COLONIAL REGIME AND STATE-LED MODERNITY: AN EXAMINATION OF HEALTH DISCOURSE IN COLONIAL INDIA (1857-1943)

Dissertation submitted to the Jawaharlal Nehru University

in partial fulfillment of the requirements

for the award of the degree of

MASTER OF PHILOSOPHY

PRAVINKUMAR RUPRAO SHIRSAT

Centre of Social Medicine and Community Health

School of Social Sciences

Jawaharlal Nehru University

New Delhi-110067

India

2011

CENTRE OF SOCIAL MEDICINE & COMMUNITY HEALTH
SCHOOL OF SOCIAL SCIENCES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI - 110 067

Date: 25th July, 2011

CERTIFICATE

This Dissertation entitled "COLONIAL REGIME AND STATE-LED MODERNITY: AN EXAMINATION OF HEALTH DISCOURSE IN COLONIAL INDIA (1857-1943)" is submitted in partial fulfillment of six credits for the award of the Degree of MASTER OF PHILOSOPHY of Jawaharlal Nehru University. This dissertation has not been submitted for the award of any other degree of this university or any other university and is my original work.

Pravinkumar Ruprao Shirsat

We recommend that this dissertation be placed before the examiners for evaluation

Dr. Ramila Bisht

(Supervisor)

RAMILA BISHT
Centre of Social Medicine and Community Health
School of Social Sciences-II
Jawaharlal Nehru University
New Delhi - 110067

Prof. Rama V Baru

(Chairperson)

Chairperson
Centre of Social Medicine & Community Health, SSS
Jawaharlal Nehru University
New Delhi-110067

Content

List of tables

List of figures

ACKNOWLEDGEMENT

I am thankful to the social mass who is suffering from social injustice, hunger, poverty and ill health for being continuous source of inspiration to achieve higher education. I would like to express my heartfelt gratitude to Dr. Ramila Bisht for her continuous guidance and support, enduring generosity and inspiration since last five years and especially for last two years of my M. Phil. Her support and counsel have made many things possible for me. All shortcomings that remain despite all her good advice are my own responsibility.

I extend my gratitude to the faculty of the Center for social Medicine and Community Health, JNU, especially to Professor K R Nayar and Dr. Sanghamitra Acharya.

I would especially like to thank Panchi for her support and help in difficult times. I am indebted to Rabi Prakash and Manohar for their fruitful discussions and kind help in several other ways.

I do not know how to thank my family, my parents, brother Ravindra and his wife Priya. All of them have helped me in several ways some time I have realized some time I did not.

Last, but not the least, I would like to thank my friends in JNU for making this an enjoyable learning experience.

Sincerely,

Pravinkumar

CSMCH, JNU New Delhi

Be your own guide.

Take refuge in reason.

Take refuge in truth.

- The Buddha

INTRODUCTION

Being human as a biological entity, we are equal everywhere in this world. We might be equal in our biological edifice but we are not equal in living and enjoying our life. Our joys and sorrows differ according to geographical, material and socio-political conditions around us. Since the beginning of life we are suffering from a potent form of traditional sorrow that is disease and death. This disease and death comes to all human beings in different forms. We are equal but still we suffer different sufferings and different death. Why it is so, that we suffer different death. Answer to this question lies in the very organization of human society, as it has evolved over a period of time. In its organization and development, human agency is fighting with tensions; it has evolved from history of dominance, dominance of men over men, men over women, nature and every other species we live with. This dominance is outcome of power of human intellect. We the humans practice this power to dominate nature and each other apparently to live a life free from disease and to prolong death. Throughout human history, everywhere in the world man is haunted by disease. The history of world tells us that humans have fought with their traditional enemy the disease, at the same time used this enemy against each other to establish their power over each other. Humans have ingeniously tried to escape from disease and consciously or unconsciously spread the disease from one society to another.

In living together we are continuously fighting with the ill effects of external and internal environment on human body. There are examples of great civilizations getting perished on account of diseases. We fight to protect our self and our communities. This struggle is continued since ages. In this struggle societies develop their mechanism to deal with problems of ill health. Each era we made efforts to remain healthy and developed practices to remain healthy, though the reasons in each period differed for various societies. Early man tried to remain clean and dispose excreta in hygienic manner for religious reason. The purpose of doing so was not to protect him from disease. To cope

with the fear of death he took salvage in the supernatural powers. Lack of knowledge and tools to relate the disease with its cause made him helpless. This helplessness of human to explain the cause opened up doors for religion to take charge of such matters. Disease epidemics then were related to curse and sin. Later this shaped the cause and effect relationship between moral behavior and disease. And in this way the disease for the first time became a tool to control population. Religion and religious institutions have always been in the forefront to shape ideas of health and impose moral decisions regarding health. In the early middle age, Europe observed leprosy as an important health problem where church took initiative to isolate and circumscribe the freedom of leper using the guiding principle 'the concept of contagion' embodied in the Old Testament (Rosen, 1958, p. 29). In Indian society Hindu religion used the concept of rebirth and past life sin to prove the spiritual impurity of the leper to morally justify the exclusion. Further extension of religion was to control human body. The victim of this control were vulnerable sections of society especially women in case of Hindu society[1] (Harper, 1964 pp. 151-97). The chief defense of isolation was used as protection from every threatening disease.

The story of black deaths takes us to another important institution- the state, with the intervening in the peoples' life to maintain health of the people for political reasons. Bernabo Visconti, Duke of Milan promulgated a decree in 1374 that the plague patients must be removed from the city and to isolate the persons attending plague patients (Rosen, 1958, p. 68). Diderot emphasized the crucial role of infant mortality and growth and decline of the population and state intervention to reduce infant mortality for increase in the number of subjects (Rosen, 1958, pp. 69-70).

In later period the understanding regarding health was guided by the principles of miasmatic theory. In the backdrop of two major cholera epidemics in 1850s, the German

[1] Religion controlled biological bodies by intervening in physiological processes such as menstruation and child birth to isolated individuals till the processes or rights of purification has not performed

scientist Justus von Liebig wrote that the 'preservation of the wealth and welfare of nations, and advances in culture and civilization depend on how the sewage question is resolved'. It is important to note the issue of sanitation marked the beginning of any public health action. Further to add, Rudolf Virchow in 1849 elaborated that epidemic disease are manifestations of socio-cultural maladjustment bringing in the structural factors and organizations, in the discourse of health and disease. Foucault in his paper on birth of social medicine observed, that social medicine originated as state medicine and was implemented through police in Germany (*Polizeiwissenschaft*), where in newly established modern state was interested in the bodies of individuals who constitute a state. In France it was the political anxiety of the spread of disease from poor to rich which led to the appearance of city medicine. In England it emerged as labor medicine for protection of bourgeoisies' class interests. The interest of the socialization of medicine was in control of the health and the bodies of needy classes to make them fit for labor and less dangerous to the wealthy classes. From English example Foucault concludes that socialization of medicine brought poor under control (Foucault, 1998).

Since its origin development in the field of public health has been intrinsically linked with power and dominance. Health and disease assumes a question of politics, economy and social relations among classes, social structures, organisations' and state. Therefore the history of population health has an intrinsic link with the history of power. The burgeoning literature on public health is repeatedly bringing to our notice that, the crux of the health of the people is lying in innumerable determinants, especially in the socio-economic and political realm. It is in this light, not only biological but also the social and political determinants of health assumes importance since health in itself cannot be seen as a medical category and something which is quite disjoint with society and social action. It is therefore important to extend public health investigation to the broader structural factors.

Development of health system is a political process. The process here indicates continuous happenings on the front of health care delivery on a scale of time. Therefore I would say that the politics of any system cannot be understood without getting into the genesis of the system and understanding the history of it. We must look into the genesis of power and power structures. Therefore in case of Indian health system the colonial past of the country assumes importance. Thus in this particular study I have made an attempt to understand this process of development of health system through the lense of history looking into the major political and historical events that shaped the development of the Indian health system

Nineteenth century witnessed a radical change in human history. This change came in the form of modernity and development in science and technology. The scientific domination of nature (including human nature) became emancipatory. It "promised freedom from scarcity, want and the arbitrariness of natural calamity," (Scott, 1998, p. 97). The western economies transformed from primitive to capitalistic advanced economic order. The structures of past collapsed such as feudalism and old governing system. New state emerged in the form of nation state. People started electing their own government. This democratic state was supposedly more responsive to the needs of people. Liberal conception of state emerged with the modernity in West.

World in the nineteenth century was shaken by the improvements by the development of science and technology. Underlying principle of this development was of modernity and supposedly faith of people in equality, liberty and fraternity. These values brought radical change in the life and thinking of the western societies. This development divided the world in two categories, first group of countries which went through industrial revolution and second set of countries which did not go through this revolution. Over the progression of the time the countries in the latter category tried to progress to the former category. The western countries become 'Flag Bearer' of the modernity and proclaimed to bring modernity to the underdeveloped world. This phenomenon of modernizing the primitive world was called processes of civilization. Introducing this modernity had

political reason than moral[2]. These political reasons turned the discourse of modernity into its instrumental form which was convenient for the western rulers for the purpose of governance and extracting resources from the colonies.

In the West, medicine evolved with the above changing economic and political context. It took shape in form of organized action against the challenges' posed by the industrialization and rapid urbanization. Hunger poverty, living conditions, working conditions were the social issues that dominated discourse of public health in the first half of the nineteenth century. Malthus, Chadwick, or Fredrick Engle for that matter William Farr a statistician more than a doctor they all demonstrated that medicine is not the business of only doctors. At this time the medical profession was too weak and unorganized to take up the challenges posed by the industrialization. The medicine was shaped by engineers, architectures' and bureaucrats politicians in the first half of the nineteenth century. These health planners perceived disease as an uncomfortable expression of body due to the social and psychological effects. Mind and body was one entity. According to Chadwick and Engel it was the pathology outside the body causing the disease. To add to this understanding in 1818 Joshep Ayre found that combined effects of poverty have stronger effects on health than that of the individual factors of poverty (Hamlin, 1998, cited in Arnold, unpublished. p.6.). The focal issue was concern towards health of populations. This population based health approach emerged in the light of emergence of nation state in the modern era. State was playing a crucial role in every affair of the life of the people. Health became moral obligation of the state. The object of intervention and experimentation were poor working class which was living in the wretched health condition. The concern for health of the poor people surfaced out of three main reasons the first was need of able bodied men for production the second was socio-political anxiety and the third was fear from the mounting inequalities and threat of revolt as consequences of inequalities. In the entire above three reasons one thing is peculiar that all these three were threat to existing class relations and interest of bourgeoisies class. Whether it was Haussmanns plan of reconstruction of Paris or

[2] Obligation of western societies to enlighten the underdeveloped countries and civilized them supposedly the White man's burden.

Chadwick or Farr's medicine, it was used to regulate the class relations (Foucalt, 1980, Scott, 1998). But one thing is clear that the disease was understood in the social and political context of human bodies. The goal of the medicine was social. This is how the social, economic and political issues dominated the early modern discourse of development of medicine.

This approach to the health and health planning in the nineteenth century gained good result for England. Despite the fact that it maintained the capitalist production relations, the health and longevity of Britain's population improved after early nineteenth century. This important fact cannot be ignored. The reason for this development is credited to the decline in deaths due to infectious causes. McKeown investigated various social and environmental factors which played important role in reducing the deaths caused by infectious diseases well before Robert Koch postulated new causation of disease in 1884. The decline in mortality due to the infectious diseases, McKeown argues was because of the improvement in diet and change in agent host relationship. Improved wages and production resulted in better access to food and better clothing leading to advancement in standard of life especially impinging on diet and personal hygiene. Although it has been argued that the health action was initiated to maintain bourgeoisie production relationship it cannot be denied that it resulted in increased in the longevity of the working class who were suffering premature deaths.

McKeown argues that prior to medical interventions health in the nineteenth century England and Wales improved (Thomas McKeown, 1972). And this could happen because of the reorganization of the social, political and environmental factors along with consideration to these factors in understanding health disease[3]. What made this possible was the transformation that was taking place in all the spheres of the development. This transformation reorganized the sociology, demography and economy of England that lead England to attain the certain goals of development. This transformation is what we

[3] Chadwick's sanitary movement.

understand as the process of modernity. This approach has resulted in better life conditions for people from all sections of the society.

In the later period of time after advancement in the understanding of disease causation and fields like pathology, bacteriology and biology the understanding of the subject of health shifted its focus from social to individual factors. The rise of technology and disease centered pathology changed the discourse. From Koch discovery of the germ, germ theory started dominating the discourse of health making health technical issue. Medical professionals took over the health domain; now it was no more the concern for other disciplines. Mind and body were separated. The approach to health became more and more individualistic treating the pathology inside the body of individuals. The need of people also changed with this development. Now the working class started pressurizing the state to organize health care. The demand for curative health increased. This might be because by this time society has reached to the level where the initial factors i.e. poverty, living and working conditions in the later period lost their significance. Therefore the changed approach of individualistic care, organized system of health is organized around curative principles and modern technology in England (Yadvendu, 2003).

The rise of a capitalist industrial economy, the growth of modern state institutions and resultant transformations in the nature of social power, the emergence of democracy, the decline of the community and the rise of strong individualistic social conduct are among the various distinct features of modernity (Kaviraj, 2010). These changes could be traced in the development of medicine in the West in nineteenth century England. The medical field was becoming more bourgeoise, hospital-centric and individualistic. Medicine was showing typical modern character in its transformation. This transformation began from the social to individual and more technical. These developments in field of medicine and allied sciences are crucial as they have shaped the health action and organization in colonial India. The later individualistic technical notion of medicine dominated the

discourse of health in colonial India. Holistic approach remained feeble in the context of utilitarianism, empiricist politics of state thus making health action instrumental. These are some of the major developments in the field of medical science which were informing the health discourse not only in the Europe but all over the world.

India being a colony in possession of England was nevertheless exempted from these developments. The colonizers brought their science and technology to India. This is how they justified their presence in the colonies.Accordingly this was the project which was to transform the uncivilized societies into a civilized one. This is what is understood as modernization. Scott in his book "Seeing like a state" has argued that the project of bringing high technology was an attempt to control the nature and show the mastery of western race (Scott, 1998, pp. 103-146). For nineteenth-century high modernists, the scientific domination of nature (including human nature) was emancipatory. It "promised freedom from scarcity, want and the arbitrariness of natural calamity. Scoot observes it as "high modernity". According to Scott 'every high modernist intervention was undertaken in the name of and with the support of citizens seeking help and protection, and, second, that we are all beneficiaries, in countless ways' (Scott, 1998, p. 96). Further he claims that when these various high-modernist schemes were introduced to the colonies they turned out to be political rather than modern.

According to Mitchell,

> 'Modernization is commonly understood as a process begun and finished in Europe, from where it has been exported across ever-expanding regions of the non-West. The destiny of those regions has been to mimic, never quite successfully, the history already performed by the West.' (Mitchell, 2000, p. 1).

The project of modernization in the West has a long history. This process began with the recognition of individual freedom, recognition of citizenship and emergence of nation state. According to the principle of modernity 'the main objective of a polity would be to preserve its members' life, property, and freedom. This idea constitutes the foundation of

modern Western civilization' (Rajaee, 2000, p. 27) In case of colonies all of these ideas were undermined. At once the claim of colonial state to modernize and on the other hand undermining free will of individuals and imposing an alien rule shows the dual character of the colonial state. This duality can be understood in the governmentality of that time. By governmentality I mean the rational of the state to act in the interest of the nation. In the broad sense it is techniques and procedures used by the state for directing human behavior. Foucault understand governmentality as an art of governing on the basis of principles that could be traditional virtues, "wisdom, justice, liberality, respect for divine laws and human customs," or from common abilities, such as "prudence, thoughtful decisions, taking care to surround oneself with the best adviser." (cited in Rose, et. al 2006, p. 84). Using these principles the state derives power and directs behaviors of the citizen/subject. The principle of governmentality of the modern state should be liberalism, but Foucault argues that the state does not necessarily adhere to the principle of liberalism. Rather it develops mechanism (police, army) to exercise its power in various aspect of political and social life of people to achieve its goal (Foucalt, 1980, pp. 166-183). These mechanisms are used by the state to justify the art of governing. The state being a distinct entity from that of nation, not necessarily has goals similar to that of nation. In such case where the goals of nation and the state differs the values from where the state acquire the power determines the art of governing. These values become the goal of the state. In achieving these goals the art of governing depends on who is governed and why they are governed. Therefore the govenmentality does not remain only the exercise of power but it also becomes as Antonio Gramsci observes hegemony and domination at the level of ideas (cited in Rose, 2006, p.85). The colonial state with the project of modernity was hegemonising the discourse of science and knowledge. This had deeper implications on Indian society.

In this context this project is an attempt to examine the politics of introducing the project of modernity its application and impact on the discourse of health and health planning of colonial India.

The objectives

- To study the agenda of the British rulers of civilizing natives in India in terms of ideology, institutions and technology and its impact on the development of health action in India.
- To study the approach of the colonial governmentality and its implication on health in colonial India
- Implications of colonial modernity on Indian society and nationalist health planning in colonial India

Sources and Method

The research is grounded in historical and political economy and theoretical works. It takes cognizance of the historical literature which exists on health, health systems development in India and politics of health. The methodology of the study mostly relies on extensive review of the published literature/ document/reports/other government publications.

The material reported here come from the variety of sources. At the same time to generate evidence to supplement the main arguments secondary data are used from various sources. In order to conceptualize the research question literature search was begun by searching internet articles mostly from the journal of medical history. From these articles cross references were identified which matched the topic. A list of such books was created. These books were searched on internet, and those available were selected for the purpose of the study. Further using key words like Colonial medicine, history of medicine, modernity and health, colonial modernity internet search was done on website such as www.library.nu and Jstore online journal data base. Relevant books and articles available were downloaded and used for the purpose of the study. Reports and government documents published were collected from the documentation cell of Centre for Social Medicine and Community health and Jawaharlal Nehru University

library. Historical work done by major historians and books published on economic and political aspects of health were used as secondary source to built perspective to comprehend the subject. To make comprehensive understanding of the concepts, articles, reports published at various point in time and debates around health and health system were studied. Additionally, electronic archival material was among main source of information and has been used extensively along with notes, letters and communications published on web site www.archieve.org . Along with this, the dissertations, PhD thesis and research papers published on plague, cholera and malaria were studied at length.

CHAPTER I

IDEOLOGICAL APPROACH AND HEALTH ACTION IN COLONIAL INDIA

India as a nation is an outcome of the process of colonization. Prior to British invasion and establishment of the British rule the country what exist as India today was divided in many kingdoms and states. Different languages different cultures and geographies ruled by different rulers came under British rule with the spread of British rule in India. By the middle of the nineteenth century almost all India was in possession of British East India Company.

India was a vast land and huge population. How was it possible for a tiny country of Europe to rule such a vast land? What was it that they had to bring such a huge population under their control? These are some interesting questions. The British could do so because they could bring stability by using the existing system of social stratification. They disarmed peasantry, created and consolidated rural elites from dominant castes and incorporated the fighter or military castes in their military to consolidate military power (Johnson, 2008). Further British claimed to be superior and managed to convince the Indian mass about this superiority. Technology played an important part in establishing the western rule over colonies (Headrick, 1979). Modern technology was the tool of British Empire, which helped them to demonstrate their power and their ability to rule the colonies. Although it could be argued that this demonstration and use of technology could dominate and establish power , but is it not convincing that with technology alone such a huge population such as India can be ruled for such a long time. This was only possible when people accepted the rule and they do not confront. Once people reject it and starts confronting it, take no time to shake root of the biggest of the empire. That is what had happened during the revolt of 1857. But still the British

could mange with the advance guns, cannons, communication and transport to overpower the revolt.

However one can suppress the revolt by techniques and technology but long term rule demands something more. British could rule this country for a long time because they succeeded in using the existing system of castes such as Zamindars and Baniyas which very well suited for generating revenue, fighter castes for military and English educated elite for bureaucracy and governance (Arnold, 2004, Metcalf, 1995, Johnson, 2008, Nanda, 2006). The British used the complex bled of existing unequal system of social order modern technology and apperatus of modern state to rule such a vaste land and big geographically and culturally diverse population. And they justifies this rule by claming that they are bringing new civilization in the form of modernity. But it is also true that the form of modernity British brought to India was distinct from the modernity of west. This form of modernity was devoide of the universal reason and was focused on technology for better governance.

Gyan Praksh observes that colonial form of modernity was fundamentally distinct from the modernity in West. According to him:

> "(Colonial modernity was) never simply a "tropicalization" of the Western form but its fundamental displacement, its essential violation. Utilitarian theorists from Jeremy Bentham to Fitjames Stephen, including James and John Stuart Mill, had maintained that British rule in India must necessarily violate the metropolitan norm: only despotic rule could institute good government in India; only a Leviathan unhindered by a Demos could introduce and sustain the rule of law in the colony" (Prakash, 2000).

This project of modernity for the colonies was an agenda to hegemonies, to establish power and rule. This was a specially tailored package of modern ideas which

complimented the governmentality. This ideological conceptions shaped development of various forms of science in colonial India. Medicine was among the prominent tool used by colonizers in establishing this hegemony (Headrick, 1979).

Colonial modernity was different from the modernity of West. It had technology but no notion of justice and universal reason. This colonial modernity shaped the development that happened in all sectors. Health being very crucial to the modern development was no exception. The understanding of health shaped with the industrial revolution in England and accordingly it resulted in state organized health care for people. Although an organized form of health care was implemented in India, it acted as tool to fulfill the imperial goals. The teleology of this system was to feed into utilitarianism to achieve imperial goals. In serving this purpose the health action and institutions followed the colonial modernization i.e. making the technological solution to the health as core to organize health services. The purpose of this colonial modernization was to hegemonies; the logic was utilitarian rather actual welfare of the people. That is the reason why in colonial time the colonizers claim to bring modernity was not a true claim. They were not bringing liberty to the people but they came with new chains. This project of colonial modernity is full of contradiction and irony.

In this context this chapter will discuss the agenda of civilizing natives in India of the British rulers in terms of ideology, institutions and technology and its impact on the development of health action in India.

The background

Nineteenth century could be claimed as an important marker in time of progression towards human civilization. In this period modern ideas were shaping the conception of societies and social order. A new notion of state emerged in this period. The state by now was playing crucial part in shaping societies and prevailing in all domains of human life. Whole world was in the race of modernizing. The industrialization in West had strong underpinning of belief in the scientific knowledge, technology and utilitarian logic. For the growing satisfaction of human need, state projects were launched for expansion of production and rational design of the social order. Society became an object for experimentation with scientific rationality (Foucault, 1998, Scott, 1998). The rationality of these projects was control and mastery over nature. The outcome of this logic was pride in the scientific knowledge. The scientifically organized social order was considered to be superior to the traditional one. With this pride, the structures of past collapsed, which were suppose to be non- modern, based on the foundations of religious prejudices. Technical solutions were proposed to reorganize societies. Invariably technical solutions to the problem in the all fields of human activity were forced by the reason of the utilitarian state. Scott in his analysis observed;

> "The point of the Enlightenment view of legal codes was less to mirror the distinctive customs and practices of a people than to create a cultural community by codifying and generalizing the most rational of those customs and suppressing the more obscure and barbaric ones" (Scott, 1998, p. 90).

This radical modernization assumed authoritarian power to bring desired social order. Public health action in colonial India typically progressed on these underlining principles. Emergence of new social order with demolition of old by introducing despotic technological projects went at odd with the modern democratic principle. Scott observes this phenomenon of technical project to establish new social order as High Modernity (Scott, 1998). There are ample examples of this from West such as Haussmann's plan of reconstruction of Paris (Foucault, 1998;Scott, 1998).

The functionalist would understand modernity as 'the ideas and institutions which tends to produce societies similar to those of the modern West' (Kaviraj, 2010). This replication of the West includes creations and operationalization of modern institutions which did happen in India. In classical 'Marxian' or 'Weberian' understanding, India was suppose to go through some distinct features of modernity such as change of production relations from feudal to capitalist and industrial mode of production, growth of modern state institutions, reorganization of social power and emergence of democracy along with decline of community and emergence of individuality (Kaviraj, 2010). However the reorganization of the society never took place as the state claiming to modernize used the old social order for the purpose of governance. The whole machinery of the state was running through the high level of bureaucratic system. But it failed to obtain modern social order. It could not break the social power structures it failed to bring democracy in any segment of development including health. The people in India remained member of a specific caste group and individuality remained a way far. The shift from society to individuality never took place. In reality in this transformation the modern democratic rights of people in colonies were undermined on account of utilitarian state. Thus the modernity of colonial time became instrumental. It got limited to solution of problems of human wants rather thought process of society.

Therefore modernity in the West and in the east differed. There is no coherence in the forms of modernity; there is no homogeneity in Eastern and Western form. Although the production relations were changed up to some extent due to diversity to dilute the existing job market by opening another opportunities for rigid caste based occupational structure it failed in reorganizing power structures (Arnold, 2004, Kaviraj, 2010, Barbara & Thomas Metcalf, 2006)

If the idea of modernity originated from the West and came to East from the West with Western colonizers it should have had the same principles. What made it to offer different modernity as that from the West? Why it could not change the social

organization of power and change the organization of the society in colonial time? This failure can be attributed to the governmentality of the colonial state and very organization of structured Indian society. In the time of consolidation of raj the system of caste and the feudal landlords were used for military, agricultural production, trade and revenue by the state. In doing so it consolidated the old feudal lords and made them powerful[4]. In this structure, those who were at the top accessed these new ideas and started following them. Also the new liberal ideas were accessed through western form of education. This education was available to few Indians; it was not for masses. These western educated elites later turned out to be leaders of nation. They inherited the ideas of modernity from the West and imparted in the planning of new India. Naturally they were the one who had power in the previous system and this power remained with them. The ideas changed but the structure remained the same. Power remained with the same elites (Barbara D Metcalf, 2006, Arnold, 2004, Nanda, 2006)

Public health was part and parcel of the larger agenda of modernization. Health action in the colonial time was propagated and controlled by the new modern institutions and technology. These technical interventions were applied in the health actions selectively and instrumentally. The Indian context was totally ignored as these projects were not led for the welfare of the Indian mass rather they were for the need of governance (Ramasubban, 1982).

[4] *Zamindari* system is good example

Colonial Rationale of modernizing colony

Constitution of Britain acknowledged that people have the right to select their government. Carstairs (1891) justifies this right as he sees British race with fighting spirit, compassion and believer of same faith Christianity the faith of love. According to Carstairs,

> "England is an organic being, jointed and strung together, living as one, with a mind to think, a heart to feel, and hands to do. It needs no control from without, for it is a law unto itself. It makes, respects, obeys, and enforces its own laws, and in this work all have to aid, since the law is the best guarantee for the freedom of each". (Carstairs, 1891, pp. 14-15)

In the nineteenth century Europe, England was flag bearer of liberty and freedom of speech. Although the British people were bound to this principle, they in turn were ruling over their colonies. This was an important contradiction in the British rule over India. For the nation which respected freedom of its citizens, it had Indian subjects under its rule. It was hard for colonizers to justify foreign rule and this was an ideological irony. In order to solve this ideological problem the colonizers hegemonise by using notion of racial superiority and West as civilized society and colonies as uncivilized.

Indian people were considered to be barbaric, lacking fighting spirit, compassion and love towards their own family. What makes British people to choose their government was their freedom and respect of freedoms of others with maintenance of individuality. On the contrary Indians were supposed to be in bonds, the chain in which they love to be. These chains were of their religious and caste identities. And these religions were not supposed to be based on the principle of love as that of Christianity. While describing Indian society many western writers wrote about inferiority of the Indian race as compared to the western race. Carstair compared British and Indian race and deemed Indian race to be inferior to that of British hence not worthy of governance.

> "While men in India do not belong to one great sensitive body as do the people of Britain, each of them is attached far more closely to the more limited body of which he is a member. The Englishman is a man first, and a member of society afterwards; the native of India has hardly yet grasped the meaning of "*man*"—he is only a member of society. He does not understand value, or seek *the glorious privilege of being independent.* The bond which attaches him to his caste or the society to which he belongs is too great to be broken without a shock." (Carstairs, 1891, p. 20)

Indian scholar at that time adopted similar kind of view. English educated Indian elite at that point in time also seems to be under the same notion and following the same school of thought while assessing the Indian society. One of the eminent Indian economist of that time Jadunath Sarkar while comparing the Indian race with the western proclaimed that western race was entrepreneurial and always rational. This made them practical and materialist and aspiring for development. Whereas the Indians' were believers of fate, more spiritual and not into generating new knowledge. According to Sarkar,

> "The English race is methodical, cool-headed, strenuous and thorough in all they undertake. Their minds are self-confident, filled with a divine discontent with things as they are, and ever reaping something new, That which they have done but earnest of the things that they shall do. The Indian labouring classes (if generalisation be permissible in the case of such a vast and varied population) are slack-nerved, easy-yielding, awed by the stupendous forces of Nature and the might of Fate, and, though generally industrious and sober, apt to be led away by occasional outbursts of impulse or passion, habitually conservative, believing in the wisdom of their ancestors, fond of letting things alone. In their present stage of neglected education, they are essentially mediaeval in their thoughts" (Sarkar, 1917, p. 51)

Indians were deemed to be spiritually and morally corrupt lacking values and virtues and in the need of a savior. They lacked the civilized way of living and hence they needed to be civilized. They needed a uniform fighting power, unity, independence, honour for their women, and love in their religion (Carstairs, 1891, p. 22) British with their modern virtues were supposed to fulfill their wants, to make an Indian a man and then only they would be able to choose their rulers. The British rule coming with its religion of love and idea of freedom, honour and respect would free them from all their moral sufferings. 'By the 1850s and 1860s Christianity was for most Englishmen increasingly a mark of their own difference from, and superiority to, their Indian Subjects' (Metcalf, 1995). Casrstairs in his book mentioned that Indians were in bonds and the aim of the British government was to free Indians from their bonds.

> "We believe that cowardice, folly, and all such defects can be cured. Freedom is health; and it is the heavy but noble task of the British nation to restore to health the suffering peoples of India. The British nation, as ruler of India, having determined to give freedom to the peoples of India" (Carstairs, 1891, p. 25).

The main subject of condemnation of Indian society was its religious belief and a culture based on Hindu religion. Sir William Jones's claimed,

> 'That, the Hindus did not possess, and never had possessed, 'a high state of civilization'. They were rather a 'rude' people who had made 'but a few of the earliest steps in the progress to civilization'. There existed in India, he wrote, a 'hideous state of society', inferior even to that of the European feudal age. Bound down to despotism and to 'a system of priest craft, built upon the most enormous and tormenting superstition that ever harassed and degraded any portion of mankind' (cited in Metcalf, 1995, p. 30)

In this way the culture and the beliefs of the natives were used by the colonizers to prove racial superiority. Along with the culture and beliefs, disease has also played a central role in conceptualizing indigenous societies for Europeans. Tropical diseases were used by Europeans to condemn natives as inferior. Their diseases were related to the moral

degeneration and barbaric nature of the natives to prove superiority of white race. The reason for doing so was of course the idea of racial supremacy and pride of Britishers on their scientific understanding of disease causation (Arnold,1988). Diseases and epidemics in the tropical regions were smartly used by colonizers which Arnold mentions as 'biological imperialism'. This helped Europeans especially Britishers in India to establish Europeans crops, animals and disease at the cost of natives (W. Crosby cited in Arnold,1988)[5].

This racial notion was used to justify the British rule over India. This solved the ideological irony of holding liberal values and holding the colonies at a same time. The Indians were generally understood to be barbarian and the process of colonization as the process of bringing enlightenment and modernity to the barbaric Indian society.

The above understanding set the background for the project of modernizing colony. Racial notion served as guiding principle to shape all development happened during colonial rule. And the project of modernity began. As long as the colonization project of modernity flowed from West to India it brought many modern institution and western technology as part and parcel of the project of civilizing Indians. Among those police and law were crucial. Institutions of public hospitals, health centers, asylums, medical research laboratories, pharmaceutical production facilities came in to place. These institution played important role in shaping health understanding and action. Introduction of western medicine was one of the state projects among others which were supposedly bringing scientific knowledge and modernity to rescue natives from their moral and physical suffering for their progression towards 'civilised society'.

[5] Similarly Daniel. R Headrick, observed medicine among several tools of Europeans to penetrate and dominate non European world. The discovery of quinine prophylaxis opened the gates to the European invasion in Africa (Headrick, 1979).

Native Challenge

It took long time for the Indians to challenge this hegemonic racial notion. Initially Indian elites who were absorbed by the system in government services accepted this notion of superiority and the hegemony of white race in the field of science (Chapter III). This challenge was for the first time confronted by the emerging spiritual leaders and religious reformist leaders. Bramho leader Kesab Chandra Sen praised the discoveries' made by the western science and the comfort it has brought to life but he condemned its material basis and deemed it inferior to the Indian spiritual way of life (Arnold, 2004).

Dayanand Saraswati and Vivekananda claimed the discoveries to be similar to the science in Vedas. Vivekananda appealed to the people of India to accept *Vaidic* science and learn Vedas. C V Raman's contribution to the field of physical science and noble prize awarded to him in 1930's challenged the hegemonic notion of the western dominance over the science and intellect. Asiatic society argued on the same line of contribution of the Indian to the field of science. Bose argued that mathematical science was cultivated by Indians since ancient times (Arnold, 2004). In the medical research and development the experiments conducted by the Europeans were condemned and protested by Indian people time to time for their alleged use of animals in their experiments. Indians tried to revive the ancient traditions of knowledge to establish Indian knowledge system as against the western. Drawing from Aurvedic science and use of chemistry Prafulla Chandra Ray came up with the idea of Hindu Chemistry. Because of lack of rigor in the arguments and consideration of religion as knowledge and science the spiritual leaders and religious reformist did not manage to prove their point. Other educated section of the society confined itself to the view that Indian religious science has no practical value and they preferred to accept the western form of science. Jagdish Chandra Bose came up with the fusion of the eastern and the western form of science and to propose the idea of universal science (Arnold, 2004). But these efforts also could not sustained. The Indian science got dominated by the western form of science. The new nationalist leadership in the later period i.e. after 1930's such as Jawaharlal Nehru and Subhaschandra Bose were highly under the impression of the these new development in the West and its science and

technology. By this time they had started conceptualizing future India with this modern technology. Which further did not left much space Indian science to grow. In a way this was victory of the western hegemony over the indigenous science. The elite Indian groups accepted this hegemony to take native science to its doom.

Replacement of Indian Medicine by Western Bio Medical science

The conception of the colonial body significantly differed from the western body. The indigenous body was socially disobedient and spiritually impure. This impurity manifested in the form of various diseases. This native body was in the need of social and spiritual reform and hence an object for modern experiments. It required to be freed from the unhygienic habits and superstitious beliefs. This idea nevertheless was predominantly seen in the discourse of health. This colonial native body was perfect for the attention of the modern tactics, western emancipatory knowledge apparently the medical knowledge.

In case of medicine this conception of superiority and inferiority was not consistent with the time in European imagination of Indian native knowledge. Prior to arrival of Britishers, India had its own system of medicine. This native system of medicine was individualistic and was not practiced on mass scale. *Vaid* and *Hakims* use to treat patients using principle of *Ayurveda* and *Unani*. These were individual practitioners of medicine. There was no formal structure of recruiting health personal by the state. In India for the first time such effort was taken by British East India company for its solders and traders. In 1763 British East India Company regularized recruitment with formation Bengal Medical Service. Prior to 1800 due to dearth of medical professionals' colonizers used Indian medicine and practitioners as their physicians (Arnold, 1988). The reasons for using Indian practitioners of medicine was, western medical science was yet to discover revolutionary causation of disease and miasmatic understanding was dominant as that in the Indian medicine. Therefore there was still space for Indian practioners to practice their medicine for the Company.

Till middle of the seventeenth century the humoral conception of body dominated both the medical science. Delton, a French East India company physician and Bernier a doctor trained in the University of Montpelier acknowledge that the Indian physicians without opening or dissecting a body knew about the veins in the body. Also they had better success than most learned foreign physicians. They also advised western doctors to follow Indian knowledge (Harrison, 2001). European medical practitioners were impressed by the Indian knowledge of medicine and *materia medica* although they were critical about some aspect of understanding such as non- recognition to the individual constitution of the body and environment. A French man Corneille came to Ceylon to seek knowledge of medical plants (ibid). By the middle of eighteenth century the servants' of the British East India Company were predominantly served by the Indian practitioners such as *Hakims* and *Vaidyas*. William Roxburgh of Madras Medical Service found that there was an extensive exchange of the information regarding medicinal plant between European and their Indian counterparts (Harrison, 2001). In the later period when Europe's medical experience turned upside down with new discoveries and development in scientific field, it boosted the confidence of Europeans to condemn Indian science as irrational. Prior to 1800 the Europeans found virtues and translated Indian science; later they began to denounce Indian knowledge. A French travelling naturalist Victor Jaquemont declared those who learn Arabic and Sanskrit acquire useless piece of knowledge (Harrison, 1994).

The development in the knowledge of anatomy and circulation was key factor for western system of medicine which was lacking in the Indian medicine. Moreover it was claimed that the Indian medicine *Ayurveda* is mainly based on religious basis, more mythology and less practicality, therefore lacking the essential reason for practicing the medical science (Harrison, 1994). Since European practitioners were not sufficient in numbers, the Indian *hakims* and *vaidyas* were trained in anatomy. One example is school of anatomy in Lahore Cantonment in 1853. Later such programmes were opposed by the practitioners of western medicine and government abandoned teaching indigenous practitioner in western science (Harrison, 1994). The western scholars who were earlier

in favour of Indian medical knowledge, with development of science and technology began to denounce the Indian knowledge. This resulted in state apathy towards Indian medical systems and hence further resulted in decay of indigenous medicine.

This apathy toward the indigenous knowledge was out of ardent belief and pride of the Europeans in the western form of science.

The major setback of project of colonial modernity was faced by the indigenous systems of medicine. The efforts toward health in this period were more curative. The idea of prevention emerged later with the advancement in science and technology in the West. With the development of science of bacteriology, parasitological and pathology, the Europeans shifted from medical pluralism to western form of medicine in colonial India. By the late 19th century *Ayurved* and *Unani* was removed from the cantonments, government hospitals and medical colleges. With the scientific advancement in the West, contemporary ayurvedic and unani syatem of health collapsed in India. This was part of modernization of colonies. Collapse of indigenous system and replacement of these systems by formal state supported system of health based on western biomedical science.

Health and colonial modernity

Conceptualization of the native society and establishing superiority of white race and the western science can also be understood through various writing on health discourse of that time. One of the most prominent figures in the history of public health Ronald Ross was convinced with the idea of racial supremacy. According to him British rule was essential for development of Indian society. Ross claimed that Britishers were:

> "superior to subject peoples in natural ability, integrity and science ... They [had] introduced honesty, law, justice, order, roads, posts, railways, irrigation, hospitals ... and what was necessary for civilization, a final superior authority" (Harrison, 1994, pp. 6-35).

It is not the case that only the highly influential scientist subscribed to this view but health activist like Florence Nightingale and many other serving in the Indian Medical Services were also of the same view. In her notes Nightingale wrote that the creation of public health department of India as part of 'mission to bring higher civilization to India' cited in (Arnold, 1988).

This notion was not only shaping the health policies but also the medical profession. Indian Medical Gazette in 1868 declared that the Indians are of lower birth, and they are not liberal in their thinking and are not enough educated for this noble profession. It is only possible to admit them in medical profession if they are well educated in the western system of education so that they could understand the western law and abide to it.

> "We have not the slightest objection to the sons of men of lower birth being admitted to our profession, but we do insist that the sons themselves shall be, not only professionally but liberally well educated, and that they have some notion of the laws of good society" cited in (Harrison, 1994).

According to Arnold 'by the end of nineteenth century medicine became a demonstration of superior political, technical and military power of the west and hence celebration of

imperialism'. It gave expression to Europe's faith in its own innate superiority, its mastery over man as well as nature (Arnold, 1988).

Watts, in his study on Malaria observed,

> 'When attempting to account for official interest in malaria in India, it must be remembered that the British saw themselves as agents of a scientifically sophisticated culture appointed by the protestant God to bring in Enlightenment and Progress' (Watts, 1993, p. 144).

Mark Harrison argues on the same line that, fear of infection from the indigenous population provided pretext for segregation of races and public health measures were used to dominate indigenous people. Quarantine and isolation were used to control population movement (Harrison, 1994).

The notion of health understanding and action in colonial period was prejudiced, racial. It was claimed that bringing in the western knowledge of medicine was process of civilizing it rather ended in proving the superiority of Western race. The basic philosophy of racial supremacy undermined the human reason of enlightenment. The natives were supposed to emancipate from alien guidance. This approach resulted in discriminatory health actions and differential results in terms of health for Western and Indian people (See Chapter II).

Health policy in colonial period

Introduction of western medicine has history of domination. Basically it was motivated with the economic and political aspiration and that is the reason why the state used law as an instrument to force public health measures. Therefore colonial action to maintain public health was significantly different from that of policies that evolved in Britain. Non- involvement of people and use of coercive powers such as police and law characterized the public health action in colonial India. Promulgation of the Quarantine Act of 1825 marked the start of the public health. The beginning of Western medicine initiated with this Act in India. Quarantine Act was followed by series of Acts: Vaccination Act came in to effect in 1880, Birth and Death Registration Act of 1896, Epidemic Diseases Act in 1897, the Indian Factories Act in the year 1894. These are some of the important Acts which came into force to prompt public health Actions. Thus in the history of public health in India, the instrument of law has always played a major role in allowing the use the power to force public health Action..

During British rule there are many historical events occurred in different point of time that shaped the politics of India but among those revolt of 1857 holds significant importance. In 1857 the mutiny brought British to stand still and it changed the political discourse of the country. Series of important changes happened following mutiny. The first and most important was assumption of crowns rule and end of company rule, the second was Queen's declaration of 1858 and the Government of India Act immediately after recovering from the trauma of Mutiny. With implementation of this Act the state machinery became more systematized and bureaucratic. This structure dominated the British rule for more than sixty years. This was the period when most of the social reforms were brought about. Roots of development of any major service sector goes back to this period. These services include medical and public health services. The political turmoil engendered by the "Sepoy Mutiny" forced the government for immediate action to manage the crises. This crises management played an important role in the beginning in shaping health policies and system in colonial India.

1857 is a crucial period in the history of India as the war brought whole India under absolute control of British government. After war period the primary concern of the colonial rulers was health of their soldier; it was hot topic in those days in England. The issue of sanitary condition of British troops and British civilians was raised frequently by media (Harrison, 1994). To look in to the health of the military and British civilians a Commission was set up after immediate assumption of Crown's rule. Commission found that, 69 out of 1000 British troops die annually on account of disease. These findings created uproar in Britain. This Commission and the action taken to reform military hygiene in India was the first attempt in organized health action (Harrison, 1994). This is how the first seed of public health administration in India was sown in 1859.

Further in this progression, 1864 Act established a system of sanitary police and registration of deaths. With the passage of this Act, new regulatory guidelines were given to regulate hygiene of military stations. In 1864 the Military hygiene became the domain of military medical officers and civilian health of the 'sanitary commissioners'. By this time it was realized that health of European soldiers and natives could not be maintained only by directing efforts towards their physical health. In order to look into the native sanitary condition an inquiry was held by the orders of Lord Dufferin, but the prejudices' of British officers restricted introduction of major sanitary reforms in the native habitats. Insanitary conditions of the Indians were blamed to their habits. The natives were not recognized to be worthy of sanitation and hence no financial extension was done to improve sanitary conditions of natives (Prasad, 2000). Unhygienic and unsanitary living conditions according to the British officials were out of the habits of the native people. One official reported that, to 'the masses of the people 'sanitation is foolishness' (ibid). William Crooke one of the official mentioned, that the time will come when the Indians would come out of their superstition and obey the law of sanitation then they would be worthy for the sanitary provisions (Prasad, 2000). Because of such representation of the Indian society, colonizers were relived from introduction of mechanical sanitary interventations and the natives were left to the old system of sanitation i.e. the system of

caste. A few years after the first outbreak of cholera in London, Edwin Chadwick announced that

> 'The exclusive use of hand labour in street sweeping is pronounced by competent judges to be a mere barbarism, and several machines have been invented which demonstrate that by mechanical power, moved by horses, the cleansing can be effected in a far shorter time' cited in (Prasad, 2000, p. 46).

As the native structure of society had a special caste to do menial jobs and manual scavengers, British did not introduce mechanical mode of sanitary reform in native Indian habitats. It is ironical that at once Chadwick referred manual scavenging as inhuman practice and advocated mechanical cleaning of obnoxious material following which technical reforms were brought in sanitary measures. However in India humans continued doing these jobs in India.

In contrast to the native habitats the cantonment areas and the European habitats were introduced with the mechanical sanitary measures with proper provisions of financial maintenance of these measures. (Prasad, 2000). This could have been used as a great opportunity by the state to implement modern technology for provisioning sanitary measures for masses. But this was not realized instead these measures were selectively implemented for the benefit of European soldiers and European people (Ramasubban, 1982, Prasad, 2000).

The protection of European from the disease and natives was among one of the concern of the state. The policies adopted after Mutiny resulted in separating the Indian native population from the British. British created separate spaces for themselves. Civil lines and cantonment boards and hill stations were among them. According to Barbara Metcalf,

> "These spaces communicated racial difference as well as the threatening disorder and 'putrid air' understood to characterize the old cities. They represented, moreover, as part of lived experience, an association of British culture with the 'modern' in contrast to the older sections of the city seen as 'medieval' or 'traditional' always the necessary foil to modernity. The 'colonial city' was predicated on such duality" (Barbara D Metcalf, 2006, p. 108).

Tropical disease was a persistent fear for the Europeans. To escape from the disease ridden land 'hill stations' were developed. The women and children of European officials use to stay on the hill stations for months and the men use to visit them. Segregation of spaces was the first health policy adopted after assumption of the Crown's Rule (Barbara D Metcalf, 2006).

Immediately after the Mutiny experience, a strategic planning of major cities was done. This was especially done for those cities which were popular places of pilgrimages and were supposedly known for the outbreak and spread of communicable diseases like cholera during religious gatherings.

> 'In Allahabad the rail line laid out in 1858, was placed in such a way that it served as strategic defense for segregating the European population, it cut through the city to form a barrier between the civil lines to the north and the old city. The villages in the civil lines area were relocated and replaced with paved streets and covered gutters, set out on a grid pattern and lined with newly planted avenues of trees' (Barbara D Metcalf, 2006, p. 109).

Restructuring and planning of the cities was an important policy among the policies developed after Mutiny to protect European population from natives and their diseases. With the planning of the cities The public health policy seems to be of segregating two races. by planning cities two different physical spaces were created. For each physical space a different health approach was adopted to act in two different ways.

The beginning of health policy formulation perhaps started with the report of the Royal Commission on the sanitary state of the British army in India (1859). As out of the learning's from the experience of Mutiny, British government found it imperative to reduce Indian soldiers and increase British troops. As a result there was huge increase in number of young British soldiers. These newly recruited British soldiers were mostly bellow 25 years of age and were unmarried. This significant change in the composition of army is crucial to the further development and shaping public health Action in India. Percentage of under 25's in the army increased to 55 percent in 1898 from 35 percent in 1877. These young soldiers often use to visit prostitutes for recreation. During this time hospitalization of soldiers increased for venereal diseases almost one soldier spending 22 days in a year in hospital on account of morbidity due to venereal diseases (Harrison, 1994). This was an alarming fact for the government to intervene in the public domain. Although from the experience of Mutiny the rulers preferred to remain aloof from people's life[6] it was necessary for the government to control sources of infections. In this light the Cantonment Act of.....year made provision for the medical inspection and regulation of brothels. These provisions further extended in 'Contagious Disease Act of....'. This new Act empowered civil surgeons, municipal health officers, or specially appointed superintendents of lock hospitals[7] to enforce the law outside cantonments especially in public domain. The Act forcefully permitted arrest and examinations of women suspected or indulging in prostitution. Arrest and vaginal examination by a male doctor was degrading for women and their families because of which Indian community protested against this law (Khalid, 2009). The purpose in propagation of such law was to provide clean and safe pleasure for British soldiers stationed in India. The lock hospitals were not set up to provide medical care for Indian women (Forbes, 1994).

[6] Religious sentiments of the soldiers were supposedly heart because of introduction of P-53 rifle. It was a rumor that the cartridges of this gun were greased with animal fat including cow and pigs, former sacred to Hindus and later abhorrent to Muslims. This was supposed to be instigating factor for the sepoy mutiny

[7] Hospitals made for compulsory examination and treatment of diseased women and suspected prostitutes especially suspected for sexually transmitted disease

Florence Nightingale wrote in her paper

> "Forced removals of sick, especially of women, for quarantine purposes, and other restrictions ' set the people against everything that is done under the plea of the public health,' and the sanitary reformer is regarded ' as the greatest destroyer of their domestic comfort and happiness." (Nightingale, 1873, p. 2)

Although the Act was suspended in the light of protest and opposition from natives, it remained as permanent marker of use of coercive force. This Act was crucial in directing the future health actions. By 1889 the death rate of soldiers decline to 16 per thousand which was much lesser to 20 per thousand and 48 per thousand for European women and children (Harrison, 1994).

The use of force could be further clearly traced in the control measures adopted to tackle the cholera (1892) and plague (1897) epidemics. International community was critical about government of India's failure to control spread of cholera. Indian vessels were frequently quarantined with the reporting of epidemic in the Red Sea and in the Mediterranean. This severely affected the trade (Harrison, 1998). There was no choice left for the government but to intervene in the religious life of people as seen in the case of cholera[8].

When cholera use to spread in any village, the police generally insisted on some sanitary reforms which was a world of trouble to the people, and which were intended more to afford the police opportunities for practicing extortion than for improving public health (Khalid, 2009). The prominent example could be seen in the measures implied in the pilgrimages in later period of the Raj. The larger congregations' in the pilgrimages of Ganges were considered to be the origins of the cholera epidemic. In these pilgrimages

[8] It was supposed that Hindu religious pilgrimages and congregations' at Ganges are mostly responsible for outbreak and spread of cholera.

police were used to control the spread of cholera and pilgrims were forced out (Khalid, 2009). Sanitary measures taken and the force applied to control spread of cholera in Haridwar Kumbh mela of 1891 is one of the example studied by Amna Khalid. 'The Magistrate of Saharanpur noted that during pilgrimages, all visitors 'wherever encamped were forced to submit to the sanitary rules enforced by the police' (cited in Khalid, 2009).

Case of plague in 1896-97 adds to this sequel of police actions. Fear of spread of plague epidemic created anxiety in international community. Indian government was under tremendous pressure to take immediate action. At the Sanitary Conference at Venice in February 1897, an international embargo was threatened against shipping from Indian ports. This was going to be a huge blow to the trade. The result of this pressure was the enactment of the Epidemic Diseases Act in the year 1897. This was allegedly one of the most draconian pieces of sanitary legislation ever adopted in colonial India (Arnold, 2004). The provisions of the Act, authorized compulsory hospitalization of plague suspects, the destruction of houses and infected property, the physical examination of rail travelers, and the banning of fairs and pilgrimages. Under the prvisions of Epidemic disease Act, military operation was initiated in India. House to house searches were conducted to find plague suspects and patients. the habitats were demolished where plague victims were found. Millions of gallons of carbolic acid was pumped in Bombay cities drains (Catanach, 1998). B. G. Tilak, the Maratha nationalist leader, called the plague operations as an unacceptable interference in Indian life. The draconian measures taken by W C Rand the Chairman of the Plague Committee, in 1897 resulted in such anguish among Indian people that it led to his (Rand's) assassination (Prakash, 2000).

Similarly, the 1901-2 plague epidemic in Punjab created anxiety among European population. Near about half a million population was inoculated with plague prophylaxis[9] (Catanach, 1998). Similar kinds of measures were taken to curb small pox. Reinsch,

[9] The fear of spread of the disease from Indians to Europeans resulted in mass campaign of inoculation under the leadership of Waldemer Haffkine.

mentioned that, "In India, vaccination is enforced generally among the people, as many as eight million successful vaccinations being reported in a single year" (Reinsch, 1912). Inoculation was made compulsory for those in close contact of Europeans. Such measures' and introduction of western technology at mass level brought Indians in the vicinity of Europeans in the ambit of public health measures (Arnold, Small Pox and Colonial Medicine, 1998). Use of coercive force to initiate and sustain public health action was typical and most of the time it was for protecting economic interest rather health of people.

Conclusion

The encounter of western medical practitioners and Indian population primarily occurred in the context of wars. In the middle of the eighteenth century, continuous wars between British, French, Maratha's and Mysore led to recruitment of surgeons from England (Harrison, 1994). These doctors were recruited for the military purpose although they entered in the civilian practice, but their orientation was military. The first of its kind a medical institute in India was outcome of the war against French i.e. Royal Naval Hospital Madras. The second medical institute came after conquest of Bengal by the British. Following the 1857 revolt, the configuration of army changed and number of British soldiers increased. Maintaining health of these soldiers was imperative. the inquiry of health of the army was by 'Royal Commission On the Health of The Army' in 1859-63 and the action taken to reform military hygiene in India was the first attempt in organized health action (Harrison, 1994). Mostly the projects of sanitation as that of England were replicated in the beginning in various parts of India. This is how the first seed of public health administration in India was sown in 1859. In England, the subject of health emerged as the consequences of the industrialization and in India it emerged as consequence of 1857 revolt. The subject of interest for health action was poor and working class in the West where in India it was soldiers and Europeans. The goal of the health action was to mitigate crises and to maintain empire[10]. The heath action was clearly the product of empiricist logic of state.

Governmentality in British India developed in response to the outbreak of epidemics, death, and famines, and represented an effort to act on the population, to nurture its health and cultivate its resources (Prakash, 2000).The governmentality was guided by the empiricist agenda. The interest in the people's health was outcome of anxiety about the security of the empire. The crisis like Mutiny or epidemics shaped the governmentality and governance of health actions. Such state cannot be the state based on the liberal

[10] The 1857 revolt was a crisis in itself for British Raj. The sepoy rebel taught a lesson that in order to control and keep check on any militancy in future from the Indian soldiers' the government needs to reduce the Indian soldiers and increase the numbers of the white soldiers in the army. At the time of 1857 the composition of the military was 1 white soldier to 6 Indian soldiers.

conception of state. It violated the rule of modernity. British claimed that their project of introducing modern medical knowledge and technology as agenda of civilizing and creating modern society based on reason . This form of modernity had typical colonial character and this colonial character reduced the health action to instrumental form. This is the reason why in colonial time India never experienced the medicine based in the social sense of well being.

Late nineteenth century British imagination of Indian society elaborated an array of pseudoscientific 'racial' differences whether it was idea of martial race or religion or material individual life. This pseudoscientific racial logic served as prelude to hegemonise over Indian society for moral justification of foreign rule. This logic destroyed the indigenous system of medicine and established western form of medicine in colonial India. This understanding further physically segregated western and Indian population to create separate physical and mental spaces for both. These spaces served for planning of the health action distinctively for Europeans and Indians.

CHAPTER II

GOVERNMENTALITY AND HEALTH STATUS OF COLONIAL INDIA

India was one of the important countries among the underdeveloped ones. India under British colonial rule was expected to go through transformation to emerge as a modern society. Hence the process of modernization or civilization was initiated by western rulers. But the form that it took in India was different from that of the western modernity. Modernity came to India not in the form of modern values but in the form of technology. In the later period this technology became solution to every problem of man. The project of civilizing and establishing a desired social order failed. This failure was on account of imposition of modern technology and institutions lacking the modern virtues and Indian context as discussed in the previous chapter.

Further the claim and the practice of the government were antagonistic. The British government's motto, *"Justice is the strength of the British Empire."* displayed by the courts in India. William Bryan, Democratic Candidate for the Presidency of the United States of America observed in his visit to India that 'British rule in India is far worse, far more burdensome to the people, and far more unjust if I understand the meaning of the word (Justice) than I had supposed.' (Bryan, 1906, p. 2). Scholars and politicians at that time found the state of justice to be contradictory to that of the British motto.

Justice was not realized in India because England acquired India for England's advantage, not for India's, and that England held on to India for England's benefit, not for India's. England administered India with an eye on England's interests, not India's (Bryan, 1906, p. 3). The justice of the colonial rule was in favor of the ruler and against people of India. British rule in India was characterised by economic exploitation, decay of indigenous industries, high taxation and drain of wealth to Britain resulting in unemployment and poverty.

In the light of the above this chapter will discuss how the Indians were subjected to injustice and what was the health outcome of this injustice, in doing so it will also examine instrumentality of health action and the development policies and modern technical projects of development and their effects in terms of health outcome. This chapter is dived in three sections: first section deals with the political changes that compelled British government to promise well being and fair treatment and systematic breach of these promise for imperial purpose. The next sections investigate the economic policies and developments in colonial time and its impact on the health of the people. This chapter further will link the approach of the government and policies to the health outcomes.

Violation of modern code

Indian Mutiny of 1857 is an important juncture in the history of India. It shook British Empire. This revolt of 1857 was an assertion and protest against exploitative and unjust governance. Sayyid Ahmad (1817-98) a loyal servant of company who had spent twenty years in Company service reasoned out the insolence and contempt for Indians as cause of mutiny. Moreover he insisted that the Revolt was not merely a mutiny on the part of disgruntled soldiers. It was, rather, he argued, a response to multiple grievances' (Barbara D Metcalf, 2006). Mutiny was a manifestation of hue and cry of poor Indians and discontented Indian soldiers. It turned around the political situation by uniting Indians and surprising the colonizers. Implications of this revolt were so deep on the British Empire that it resulted in the end of company rule and Crown assumed the responsibility of India. With the assumption of the Crown's rule, Indians were promised fair treatment and justice by the Queen. With assumptions of the Crown's rule a new era of public health started in India. State took responsibility of the health of its Indian subjects. First in this series was appointment of Royal Commission in 1859 which submitted report in 1863. The Commission recommended that improved drainage and sanitary conditions could thwart the transmission of diseases. Attention to hygiene, habitation, and habits could protect Europeans from the risk of epidemics in tropical climate of India (Prakash, 2000). Sanitary Commissions were appointed in the late 1860's to look into the matter of

health of general populace. These Sanitary Commissioners were collecting data on morbidity and mortality for general populace. Introduction of sanitary measures in India was start of a new knowledge hegemony. The typical state medicine era began with this new development and state taking responsibility of the Indian subjects (Arnold, 2004). The establishment of the Sanitary Commissioners was part of the governmentality of colonial government. These institutions consolidated the governance such as law, schools, army, police, manufacturers' prisons' and so on. By monitoring the health data regularities and irregularities in the health of Indian subjects, a prompt mechanism of surveillance was taking shape.

According to Gyan Prakash, 'the volume and complexity of statistical information grew with the regularization of the collection of mortality figures of the civil population and the institutionalization of the decennial census in the 1870's. These, together with systematic meteorological records kept by the government, extended the reach of the colonial establishment' (Prakash, 2000, pp. 191-211). Medicine was used as instrument of governance by the colonial state (Arnold, 2004, Prakash, 2000, Headrick, 1979). In the progression of the health system development and health actions the government had interest which helped the sate to realize the colonial goals of governmentality. Creation of institutions for operationalizing the health actions were among those, the police among one f the important instrument of state was employed to carryout health activities such as collection of data on vital statistics. (Khalid, 2009).

The purpose of establishing institutions of health and implementation of sanitary measures was mostly to do with governance than welfare. Hence the sanitary measures remained confined to the cantonment and the European settlements. The fruits of these developments barely reached to the Indian masses. The realization that, European population posses threat of disease from the native and the health of the Europeans cannot be maintained in isolation resulted in extension of these reforms to some of the Indian native habitats (Ramasubban, 1982). Interventions made to improve military hygiene improved health of European troops; the condition of Indian troops remained same as it was (Prakash, 2000). The efforts which were extended to the Indian people

hardly made any difference to their health conditions. As these provisions were mostly made in the urban localities, it covered limited population (Arnold unpublished). Municipal authorities were empowered to mobilize funds for local development especially for sanitation purpose. The attempts were made to levy a new tax which was opposed by the Indians, especially the tax was on property. The opposition came from the rich Indians (Harrison, 1998). The municipal experiment failed as municipalities' could not collect the required fund to implement sanitation projects. The major problem with these bodies was that they mostly worked as mere advisory bodies, without concrete statutory authority. India being predominantly a rural country health provisions around the European settlements or by municipal bodies did not reach to 90 percent of Indians. Condition of Indian masses remained wretched during the company rule and continued to remain the same in the Crown's rule (Bryan, 1906).

The initial planning of the health action in India was guided by the Chadwickian perspective. The disease causation was understood in the 'miasma' theory or environmental factors. Florence Nightingale who was prominent among the health planners was ardent believer of this theory. It took her long time to understand the relationship between poverty and health. It was Orissa famine – the ''Great Famine'' of 1876-79 that changed her perspective from filth to larger structural factors. She observed that there are two kinds of famines, one 'grain famine' and second 'money famine'. In case of latter, Nightingale mentioned that, 'Peasants' money was drained into the pockets of the landlords, which left the ryots (subjects) unable to procure food stuffs or to build up stocks for hard times' (Vallée, 2006, p. 707)

Much prior to these development in India, In England Chadwick's works had already established the direct relationship between living conditions and health. Despite knowing this the government was very slow to apply this knowledge in case of colonial India. The prominent example of this could be seen in reluctance of the state to act in the famine situations.

A reformist lobby within the government especially to mention Nightingale and Sidney Herbert and Lord Cranborne, then secretary of state for India, was working towards betterment of health in India. This lobby was lobbying to force the government to take action on the larger issue especially to deal with famines. This reasoning was ignored by the state. There were three reasons for this ignorance on part of state: first the experience of 'mutiny' and second, many British officers were convinced with Malthusian philosophy and third, dominant political philosophy of the time *laissez-faire* liberalism (Arnold, 2004, Vallée, 2006). In case of former, it was considered that the social reform tried by the government interfered with the religious sentiments of native Indians as a result it instigated Hindus and Muslims to revolt. In case of later, it rejected active intervention by government in the free market economy in principle. Members of the social reformist lobby were opposed to this political economic philosophy. Cranborne in his speech at House of Commons delivered on 2 August 1867, criticized the management of the famine by the government and indicated that thousands of lives could have been saved which were lost on account of stubborn belief of the officials in the theory of demand and supply and stringent economic rule of laissez- faire (Vallée, 2006).

Reformist found that famine is good opportunity for government to intervene. It took long time for the government to realize and intervene in the famine conditions. Malthusian theory dominated the philosophical understanding of the famine thwarting state from intervening in the famine conditions. Till 1864 the famines were related to the causes beyond human control or natural check on human population typical of Malthus (Mitra, nd.). But in 1864 Presidency Sanitary Commissions were appointed in the various provinces. Among many functions of Presidency Sanitary Commission was precisely to devise strategies to fight against famine and to assist in relief provision. This was the first strategy to intervene in famine conditions. But *laissez-faire* philosophy kept its impact intact The strategies developed by the Presidency Sanitary Commission was poorly implemented. In the year 1896 and 1899 India faced failure of monsoon which was followed by a massive famine in deccan. when famine occurred the relief measures according to the Presidency Sanitary Commission were suppose to be implemented

among which was disbursement of necessary aid but the aid which was suppose to deliver in the famine affected area was not delivered on account of adherence to free trade principle by the state (Barbara D Metcalf, 2006). The principle of the market prevented the administration to intervene in the famine condition it thwarted import of grain to famine affected area out of the rigid rules of laissez-faire philosophy (Vallée, 2006). This approach dominated throughout British rule[11]. Sen argued that because famine bring failures of social policy under public scrutiny in democratic state, the state become proactive to deal with such problems however poor it might be (Sen, 1981). Therefore famine in India persisted as long as the Raj did and ceased to occur after independence, British power being unwilling to take effective measures against it. The interventions were planned without formally violating the precepts of free trade. The government began to take on greater responsibility for famine relief and control.

New Indian leadership like Dadabhai Novroji, Gopal Krishna Gokhley and Dutta pointed out the issue of poverty and health in the light of recurring famines (Mitra, nd., Bryan, 1906).Educated Indian elites scrutinized the situation of Indians and realized that the government is responsible for the miserable conditions of the Indian people. But there was no coherent or organized resistance to the government from all over India till the beginning of the ninetieth century. Only handfuls of educated elites were taking lead in opposing government policies.

Dadabhai Naoroji in 1900, investigating the situation of Indian people accused the British government for India's poverty. According to him,

> "Britain has appropriated thousands of millions of India's wealth for building up and maintaining her British Indian Empire and for drawing directly vast wealth to herself;" that as "she is continuing to drain about

[11] In case of the last famine Bengal famine of 1943 which cost around 3.5 to 4 million people who died from starvation and related diseases. The state remained inactive to take prompt action. Japanese invasion during war time cut off Burma and supplies of Burmese rice and the colonial economy failed. Moreover, British administrators insisted on the continued export of Bengali grain despite food shortages so as the market forces remained undisturbed.

> £30,000,000 of India's wealth every year unceasingly in a variety of ways," and that as "she has thereby reduced the bulk of the Indian population to extreme poverty, destitution, and degradation; it is, therefore, her bounden duty in common justice and humanity to pay from her own exchequer the cost of all famines and diseases caused by such impoverishment;" (Naoroji Cited in Bryan, 1906 p. 4).

Naoroji raised his voice against the government but he was not an advocate of radical authoritarian change. Naoroji was not questioning the intentions to govern but he raised his dissatisfaction with the way Indians were governed. According to him the Queens promise had been broken.

Following revolt of 1857 the Queen in her proclamation had committed fair treatment to Indian people. The Queen promised to admit Natives freely and impartially to the offices according to their education, ability, and integrity to discharge duties. This commitment did not come into practice. All the recruitments of the officers continued to be in England directly or indirectly by the home government. The loyalty of these officials was to the home government and natural sympathy towards British and white race (Bryan, 1906). This factor naturally went against natives. Lord Lytton, a Viceroy of India, in a confidential document which got into print, speaking of the pledges of the Sovereign and the Parliament of England, said:

> "We all know that these claims and expectations never can or will be fulfilled. We have had to choose between prohibiting them (the Natives of India) and cheating them, and we have chosen the least straightforward course." (Cited in Bryan, 1906 p. 5).

The confession of Viceroy Lytton is an evidence of the breach of the promise. India was a big job market for the British people (Reinsch, 1912, Bryan, 1906). Also British officers had vested interests in the high level positions of power. They never wanted to

vacate the positions of power for Indians although the queen had promised (ibid). At the same time British were skeptical about Indians from the experience of the Mutiny. The more number of Indians in the army or in the administration the more it could have caused danger to the rule. British possession of India was to add to the wealth of England and not for the prosperity of India. Therefore there was no point in creating job opportunities for the Indians in the government services. This reflected in the organization of Indian Medical Services. Till 1885 these services were not opened for the Indians. In 1885 these services and medical education was opened to the Indians by introducing an entrance test for the first time. But this test was carried out in England to limit access of these services to handful of Indian elites. Indians were thus cheated by the British government. Not only in medical services but in medical education the dominance of European was seen. The power centers of medical services and medical education remained in England.

In 1899 Lord George Hamilton, the Secretary of State for India, argued the case that the Government should sponsor an independent medical profession in India as in other parts of the Empire (Jeffery, 1979). This would have opened the positions of professorships for Indians, but the Viceroy Curzen that time never took efforts in this direction as he was well aware that this could result in the opposition from the Europeans which it did happened in later period when morley made an effort in this direction., Huge opposition came from the European civil servants' to Morley's move to create independent medical education system for India. Some of the doctors in IMS had stronge belief that Indians are not suitable for this job as they are prejudiced towards culture and lack convictions towards sanitary practices (ibid). With increasing number of Indians in the medical education the issues of medical standards were raised by General Medical Council (GMC). GMC decided that only western medical standards should alone determine the education which Indian students should receive (Jeffery, 1979). There were Indian Europeans who were trying to prevent Indians to take their jobs and externally organization like GMC was trying to take control of medical fraternity in India. This is how in the field of medicine a strong European force was working against Indians to prohibit them in actively participating in medical fraternity.

Economic policy and its impact on health

India was a big colony. It was not very easy to manage the governance in such a vast geographic and demographic spread. Various institutions such army, police, law, administration were created to govern huge population of India. A huge bureaucratic system was developed to manage Indian affairs. Maintenance and management was consuming a lot of resource. These expenses of governance were extracted from the people of India in various forms. The state was supposed to bear Indian expenses along with maintaining interest of England. These expenses included commercial as well as the expenses incurred on the governance all of which was paid from the pocket of poor Indians.

Maintenance of huge army was imperative for the colonial rule. Experience of 1857 changed the composition of army establishment and hence mounting the expenditure on armed forces. After retirement a large number of army officials and personnel went back to England and were living on pensions (Reinsch, 1912). The expenditure on maintenance of army and payment of pension was a huge burden on colonies. This burden continued through the colonial period and World War I and II added to the woes. Of total government expenditure of Rs 39.96 billion incurred during the course of the World War II, 37 per cent of expenditure was met by taxation (Tomlinson, 1993 p. 161). No wonder that the colonial rule was characterized by heavy taxation!

Indian natives were paying double the tax compared to people living in England. These taxes were collected for the purpose of paying the cost of imperial policies. In 1904 the total military expenditure amounted to £ 18,000,000, of which the sum of £ 5,600,000 was spent in Great Britain for the purposes of enlistment and pensions (Reinsch, 1912). Paul Reinsch estimated that at least one-third of the total expenditure, or £ 6,000,000, incurred for purely imperial purposes. The burden of this taxation was on the shoulders of peasant population who was already in the destitute situation. This destitution was imposed on the Indian population by the economic policies adopted by the state. 50 percent as the value of the net produce was imposed under *ryotwari* settlements in

Madras, Bombay, Burma and Assam provinces. And 50 percent value of the net assets was levied under *mahalwari* settlement. In addition to this a local tax was levies for the purpose of local development in all over colonial India (ibid).

In the poor country like India where people were living mostly on subsistence and were managing their living in very narrow range of wants, only thing that every Indian use to purchase from the market was salt. In order to extract tax from the last person, tax was levied on salt by the government. This heavy burden of taxation added to the despair of people. More over the commerce and trade policies destroyed the artisan class and small industries. The trade policies were developed to protect the interest of the British manufacturers'. Unlike any other country import duties were not major contributors in the income of state. Only 4.7 percent revenue was derived from custom duties (Reinsch, 1912). And heavy taxes were laid on the goods manufactured in the Indian industry. The reason for this could be seen in the trade relations adopted by the government at that time. The mode of production was primary the land and food and raw material produced were traded to the countries like U.S. Japan, Germany and France. With these nations Great Britain maintain general commerce. The goods manufactured in the England were sold to India (Reinsch, 1912 p. 240).

The Census report in 1901 acknowledged that penetration of foreign good broke the village economy of India.

> "A peculiar feature of Indian rural life is the way in which each village is provided with a complete equipment of artisans and menials, so that until the recent introduction of Western commodities, such as machine - made cloth, kerosene oil, umbrellas and the like, it was almost wholly self-supporting and independent." (Census 1901 cited in Morison, 1911 p. 9).

The Indian goods vanished from the market in competition with cheaper mechanically manufactured goods from England. The Indian artisan and small industries died on account of such trade policy (Chandra, 2009). It is no doubt that this kind of situation adds to the unemployment and poverty. In order to sell the manufactured goods from

England in India it was essential to develop market for these goods. This process of creating market for goods imported from Britain started with selective destruction of Indian goods and replacement of these goods by the mechanically manufactured goods in England. Tocreate larger market for the good manufactured in England heavy infrastructure development projects were initiated among which were construction of roads and railways. Also huge investments were done in irrigation to increase agriculture production.

Approaches to development and the policies opted for developments were influenced by trade interest benefiting colonizers. These policies ultimately resulted in drain of wealth to Britain. Poverty and hunger was typical characteristics of Indian society could be identified with the number of famines that occurred during the Raj.

Official report on the relief operations points out that the provincial death-rate had been rising:

> "The consequence of a series of bad years and high prices is reflected in the death-rates of the last three years (1905 to 1907), which, excluding plague, were 35.95, 37.61, and 36.56 for the ten years from 1892 to 1901. The increase in the mortality of the present year is therefore slight as compared with the mortality of the years immediately preceding." (Morison, 1911 p. 125).

Near about 3 to 4 million people perished in the time of Bengal famine. Sen argued that the famine was outcome of the political and economic consequence that arose out of war conditions. Despite enough food available to feed the population, people died because of hunger due to high inflection and collapse of transport in war conditions (Sen, 1981) Table 1.1 shows how Indians were falling prey to the famines. Famines occurring in the most productive areas cost near about 20 to 30 percent of population. In the year 1876-78, 20 percent population was lost in the Mysore area. Subsequent famine in 1896-97 and 1899-1900 took the whole country in its grip to kill 45 and 25 lakh people respectively. These famines occurred on regular interval of time. The comprehensive famine policy

adopted by the government managed to put break on the famines from 1900 to 1943. But the war conditions again aggravated the conditions to harbor the famine. Zurbrigg (1997) argued that the state did not act on the famine relief policy in time. The major concern of the government was supply of the food to the industrial area so as to maintain industrial production.

> 'The comprehensive relief measures in the form of agricultural loans, village works projects, and gratuitous relief, to be initiated when food-grain prices rose more than 40% above normal under the famine relief code were not initiated out of concern that relief expenditures would fuel further inflation and to ensure the grain supplies for the industrial production in Calcutta' (Greenough 1982: 127 cited in Zurbrigg, 1997 p. 31).

Saving life of poor Indian people was thus not priority of the government. The empiricist policy of the government forced people of Bengal to destitution and deaths. Since 1860 to 1943 India went through disaster of famine several times. It is been well acknowledged that the famine are not mere natural disasters but they occur in certain political and economic environment. Famines are always associated with various epidemics and disease outbreaks that killed people. The government never took the responsibility of these deaths. Rather attempts were done to propagate that famines are out of human control and Indians are facing these disasters since time unknown.

Table 2.1 Major Famines in India

Sr. no	Year	Area	Number of Deaths
1	1860-61	Western Uttar Pradesh	200000
2	1856-66	Orissa, Bengal, Bihar and Madras	1000000
3	1868-70	Western Uttar Pradesh, Bombay and Punjab	1400000
4	1876-78	Madras,	3500000
		Maysore,	20 percent of population
		Hyderabad,	----
		Maharashtra,	800000
		Western Uttar Pradesh	1200000
		Punjab	-----
5	1896-97	Countrywide	4500000
6	1899-1900	Countrywide	2500000
7	1943	Bengal	3000000

Source: Chandra 2009, Modern History of India

Indians like Dadabhai Naoroji, Gopal Krishna Gokhale and Romesh Dutt accused the government policy and negligence for the deaths caused due to famine. They demanded revised fiscal policy (Mitra, nd.). In such a situation government came up with famine relief plan and famine relief code.

Comprehensive relief measures included agricultural loans, village works projects. The purpose initiating large scale village works and construction projects was to provide employment in the time of famine. Huge development projects were initiated to generate employment. Railways and canals were constructed. . With the establishment of the Public Works Department in 1854, British investment in Indian infrastructure grew within a very short period of time. By the end of the century, the subcontinent had

become the most heavily irrigated colonial possession in the world. By 1928-9, working through the agency of 75,000 miles of main and branch canals, the total area irrigated by government works was 30.7 m. acres (12 per cent of the country's total cropped area) (Watts, 1993 pp 150) Until 1905 it was common understanding that canals are the only solution to the problem of famine (Watts, 1993). The rational was clear -increase production of food and easy transport of food to the area affected. But these technological solutions to the problem did not improve the situation much. They resulted in improving the food production. They also played a promising role in transporting the food but not for the Indians.

Development projects and health: a case of Punjab

Development policies of colonial government are criticized by most of the medial historians, arguing that European commercial and political penetration in the 19th century and the creation of colonial infrastructure – roads, railways, plantations, and labour migration– facilitated the dissemination of diseases (Arnold, 1988).

Agriculture which was the back bone of the economy and source of livelihood for nearly 90 percent of the population was brought under dramatic transformation especially in Punjab with introduction of irrigation and better transport like railways[12]. This led to easy flow of good and people from one area to anotheralong with the developments in the irrigations in the country in Punjab Province area irrigated by canals increased from 6.8 percent in 1868 to 25.4 percent by 1911 (Zubrigg, 1992 p. 6). These canal yielded good results for the state. According to Jadunath Sarkar,

> 'Punjab canals proved to be extremely profitable, He takes an example of Lower Chenab Canal, which was irrigating near about 2 to 3 million acres of land which yielded 42 percent net return on capital. The three great canals of Madras that were the Cavery, the Godavari, and the Krishna,

[12] State of Punjab had geographical advantage because of many rivers flowing through. Developing infrastructure for irrigation in this area was much easy and cost effective.

these canal earned 20, 20.7 and 17.6 percent revenue in the year' 1913 respectively (Sarkar, 1917 p. 26).

Special canal called protective canal were built for the protection from the famine. These canals were supposed to provide protection to the famine affected areas. For construction of these canals a special tax apart from other taxes was levied on the people under the name 'Famine Insurance Grant' (Sarkar, 1917).

Construction of these canals added burden of more tax on Indians who were already carrying heavy load of taxes. It added to the burden on the pocket of poor Indians. Along with this burden the irrigation project added to the unhealthy conditions. Improper construction, poor maintenance created favorable situation for disease to breed. Nightingale took a note of epidemic situation created by the irrigation and increased number of fever cases. In her paper she emphasized on the need to improve the drainage system in the irrigated areas. She observed that neglect on the part of appropriate drainage system resulted in outbreak of fever in the irrigated areas (Nightingale, 1873, p p 22-23)

These irrigation projects at once were contributing to the improvement of production but at the same time were creating unhealthy condition. The half complete construction projects and the canals with improper mechanism of drainage created unhealthy living conditions. Nightingale identified close correlation between these irrigation projects and incidence of various fevers. On talking about irrigation project she mentions that how improper management of irrigation projects had brought misery to the lives of people. She mentioned about how a screw turned by a coolie released too much of water and improper drainage created stagnation of water to breed epidemic in the area. She wrote about experience shared by one of the members of the first Bengal Sanitary Commission where he told,

> "About twenty-five affected villages, were laid waste by fever; death came some-times in three hours ; of 600 in a village only a few in the centre houses lived. All the others died or fled. All the other houses were unroofed and tenant-less. In the other villages nothing was left but pariah

> dogs. The crops were uncut. The dead lay about in the hollows, unburied and unburnt, for there was nobody left to bury them" (Nightingale 1873 p. 22).

This happened on account of improper management of the irrigation projects. Modern technological projects were supposed to relieve people from death and destitution but it did not happen.

Watts, investigated the role played by British development projects in the disease history of late nineteenth and early twentieth century India, as he observed close connection between development in the agriculture and malarial mortality. Citing from the *General Report of the Census of India (1901),* Watts stated that,

> "Malaria killed between one million and 5.5 million people each year, out of a population in British India that grew slowly from 225 million in 1881 to 290 million in 1911 to 360 million in 1939" (*General Report of the Census of India (1901),* cited in Watts, 1993 p. 142).

'While the investments done by government were returning huge returns to government, especially in Punjab area, the Census returns for the Punjab showed that population was less than it had been ten years earlier. This fall in population was attributed to malaria, other 'fevers' and plague. 'In 1913-14, deaths at the rate of 17.5 per thousand were caused by 'fevers'. Most of the caseof fevers were from the irrigated lands or in places where new migrants were clustered' (Watts, 1993, pp 154). These happened to be half of all deaths. In contrast to England and Wales where according to the *British Medical Journal,* the mean expectation of life of a male at birth increased from 40.17 to 51.50 years between 1841 and 1911, life expectation in India decreased from 24.59 years in 1891 to 23.63 in 1901, and then to 22.59 in 1911. In the decade ending 1921, it was only 20.1 years in India (Watts, 1993, p. 155). Florence Nightingale wrote,

> "Irrigation is essential in many parts of India, but irrigation with stagnant water is almost as injurious to crops as to health. Irrigation should be accompanied by improving the natural drainages of the country, so as to keep the water moving, however slowly" (Nightingale, 1873, p. 20).

Nightingale pointed out the drawbacks of the development happening in the agricultural sector as early as 1873. But no comprehensive action was taken to improve the condition. Till 1900 famines continued to take toll of people's lives and afterwards epidemics of malaria and other fever curbed the life expectancy in India.

Similar kind of revolutionary advancement happened in the communication sector. Huge amount of construction projects were started to build railway and roads. Some of these projects were part of famine relief to create employment. By 1878 whole of Punjab province was connected to Karachi in Arabian Sea port from where the wheat was exported to Europe and elsewhere. Developments in the railroads, with all their advantages, were charged with adding to the weight of famine by carrying away the surplus grain in good years, leaving no residue for the years of drought. However this development should have acted in the favor of the people as it could have been used to carry food from good harvesting area to the area of scarcity. But the poverty of the people was ultimate obstacle to access the food. Bryan observed, "While grain can now be carried back more easily in times of scarcity, the people are too poor to buy it with two freights added." (Bryan, 1906 p. 8).

The developed transport mechanism did not benefit the producers but the middle man. The traders and dealers were among the first and the quickest to avail themselves of improved means of transport (Morison, 1911). The sole purpose of this development was guided by the commercial interest. It was argued that this development will ease the transport of food from one place to another and it will be easier to provide relief to the famine and drought affected area but in practice these tools were used to serve the purpose of governance and commerce. 'Despite the provisions of the new Famine Code and the ability to move grain via rail, many peasants, increasingly dependent on cash and

imported food, faced desperate conditions' (Barbara D Metcalf, 2006, p. 151). In the later period despite availability of modern technology the famines kept haunting the Indian populations. In case of these development project going on back-foot or putting further investments in these projects to make them ecologically fit for healthy leaving was not in economic interest of the colonizers. however these deaths were so prominent that government could not escape from its responsibilities. Therefore the steps were taken to reduce these deaths and a conference was commenced in Shimla in 1906 to deal with the issue of malarial deaths. The conference could not come out with concrete solution. Action plan to come out with technological solution rather than addressing the structural problem resulting in malarial deaths. These recommendations were easily accepted by the rulers' as they were going along with the economic interest of the government. Hunger and poverty in the region was the attributing factor for deaths due to malaria. This issue was brought to the notice of government by Christopher one of the expert member in Indian Medical Service in Shimla conference 1906.

Theerefore one of the most fertile provinces, Punjab was struggling with highest level of mortality. The striking feature of the table 1.3 is highest level of mortality in Punjab in the year 1905. The worst affected segment of the population was children and women. In comparison to all other provinces Punjab was worst in case of infants as well as adult mortality. It was ironical that despite lot of investment in development of the Punjab region and being known for its agricultural fertility and productivity, highest number of people were dying in the provinces.

Table 2.2 Death Rate in the year 1905

Provinces	Deaths rate per 1000 Male Infants	Female Infants	Male Adult	Female Adult
Bengal	**216.56**	**200.42**	**40.07**	**37**
Assam	211	194.59	35.86	34.22
United Province	264.21	261.48	42.64	45.44
Punjab	**233.9**	**236.31**	**44**	**51.6**
Central Province and Berar	301.29	270.94	39.35	35.12
Madras	182.43	162.99	22.2	20.6
Bombay	229.52	219.07	32.11	31.54

Source: (Annual Report of Sanitary Commissioner With the Government of India 1905, 1906)

Health outcomes

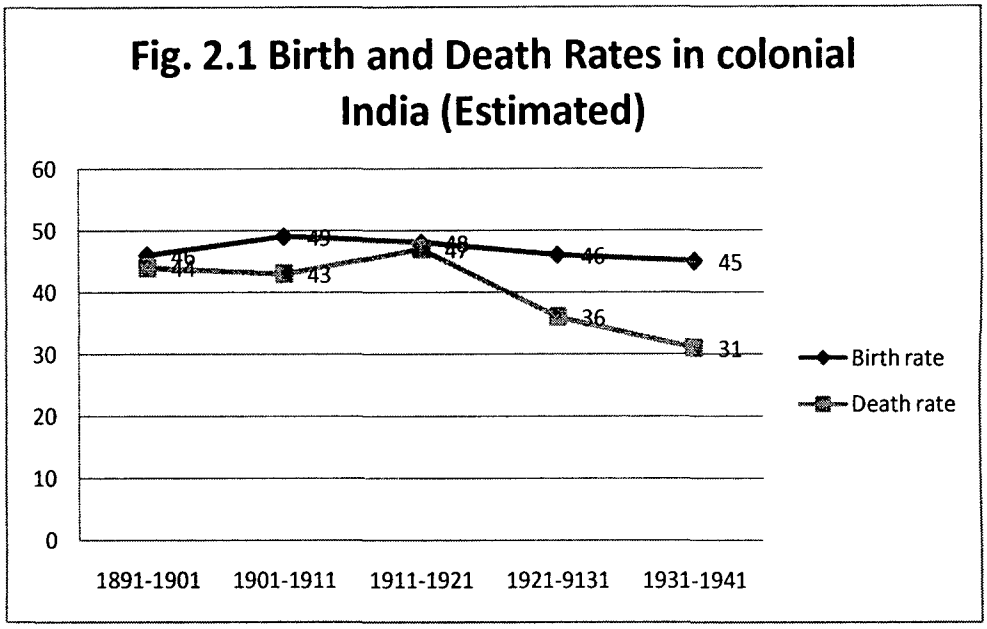
While Britain was excelling all-round in human development, the development projects and policies in India were lowering the life expectancy in India. While on one hand the effect of investment in the agriculture sector resulted in growth in the production of wheat, on the other hand development in the transport made it easier to transport this wheat to Europe. Mckeown and Brown found the improvement in the nutritional status of people as among the most important reasons for the increase in the population of England and Wales (McKeown, and Brown 1983). In contrast almost 30 percent of the population in Punjab was living on one time meal. Food was inaccessible to the original producers of food. This situation forced people to compromise nutrition, making them worst victim of epidemics of fevers, shrinking life expectancy and reducing population (Zubrigg, 1992). Famines although gave relief, from 1900 to 1943 the death rate in India remained high. The slight population growth occurred in this period but it was not attributed to any improvement in the living condition of people. Neither was it outcome of any welfare policy of government. In comparison to other Asian countries this growth was negligible.

Among Southeast Asian countries Jawa doubled in its population in 1890 to 1930 whereas the growth of population in India was as low as 30 percent in this period.

According to Tomlinson,

> "The population increase of the middle decades of the twentieth century did not signify any significant overall improvements in nutrition, or in public health or welfare systems, except perhaps in malarial areas. It was the result of a striking fall in death rates, which occurred because the main agents of mortality - famine and epidemic disease - were less prevalent than they had been in previous decades as a result of favorable climatic conditions, the development of natural immunities in the population, improvements in the emergency transportation of food-grains, and the diversification of employment prospects. Even so, the rate of population increase in India remained low in comparison to some South-East Asian countries; Java, for example, sustained an average annual population growth rate of more than 1 per cent throughout the nineteenth and early twentieth century's. While the population of India increased by 30 per cent between 1880 and 1930 that of Java doubled. Low food availability and the paucity of investment in public health measures such as insect eradication kept death rates in India relatively high throughout the colonial period" (Tomlinson, 1993, p. 76).

Bhore committee compared the birth and death rates from 1891 to 1941. Figure 1.1 explains the low level of population growth in India. In the decade 1891 to 9101 and in the decade 9111 to 9121 births and deaths taking pace were almost equal. Widening gap between birth rate and death rate after 1921 suggests that the death rate started slowing down. Although there is slight decline of the birth rate, it was very less compared to the decline of death rate. The above said population growth of 30 percent took place after 1921.



Source : Adapted from Health Survey and Development Committee 1946, Vol 1, p. 154.

Source : Adapted from Health Survey and Development Committee 1946, Vol 1, p. 154.

The population started growing from 1921. However this was not a satisfactory growth. Death rate remained still high. The reason for this was the living condition of Indians. The living conditions of the poor in the Indian villages were extremely poor. The situation was such that most of the villagers barely had more than a meal a day and that also the least nourishing. They did not have sufficient clothing and housing to protect them from adverse climate. This was the picture all over India. This poverty made the Indian villager a helpless being incapable of assisting themselves even in essential matters like medical relief and maternity and child welfare (Pillai, 1931). The issue of British Medical Journal published on 11 Feb 1939 mentioned that Public Health Commissioner raised the issue of poor health condition of the agrarian population and he regretted for the lack of attention to the welfare of the agricultural population by the state (Progress in Public Health, 1939). Bhore in his report mentioned about the Director of Nutrition Research Laboratory, Dr. Aykroyd relating insufficient diet as reason for ill health and high mortality in India,

"insufficient and ill balanced diet was typical of food consumed by millions of Indian, the insufficiency of essential food in the diet of large (30 percent) was contributory factor to the high level of mortality and morbidity" (Bhore, 1946, p. 12).

This indicates that it was not the case that government and the officials were not aware of the facts but it was not in the economic interest of the government to deal with the root cause of the deaths. Also Zurbrigg in her analysis concludes by stating that there existed a strong correlation between soaring prices of food-grain, low wages inaccessibility to food, compromised nutritional status with high mortality due to malaria (Zubrigg, 1992). This poverty, hunger and deaths were forced on the Indian population by the empiricist and commercial state governing colonial India. Bhore Committee in its report of 1946 acknowledged the low level of sanitation, inadequate supply of potable water, under nutrition, hunger and inadequacy of medical and preventive health organizations as causes for the lower level of health status in colonial India (Bhore, 1946).

Conclusion

It is been frequently discussed that how crucial is the role of state in maintaining health of the people of any country. Political context in which people live holds an important determinant of health. That is what had happened in colonial time. When the entire other world was growing in all aspects of human life, Indians were subjected to structural violence and early deaths in the form of heavy taxation and poverty. What could not save the Indians was utilitarian state. Despite knowing the structural factors, the state did not show commitment towards cause of health. It was either external pressure such as threat to trade or internal pressure such as reformist lobby or threat to Europeans health led to health action such as inoculation or sanitary measures or famine relief. The state used all aspect of development for the purpose of governance and betterment in the mother country. The policies were designed in such a fashion that it drained wealth from Indians to British. Impediment due to taxes, unhealthy living conditions, low access to food as an outcome of the policies forced by the state did not leave people of colonial India with any choice than to be subject to early death. This had severe implication like high death rate and stagnation in the population growth.

The development policies fed in to the empiricist aspirations. Larger development projects exposed masses to the risk of various communicable diseases. The rising prices and low wages forced peasants' and working class to hunger and malnourishment. The state showed no commitment to act in order to improve the health conditions of Indian masses. The main objective was to deal with the crises and governance. Hence the area of intervention remained limited to Military or European settlements and its periphery. The heavy machine of health system acted instrumentally during Raj. While the western medicine and subject of health was crucial to the so called 'colonial project of modern civilization', it was introduced to Indian society under the cover of modernity, but it was instrumentally used to achieve empiricist objective.

Chapter III

ENGLISH EDUCATED CLASS, NATIONALISM AND HEALTH

'Western' medicine was introduced and expanded in India as part of a process of expansion of trade, migration, and communication. The imperial medicine began with prioritizing health of the European soldiers. In the nineteenth century, medicine became an increasingly important ideological justification for empire. Medicine was an essential part of the self-image of 'civilizing' imperialism. Emergence and growth of the health system in the period of British Raj has strong ideological footings based on racial prejudice. 'Medical discourse demonstrated the 'superiority of Western science over the "inertia" and "prejudice" of the East', thus 'promoting the security and legitimacy of colonial rule, and concurrently eliminating or subordinating all rival systems of authority' (Amrith, 2006, p. 8). Pseudoscientific imagination of Indian society and forced agenda of modernity diverted the Western rulers from the principles of modernity. This pseudoscientific notion hegemonised the knowledge and Indian systems got replaced by the new Western systems. A new form of modernity was introduced for the colonies. This form although brought modern technology to India, made changes in agriculture and communication leading to a changed economic structure, it could not however change the basic organization of social order. The educated elite of Indian society and feudal elites got benefited by the new system to assume new roles as leaders in social and economic spheres. The social organization remained the same and the people from the lower class and caste remained in destitution and poverty.

This pseudoscientific imagination of Indian society was at odds to the proposed modernity. The colonial modernity came with the modern institutions which resulted in a huge machinery of bureaucratic administration. The underlying driving forces for

developing such a system were empiricist economic interest and need of such system for governance.

A leviathan system of public health in colonial India was outcome of the process of modernization. Appointment of health officers and formation of institutes to train medical graduates and various other categories of health personnel set the foundations of health systems in India. Government was major player in setting up the formal health care delivery system. This system served the dual purpose; it boosted the pride of colonizers in their scientific knowledge and acted as symbol of modernization and it managed crises for the smooth governance. The radical public health actions were result of response to the crisis situations which emerged in certain historical juncture for example 'Sepoy Rebellion', and threat to international trade due to epidemics. Utilitarianism was the main philosophy to guide the health actions. The systems focus was on governance and mitigating the political and economic interests for maintenance of the empire. This made health action instrumental. The governmentality and the instrumentality of the health action kept the general population out of the domain of these services and these services primarily remained confined to the British civilians and army cantonments.

In the light of above discussion this chapter will examine the emergence of nationalist movement and its understanding and planning of heath of future Indian in the context of colonial modernity.

Assimilation of Indian elite in colonial modernity

After the Mutiny of 1857, the era of reform started in India. With the passing time the English education reached to elite Indians. The English education was a link between the Indian elite classes as it served as language of communication. The English education brought the elite Indians together. Gradually these English educated elites started seeking careers in various professions such as government, law, or journalism among which medicine was a lucrative profession.

Calcutta was the epicenter for elite educational institutions. These institutions played an important role in stimulating interest in science. Mahendralal Sircar, physician and founder of the Indian Association for the Cultivation of Science, the physicist Jagadis Chandra Bose and chemist Prafulla Chandra Ray all attended the prestigious Hare School in Calcutta (Arnold, 2004, p. 153) With the English education the interest in science and new values of liberal politics also came in India. These values although contested the British policies, it also assimilated these elite class in colonial modernity. The English educated class represented an increasingly audible voice in public life, although they comprised less than 1 per cent of the population (Barbara D Metcalf, 2006, p. 135). These elites were the emerging challenge to the traditional nobles and were advocate of liberal politics. They started advocating for electoral system and they were the ones who repeatedly stood for elections. This new burgeoning class started getting importance and was absorbed by the government system, formally in services or informally in political spheres. The Municipals Council Act of 1882 and Councils Act of 1892 are important in this context. The former gave responsibility for such areas as education, sanitation, and public health to local bodies and the later introduced the principle of limited election for legislative councils and opened up the provincial councils to discussion of the annual budget.

This elite class emerged as new leader to an emerging country. 'New markets, new communications, and new networks linked individuals to larger arenas, and brought former strangers into new settings that stimulated new styles of social interaction' (Barbara D Metcalf, 2006). With growing English education and diversification of professions, new middle class also started emerging. These classes began to shape new culture of modern India and were highly influenced by the liberal values and western science.

In 1877 Keshab Chandra Sen delivered a speech in Calcutta. His speech clearly gives impression of the colonial modernity and move of elite towards modern ideas;

> "Loyalty shuns an impersonal abstraction . . . We are right then if our loyalty means not only respect for law and the Parliament, but personal attachment to Victoria, Queen of England and Empress of India [Applause] ...Do you not recognize the finger of special providence in the progress of nations? Assuredly the record of British rule in India is not a chapter of profane history, but of ecclesiastical history [Cheers] . . . All Europe seems to be turning her attention in these days toward Indian antiquities, to gather the price-fewer treasures which lie buried in the literature of Vedism and Buddhism. Thus while we learn modern science from England, England learns ancient wisdom from India" (Cited in Barbara D Metcalf, 2006 p. 114).

In the speech, Keshab Chandra Sen admitted to the English hegemonic ideas of the knowledge. The English educated Indian elites started believing that Indian ideas are ancient (and not modern) and India should learn modernity from the West.

The new emerged English speaking Indian class wanted to be modern, liberal and was aspiring to represent and participate in political process. It is interesting to note that the religion and women were the most critical point in European pseudoscientific notion of conceptualizing Indian society (have been already discussed in previous chapters). And in the period of reforms the primary subjects were religion and women. In an early editorial in English entitled 'Public Opinion in India' (1872), Harishchandra from Banaras, the founder of Kashi Dharm Sabha wrote:

> "Unless there be a general desire to shake off the trammels of superstition, the regeneration of India cannot be aimed at. Let the religion of India be the religion that can govern the millions of her subjects without any let or hindrance. Let the dark shadows of sectarianism be vanished by the rays of Western civilization . . . and let the unity be the basis of that grand superstructure of national improvement which every civilised nation has in its possession" (cited in Barbara D Metcalf, 2006, p. 117)

Harischandra thus used modern concepts of progress and 'national improvement' to infuse an old term, that of 'Hinduism', with new roles and new meaning, using British model of colonial modernity.

English became the medium of communication for various groups from different parts; the print media became a catalyst to formulate and circulate new ideas- a new form of social interaction started with the modernity. These voices of advocacy of modernity were coming from the elite upper castes of the traditional Hindu society. Denouncing Hindu religion and Hindu religious beliefs was not in favour of the traditional upper caste elites hence the solution was found in the reformation of religion and part of Hindu nationalism (Arnold, 2004). Many reform societies, like the Brahmo Samaj founded in Bengal adopted an ethic of individual and collective improvement'. In 1887, a Hindu Social Reform Association was established in Madras in 1892 (Barbara D Metcalf, 2006, p. 140). An urban-educated member of the *Mali* caste (traditionally gardeners by occupation), Jyotiba Phule (1827–90) founded the Satyashodhak Samaj (1873) to challenge both the ritual and the worldly dominance of the Brahman. Among all the most successful socio-religious reform movements was that of Arya Samaj, which was founded by Swami Dayanand Saraswati in 1875. Arya Samaj came up with radical opposition to caste, idols, and temples. Shri Ramakrishna (1836–86) came up with the new secularism -God in multiple manifestations either in the form of Hindu, Muslim or Christian God. Ramkrishna's disciple Narendra Dutta known as Swami Vivekananda presented Vedic Hindu religion as universal religion, a synthesis of all religion in the world (Barbara D Metcalf, 2006)

Mostly English-educated, elite Indians who were influenced by the liberal ideas and ideas of modernity were involved in these movements. Although English education has played a crucial role in creating this class of intelligentsia, but this English education was not the only factor which was informing the discourse of modernity. These were the people who were already elite among society. Arnold has observed that people taking interest in the

science belonged to upper castes old intelligentsia of Indian societies. The caste background coupled with English education made it easier for this class to peruse new modern science and bring it in Indian discourse (Arnold, 2004, pp. 8, 157). This new intelligentsia organized themselves in various parts of the country to accommodate change in the Indian culture on the basis of British model of modernity. The local middle class who was still in the catchment of vernacular print media also joined to advocate modernity and science. In the endeavor of modern scientific society one of the early example was Aligarh's Scientific Society, Presided by Muslim 'moderniser' Sir Sayyid Ahmad Khan (1864); another was the Bihar Scientific Society, established by Syed Imdad Ali, a sub-judge at Muzaffarpur, in 1868 (Arnold, 2004)The purpose of these societies was to spread the perceived benefits of modern science and technology through lectures and demonstrations, the translation of scientific and technical works and the publication of newspapers and tracts (Kumar Cited in Arnold 2004, p. 157).

The western form of science was informed with the ideas of equality. The Indians also started reviving the indigenous knowledge on the ground of secularity. Mahendralal Sircar in the 1860s interpreted the Ayurvedic texts not as Hindu science but as secular work (Arnold, 2004, p. 158)In later period people like Bhagvat Sinhji, Maharaja of Gondal and eminent Ayurvedic Physician Kaviraj Gannath Sen emphasized the need to learn from the allopathic system and integration of the Indian and western medical science (Arnold, 2004)In 1902 P. S. Varier, a leading figure in Ayurveda launched the Arya Vaidya Samajam in Kerala. Hee argued that Ayurveda had to 'move out of the old ruts, adopting modern techniques without detriment to its inherent qualities' (Arnold, 2004)The eminent scientist, modernist and nationalist in the later period Meghnad Saha (1893-1956) argued that severing of mental and manual labor is the cause for stagnation and "backwardness" of Hindu society. He advocated for cooperation between mechanics and scientists as according to him it had led to great advances in the Western world while Indian society relied on manual labour to remain moribund (cited in Sur, 2002, pp. 87-105).

anitation was another field which became crucial to the agenda of modern middle class in 1920s and 1930s. Bengal in particular witnessed the emergence of numerous local-level initiatives. The agenda was to improve sanitary conditions in rural areas. Among these initiatives, the Central Co-operative Anti-Malaria Society of Bengal, established by Dr G.C. Chatterjee in 1912 was an important example. By the 1930s it had 2,000 similar bodies affiliated to it. All these were local level initiatives carried out by elite reformers (Amrith, 2009, p. 10).

The issues mostly addressed by these reformist movements were related to religion and caste system, women, opposition to child marriage, support of widow remarriage, and a commitment to girls' education. It allowed foreign travel and it favored minimizing caste based status hierarchy and the issues related to science and modern technologies. These were some of the issues on the basis of which the Indian culture and society was labeled by the Europeans to be uncivilized. The reformist agenda was not in the favour of radical change or reorganization of the social order of Indian society. The reformist were attempting to reform the existing order so that they could preserve and maintain Indian social system and culture, at the same time imbibe modernity.

Middle class modernity in colonial India

By 1920-30 a urban western educated middle class which was taking interest in its surrounding social and political context had already emerged. This class was regular reader of these kind of literature and information available. This new Western educated class was not only taking interest but it was also influencing the discourse of that time. This middle class was the new modernist class of India. This class had caste- based lineage and cultural hegemony. The govenmentality of colonial state created modern institutions this gave the old elite and upper caste groups opportunities to expose to Western education and apparently to the Western ideas. This class had high influence of modernity and modern living of west at the same time this class was enjoying the social privileges by virtue of their caste. With adoption of modernity this class was attempting to ensure that their social benefits on the basis of system of caste should not get affected.

Arnold mentioned that 'while attempting to pursue the modernity this class was conscious to maintain their own quest for cultural hegemony' (Arnold, 2004pp). In short this middle class was aspiring for a tailored programmed of modernity suitable to preserve their social priviladges. One can say that the middle class in the colonial time was dreaming of old wine in new bottle.

Health and medicine was always in the vicinity of modern agenda for the growing Indian middle class and English educated Indian elite. "New ideas about the importance of health and sanitation were taken up stongly by this class, creating a strong aspiration for change in the fields of marriage practices, childrearing, and public sanitation. The influence of this class could be also trace in the social reform movements the organizations, often religiously inspired, made healthy living central to their practices and interventions" (Watt, 2005 cited in Amrith, 2009, p. 10). In the early twentieth century public health gained importance in the public debate and discussions. With the growth of print media there was an increase in popular writing in popular media. The crux of these writings was revolving around 'western' ideas about the body, about diseases and their treatment, particularly in relation to indigenous traditions of thought. Hygienic practices in particular gained an inextricable association with being modern, escaping 'backwardness' and 'superstition' (Amrith, 2006, p. 23).

The nationalist planning of health in late 1930's seem to be closely following the same temperament as that of this middle class elites in its planning of health for independent India; The National Planning Committee endorsed that the social customs, habits and institutions were responsible for disease and debilities in India. The Committee was highly critical about customs like child (pre-puberty) marriage which had a religious injunction and excessive frequency of births resulting in poor health of women (Sokhey, 1947, p. 7).

Indian elite class and it contestation for medical profession: a new hegemony of institutions.

In the beginning of twentieth century a class of Indian doctors started making its presence with the burgeoning English educated elite and middle class. The Europeans with the increasing number of Indian doctors in the IMS started relying on the Indian doctors. But in case of the Government of India the racial identity still remained as a valid reason for retaining a predominantly European IMS (Arnold, 2004, p. 59)Thus the IMS was dominated by the Europeans. Howver fFrom 1885 the admissions in the medical field were opened to Indians. Soon the medical field became popular among the Indian elites who could afford to go and take the exams in England (Jeffery, 1988, pp. 34-52) Bombay Medical Act in 1912, later in 1914 in Bengal and in Madras government introduction of similar Act progressed in to organizing medical profession. General Medical counsil (GMC) started recognising indian degrees from 1892 (Jeffery, 1979, pp. 301-26). The developments in the field attracted more and more Indians to take up this profession. Moreover these jobs provided good opportunity to earn money as every surgeon was paid for treating each patient above his salaries. The result was that an increasing number of Indians entered in the medical colleges. Commenting on this, Anil Seal observed that:

> "It is interesting that in this profession, where the new training with its emphasis on anatomy and surgery would seem to have offended against high caste prejudices, the higher castes of Bengal established a dominant position. For example, of 244 students at the Dacca Medical College in 1875-6 only six were low caste men, while there were seventy Brahmins, one hundred and twenty-eight Kayasths and thirty-six Baidyas" cited in (Seal, 1971, p. 120).

Table 3.1 Students at Medical Colleges by Religious Origin

Medical Students	1901-02	1906-7	1911-12	1916-17
European/Eurasian Christian	13	10	12	4
Native Christian	8	8	3	6
Brahman Hindu	17	23	24	25
Non-Brahman Hindu	44	37	47	50
Muhammedan	4	4	4	7
Parsi	12	16	9	6
Other		1	2	3
Total (in numbers)	1466	1542	1656	2511

Source: *Quinquennial Review of the Progress of Education in India* (Recognizing India s Doctors: The Institutionalization of Medical Dependency,1918-39, cited in Jeffery, 1979, p. 303)

Although the number of indians in this profession increased, the government was unreceptive to the indian doctors. They were unwelcomed in the service. As a result, finding themselves unwelcome or under-valued by European members of the service, several Indian recruits resigned after relatively short careers(Arnold, 2004, p. 65).

However, by 1914 indian doctors had already emerged as competitor to the european IMS doctors. This increasing number of indian doctors gradually became an interest group and started associating with other educated class. Eventually like other occupations such as lawyers and journalist, doctors also gained important positions among the English educated elite. This elite class manifested itself through various organisation of social and political nature in which the doctors trained in western medicine played important role (Seal, 1971, pp. 248-278). Within four years of establishment of congress the number of doctors in congress raised to 42 in 1888 from 1 in 1885 (Seal, 1971, p. 278). By taking up menmbership of professional organisation and political organisations doctors of this class were making their presence in policy and planning.

Political reforms and *Contestation* for power in medical field

From the 1860s onwards the colonial administration started decentralising some power to local and provincial government bodies. The decentralisation of the power started with the formation of local governing bodies. These local bodies come in the form of nominated and then elected members. According to Lord Ripon this was an effort to buy political acquiescence from its Indian subjects (Seal, 1971 pp. 154-79). This policy of administrative decentralisation had fiscal as well as political purposes. The local, district and municipal councils established in the late nineteenth century, and the increasingly autonomous provincial administrations created between 1909 and 1935, were all intended to devise and legitimise new sources of revenue for local development (Tomlinson, 1993, p. 152).

Lord Ripon was first to introduce the idea of decentralisation and involving natives in local governance. He urged Bombay to encourage the independence and real self-government of municipalities, and to restrict direct administrative interference as much as possible (Seal, 1971, p. 154). Calcutta Municipality Amendment Act took from the municipality and gave to the Bengal government the power to extend the water supply to the suburbs. Ripon agreed to the change (Seal, 1971)Although Ripon played safe in this decentralisation by not giving any statutory power to the local boards, these action created an opportunity for people to participate in government. It creatd a platform for people to demand for more. Gradually the demand for political participation increased. Reforms of 1919 – the Government of India Act, brought medical administration including, hospitals, medical dispensaries, asylums and medical education, public health sanitation and vital statistics under the provincial governments control.

These reforms reduced centeral government's health related functions to international health obligations, census and legislation. The Indians in the provincial government got an opportunity to intervene in social issues and initiate new reforms in various sectors of development among which education and health were a priority. The Provintial ministers

were anxious to promote health and education By 1930 six out of ten medical institutes were under control of the the provincial governments. The provincial governments were not ready to loose control over these institutitions. Members of the provincial ministry were influenced by the idea of nationalisation and were trying to Indianise the institutions in control and functionings. But their authoirity and powers were challenged from time to time by the central government. In one interesting turnover of the event, Provincial government and Government of India came face to face in contestetion. The issue was of recruiting full time inspector of Medical Qualifications and formation of MCI. The person recommended by GMC was Richard Needham. Government of India was also interested in the appointing Needham as Inspector of Medical Qualification. With this recruitment the government and GMC was intending to control medical education in India. With the implementation of central body, provincial governments were going to loose their control over these institutions. So the strong opposition to the recommendation came from the provincial governments (Jeffery, 1979, pp. 301-326)

This turnover of the event happened in the background of large number of indians entering in the IMS. The number of europeans was decreaing and indians were increasing. Despite religious belief and training in anatomy, Brahmins also started entering in the profession. The Medical Act 1886 made medical education more thorough by prescribing examinations for midwifery, medicine and surgery. GMC started taking interest in midwifery after 1907 and it began warning medical institutions to raise standers (Jeffery, 1979.pp 301-26). In case of midwifery it was found that Indian students were not able to study minimum number of patients as they were supposed to. Culturally Indian women did not prefer hospitals and delivery by a male doctor. So the exposure of indian students to the patients of midwifery was limited.

Sir Norman Walker and Richard Needham were appointed to inspect the standards' of medical education in India. From 1922 to 1977 they frequently visited Indian medical education institutesin order to improve and maintain the standard of medical education in

India. Walker and Needham recommended appointment of a full-time Inspector of Medical Qualifications. Provincial governments opposed it as they found it to be a threat to their autonomy. The consequences of this contestation between provincial government and GMC resulted in derecognisation of indian degrees by GMC in 1930 (Jeffery, 1979, pp.301-21). With this move by GMC, the Doctors trained in Indian institute lost their recognition. In such situation the doctors trained in Indian institutes would not have been entertained by the central government either for admitting them in IMS or for allowing them to practice medicine. There was no other choice left to the provincial government but to reverse their stand and come to terms with the GMC requirements. The provincial government agreed upon the proposal of GMC for regulatory body for medical institutes in India. This contestation of power over the medical knowledge formed the backdrop for the Indian Medical Act of 1933.

With the passing of the Indian Medical Act in 1933, thes Indian Medical Council (IMC) was established. IMC was an intermediary body between GMC and Indian medical institutes which was supposed to coordinate degree of international standards and to negotiate international recognition of degrees provided by the indian medical colleges (Jeffery, 1979, pp. 301-21). The politics behind promulgation of Indian Medical Act and the quality of medical education had racial prejudices. It started with the concern of increasing number of Indians and reducing number of Europeans in the medical colleges.

Medical Registration Act 1933further empowered practitioners of western medical science. All certificates required by the law were recognized only if they were duly signed by the registered practitioners. This law segregated practitioners of western medicine from indigenous medicine as it did not recognize practitioners of indigenous medicine. As the indigenous practitioners remained out of the purview of the Medical Registration Acts, these Acts were opposed by indigenous practitioners. Practitioners of the Indian system took it as threat of spoiling their image in the public view. This served a platform to organize Unani and Ayurvedic practitioners to come together where they

argued that such kind of Act is justified in the country where there only one system of medicine exist (Murlidharan, 1992 pp. 27-37). This pressure resulted in introduction of a legislation on indigenous practitioners in United Province and formation of various committees in different provinces such as Khan Bahadur Usman committee in Madras province and committee headed by Inspector General of Civil Hospitals in Punjab. These committees intention was to protect indigenous practitioners, create separate register for them and put indigenous knowledge on scientific footing (Murlidharan, 1992, Bradfield, 1938).

After promulgation of this Act, interestingly the Licentiates Medical Practitioner (LMPs) also emerged as a strong interest group. LMP'S were provider of cheap medical care. They were trained in allopathic medicine and were employed in the government health system as sub-assistant surgeons in the Subordinate Medical Service. Their history dates backs to the early days of colonisation. Initially they were called as "dresser" and then "hospital assistant". The governments policy to provide cheap health care resulted in the growth of LMPs. In the year 1906 they formulated an All India Medical Licentiates Association (AIMLA) (Jeffery, 1979 pp. 301-26). This Association was successful in raising their pay and designation from hospital assistant to sub-assistant surgeon. By the end of 1930 near abut 30,000 to 40,000 LMPs were practicing in colonial India (Murlidharan, 1992 pp. 27-37). Till the establishment of Medical Council of India in 1933, AIMLA struggled to acquire higher status and opportunities or promotion which resulted in extension of their training from 3 to 5 years. But with establishment of Medical Council Act 1933, these practioners were excluded from All India Register and considered as non-qualified. As the basic objective of the Medical Council Act was to establish uniform standard of medical education and practice in India, the existence of the cadre of LMP along with medical doctors, led to splitting of allopathic practice in two standards. Later this course was abolished. After MCI Act the medical practice was clearly divided in three segments: allopathic, licentiate and indigenious.

Thus after the MCI Act of 1933, the medical practice in India was clearly divided into three segments: allopathic, licentiate and indigenious. In this contestation of power although the GMC and the Colonial Governemt maintained their hegemony, the elite upper caste indian class also gradually setteled itself. With their increasing numbers in medical colleges, the number of Indian doctors increased. These doctors were further empowered by the law, which enhance their status in the social and political domain. With this increase status political participation of the doctors also increased.

Nationalist health discourse and colonial modernity

As discussed in Chapter II, for Indian leadership the issue of health emerged as an important issue in the context of famines that occurred on regular interval of time in later half of nineteenth century. Famines created conducive environment for spread of the various infectious diseases. Due to the scarcity of water and food, people use to wander in search of employment, food and water. Consumptions of roots and leaves and surrogate foods in desperation resulted in various diseases and the mobility in the communities helped in the spread of these diseases (Dasgupta, 2003, p.5) In such situation the colonial state did not commit to provide minimum of public health. The public health expenditure in the colonial time remained steady: 2 million rupees were spent every year from 1900-01 to 1947 except in 1931-32 where 3 million rupees were spent in medical and health (Dharma Kumar cited in Tomlinson, 1993, p. 151). Dadabhai Naoroji and Romesh Dutt, the prominent Indian leaders advocated for revised fiscal policy to address the problem of famine and epidemics (Mitra, nd., p. 23). This way for the first time Indian leadership entered in the domain of public health. In his petition submitted to Secretary of State Mr. Dutta mentioned:

> " In view of the terrible famines with which India has been lately afflicted, we the undersigned who have spent many years of our lives among the people, and still take a deep interest in their welfare, beg to offer the following suggestions to your Lordship in Council, in the hope that the Land Revenue Administration may be elsewhere placed on such a sound

> and equitable basis as to secure to the cultivators of the soil a sufficient margin of profit to enable them better to withstand the pressure of future famine". (Cited in Mitra, nd., p. 24)

However the government attributed the cause of famine to the factors beyond human control. Literature supporting the governments stand was published. For example S M Mitra in his book "British Rule in India" argued that economic policies of colonial government had no relation with the famine and there were more severe famines in Indian history, justifying the states stand that the famine is beyond human control (Mitra, nd. p. 27).

Health situation of the country was taken seriously by the nationalist leaders only in the later period. By 1920 nationalist leaders realized backward health condition of the country was due to the consequences of colonial rule. Dr. Nilratan Sarcar, a prominent nationalist and member of Indian Medical Association stated;

> "An alien trusteeship of a people's life and fortune is almost a contradiction in terms. For among the governing factors in all sanitary reforms and movements are the social and economic conditions of life, the environment, material as well as moral, and above all the psychology of the people—and an alien administration, out of touch with these living realities, will either run counter to them and be brought up against a dead wall of irremovable and irremediable social facts or ... grow timid and fight shy of all social legislation, even in the best interests of the people's lives and health" (Ray, 1929: 5 cited in Sarcar (year),cited in Amrith, 2009, p. 9).

In the decade of 1920's the idea that state should own the responsibility of the health of the people had already taken its root and nationalist leaders from the medical profession such as Sarcar attacked colonial government on this issue.

Health soon became a major issue which was given importance by the Congress leadership. Gandhi was at forefront in taking up the issue of health. He organized a communal meal in 1934 and cooked food for 98 village workers of Congress (Amrith, 2006, p. 32). In this meeting he explained the importance of nutritious diet to the village workers. According to Gandhi, healthy and nutritious food was the beginning of transformation of a nation. He said:

> "If we would be national instead of provincial we would have to have an interchange of habits as to food, simplify our tastes and produce healthy dishes all can take with impunity .... Volunteers will have to learn the art of cooking and for this purpose they will have also to study the values of different foods and evolve common dishes easily and cheaply prepared" (cited in Amrith, 2006, pp. 32-33)

This statement of Gandhi came in the backdrop of Government of India Act 1935 which decentralized the political power to the provincial governments and the Congresses win in 1939 by sweeping majority. With the assumption of power in provinces, Congress got an opportunity to participate in the planning and policy making for the country. With this development the central leadership of Congress party started taking interest in the issues not only related to individual provinces, but also some common issues applicable to all the provinces. This way Congress began planning for the nation (Barbara &Thomos Metcalf, 2006).

As ststed earlier, Gandhi called attention to the importance of health and nutritious food for nation building. Gandhi's idea was to create a notion of a nation by integrating various cultures. He emphasized on sharing the cultural food practices among communities of different culture. On the issue of hygiene, Gandhi advocated rural reconstruction. However Gandhi was not very keen on the modern technology. According to Fox Richardson, Gandhi was seeking a distinct path for India. He rejected materialism of socialism and capitalism alike; he rejected individualism of modern society in favour of holistic community life of which the basis should be "vanra-dharma"

system.Gandhi insisted upon an infusion of religious and moral values in politics, and accordingly seek culturally authentic mode of modernization and preserve Hindu values (Richardson, 1987, pp. 233-47). Hence Gandhi advocated nutritional reforms and exchange of cultural practices to resolve the issue of nutrition (Amrith, 2006, pp. 31-34). He found this as an opportunity to give moralistic teaching, promoting vegetarian diet and nation building on spiritual grounds. Gandhi had a vision of indigenous Indian modernity, assumedly a radical drift from the project of modernity emerged from European enlightenment (Nanda, 2006, p. 215)

While Gandhi elaborated on his reconstruction of Indian villages and hygienic village utopia, the Left wing of the Congress Party made the case for science and socialism. In fact the Left within the Congress party was in the processes of bringing science and technology to the forefront for nation building. The Left wing established the Congress Socialist Party in 1934. This gave the Left an institutional platform within the nationalist movement. This wing was influential in shaping the ideas of modern India and the nationalist planning of independent India.

India's experience to become one of the most industrialized colonies with modern communication techniques, electricity, irrigation and communication such as telephone and telegraph by 1930's is crucial in the process of shaping the understanding of the English educated middle class (Arnold, 2004, p. 201). This development in technology enchanted the new generation of educated men. At that same time it creeded a breed of Indians with a new scientific temperament to defend technical modernity as against the Gandhian ideology. Majority of the active members and leaders of the Indian National Congress were from the English educated elite and middle class which was aspiring for modern life in the form of better services (sewerage, sanitation, health care, hospitals, medication, schools, colleges, libraries, street lighting, running water, and so on). They were a stronger voice in political decision making.

With the growing influence of the science and technology, the Gandhian ethos (traditional way of life) of development got replaced by new ideas of science and technology. Congress was redirected by Subhas Chandra Bose and Jawaharlal Nehru on a path more favorable to modern science and technology. The nationalist planning based on technology shows drift from the Gandhian ideas of reconstruction of villages for nation building (Amrith, 2006, Sokhey, 1947, Nanda 2006)

Post World War II was the period of political turmoil all over the world. The process of decolonization had started. In India nationalist movement was on its peak. Nationalist leaders started planning for the future of free India. This environment gave an opportunity to the established and upcoming Indian scientist to show their nationalist credentials. (Arnold, 2004, p. 207). In the planning of independent India the scientist like Meghnad Saha blindly kept their faith in science and belief in technological development (Sur, 2002). In the NCP, Meghnath Saha and M. Visveswaraya were some dominant names from the science faculty. In the nationalist imagination of independent India the solution to the problem of poverty, food and ill- health were seen in industrialization and technology. In the third general meeting of the Indian Science News Association at Calcutta on August 21, 1938, Saha posed question related to science policy and development for solutions of contemporary problems of India. Congress President Subhas Chandra Bose responded:

> "Firstly, industrialisation is necessary for solving the problem of unemployment. Though scientific agriculture will increase the production of land, if food is to be given to every man and woman, a good portion of the population will have to be transferred from land to industry. Moreover, we must realize the significance of Netaji concept of industrialization vis-a-vis socialism" (Cited in website, Forwardblock, 2011).

Saha and his group in the nationalist movement were dreaming of a prosperous nation and solving the problems of county by alliance with the science. In 1938 he persuaded

Subhas Chandra Bose, to create a National Committee to plan scientifically and systematically the national reconstruction of India. The National Planning Committee, which consisted of prominent political leaders and leading scientists was formed to design a plan for development of independent India.When agenda was set, health was assumed to be an important tool for development.

Nationalist Health Planning

By the time National Planning Committee (NPC) was formed in 1939, the ideas of conceptualizing health in terms of nutrition and food and building a healthy nation, had already taken place in the minds of nationalist leadership. Among twenty-nine Sub-committees, formed into eight groups, set up with special terms of reference to deal with all parts and aspects of the national life and work. Onee sub-committee was devoted to formulate policy recommendations for developing health sector in India under chairmanship of Col. Sokhey. Final report of this committee was published in 1948, whereas, it submitted its interim report to NPC in 1940. The Committee strongly emphasized the point of nutrition and food as the main problem of health. Agriculture and food production was among the most important issue raised by Sokhey committee;

> "When we come to the actual planning of production of food we find that it is a complicated affair. So many different things must be attended to, to achieve results. We must have suitable irrigation, conservation of soil, agricultural implements, chemical manures and cheap power. Planning of irrigation immediately brings in the question of water resources, and their suitable utilization not only for irrigating land, but also at the same time for producing cheap electric power and for marking rivers suitable for navigation, if possible. Similarly, the production of chemical manures demands the planning of chemical industry, and the fabrication of agricultural implements requires the planning of steel industry" (Sokhey, 1947, p. 139)

While emphasizing the need to develop industries and improve the food production, the underlying thinking was typical of that of Malthus. Amrith had argued that, 'in the eyes of the NPC, the qualitative issues of individual nutrition linked more closely with the mass spectre of Malthusian catastrophe' (Amrith, 2006, p. 44). The Committee related nutrition and availability of food to the concern of increasing population. The Committee advocated to denounce 'all social customs, religious taboos and injunctions which were supposedly standing in the way of efficient agriculture utilization of available food resources to mitigate the effects of chronic food shortage and poverty (Sokhey, 1947). The Committee raised the increasing family size as major concern for the health of women. (Amrith, 2006, pp. 44-46).

Further analyzing this problem Committee suggested technological means to limit population. Advocating a state- promoted, technological control of population, the Committee stated:

> "In the interests of social economy, family happiness, and national planning, family planning and a limitation of children are essential; and the State should adopt a policy to encourage this. It is desirable to lay stress on self-control, as well as to spread knowledge of cheap and safe methods of birth control ... A eugenic programme should include the sterilization of persons suffering from transmissible diseases of a serious nature, such as insanity or epilepsy" (cited in Amrith 2006 p. 46)

Nationalist Planning argued that public health was a fundamental responsibility of the state, rather than of social reformers and voluntary organizations. Therefore the Sokhey Committee recommended state- organized health system with curative and preventive functions. It emphasized that health services should be rendered through single agency under state control.

However the influence of the colonial modernity can be clearly traced on the Sokhey Committee. The Committee in case of medical education strongly supported English as language or medium of teaching. It gave importance to the indigenous systems of

medicine especially to Ayurveda and Unani but it seems to be only out of cultural pride and national pride of maintaining cultural heritage, as the Committee did not provide space for growth in the mainstream medical faculty and organization of the health services. The health services were organized keeping the allopathic system of medicine in the main stream. The focus thus remained the western- based system of medicine.

This Committee was outcome of a strong sentiment of nationalisim and nation building. This Committee shows the Congress party's aspirations for taking lead for independent India. As has been discussed earlier, that the Congress party emerged from the elite, english educated middle class. In this context one can infer that the Committee was trying to fulfil the middle class aspirations of free India. Therefore the issue of religion, customs, technology, food production population and birth controls assumed important grounds in nationalistic planning of the Sokhey committee, in its vision of planning for health. These were the issues which were influencing the Western educated class of India. The dream of independent India in the minds of middle class was of a nation with reformed religion and customs and development based on modern technology. The Sokhey Committee report was fitting in the middle class idea of "dream India", the idea of modern nation-state which will protect the hereditary privileges' of the class, at the same time will provide them with fruits of modernity in terms of material life of comfort and political power. This idea of nation without the social and political enlightenment was disjoint from the principle values of modernity.

This sort of line of planning was differing from The Viceroy appointed Committee viz. the Health Survey and Development Committee in early 1944, almost the same period of NPC. The Health Survey and Development Committee was appointed under the chairmanship of Sir Joseph Bhore. This Committee was setup in the backdrop of World War II, as a project of post -war reconstruction and was an outcome of shift in fundamental assumptions: the laissez faire budget balancing of the past to an interventionist colonial state (Zachariah cited in Amrith, 2006, p. 57).

Bhore committee did not emphasize the religious or social customs, neither it raised the population as major concern. The key focus areas and intervention for the Bhore committee were unemployment and poverty producing their adverse effect on health through the operation of such factors as inadequate nutrition, unsatisfactory housing and clothing and lack of proper medical care during periods of illness (Bhore, 1946, p. 17). Bhore made a case of public health for national efficiency and economic benefit. The Committee mentioned that a nation's health is perhaps the most potent single factor in determining the character and extent of its development and progress and justified investment in the health for immediate and long term returns and increased productivity (Bhore, 1946). Also in case of indigenous medicine, Bhore committee was direct in its approach. It recommended western medical science. Unlike the Sokhey Committee which was ambiguous with regards to the status of indigenous medical systems in organization of health system, Bhore Committee was in favour of abolishing indigenous system (Amrith, 2006, pp. 57- 61)

The difference in conceptualization of one single problem in the same time period is grounded in the intensions of formulations of these Committees. The Bhore committee was appointed to highlight importance of health and develop a system of health specifically for the future India. The Sokhey committee was part of larger national planning of nationalist forces having string towards nationalist sentiments. The nationalist leadership was taking political advantage of the political opportunities in the form of forming government in the provinces and using this opportunity to cultivate a strong national sentiment to consolidate its fight against colonial rule. Therefore the nationalist health planning reflected middle class imagination of independent India.

Conclusion

The imposition of the western technology by the colonizers had an ideological idiom. Colonial project of modernity created a culture of colonial form of modernity. In this process this project came up with the opportunities for the Indians to get assimilated into the government system and gave birth to a new creed of English educated elite and middle class who naturally took lead of Indian society. This middle class who secured jobs in various sectors of modern development feeding into the colonial governmentality became advocates of liberal values and to maintain the class interest, followed colonial pattern of modernity. This class manifested itself in various modern professions and associations. It aspired for the modern living. Therefore those aspects of social life of Indians which were condemned by the colonizers to be traditional and anti- modern were brought under reforms by various reform movements in religion and science. This class also captured various positions of importance in government and private sphere. Medicine was one among them. This class was new generation of the old intelligencia of Indian society who belonged to the upper castes. In leading the middle class it was imperative to the nationalist to cater to the middle class aspiration of modern India. The nationalist leadership of Congress, taken over by technical modernity, continued to follow the modernity for which the elite and middle-class population was aspiring. In envisaging the free and modern India nationalist planning detached itself from the principals of enlightenment to follow the colonial pattern of modernity.

CONCLUSION

"We are going to enter a life of contradictions. In politics we shall have equality and in social and economic life we will have inequality. We must remove this contradiction at the earliest possible moment..."

- Dr. B R Ambedkar (Constituent Assembly Debates)

The project of modernity manifested in colonial India in the form of modern institutions such as law, police and many other, a heavy machinery of bureaucratic system, religion and new technology and science; the law for good moral conduct, religion for love and science for reason which was supposedly lacking in the native Indians. This new project was suppose to break the native Indians from their social chains. Science and technology was supposed to solve the problems of all human wants and rescue from all sufferings. This form of imagination of native Indian society has its orgies from the oriental scholarship. The reason for the racial basis for conceptualizing Indian society lay in the ideological paradox. British on one hand upholding the modern values freedom and democracy for themselves and on the other hand they were ruling the colonies. The racial psudoscientific notion of imagining native Indian society was an escape route from the ideological irony and a way to justify the British rule over colonies. The escape way forward to come out of this paradox was a project of modernity for the colonies. The colonizers were supposedly introducing the modern values to the native life in colonial India. Many of the British people in England were under the impression that their business in India was to civilize the Indian people (Metcalf, 2006, Prakash, 2000). 'English popular opinion was firmly convinced that the British rule had been an unquestionable blessing for the Indians. According to this opinion the British, brought political unity and law and order to the subcontinent; introduced modem education and the ideals of free speech, free press, democracy, and participatory government; unfied the divided country on basis of English, with the firm structure of Indian Civil Service and infrastructure; railroads, post and telegraph system. British rule has contributed in the

improvement of living standards of the people by promoting hygiene, building irrigation canals, and so on, by adding modern democratic value to the Indian society British rule contributed to the emergence national leadership' (Vohra, 1997, p. 85). British officials at the highest levels of government were convinced that they were involved in the noble mission of bringing civilization to backward, heathen India (Vohra, 1997).

This notion affected all segments of development at that time including health. This notion shaped health policies and health profession in the colonial time. Late nineteenth century British imagination of Indian society elaborated a range of pseudoscientific 'racial' differences - whether it was idea of martial race or religion or material individual life. This pseudoscientific racial logic served as prelude to hegemonise over Indian society for moral justification of foreign rule. This logic destroyed the indigenous system of medicine and established western form of medicine in colonial India. This understanding further physically segregated western and Indian population to create separate physical and mental spaces for both. These spaces served for planning of the health action distinctively for Europeans and Indians. A lack of comprehensive approach of the state towards health of the native people was justified by this mental and physical segregation. The colonial state blamed the adverse health conditions of the natives as attribute of the culture of natives and justified its indolence to take any measures to improve native health. After realization of the need to introduce modern sanitary measures only selected areas of intervention were chosen. The purpose was to solve the health problems of soldiers and Europeans. The government was not interested in the health of natives. Therefore the natives remained deprived from the modern sanitary measures. This selective intervention in favour of the Europeans indicates the utilitarian aspect of use of modern knowledge. Similarly modern institutions like law and police were used by the government to serve to their imperial purpose. The health action was initiated due to pure political reasons.

The system of organized health care was not established at one point in time in colonial India instead it developed gradually. That there was no specific goal of this system in one point in time and various health actions were taken in response to variety of reasons.

Most of the time health actions were initiated in reaction to crises emerging out of situations like epidemic or threat to international trade or safety of European population in India. Powers were given to the health authorities not for the welfare of the people but for maintaining health of government machinery. In order to defend the trade and commerce, modern health measures such as vaccination were forced on the people without taking into consideration their cultural context. Police and force was used to defend the trade although it intervened in the people's life causing them inconvenience. With introduction of sanitary reforms and regulations the pressing problem of high morbidity and mortality among the soldiers was resolved. Also the government could defend and mange to maintain its trade by this utilitarian approach. Modern knowledge and technology reduced to solve the crises faced by the government. Therefore this modern knowledge and technology and institutions never contributed to the welfare of the natives. The logic of health action was clearly utilitarian and the actions were instrumental.

The impact of this utilitarian logic was such that it manifested in the form of number of famines till the beginning of twentieth century and in the middle of the century. These famines accompanied by many diseases, killed millions of people which resulted in adverse demographic outcomes. The pressure on the government from the emerging native leaders and the British reformers forced the state to intervene but these interventions were not realized to change the situation. The interventions manifested in the form of larger developmental projects such as irrigation and communication network. These development projects rather contributed to the ill health in the form of creating situation for manifestation of various epidemics again resulting in the adverse demographic outcome. The state policy further added to the situation. The heavy taxation and breakdown of the indigenous industries, low wages, perpetuated poverty limiting access to the food which actually with the revolution in the system of transport could have been easily in the reach of the poor's.

The unwillingness to the cause of health of the general population by the state was in the governmentality of the colonial state. The possession of India was for the imperial goals of the mother country. Therefore the reason of the health action was crises solution and the western knowledge of medicine as tool for the purpose of empiricism. This govenrmentality was based in the oriental racial pseudoscientific understanding of the native Indian society, utilitarian logic and 'lassie fare' philosophy which thwarted the state from taking genuine health action. The development in the scientific knowledge in the west selectively fed in the project of colonial modernity to justify the racial superiority of the west. Development in the science and technology and its application in the colony broke the indigenous knowledge systems among which were the age old traditions of Indian medical systems.

British brought the English model of municipal institutions which was unsuitable for the Indian conditions. Unlike Britain where most of the population was urbanized 90 percent Indians were living in rural area. The modern bureaucratic machine designed to do the sanitary work was tailored for the purpose of governmentaliy. Unlike Britain where the local self governing bodies were vested with authority and power, Indian governing bodies were acting in advisory capacities. Lord Ripon stated that Indians did not have sense of politics they were inefficient to govern. Also while introducing the decentralization in 1882, Ripon made it clear that this is not to give power to the Indians but to teach Indians politics and art of governance. Gyan Prakash mentioned that, 'his (Ripon's) Gladstone liberalism made sure that it was extended only to Europeans and a small group of wealthy Indians' (Prakash, 2000, pp. 189-220).

In the process of establishing the British rule the colonizers hegemonised the Indian society by using the modern institutions, technology and science. Colonizer's liberalism was specially tailored to serve imperial goal which was a distorted form of modernity. Modernity is a process of moving towards building a society on the foundations of enlightenment, the idea of reason and the principle of equality, fraternity and liberty.

Europe was experiencing this process. European experience of modernity was distinct from the modernity which the colonial rulers' proposed for the natives. The racial justification of the alien rule was contradictory to the basic principles of modernity. This project of colonial liberalism used the stratification of Indian society and its inherent contradictions to justify the rule and created a class which comprehended the rule to further perpetuate inequality in the Indian society. This project was attempting to create a section of society which will follow the colonial pattern of modernity. Colonizers created a culture of colonial modernity for the purpose of governmentality. One example in creation of colonial cultural field we know as English literature. It was constructed as a curriculum and tool of character formation in colonial India before its appearance in England (Mitchell, 2000, p. 4).

The opportunities thrown by the state-led colonial project of modernity were grasped by the elite upper caste section of the society. This class had the linage of intellectual hegemony in the past by the virtue of their social positioning and privileges'. This class was new generation of the old intelegencia of Indian society who belonged to the upper castes. This class with English education hegemonised over all the economic and intellectual opportunities offered by the changing social and economic structure of the society. The governmentality of the state promoted this class to consolidate the existing unequal social order of Indian society. With the realization of new liberal ideas of modernity and the material well being of the western life this class of social elite in India longed for the modernization of society. In this process this elite class acquired the higher positions in the political domain and modern professions, medicine was among those. Further in dreaming about modern India what oriental scholarship condemned was attempted to bring under reform by the new western educated elite. In doing so this class made sure that the social privileges and the status of this class will not be intact. Therefore the attempts of modernization by the Indians were limited to reforming society rather bringing radical change towards equality. Maintaining of the social status and privileges was continuation of the old unequal social order. The state project gave

opportunity to this elite section to maintain power and their social position gave them opportunity making them natural leaders of the Indian society.

The project of modernization proposed by colonial rulers added new contour to old social order with ideas of liberalism and aspiration of elite and middle class of India to establish Indian rule. The nationalist leadership emerged from this class and was leading this class. The aspirations of this elite class to rule India were represented by the congress party. The leadership of Congress, taken over by technical modernity, continued to follow the modernity for which the elite and middle population was aspiring. This class was aspiring for the modern life at the same time was adhering to old social values. This produced a new set of ideas to reorganize Indian society which continued follow the old social order. This form of modern society was no less distorted form of modernity than the modernity brought by the colonial rule. This was continuation of the same ideas one was the governmentality of the state the other was the governmentality of caste based social system. This way both the forms disjoint from the modern values. This was reflected in the nationalist planning of health services for the independent Indian state. This nationalist planning set the health planning on the ground of reforming religion, custum and proposed technology based programme to improve health rather than looking at health in larger context of inequalities.

Bibliography

Ambedkar, B. R. (1979). *Dr. Babasaheb Ambedkar Writings and Speeches Vol.1.* Bombay: Government of Maharashtra.

Amrith, S. (2006). *Decolonizing International Health India and Southeast Asia, 1930–65.* NY: Palgrave MacMillan .

Amrith, S. (2009). *Health in India Since Independence BWPI Working Paper 79.* London: Brooks World Poverty Institute.

(1906). *Annual Report of Sanitary Commissioner With the Government of India 1905.* Calcutta: Suprintendent of Government Printing .

Arnold, D. (1988). *Disease, Medicine and Empire.* New York : OUP.

Arnold, D. (1988). Indtroduction. In D. Arnold, *Imperial medicine and indegenous society* (p. 5). New York: Manchester university press.

Arnold, D. (1998). Small Pox and Colonial Medicine. In D. Arnold, *Imperial Medicine and Indigenous societies* (pp. 45-64). Delhi: OUP.

Arnold, D. (2004). *The New Cambridge History of India, Science, Technology and Medicine in Colonial India.* Cambridge: Cambridge University Press.

Banerjee, D. (2008, November 22). *Jan Swasthya Abhiyan Peoples Health Movement - India*. Retrieved November 16, 2009, from http://phm-

india.org/index.php?option=com_docman&task=cat_view&gid=57&Itemid=15

Banerjee, M. (2002). Public policy and Ayurveda, Modernising a Great Tradition. *Economic and Political Weekly* , 1136-46.

Barbara D Metcalf, T. R. (2006). *A Concise History of Modern India.* NY: Cambridge University Press.

Baru, R. (2008). *Health Sector Reform in South Asia : A Comparative Analysis.* Retrieved April 28, 2010, from http://www.psiru.org/: www.psiru.org/reports/2008-10-H-southasia.doc

Baru, R. (1998). *Private Health care in India, social charectorstics and trends.* New Delhi : Sage.

Bhore. (1946). *Health Survey and Development Committee.* Delhi: GOI.

Bhore, J. (1946). *Health Survey and Development committee* . Delhi: Manager of Publications.

Bloom, S. W. (2002). *The Word as Scalpel:A History of Medical Sociology.* New York: OUP.

Bradfield, E. (1938). *An Indian Medical Review.* New Delhi: GOI, manager of publication .

Bradley, H. (1918 repriented 2001). *The Enclosures in England an economic reconstruction.* Ontario, Canada: Batoche Books Limited.

Bryan, W. (1906). *British Rule in India.* SW: British Committee of the Indian National Congress .

Carstairs, G. M. (1955). *Medicine and faith in rural Rjasthan.*

Carstairs, R. (1891). *The British Works in India.* Edinburgh: William Blackhood and Sons.

Catanach, I. J. (1998). Plague and tensions of Empire: India 1896-1918. In D. Arnol, *Imperial Medicine and Indegeneous Societies* (pp. 149-71). Delhi: OUP.

Chandhoke, N. (2005). *Democracy and Well Being in India.* Delhi: UNRAISD.

Chandra, B. (2009). *History of Modern India* . Delhi: Orient Black Swan.

Christopher Pierson, F. G. (2000). *The Welfare State Reader* . USA: Polity press.

Das, P. (2004). Hunger and Death. *Front line* , 49-52.

Dasgupta, R. (2003). *Cholera in Delhi: a study of time treands and its determinants.* New Delhi: Unpublished, P.hd Thesis, Jawaharlal Nehru University New Delhi.

Derne, S. (1994). Hindu Men Talk about Controlling Women: Cultural Ideas as a Tool of the Powerful. *Sociological Perspectives* , 203-27.

Edger, A. (2006). *Habermas the key concepts.* New York: Routledge.

Edwin R. Van Teijlingen, G. W. (2004). *Midwifery and the medicalization of childbirth: comparative perspectives* . Newyork: Nova Science.

Fitzpatric, R. (1987). Political Science and Health Policy . In G. Scambler, *Sociological theory and Medical theory* (pp. 223-45). London: Tavistoc .

Forbes, G. (1994). Medical careers and health care for Indian women: patterns of control. *Women's History Review, vol 3, No.4* , 515-30.

Forwardblock. (2011, July). *Rebulding India in Netaji's way.* Retrieved july 11, 2011, from http://www.forwardbloc.org: the third general meeting of the Indian Science News Association at Calcutta

Foucalt, M. (1980). *Political economy of health in eighteenth century.* Brington: Harvester Press.

Foucalt, M. (1980). *Power/Knowledge 'The politics of health in eighteenth century'.* Brington: Harvester Press.

Foucault. (1998). The Birth of Social Medicine. In P. Rabinow, *Esscential works of Foucault 1945-1984* (pp. 134-56). New York: New Press.

Franco, Á. (2004). Effect of democracy on health: ecological study. *BMJ vol. 329* , 1421-23.

G. MacNaughton, P. H. (2008). Health impact assessment: The contribution of the right to the highest attainable standard of health. *The Royal Society for Public Health.Elsevier* , 302-5.

George, R. (1958). *A History of Public Health* . New York : M D Publication .

Gramsci, A. (1971). *Selections from the Prison Notebooks of Antonio Grameci.* London: Lawrence & Wishart.

Guha, S. (1998). From Dai's to Doctor's : The Medicalisation of Childbirth in Colonial India. *Understanding Womens Health Issues* , 228.

Habermas, J. (1984). *The theory of communicative action vol.1.* Bostan: Beacon Press.

Hamlin, C. (1998). *Public health and social justice in the age of Chadwick: Britain, 1800-1854.* NY: cambridge University Press.

Harper, E. B. (1964). Ritual Pollution as an Integrator of Caste and Religion. *The Journal of Asian Studies, Vol. 23,* , 151-97.

Harrison, M. (2001). Medicine and Orientalism: Perspective on Europes Encounter with Indian Medical System. In B. Pati, *Health Medicine and Empire Perspective on Colonial India* (pp. 37-87). New Delhi: Orient Longman .

Harrison, M. (1998). Public Health and Medicine in British India: An Assesment of The British Contribution. *paper delivered to the Liverpool Medical History Society.* Liverpool: Liverpool Medical History Society.

Harrison, M. (1994). *Public health in British India: An anglo Indian prevntive medicine 1859-1914.* New Delhi: Foundation Books.

Headrick, D. R. (1979). The Tools of Imperialism: Technology and the Expansion of European Colonial Empires in the Nineteenth century. *The Journal of Modern History, Vol. 51, No. 2* , pp 231-63.

Ingram, D. (2003). Between Political Liberalism and Postnational Cosmopolitanism: Toward an Alternative Theory of Human right. *Political Theory* , 359-91.

Jaheil. (1998). Health care in United States . *Croatin Med Journal* , 316-31.

Jean Dreze, A. s. (1990 Reprint 2007). *The Political economy of Hunger.* New York: OUP.

Jeffery, R. (1979). Recognizing India s Doctors: The Institutionalization of Medical Dependency,1918-39. *Modem Asian Stud* , 301-26.

Jeffery, R. (1979). Recognizing India s Doctors: The Institutionalization of Medical Dependency,1918-39. *Modem Asian Stud* , 301-326.

Johnson, G. (2008). *The New Cambridge History of India Indian Society and the Making of British Empire.* NY: Cambridge University Press.

Kaviraj, S. (2010). *The Trjectories of Indian State Politics and Ideas* . Ranikhet: Permenant Black .

Kennet, P. (2001). *Comparative Social Policy Theory and Research.* Buckingham: Open University Press.

Kethineni, V. (1991). Political Economy of State Intervention In Health Care. *Economic and Political Weekly* , 2427-33.

Khalid, A. (2009). 'Subordinate' negotiations Indigenous staff, the colonial state and public health. In M. H. Biswamoy Pati, *The Social History of Health and Medicine in Colonial India* (pp. 46-73). New York : Routledge.

Lefebvare, B. (2009). Bringing world class health care to India, The rise of corporate hospitals . In A. Vaguet, *Indian Helath Landscpae Under Libralization* (pp. 83-99). Delhi: Manohar.

Lesley Doyal, I. P. (1979). *The Political Economy of Health.* London: Pluto Press.

McKeown, T. (1983). Food, Infection, and Population. *Journal of Interdisciplinary History, Vol. 14, No. 2,* , pp. 227- 247.

McKeown, T., Brown, R., & Record, R. (1972). An Interpretation of the Modern Rise Population in Europe. *Population Studies, vol 26, No 3* , pp. 345 -382.

McKinlay, J. B., & McKinlay, S. M. (Summer, 1977). The Questionable Contribution of Medical Measures to the Decline of Mortality in the United States in the Twentieth Century. *The Milbank Memorial Fund Quarterly. Health and Society, Vol 55 No. 3* , pp. 405 - 428.

McLean, D. (2006). *Public Health and Politics in the Age of Reform.* New York: I.B. Tauris.

Metcalf, T. (1995). *Ideologies of the Raj.* NY: Cambridge University Press.

Mitchell, T. (2000). The Stage of Modernity. In T. Mitchell, *Questions of Modernity* (pp. 1-34). MN: Published by the University of Minnesota Press.

Mitra, S. M. (nd.). *British Rule in India.* London: Dalziel & Co.

Moore, P. (2004, October). For bulletin of WHO. *WHO news* . WHO.

Morison, T. (1911). *The Economic Transition in India.* London: John Murry.

Murlidharan, V. R. (1992). Professionalising medical practice in colonial south India. *Economic and Political Weekly* , pp 27-37.

Najmi Kanji, N. K. (1991). From Development to Sustained Crisis: Structural Adjustment, Equity and Health . *Soc. Sci. Med* , 985-93.

Nanda, M. (2006). *Prophets Facing Backward Postmodernism, Science and Hindu Nationalism.* Delhi: Permenant Black.

Nightingale, F. (1873). *Life or Death in India.* London : Harrison and sons.

Nikolas Rose, P. O. (2006). Governmentality . *Annu. Rev. Law Soc. Sci.* , 83-104.

Parlhadkumar. (2005). Journey of Tuberculosis Control In India: National Tuberculosis Control Programme To Revised National Tuberculosis Control Programme. *Indian Journal of Tuberculosos* , 63-71.

Pillai, A. P. (1931). *Welfare Problems in Rural India.* Bombay: D B Taraporewala and Sons.

Prakash, G. (2000). Body Politic in Colonial India. In T. Mitchell, *Questions of Modernity* (pp. 189-222). Minneapolis: University of Minnesota Press.

Prasad, V. (2000). *Untouchable Freedom, A social History of Dalit Community.* New York: OUP.

Progress in Public Health. (1939). *British Medical Journal* , 294.

Qadeer, I. (2000). Health Care System in Transition; The Indian Experience. *Journal of Public Medicine Vol 22 No. 1* , pp 25-32.

Qadeer, I. (1994). The World Development Report 1993: The Brave New World of Primary Health Care . *Social Scientist* , 27-39.

Qadeer, I. (1994). The World Development Report 1993: The Brave New World of Primary Health Care . *Social cientist* , 27-39.

Rajaee, F. (2000). *Globlization on trial: the Human condition and the information civilization.* Bloomfield: Kumarian Press.

Ramasubban, R. (1982). *Public Health and Medical Research in India.* Goteburg.

Rao, M. S. (1966). THE HISTORY OF MEDICINE IN INDIA AND BURMA. *Symposium on the History of Medicine in the Commonwealth,.* London: Faculty of the History of Medicine and Pharmacy, Royal College London.

Rao, M. (1994). The Writing on the Wall Structural Adjustment Programme and the World Development Report 1993: Implications for Family Planning in India. *Social Scientist* , 56-78.

Reinsch, P. S. (1912). *Colonial Administration.* London: McMillan.

Rodrigues, V. (2002). *The Essential Writtings of B.R. Ambedkar* . New Delhi: OUP.

Roger, J. (1988). *The politics of health in India.* Berkeley: University of California Press.

Rosen, G. (1971). *Historical trends and the futur prospectus in public health* . London: Oxford University Press.

Ruger, J. P. (2005). Democracy and health . *QJM: An in ternational journal of Medicine, vol 98, Issue 4* , 299-304.

Sarkar, J. (1917). *Economics of British India.* London: Longmans, Green & Co.

Scott, J. C. (1998). *Seeing Like a State.* London: Yale University Press,.

Seal, A. (1971). *The Emergence of Indian Nationalism.* Cambridge: Cambridge University Press.

Sen, A. (2005). *Developement as Freedom.* Delhi: OUP.

Sen, A. (1981). *The Great Bengal Famine.* Clarendon Press: Oxford.

Sen, A. (2009). *The Idea of Justice.* Massachusetts: Harvard University Press.

Shrivastava. (1975). *Health services and medical education: A programme for immidate action* . New Delhi: Allied publishres private Ltd, Ministry of Health and Family Welfare.

Sokhey, S. S. (1947). *National Planning Committee Sub committee on health* . Bombay: Vora & company .

Studies in Soviet Thought. (1987). D reidal publishing company.

Sur, A. (2002). Scientism and social justice: Meghnad Saha's critique of the state of science in India. *Historical Studies in the Physical and Biological Sciences* , pp. 87-105.

T K Roy etal. (2004). Social Inequalities in Health and Nutrition in Selected States. *Economic and Political Weekly* , pp 677-683.

Tomlinson, B. R. (1993). *Cambridge History of India III, the economy of modern India, 1860 - 1970.* NY: Cambridge University Press.

Vallée, G. (2006). *Volume 9 of the Collected Works of Florence Nightingale.* Waterloo: Wilfrid Laurier University Press.

Vohra, R. (1997). *The Making of India : A Historical Survey.* New York: ME Sharpe, Inc.

Watts, S. (1993). British Development Policies and Malaria in India 1897-C.1929. *Past and Present, Oxfordjournals.org* , 141-81.

Wilson, L. G. (2005). Commentary: Medicine, population, and tuberculosis. *International Journal of Epidemiology* , 34:521–524.

Yadvendu, V. K. (2003). Chnaging Perspective in Public health from population to an Individual . *Economic and Political Weekly* , 5180-88.

Zubrigg, S. (1992). *Economic and Political Weekly* , 1-26.