Women Workers and Green Revolution ", in Lourdes Beneria, (ed), "Women and Development ", Praeger Publications,

New York, 1985.

Sen, Gita, " Women Agricultural Labourers : Regional Variations in incidence and Employment " , in "Working Papers, Series 2, CWDS, 1981.

Sen, Gita, " Women's Work and Women Agricultural Labourers ", in Working Papers, no.159, CWDS, 1986.

Sharma,N.V.M." Variations in and Determinants of Rural Female Labour Force Participation in Andhra Pradesh ", Agricultural Situation in India, v.45, n.9, December 1990.

Sinha, J.N." Female Work Participation : A comments",Economic and Political Weekly, April 19, 1975.

Sidhu, H.S." Wage Determination in Rural Labour Market : The case of Punjab and Haryana", Economic and Political Weekly, v.23, n.52 & 53, December 24-31, 1988.

Sisodia, J.J.,etc," Impact of Rural Development on the Economic Status of Women" Indian Journal of Agricultural Economics , v.40, n.4, October-December, 1985.

Singh, K.P," Career and Family Women's Two Roles ",The India Journal of Social Work , v.33, n.3, October, 1972.

Singh, K.P, " Economic Development and Female Labour Force Participation : The case of Punjab ", Social Action, v.30, n.2, April-June, 1980.

Soltani, G.R " Effects of Farm Mechanization on Labour Utilization and its Social Implications ", Indian Journal of Agricultural Economics, v.29, n.1, January-March, 1974.

Verma, T.et al, " Decision Making of Farm Women Under Adverse Conditions in Haryana ", in Chetna Kalbagh, ed, Women and Development, v.2, 1987.

BOOKS

Aggarwal, Bina, Mechanization in Indian Agriculture : An Analytical Study Based on Punjab, Allied Publishers, New Delhi, 1983.

Aggarwal, Bina (ed.), Structures of Patriarchy : State, Community and Household in Modernizing Asia, Kali for Women, New Delhi, 1988.

Aggarwal, Pratap, Green Revolution and Rural Labour : A Study in Ludhiana, Shri Ram Centre for Industrial Relations and Human Resources, New Delhi, 1973.

Chambers, Robert, Rural Development : Putting The Last First, Longmans, London, 1983.

Census of India, 1981, A Potrait of Population, Andhra Pradesh.

Census of India, 1981, Series 6, Haryana, District Census Handbook, Parts-13-A & B, Village and Town Directory. Village and Town wise Primary Census Abstract. Gurgaon District.

Census of India, 1991, Series 8, Haryana, Final Population Totals, Paper I of 1992.

Census of India, 1981, Series 10, Kerala, Part 3 A & B 1, General Economic Tables (Tables B1-B17)

Census of India, 1971, General Population Tables, Part 2-A, Punjab.

Census of India, 1981, Series 17, Point 2-A, And 2-B, Punjab, General Population Tables and Primary Census and Abstract

Census of India, 1981, Series 20, Tamil Nadu, Part 2-B, Primary Census Abstract

Csaki, Csaba, Simulation and Systems Analysis in Agriculture, Akademiai Kiado, Budapest, 1984.

Das Gupta, Biplab, New Agrarian Technology and India, Mac Milan, New Delhi, 1980.

Dixon Mueller, Ruth, Women's Work in Third World Agriculture : Concepts and Indicators, International Labour Office, Geneva, 1985.

Ghai, Dharam, etc. ed., Agrarian Systems and Rural Development in India, Macmilan, London, 1979.

Govind, Nalini, Regional Perspectives in Agricultural Development: A Case Study of Wheat and Rice in Selected Regions of India, Concept Publications, 1986.

- Gulati, Leela, Profiles in Female Poverty, Hindustan Publishing Corporation, Delhi, 1981.
- Gupta, N.K., Women at Work in Developing Economy, Anmol Publications, Delhi, 1990.
- Gupta, D.P., Agricultural Development in Haryana, Agricole Publishing Academy, New Delhi 1985.
- Gutek, B.A., Sex and Workplace, Josey Bass Publishers, New York, 1985.
- Harriss, Barbara and Jo-Ann Mcnamara, Women and The Structure of the Society, Duke Press Policy Studies, London, 1984.
- Harriss, Barbara, Paddy and Rice Marketing in North Tamil Nadu, Sangam Publishers for MIDS, Madras, 1979.
- Hansra, B.S and A.N. Shukla, eds, Social, Economic and Political Implications of Green Revolution in India, Classical Company Publishers, New Delhi, 1988.
- India, National Commission on Agriculture: Abridged Report, N.D, Ministry of Agriculture, 1976.
- India, Ministry of Labour, All India Agriculture Labour Enquiry: Agriculture Labour, How They Work and Live: Essential Statistics, Manager of Publications, Delhi, 1954.
- Jain, S.C., Women and Technology, Rawat Publications, New Delhi, 1985.
- Jose, A.V., ed., Limited Options: Women Workers in Rural India, Work participation of Women in India, ARTEP, ILO, 1989.
- Kalker, Govind, Women's Work and Agricultural Technology, CWDS, New Delhi, 1985.
- Kaur, Harpinder, Political Consequences of Agricultural Development in India, Anmol Publications, New Delhi, 1988.
- Kaur, Malkiat and M.L. Sharma, Technology and Work Patterns of Rural Women, Rawat Publications, New Delhi, 1990.
- Khanna, Rita, Agricultural Mechanization and Social Change in India: A Study of Chambal Region, Uppal Publishing House, New Delhi, 1983.
- Khan, Shafiqua, Agricultural Modernization in India, Anmol Publication, New Delhi, 1989.
- Krishna Raj, Maitreyi, ed. Gender and the Household Domain, Sage Publications, New Delhi, 1989.

APPENDIX

QUESTIONNAIRE

- GENERAL INFORMATION

NAME, AGE, EDUCATION, OCCUPATION, STATUS (MARRIED/UNMARRIED),
CASTE

- Specific Questions

Displacement of Women's wage labour from Agricultural Activities?

- i) Do you work for a wage? Yes/No
If Yes, When did you begin working? Why?
What do you do?
If No, why?
- ii) Has this work continued? Yes/No
If No, Till which year did you do this work?
Why did you stop working?
Did you shift to any other work? Which work?
- iii) Has this work continued for others who were working along
with you? Yes/No
If No, What other work do they do?
- iv) Did your parents work for a wage? What work did they do?
- v) Did your parents have any land? If Yes, how much?
Do they still own the land? Yes/No
If No, What happened to the land?
- vi) Would you rather work in Agriculture than other activities?
Why?
- vii) Were machines on farms reason for your displacement?
Yes/No
If No, What are the other reasons for your displacement?
Do you think you have been displaced?
- viii) Have you used any mechanical equipment on farms?
Yes/No
- ix) If No, Do you even know about these equipments? Yes/No
- x) Do/Did you ever want to use them? Yes/No
- xi) Which agricultural implements do you know of?
- xii) Are these implements now used in those activities in which
you initially worked?
- xiii) Who uses these implements now?

Survival Strategies.

- xiv) Do the men in your family work? What do they do?
- xv) How many others are there in your family?
- xvi) How much do you and your husband together earn?
- xvii) Is it sufficient to feed the family?
- xviii) Do you spend on yourself? Why?
Does your husband/sons spend on themselves?
- xix) What if you did not earn at all?
- xx) How much time do you spend in household work?
Who helps you?
- xxi) Do you feel housework is a 'waste'? Do you think you could use the same time to earn more?
- xxii) Do you have any time-saving cooking medii at home?
- xxiii) Do you go out to search for fire-wood, collect dung to make cakes for fuel, water from wells etc.?
How long have you been doing this?
Is this getting more difficult for you? Why?
Does any one help you in this?