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The background of the page features a large, faint watermark of the University of Delhi seal. The seal is circular with the text 'UNIVERSITY OF DELHI' around the top and 'सत्यमेव जयते' (Satyameva Jayate) in Devanagari script around the bottom. In the center is a shield with a yellow top section containing two white flowers, a green bottom section containing a white elephant, and a white middle section with a green border.

COLONIALISM: ITS IMPACT ON AGRICULTURE AND ECOLOGY

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INTRODUCTION

Agriculture is a science of cultivating a land for food. This practice of manipulation of nature to satisfy the human needs goes back to the Neolithic period when men first experimented with farming in a rudimentary form. For the purpose of cultivation large open area was required to prepare a land for sowing a seed of particular variety of grain so that it could be produced in large quantity for the survival of ever-growing population. This open area was created by cutting down the thick natural vegetation of shrubs, bushes, grasses and other forms of vegetation, which grew in specific geographical location as per the nature of the soil inherent to those regions. It means it was the agricultural encroachment over forested land and this process and practice was systematically followed from ancient past to the modern times. Besides this men had always utilized the forest resources like wood as fuel, utensils, furniture and in winter for warmth by burning dried wood and therefore consciously or sub-consciously men's concern for nature was always there. In Indian mythology forests are revered as places where knowledge was attained by ancient sages in seclusion and also variety of trees are worshiped and placed among the pantheon of innumerable Hindu deities. Even in medieval period forests were maintained by monarchs as places for hunting and gaming. But the arrival of British as colonizers had a deleterious impact on both agriculture and forests because the purpose of occupation was strictly economic. Initially they wanted to generate more revenue from land so experimented with different land revenue settlements and landlord class was created and encouraged to increase the cultivable land, first at the expense of village common land and later of forests. But soon when in their hunt for more markets for their finished products and raw-materials as well as for their fast growing industries in England, railways were introduced in India which required wood both for fuel as well as for manufacturing railway compartments. As the forest wealth of India was not inexhaustible, new policies pertaining to forest area were formulated and department established which transformed the ecology of India for generations to come. Agriculture and Ecology though are interrelated subjects but needs separate treatment for the full comprehension of the colonial impact on both these branches of our Environment and therefore an effort is made in the following study to first witness the implications of colonial period on agriculture and later on ecology and in the process interconnection between the two would be inevitable.

SECTION A: AGRICULTURE

1.1 BACKGROUND

Traditionally India is an agricultural nation and occupation of majority of its inhabitants has been agriculture and related activities. Even primary source of state's income was land revenue in pre-colonial India. During Mughal India administrative machinery of state i.e. *Mansabdari* system, was well synchronized and coordinated with the *Jagirdari* system, wherein land was distributed among the nobility in lieu of their salary for the military and administrative duties they were supposed to perform in service of the state. They were expected to collect the revenue from their respected *jagirs* and send the same to the central treasury after deducting the sum incurred as expenditure for their maintenance but at the same time they were expected to invest the reasonable amount for the development of

agriculture so that state's income could increase besides serving the well being of the cultivators. But with the arrival of English and after the conquest of Bengal and other territories subsequently the agricultural economy of India was completely transformed for the benefit of Metropolis (Britain). New Land Revenue Settlements were devised and agriculture was commercialized which torn asunder the social and economic fabric of the India. Its industries were smothered and agriculture was further choked with no equitable return and compensation. Rural India became the site of vulgar display of might by colonial masters on subject population.

1.2 Pre-Colonial Agricultural Economy

The mainstay of the pre-colonial economy was the land revenue collected from the Village as a unit. This surplus produce of the cultivators i.e. revenue, was collected and redistributed among the ruling classes. Upon the expenditure of this vast surplus by the ruling class was based the urban economy of pre-colonial India, with its large craft production, large volume of long-distance trade and a considerable development of commercial capital (Habib 1975: 24). Part of this revenue went to hereditary collectors of revenue called *Zamindars*, whose share generally in north India was one-tenth of the land revenue. Zamindari was a hereditary right of the family whose sale was a common phenomenon. In the hierarchically stratified village society below the zamindars were the affluent sections of peasantry variously designated as *khud-kashta* or *jotedars*, below them were the small landholders and tenant cultivators, who cultivated others' land on rent and finally at the bottom of this ladder was the landless labourers or village proletariat belonging to menial and untouchable castes. Upper section of the peasants or village head-man called *muqaddams*, etc imposed various rates of taxes on peasantry to make up the revenue from the village as well as in order to contribute to village expenses and for customary payment to village artisans and servants, which formed the basis of village community (Habib 1975: 25).

1.3 Transformation of the Land System and Revenue Collection under Colonial Rule

In Previous regime King's share was a proportion of the year's produce, fluctuating with the year's production, and surrendered as tribute or tax by the village community to the ruler. This during colonial regime was replaced by the fixed money payments, assessed on land, regularly due in cash irrespective of the year's production, in good or bad harvests (Dutt 1992: 228). Also the land revenue under the preceding Indian regimes was fixed as a share of the crop, and varied according to the crop cultivated. The pressure on the cultivators was elastic under the pre-colonial regimes, revenue corresponded with each season's yield and as a consequence the peasant was left with enough to carry on and debt was kept in bounds. The increasing indebtedness under the British, showed the mistake of fixity of assessment and of the assumption that an average of good and bad years was a correct method of arriving at an assessment. Apart from this many initial colonial settlements were fixed so high that it could not be sustained for long and rather forced the peasants on many occasions to migrate to other areas rather than accepting those high demands (Mukherjee 2005: 2-3).

The land revenue under the British, whether directly imposed on the *ryots* (peasants) or assessed on the *zamindars*, was a tax on land. The assessment was on the basis of what and how much it ought to produce, not on what crop it actually raised (Habib 1975: 31). This payment was commonly spoken of by the early official administrators (British), and in the early official documents, as *rent*, thus revealing that the peasantry had become in fact tenants, whether directly of the state or of the state-appointed landlord. Moreover the

introduction of the English landlord system, of individual landholding, of mortgage and sale of lands, and of a whole apparatus of English bourgeois legal conceptions alien to Indian economy and administered by an alien bureaucracy which combined in itself, legislative, executive and judicial functions, completed the process of transformation of land system in India (Dutt 1992: 228). These changes could be witnessed in the process of land settlements established by British after assuming the *Diwani* of Bengal, Bihar and Orissa.

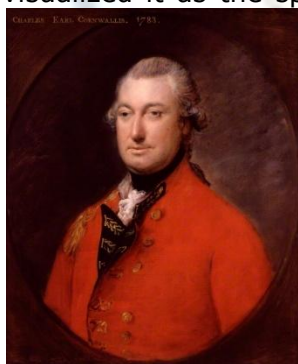
1.4 New Land Settlements during Colonial Period

Since the grant of *Diwani* for Bengal, Bihar and Orissa in 1765, the major concern of the English administration in India was to collect as much revenue as possible. Therefore various land revenue experiments were introduced in hurry to maximize collection. In 1772, Warren Hastings, newly appointed governor of Bengal, introduced a "farming system", wherein revenue collecting right was farmed out to the highest bidders. Regarding the periodicity of the settlements, a number of experiments were made, but the farming system ultimately failed to improve the situation as the framers tried to extract as much as possible without the concern for the production process. All these random experiments were led to the ruination of the agriculture as well as of cultivators (Guha 1981: 16-17). In 1784, Lord Cornwallis was therefore sent to India with a specific mandate to set in order the revenue administration.

Under Farming System the estates were auctioned at the end of each term of settlement and farm them out to the highest bidders for leases not extending beyond five years. To contemporaries this was known as the 'farming system'.

1.4.1 Permanent Settlement

Permanent Settlement was the outcome of the ideological thinking of *Physiocratic School* that assigned primacy to agriculture in the economy. Among its supporters were Alexander Dow, Philip Francis and Thomas Law, etc. The advocates of Permanent Settlement claimed that they had a policy which was based on 'the principle of property'. Dow wanted private property to be made secure because this according to him would strengthen the pillars of the society. Francis regarded the property as the stimulus to the agriculture. Cornwallis visualized it as the spring of all economic improvement. For Law, it was important as the effective method of creating a land-market. According to historian Ranajit Guha, what united these different views together was not only the common aversion to the existing policies but also the veneration of private property. They all believed that a sound administration must have the security of landownership as its basis, and nothing but Permanent Settlement could ensure this. (Guha 1981: 17-18).



Permanent Settlement brought two new innovations in the Indian land system, one was the *creation of landlordism* and another was the introduction of *private property rights*. Pre-requisite to the settlement was the answer to the two questions i.e. i) with whom the settlement to be made, ii) state's share in the produce of the land. To find solution to the above questions Cornwallis in 1793 brought into being the Permanent Settlement. Regarding the first question, Cornwallis preferred selecting Zamindar. Guha asserts that the distance between the two countries and the inadvisability of colonization made it necessary that the property should be entrusted to the care of a class of native entrepreneurs who had solid interest in the land and were politically reliable. This alone could establish 'the permanence of dominion' (Guha 1981: 17). According to S. Bandyopadhyay, being a

member of the landed aristocracy of Britain and imbued with the idea of improving landlordism, Cornwallis's natural preference was for the zamindars. They were expected to invest for the improvement of agriculture if their property rights were secured.

Zamindars were the intermediaries, who collected revenue from one or more villages under their hereditary control and send the revenue to the state treasury after deducting their customary dues of around 10% of the collection.

There were also other practical reasons: it was easier to collect revenue from a small number of zamindars than from the innumerable peasants, which would require large administrative machinery; and finally, it would ensure the loyalty of a powerful class of the local population. Therefore zamindar became the proprietor of his zamindari and now he could sell, mortgage and transfer it and it could now be inherited by his heirs. This was the creation of private property in land (Bandhopadhyay 2010: 84). In spite of Permanent Settlement being favourable to zamindar, it too was at the mercy of British administration. The zamindar had to pay a fixed amount of revenue by a particular date (Sunset law), failure to pay the same before the sunset on due date could lead to the sale of zamindari through auction. As demand was too high, the result was the frequent sale of zamindaris (Bandhopadhyay 2010: 85). Many of the old traditional zamindar families who carried on the old methods of showing some consideration and relaxation for the peasants in times of difficulty, broke down under the burden and were at once ruthlessly sold out, their estates being put to the auction (Dutt 1975: 230). According to Irfan Habib pressure on zamindars especially outside permanently settled area was too much that considering them as allies of British "...had little significance in the actual world of revenue collection. Their condition was actually worse in Mahalwari areas..." (Habib 1975: 36)

To the second question of state's share, the bulk of the surplus went to the company. Since the land revenue was going to be fixed in perpetuity, therefore it was decided to be fixed at a high level. Fixing of state share was also thought to reduce corruption as officials could not alter the assessment at will. The landlords would invest money in improving the land, as with the state demand being fixed the whole of the benefit from increased production and enhanced income would accrue to them (Bandhopadhyay 2010: 83). It all became meaningless as state demand was fixed at 89% of the rental, leaving 11% with the zamindars as their share for their trouble and responsibility. This high level of demand not only ruined the zamindars, whose zamindaris were auctioned off but also the peasantry, who ultimately had to bear this burden and were further reduced to penury.

1.4.2 Ryotwari Settlement

In the period after the Permanent Settlement an alternative method was attempted in a number of other districts, beginning in Madras. The conception was put forward that the government should make a direct settlement with the cultivators, not permanent, but temporary or subject to periodical re-assessment, and thus avoid both the disadvantages of the Permanent Settlement, securing the entire spoils itself without needing to share them with intermediaries (Dutt 1992: 234). The Ryotwari experiment was started by Alexander Reed in Baramahal in 1792 and was continued by Thomas Munro from 1801 when he was asked to take charge of the Ceded Districts. This was also the time when Utilitarian ideas had begun to influence policy planning in India, and among them David Ricardo's theory of rent seemed to be hinting at a revision of the existing system. Rent was the surplus from the land and state had a legitimate claim to a share of this surplus at the expense of unproductive intermediaries (Bandhopadhyay 2010: 87). Ryotwari



created individual property rights in land, which was vested in peasants rather than zamindars.

Munro implemented this system in Madras during 1820 and claimed that this system had historical roots in India and would be able to reduce the burden of rents on peasantry besides increasing the state revenue as no intermediary would have shared in the revenue surplus. It raised the revenue income of the state but had put the cultivator under great strain as no survey was carried out as was claimed and tax was assessed in arbitrary fashion. And wherever survey was conducted it was done in haste leading to over-assessment. Thus the cultivator was gradually impoverished and indebted, hence could not invest in the agricultural activities. It also created differentiation among the peasantry, big-landholders leased out their surplus land but the poor cultivators were exploited by rich peasants, creditors and were forced to sell off their small plots of land. With frequent crop failure and sliding prices, peasants either had to mortgage their lands to moneylender or had to abandon their lands. The Ryotwari system did not only eliminate village intermediaries but privileged rents and special rights of the *mirasidars* were also recognized and caste privileges of the *Brahmins* were respected (Bandhopadhyay 2010: 86-92). The existing village structure therefore remained unchanged. When Ryotwari system was extended to Bombay Presidency under Elphinstone, it faced the same problems and paved the way for peasant revolts.

1.4.3 Mahalwari Settlement

In the North-Western Provinces the Mahalwari system was introduced under Regulation VII of 1822, land revenue settlements were made with the representatives of each village community or *mahal*. R. M. Bird provided for the survey to make an assessment of the entire *mahal* based on the potential produce of the field. The total revenue thus fixed was then to be shared by the members of the co-sharing body. The state would appropriate 2/3 of the net income from the land and term of settlement was made for 30 years. The village magnate in this area called *taluqdar* equivalent of zamindar in northern India was initially incorporated but in the revised settlement was gradually eliminated by the Bird. Village Community with whom settlement was made also ruined by the high revenue demand, increasing debt burden, arrears of revenue and the resulting sale of their properties. Land in most of the cases was passed in to the hand of moneylenders and merchants (Bandhopadhyay 2010: 92-95).

Thus English created three different land arrangements conferring proprietary rights on zamindars in case of Permanent Settlement, on peasants in case of Ryotwari and village community in case of Mahalwari settlement. As per an estimate the 19 percent of the cultivable area was under zamindari settlement, 29 per cent under Mahalwari settlement and 52 percent was under Ryotwari settlement (Bandhopadhyay 2010: 95). Almost similar figures had been presented by R. P Dutt in *India Today* (Dutt 1992: 235-236).

The common feature of all these settlements was over-assessment, arrears of payment, mounting debt and increasing land sales and dispossession. The fiscal pressure on revenue payers increased massively as per the calculation of Irfan Habib. According to him in permanently settled areas excluding Banaras, Ghazipur and Jaunpur, all acquisitions made after 1806-7, put the total land-revenue demand at Rs. 2.10 crores in 1806-7, Rs 3.06 crores in 1819-20, and Rs 3.60 crores in 1829-30, that means an increase of more than 70% in 23 years. In Bombay, the land revenue demand after the annexation in 1818 was reached to maximum levels. In 1837-38 the land revenue collection in Bombay Presidency stood at Pound 1.86 million, a figure that had only once before been exceeded in 1826-27. In the Madras Presidency, where Ryotwari settlement was made, the total land revenue collection amounted to Pound 3.79 million in 1819-20 and to Pound 3.43 million in 1837-38.

The general picture, then, was that from about 1820 to 1850, the total revenue collections increased substantially in all the three major zones outside the permanently settled territories. Among these zones the highest increase undoubtedly happened in North-Western Provinces (Ceded and Conquered Provinces) (Habib 1975: 32-33).

1.5 Impact on the Peasantry

With reference to Permanent Settlement, Sumit Sarkar says that after 1850s British policies tried to bring into being enterprising *raiya*s on the model of English Yeoman farmers and provided them with the legal protection in 1855 and 1859 from arbitrary eviction but they resorted back to the old practice of shifting the burden to groups below them. And the direct producers were too oppressed to go for any improvement in agriculture. In Ryotwari areas tenants' trouble enhanced due to the fact that they were unprotected by the law. Below the landholding peasants were the mass of landless labourers, whose number swelled to 52.4 millions in 1901 (Sarkar 2008: 34). Even while referring to the later period of twentieth century with regard to colonial demands, Mridula Mukherjee points out that the incidence of land revenue at constant prices (1913-14) from 1906-7 to 1938-39 shows that there was no consistent trend of decline in the incidence of land revenue per acre in the twentieth century. And in the period 1929-39, the incidence of land revenue had stabilized at a substantially higher level compared to the earlier period (Mukherjee 2005: 5).

The Pauperisation of cultivators could be witnessed in the growth of the landless labourers to 1/3rd or even 1/2 of the agricultural population. In reality the condition of the large section of small peasants on uneconomic holding, of tenants was not far removed from that of the landless labourers as the distinction between the two was extremely shadowy one. In 1927, N. M. Joshi in All India Trade Union Congress, estimated 25 millions to be the number of agricultural wage earner, and 50 millions more to be partly working wage earners on the land (Dutt 1992: 242). Habib asserts by quoting Crawford that ultimate poverty was reached could be witnessed in the diet of rural classes. As the British decided to elevate its revenue demand on individual it bypassed the Village community as revenue paying unit and hence the destruction of the Village community. As regards the agricultural labourers, so far as they depended on upper section of peasantry, naturally the burden passed on to them (Habib 1975: 35).

1.6 Commercialization of Agriculture

The old rural set up of India, undermined by the new land settlements between 1793 and 1850 received a death blow with the spread of commercial agriculture between 1850 and 1947. Commercial agriculture means production for sale than for consumption. Commercial agriculture grew due to various reasons, firstly, due to the recurring need of the peasant under the new land systems to find ways of getting money to meet the mounting demands upon them by the state and the landlords. Secondly, the rapid growth in the cultivation of cash crops was the fact that such a development was welcome to the British authorities in India. Thirdly, when Industrial Revolution happened in Britain, than British manufacturers clamoured for raw materials to fulfill their ever growing requirement, hence colonies were converted into agricultural backyard of metropolis. And finally, when railways were constructed it became possible for the inland areas of India to produce for the world market, consequently wheat sent out of the Punjab, cotton out of Bombay and jute out of Bengal (Daniel and Thorner 1974: 54-55).

Commercialization of Agriculture was construed as the sign of capitalist development of agriculture and was associated with prosperity. Cash crops like indigo, cotton, sugarcane, jute, etc were grown replacing food crops as the later one in terms of monetary return was

not considered favourable. Usually in economies this transformation from food crop to cash crop cultivation is adopted once sufficiency of food grain and related products are secured but in case of India during colonial period this logic was conspicuous by its absence.

Moreover the impetus to grow cash crop must come from below among the cultivators, who in order to improve their income might like to venture into growing cash crops but again in case of India, cultivation of cash crops was forced from the above. In 1788, Company Government had advanced money to planters to cultivate Indigo but it could not become much successful as planters had no right to purchase land until 1829. This engendered the horrific tale of exploitation of peasantry as the later were forcibly advanced money to grow indigo in their lands and this ultimately culminated in the Indigo riots of 1859-60. In case of Western India, cotton was grown in response to the cotton boom owing to American Civil War in 1860s but soon this artificial demand collapsed paving way for agrarian riots of 1870s. Although, in case of Bengal peasants indulged themselves in cultivation of cotton voluntarily in the false hope of improving their earning but that assumption too turned fiction when jute economy crashed in 1930s (Bandhopadhyay 2010: 125-126).

For the better understanding of Commercialization of Agriculture the case studies of some commercial crops in the region of their growth is pertinent. The studies will manifest how Cane-growers in U.P and Bihar traditionally under the domination of landlord were kept under poverty despite the expansion of cash crops and in case of Bengal and Bihar how the production of cash crops i.e. jute (Bengal), cotton/wheat (Punjab) benefitted British capitalist interest more than the cultivators:

Sugarcane: Sugar is produced from the cane and when cane is harvested, the sucrose content begins to decline after just a few hours. This means that cane cannot be stockpiled and must be brought fresh from the field to the factory gate therefore requires the careful scheduling of harvest and delivery operation. In the region of eastern U.P and Bihar, where agrarian structure is dominated by landlords, in an effort to guarantee a steady supply of cane, the factories first relied on contracts with middlemen, who made the necessary arrangements with the cane growers. These middlemen were mostly zamindars or moneylenders who already had substantial claims on the crops grown by the villagers. The middlemen could use these claims to compel the villagers to harvest and deliver their cane to a certain factory at a certain time and to control the payments from the factories while taking a large cut for themselves. In this way, the factories were relieved of some of the problems of scheduling and coordinating deliveries and consequently, cane prices were held down, even in a period of rapid expansion of factory production, and a large portion of payments went into the pockets of middlemen (Attwood 1985: 63-64).

Jute: The jute production in Bengal was organized under *dadan system*. In *dadan* system cultivators were advanced money on the condition that they produce specified quantities of crops, the price of which was fixed beforehand. Here the jute interests succeeded in controlling very considerably, through a network reaching down to the village, both the quantity and the price of raw jute. The entire process of jute production from the raw jute stage to the final manufacturing and even export stages was organized through the collective monopoly of a few British-owned managing agency houses.

Under *dadan* system cultivators were advanced money on the condition that they produce specified quantities of crops, the price of which was fixed beforehand.

Cotton: The major commercial non-food crop in Punjab, was grown primarily in agriculturally more prosperous areas such as the canal colonies and parts of central Punjab where irrigation was assured and harvests less dependent on rainfall. Also the big cotton trading firms, most of which were based in Karachi, from where most of the Punjab cotton

was exported, had their offices and commission agents in the major as well as minor cotton markets of the province, but the chain did not reach down to the peasant in the village. In fact, in Punjab the degree of manipulation of the price paid to the producer was much larger in the case of food-crops such as Wheat. The village moneylender-merchant gained an advantage both by buying wheat from deficit producers at harvest time, when prices tended to be low, and selling wheat to them for consumption requirements at off harvest prices (Mukherjee 2005: 67-69).

In reference to the impact of the commercialization of agricultural produce, according to Mridula Mukherjee, it was differential in nature. At one extreme, there were the subsistence and marginal peasants who were forced into the market by various pressures such as: land revenue payments, scarcity, famine or low prices, leading to indebtedness and interest payments which necessitated sale of produce; or land revenue demand necessitating sale of produce leading to deficit for consumption which resulted in indebtedness, interest payments and again sale of produce. Obviously those, whose holding were too small for subsistence would more often than not be at the receiving end of this commercialization. They would sell only under pressure of one kind or another, either revenue or water rate or debt or rent payment. Also they were often net buyers rather than sellers of food, high food prices were hardly to their advantage; in fact they often ended up buying back their food at higher off-season prices than those at which they had marketed their produce at harvest time. (Mukherjee 2005: 60-61).

According to Sumit Sarkar the British business houses were in virtual total control of the overseas trade, shipping and insurance of the country. So the bulk of the profits from the exports boom was appropriated by foreign firms and went out of the country as foreign leakages. A secondary but still substantial share went to Indian traders and *mahajans*, the middlemen who provided the necessary advance to the cultivators and thus established the control over production. Hence capitalist penetration helped to consolidate the already established structure of landlord and moneylender exploitation. Moreover the Indian peasants were made dependent on a very distant and unknown foreign market to bear the burden of wildly fluctuating prices leading to heavy indebtedness, famine and agrarian riots (Sarkar 2008: 31).

1.7 Famines

It is not easy to identify a direct co-relation between commercialization and famines, even though cash crops in some areas might have turned out food-grains from the land meant for food crops, with resultant impact on output (Charlesworth 1982: 25). In some districts the peasants shifted over completely to industrial crops and had to buy their foodstuffs from dealers. Villagers sent to market the cereal reserves traditionally kept for poor years. They became less prepared to meet poor harvest. Years of successive drought in the 1870s and 1890s led to great famines and agrarian unrest (Daniel and Thorner 1974: 55). Also it can be noted that production of food crops was far lagged behind the growth in population (Bandhopadhyay 2010: 126). George Blyn took 1893-96 as the base period, the decennial average of crop output for 1936-46 was 93 for food-crops, 185 for commercial crops, and 110 for agricultural production as a whole (Sarkar 2008: 36-37).

Moreover, severity of British assessments was notorious as was the inelasticity of demand: collections of revenue in full were insisted upon, irrespective of the seasons. In the scarcity year 1883-84, nearly all the revenue was collected despite the fact that over many hundreds of square miles, an estimated three-quarters of the total food supply of the people was said to have been annihilated in a crop failure which extended over the greater part of the provinces. Again in case of 1864-65, the inadequacy of the monsoon caused an almost

total failure of the rice crop everywhere, which was the staple crop. The price of agricultural produce increased bringing distress among the poorer sections but still the rent-roll showed an increase of Rs.1 lakh over that of 1862-63 (Whitcombe 1972: 147-148).

1.8 Indebtedness of Peasants

The most important impact of British conquest of India was the disintegration of the self-sufficient village community and with this destroyed the stability and security of the peasantry. In the words of A. R. Desai, in pre-British India, the state exacted revenue from the village community as a whole and not from the village farmer separately. It was the village community which determined the share of its every member in the collective payment to the state. It was apportioned according to the realized product of each peasant family. This did not require peasant to borrow heavily in difficult times. But when the British came it refused to recognize the village community and made separate agreements with the agriculturists, they fixed the land revenue on the basis of the productive capacity of the soil as realized by the government officials and not on the actually realized product. This brought the peasantry in the strangling grip of the village *Sahukar* (Desai 1961: 88-89).

Desai further relates the process of peasant indebtedness with the process of *De-industrialization*. He contends that the ruination of the village handicraftsmen, artisans, and others, who in the absence of proportionate industrial development obstructed by the British Government to safeguard the British capitalist interest crowded the already declining agriculture. This has led to the increasingly minute fragmentation of land, the average peasant holding being only five acres. In his words "...this army of ruined artisans reinforcing the number of people already dependent on land, increased the poverty of the rural population, the prime cause of their huge indebtedness..." He further elucidates that the unity of agriculture and industry in the pre-British period wherein agriculturists exchanged his products with village artisans i.e. cloths with weavers, agricultural implements with blacksmith, etc, was disrupted. Gradually agriculturists depended on machine-made goods which they could purchase only with money. Therefore, first due to exorbitant demand of revenue with its periodical increase and secondly owing to the destruction of village handicraft and resultant dependence on machine-made goods of his necessities, peasant went into the clutches of the Sahukar. (Desai 1961: 88-90)

In pre-colonial times the local moneylender extended casual credit to meet occasional needs of the cultivators, but he occupied subordinate position in the economy of the village. The new forms of landholding, land revenue systems, legal procedures, and commercial agriculture of the nineteenth century opened a golden age for the moneylender (Daniel and Thorner 1974: 55). The working of the British revenue system created incentives to borrow but government supplied no alternative to provide credit except the *takavi* loans, which were insufficient and irregular. Therefore private creditors were free to exploit the peasantry and the provision of loans became the most profitable investment of local capital. A peasant might borrow cash to pay dues, where his zamindar's share of the produce was taken in cash, to buy cattle, or to spend on festivals, weddings, or funerals in order to fulfill his social obligations. A debt once borrowed, especially in circumstances of hardship owing to crop failures, was difficult to clear (Whitcombe 1972: 161-163).

Takavi were the official advances to the cultivators from public funds for agriculture purposes.

Most of the cultivators in order to pay heavy dues to their zamindars were compelled to sell more of their produce at the time of harvest. Moneylender in this context was indispensable to the state as he converted the crops into cash due to which land revenue could smoothly

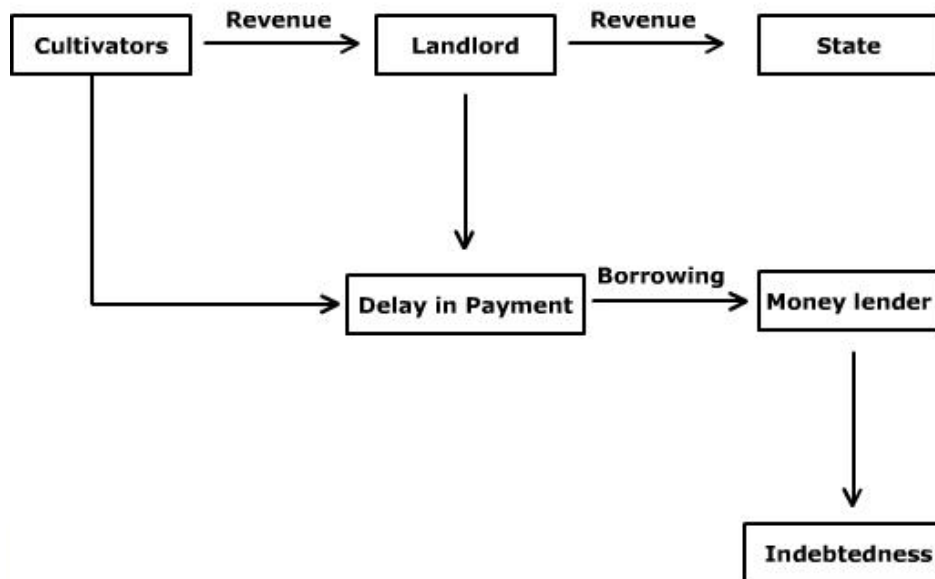
reach to the government coffers. Therefore it was inconceivable that government would interfere with what was in fact its vital source of supply. Rather moneylender was encouraged to expand his activities with the assistance of new legal procedure according to which if peasant defaulted in payment of his dues then his land, livestock, and personal possessions could be attached (Daniel and Thorner 1974: 55).

Burden of the cultivator could in no way be relieved by resorting to commercial agriculture as was assumed. As not only the cash crops were grown by means of loans but they were also subjected to the heaviest zamindari charges and were graded according to the scale of values ruling in the local markets. Sugar cane generally topped the list, followed by indigo, cotton and tobacco, etc. Local creditors who already reaped benefits from the reduction in takavi loans by the government and from the increased pressure on zamindars and cultivators to borrow owing to the system of revenue collection were presented with increased opportunities for business in those areas where the cultivation of finer grains and commercial staples had expanded (Whitcombe 1972: 171).

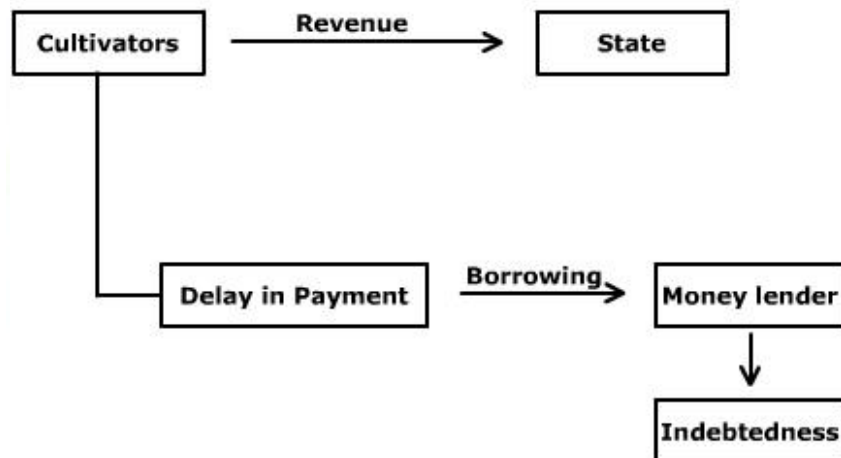
The colonial law and legal institutions contributed to the strengthening of the money lenders vis-à-vis the peasantry. The acquisition of land by *sahukars* was increasing rapidly. The stratification within the peasantry was becoming sharp and clear. The distinction between various groups in terms of size of landholdings and net incomes was clearly noticeable. The burden of the colonial state demand and usury was continuously increasing and majority of the cultivators and artisans were sinking deeper and deeper into debt. Social tension was building up by slow degrees. The agrarian discontent during the second half of the nineteenth century was mainly directed against the colonial state and professional usurers. Although differentiation within the peasantry was proceeding rapidly, internal antagonism came to surface only during the early twentieth century in the form of sporadic strikes by tenants and agricultural labourers against the dominant landowners (Nand 2003: 753).



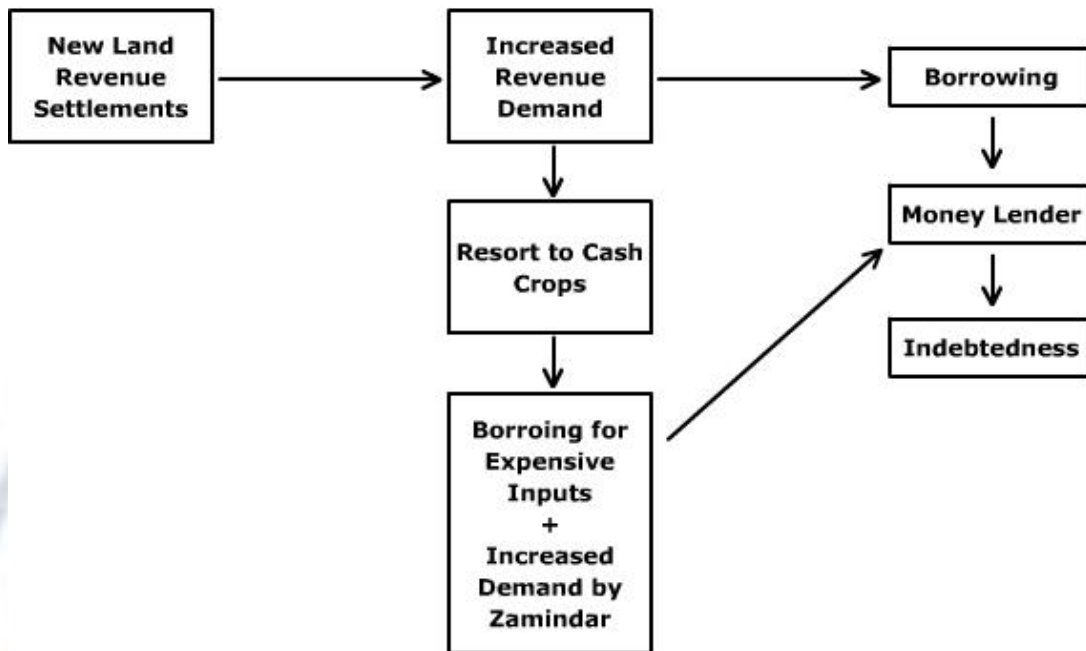
PERMANENT SETTLEMENT



RYOTWARI SETTLEMENT



COMMERCIALIZATION OF AGRICULTURE



1.9 Peasant Discontent and protest

The conflict in rural society was essentially centered on the appropriation of agrarian surplus by various agencies. The colonial state extracted surplus through heavy land revenue demand, taxes and fines. In addition, various intermediate agencies, like usurers and landlords, extracted a large portion of produce in the form of interest and rent. It pressed heavily upon the small peasants and tenants and led to numerous anti-usury protests and rent conflicts between the superior and inferior land holders (Nand 2003: 739-740).

In 1873, an influential Kili of Jamburi in Poona organized a series of attacks with the help of a well-trained group on the professional moneylenders who habitually cheated and oppressed the hill tribes. In May 1875, peasants unitedly attacked the property of usurers in the Deccan districts. In several places stocks and houses belonging to the moneylenders were burnt and their property was plundered. Usually Marwari and Gujarati moneylenders, who constituted the dominant sections of usurers, were the exclusive targets of these attacks. The village panchayats also declared complete boycott of Marwari and Gujarati moneylenders. Through common agreement called *sampatras* the village communities forbade all section of rural society to assist moneylenders in any form, and fines and social boycott were declared for ryots who violated the agreement (Nand 2003: 756).

In Bengal, the rebellion was witnessed among the peasants of eastern and central districts. In 1873, the Agrarian League was formed in Yusufshahi pargana of Pabna district, where the oppression of a few landlords pushed the peasants to the threshold of tolerance. In this area, the rate of rent had been continually going up, along with the illegal cesses or *abwabs*. Here the peasants through legal means took landlords to the court of law. Agrarian Leagues came up in Dacca, Mymensingh, Tripura, Bakarganj, Faridpur, Bogra and Rajshahi districts, where civil courts were choked with rent suites. Peasant protest against landlord

oppression was not confined to Bengal alone. The fight of the Moplah peasants against their *jenmis* continued in Malabar, while in Sitapur district of Awadh and in Mewar in Rajasthan peasants resisted rent enhancements and imposition of illegal cesses by their landlords in 1860 and 1879 respectively (Bandhopadhyay 2010: 194-195).

Another immediate and proclaimed motive of the peasant uprising was reduction in the land revenue burden. From the beginning, the colonial land revenue demand had been very heavy but it became unbearable after the enhancement of rates during the revision of 1868-71 which coincided with falling prices, shrinking markets and contraction of credit. The Poona Sarvajanik Sabha prepared the report on unjust rent and with the campaign carried out by native newspaper had to make reduction in 1875 (Nand 2003: 758). In the Kamrup and Darrang districts of Assam for instance, a new revenue settlement in 1893-94 which enhanced rates by 50 to 70 per cent was met by the organization of *raij mels*, mass assemblies of villagers led to the rural elite (Brahmins, Gossains and Dolois) which enforced non-payment of revenue through the weapons of social boycott or ostracism of those who broke the popular consensus by submitting to the government. In Maharashtra Deccan in 1896-97, famine conditions led to looting of grain-shops and demand for revenue-remissions under the Famine Code – a demand which the government rejected. The Poona Sarvajanik Sabha sent agents out into the countryside between 1896-97 to popularize the legal rights of cultivators in the famine situation (Sarkar 2008: 53).

In the initial phase there were sporadic instances of protest but later on the political parties tried to channelize this discontent through various anti-colonial movements. Apart from the submission of petitions and memoranda, there were sporadic incidents of violent protests by the peasantry against the land revenue system. In July 1917, the Home Rule League started an organized political campaign in north Gujarat. Its strongest centres were Nadiad and Godra (Nand 2003: 779). The Indian National Congress launched the “No-Tax” movement in Kheda in 1918. During the 1921-22 (time of Non-Cooperation Movement) the centre of political activities shifted to bardoli taluka in the Surat district, and a very intense propaganda was concentrated at non-payment of taxes. In 1928, the Congress launched another no-tax campaign in Bardoli. (Nand 2003: 779-83) And similar other movements were witnessed in later periods as well throughout the colonial rule in different parts of the country.

1.10 Agricultural Production under Colonial Rule

As far as the direct contribution of colonial administration in the development of agricultural production is concerned they were by and large ineffective or half-hearted. In 1870, after much insistence by the Viceroy, Lord Mayo, a Department of Agriculture was finally set up as part of the central administration of the Government of India at Calcutta. His original plan had been for a real working agricultural bureau but he was forced to content himself with the miscellaneous department i.e. New Department: Revenue, Agriculture and Commerce. The department was doomed to ineffectiveness from the start, sandwiched between the two massive pillars of Revenue and Commerce. It collapsed finally in 1879 under the combined weight of interminable restrictions on its activity in the field, insufficiency of funds and lack of staff, and the unremitting pressures applied by the India Office (Whitcombe 1972: 100-101).

In 1874, a subsidiary department was set up in the North Western Provinces (NWP) with the same objects in view. The provision for department could hardly inspire confidence in its capacity to perform the monumental tasks. In 1887, when the department had been in operation for thirteen years, the total agricultural expenditure for the NWP for that year was accounted at Rs. 101,400. Of this, the cost in salaries and wages for the director and his

subordinate staff came to Rs. 62,000; experimental farms took a further Rs. 12,400; well-sinking – throughout the provinces – took some Rs. 7,000. Given the resources allowed to it, the department could hardly do enough (Whitcombe 1972: 101-102).

Government also conducted various experiments with agricultural staples for export. For example New Orleans cotton seed amongst zamindars in Banda district in 1861 for bigger and better production. In 1869, Carolina rice seed was distributed to zamindars in certain districts of the NWP selected on grounds of prosperity and influence. Attempts at the improvement of agricultural staples of this kind were also made on model farms established for this purpose in the districts of Allahabad, Cawn pore, and Bulandshahr. Most of these experiments turned out to be an unqualified failure and met the similar fate due to the absence of any responsible controlling authority. Even in the occasional cases where government-sponsored experiments in improved agriculture were successful, problems arose as regards their diffusion amongst the rural population. Cultivators were indeed persuaded by a variety of incentives to produce valuable crops, and lamentable though this might be when viewing the declining production of coarse food grains (Whitcombe 1972: 102-107).

Takavi loans were also forwarded by government to the agriculturists but were either inadequate or arrived with so many conditions. According to Whitcombe, as early as 1861, it was recognized that advances were confined to the construction and repair of works of permanent utility i.e. for digging expensive type of wells, renovation of embankments. A period of 3, 4 or maximum 5 years was determined for repayment and in case of non-completion of work in stipulated time the entire advance with 12% interest was recovered. Advance for the purchase of seeds was restricted to the time of scarcity. In case seeds failed to germinate due to draught, government could intervene only when landlord was poor and even in later case the process suffered owing to the procedural hindrance. New law i.e. Land Improvement Act, XXVI of 1871, was introduced to amend the terms relating to advances for agricultural improvement but it too failed to narrow the gap between theory and practice. In 1874, due to failure of staple crop rice, famine occurred in Jaunpur, the loans advanced were at times absurdly as low as four annas (Whitcombe 1972: 114-115).

One positive improvement was beginning of canal irrigation in the Punjab, Western U.P and parts of Madras i.e. in non permanent settlement areas, where there was chance for enhancement in land revenue (Sarkar 2008: 36). From 1900 to 1939, canal irrigation doubled in absolute terms but better picture appears when we measure it in relative terms when colonial rule ended, only one fourth of area was under public irrigation. The reason for this was that these irrigation works were undertaken either with profit motive or to overcome the problem of ever increasing famines. For example, General Richard Strachey, as President of the Famine Commission of 1878-79, recommended immediate and special enquiry into two schemes: the Sardar Canal to be constructed in Oudh and Rohilkhand and a system of canals to be supplied from the rivers Betwa and Ken in Bundelhand. Work on the canals was proposed to provide relief for famine distress in the conventional form of temporary employment on public works that begun early in the 1880s (Whitcombe 1972: 66). These canal programmes only created island of prosperity and these were favourable to only rich sections as canal rates were very high and could be afforded by big landlords. Even the agriculture yield in India remained static and between 1920 to 1947 production could not keep pace with the growing population. Famines were not occasional but rather became a common phenomenon (Bandhopadhyay 2010: 124-125).

1.11 Conclusion

The impact of colonial rule was most deleterious on its agriculture economy. It witnessed the unprecedented changes in the land relations by altering the old pattern and replacing it with new settlement system suiting the colonial interest. On the one hand, Bengal experienced Permanent settlement, which supplanted the land rights of cultivators giving rise to the new phenomenon of landlordism, which was an alien concept suiting the land relations in Britain. On the other hand, Bombay witnessed the Ryotwari settlement, where direct contact with cultivators was made for the collection of land revenue, though their land rights were preserved but at the cost of heavy demand. In case of both the settlements ultimate loser was the village community, which so far had cushioned the poor tenants and landless cultivators from yearly shocks of heavy demands especially during the lean years owing to natural calamity. Besides landlordism two new concepts were also introduced those were that of absentee landlord and moneylender, who did not belong to the village society and hence had least concern for the cultivators. They charged usurious rate of interest drawing peasantry to deep under the indebtedness eventually depriving them of their small landholdings. The high demand of land interest and capitalist industrial demand for raw-material forced the cultivators to grow commercial crops, which on face value appear the sign of prosperity as was expected to bring high return to the growers of these crops. But in reality these crops required high inputs, which came from borrowed money that dragged cultivators further in debt and this was accompanied the high demand by landlords on such crops. The de-industrialization of India over-crowded the already exhausted lands when jobless craftsmen returned to agriculture in absence of any occupation. Colonial government did not invest much either in form of capital or technological development, which could have upgraded the agricultural economy therefore paving way for utter ruination both of agriculture and cultivators from which India could not recover even decades after independence.

SECTION B: ECOLOGY

2.1 BACKGROUND

Indian sub-continent is a vast landmass replete with diverse geographical regions with its distinct vegetation and climate, inhabited by various races with its own specific culture and occupation commensurate with the ecology of the region. Inhabitants of these different regions since time immemorial lived in harmony with nature. This incorporation of nature in their life is represented in various ritualistic forms of worship i.e. tree worship, etc, and celebration of seasonal festivals associated with agricultural cycle i.e. sowing, harvesting time, etc. People had exploited nature initially for subsistence purpose and as population grew and civilization developed the needs of people led to an increased exploitation of resources but the process was gradual and not adversarial. The real weight of exploitation was felt after the colonization of India by European powers and its integration to the world capitalist system. Policies were devised region-wise keeping into account their natural produce in accordance with utilitarian purpose. This impact of colonial intervention was more apparent in context of Indian forests, whose continued exploitation not only denuded them permanently but at times erased their very existence.

Ecology of colonized nation can be influenced through multifaceted factors i.e. for simple leisure activity of game-hunting to well laid out policy to fulfill the revenue and strategic needs of the empire. The study of colonial period in reference to its impact on Indian ecology is imperative as it not only disrupted the relationship of forest based communities

with the land but also because the customary restraints on the use of trees that had earlier ensured renewal of forest land was now due to colonial land control and commercialization led to deforestation (Guha 1989: 29). Administrative intervention in forestry was more crucial than other form of land management. Imperial foresters sought to impose an absolute notion of landed property, and also tried to transform the forest into a managed landscape where land use would be under colonial supervision and control. The lives of underprivileged groups were deeply affected by the changes brought about by it, but this only reinforces the need to study the imperial forest policy (Rangrajan 1996: 8).

2.2 Debate

There are two diametrically opposite views that could be traced in the debate around the impact of Colonial Forestry in India. Each school forwards their argument eloquently to serve their respective ideologies. Mahesh Rangarajan in his Master-piece *Fencing the Forest (Delhi, 1996)* analyses both the schools of thought and counter the Imperialist view through his own studies. Here I would like to reproduce this debate for our better comprehension of the topic. Imperialist forester historians like Ribbentrop in *Forestry in British India (Calcutta, 1900)*, argues that scientific forestry marked the end of 'war on forests' while referring pre-colonial phases as a destructive one. On similar lines E.P. Stebbing argues in *The Forests of India (London, 1921)* that rapacious private interests were brought under scientific supervision and control in the colonial period. Grove in *Green Imperialism* contends that deforestation had significant proportions before the advent of colonialism. Hence changes in the colonial era were thus a culmination of trends that had their roots in pre-colonial society.

These views have been countered logically by Ramchandra Guha and Madhav Gadgil. Guha in *The Unquiet Woods (Delhi, 1989)* challenges the premises of imperial historians. He argues that the practices of colonial forestry were largely an outgrowth of the revenue and strategic needs of empire. The colonial period was as ecological watershed as it disrupted the relationship of forest-based communities with the land. Guha and Gadgil both in *State Forestry and Social Conflict* argued that in the earlier situation village communities had control over management and disposal of forests and uncultivated lands. Demands by dominant land-holders and rulers were limited, and never approached the scale they did in the subsequent period of colonial rule (Rangarajan 1996: 5-15). To bolster their argument Gadgil and Guha in their work *This Fissured Land: An Ecological History of India*, also refers to Alfred Crosby's work *Ecological Imperialism: The Biological Expansion of Europe* (Cambridge, 1986), wherein Crosby elucidates how colonial powers had exterminated the native ecosystem paving way for 'Neo-Europes', the extensive and enormously productive agricultural systems that dominated the New World but in the process of migration also brought the animals, plants and diseases with them, which enabled Europeans to politically dominate the temperate regions of north and south America as well as the continent of Oceania. But the complex Old World civilizations in the Middle East, China and India were beyond their grasp due to their sophisticated socio-political organization, population densities, agricultural technology and resistance to disease – all these made these areas resistant to the ecological imperialism of Europe and hence they decided to conquer the tropics. In the words of Crosby if in the Neo-Europes, ecological imperialism paved the way for political consolidation, in India the causation ran the other way, their political victory equipped the British for an unprecedented intervention in the ecological and social fabric of Indian society (Gadgil and Guha 1992: 117-118). Hence after learning about above contentions it is imperative to develop some understanding of Pre-Colonial India before proceeding towards studying the impact of Colonial rule on Indian ecology in the light of aforementioned arguments.

2.3 Pre-British India

India being the cradle of one the oldest civilizations had passed through the evolutionary process of agrarian extension towards the urbanization during the ancient period i.e. 500 B.C to 600 A.D as well as medieval period i.e. 1200 A.D onwards. In case of the former the discovery of Iron played a vital role in clearing of forest vegetation of middle gangetic region and extension of agricultural area. This process must have continued even during the period from 700 A.D to 1200 A.D when trade and commerce seems to have declined and economy reverted back more towards the agriculture. In case of later during medieval times in addition to long-term measures for the extension of agriculture, forests became target of attack in order to extend the military and political power of conquerors and of landed elements. Woodcutters and ploughmen accompanied the Mughal army from the time of Shah Jahan (1628-56), as well as there was a general order that whosoever cleared a forest and brought land under cultivation, such land should be zamindari (Alam 1991: 12). The pre-British regimes did not attempt to regulate systems of land use in forest tracts, beyond offering incentives for the extension of cultivation. Their main concern was with retaining military control and collecting land revenue (Rangarajan 1996: 44).

The forest was of peripheral importance in the scheme of things. State sometimes asserted their prior rights to certain commercially valuable products and Mughals especially made no effort to conserve or exploit forests on a systematic basis and restrictions in forests were largely limited to the exaction of dues by local or imperial authorities (Moreland 1996: 13). The conditions of forest remained healthy in pre-British time could be assessed from the statement of an English official William Sleeman who described the jungles as being thick enough to be impenetrable even by cannon shot. Soldiers could only enter through narrow paths, and were vulnerable to attack by defenders (Rangarajan 1996: 14).

On similar lines Britishers after occupying Kandesh in 1818 had to deal with the Bhils, who seem to have been raiding British camps from the shelter of the hills. According to them this problem was due to the difficult nature of the country and would resolve when the jungles may in some degree be cleared by burning them (Guha 1999: 131). In above respect Sumit Guha says that apart from the unchallengeable superiority of the British Indian army in pitched battles and sieges, there was a new force – forest clearance as consequence of the great sedentarisation that British supremacy was able to impose over much of the sub-continent.

2.4 Commercial Agriculture and impact on Village Common Land

In the early decades of colonial rule forests were viewed by administrators as an impediment to the expansion of cultivation. With state committed to agricultural extension for revenue generation purposes, India witnessed a fierce onslaught on its forests (Guha and Gadgil 1989: 123). The primary purpose of the state was to extend agriculture with the aim of raising as much revenue as was possible. So any land that did not generate revenues and was not under agriculture or was not forest was designated a 'wasteland'. And the colonial wasteland were defined as that which constitute barren, unculturable hills, a small quantity of culturable soil in the valleys, and water-courses between them, or else of land more or less flat or fertile, lying in the valley of the river, uncultivated for many years. However, the category of 'government waste' also included lands covered with dense scrub jungle, bushes, woods, grasses, brushwood, stumps, and deserted fields.

According to Laxman D. Satya in central India commercial agriculture expanded over those village common lands that the British colonial state designated as 'wastelands' and the

cattle in Berar region survived on these lands and therefore became the prime target (Satya 2004: 66-67). The land survey and settlement operations in Berar went hand-in-hand with the izaradari system¹ to meet these ends. The state assessed the value of these lands and then cut them up into blocks. The blocks were leased out by auction to be brought under the plough as long-term izara holdings. The leases were given at rents mounting upwards, gradually, year after year. The survey operation was to identify all the cultivated lands, common lands, forest lands, and mineral resources of the province for future exploitation by the state. But, *common lands* were the worst targets of these operations (Satya 2004: 66-70).

2.5 Colonial Laws and Forests

Agricultural expansion being main source of its revenue, British occupation initially witnessed this expansion at the expense of forests. Beginning of colonial interest in forestry could be traced back, according to Guha and Gadgil, from the reservation of teak forests' in Malabar in 1806. They inform that with the depletion of Oak forests in England and Ireland, the teak forests of the Western Ghats were used for shipbuilding. As Indian teak was durable it was extensively used in Anglo-French war by Royal Navy and by merchants' ships in later period (Guha and Gadgil 1989: 144-145). There was a reversal in colonial policy of extending cultivation at the expense of forests when colonial state faced with an acute shortage of usable timber at the time of railway expansion. The early years of railway expansion saw an unprecedented assault on the forests. Private contractors, both Indian and European, were chiefly responsible for this devastation. Lord Dalhousie, had in 1862 called for establishing a department that could meet the requirement of railway companies (Guha and Gadgil 1989: 145).

The forest department was started because government realized that the forest wealth of Indian was not inexhaustible and would be eliminated soon if private enterprises were not contained in time. It was in this situation that the Indian Forest Department was formed in 1864 with the assistance of German foresters (Guha 1983: 1884). For the effective functioning of this department, legislations were enacted to curtail the rights of the indigenous communities. The early attempt at asserting state monopoly was brought through the Indian **Forest Act of 1865**², which later was replaced by a more comprehensive legislation namely, Indian Forest Act of 1878. The perceived ambiguity in Act of 1865 with respect to state proprietary rights over forests was resolved through the Act of 1878.

The **Indian Forest Act of 1878** established that customary use of forest by the villagers was based not on 'right' but on 'privilege' and this privilege was at the mercy of local rulers and now Britishers being the ruler were the repository of same privilege. The Act on one hand, allowed the usurpation of the forest by the state without any legal settlement of rights by 'reserving' the certain blocks of forest for sustained timber production for colonizers' commercial interests by limiting the customary rights of users (village community) and on the other hand, through forest settlement operations specified the extent and limits of rights in particular blocks where villagers' rights could be exercised (Guha 1985: 1941).

This was done through the classification of forest in three types. *Reserved Forests* were established in areas already owned by the Indian Government. They were intended to

¹ *Izara* meant that the expansion of cultivation over common lands under state patronage.

² The law allowed officials to manage and preserve forest resources for strategic and development needs by regulating trade and exploitation of forest products.

provide ecological stability and maintain the supplies of commercial timber which British strategic and developmental goals required especially in areas with large compact stands of commercially valuable species that could sustain long term exploitation. Here the exploitation of forest by local population was restrained. The second category was of *Protected Forests*, which would become reserved forests in future and hence were demarcated and covered with working plans. In these access was reserved to commercially valuable trees and restrictions were imposed on activities like grazing. In third category of *Village Forests*, the full governing power had been assigned to village authorities by the state government. To maintain the reservation of above forests state appointed Forest Settlement Officer, who would identify the claims of local people and could grant them wholly or partially, or could terminate them through compensation in the best interest of the colonizers (Haeuber 1993: 53-54).

As traditional rights of villagers progressively curtailed it led to the outbreak of rural unrest and its detrimental impact on village community and its potential threat for government was acknowledged in reports sent by officials. Government modified its policies through the **Forest Policy Resolution Act, 1894** to accommodate the demands of locals on forest lands i.e. clearing land for agricultural extension. Forests under government management were divided into four categories: a) Protective Forests, reserved to maintain environmental stability; b) National Forests, reserved as areas providing a sustained supply of commercial timber; c) Minor Forests, including village forests and areas yielding only inferior timber, fuelwood and fodder; d) Pasture lands. Despite all show of concern for locals the restrictions on popular access to forest resources were maintained as body politic took precedence when larger interests were served by limiting individual use and access (Haeuber 1993: 56).

Next Revision came through the **Indian Forest Act of 1927**, which further extended the government control. Basic forest classification of 1878 Act remained and as per new provisions government was allowed to assume management of private forest and extend protective control over forests not owned by the government. It further restricted the rights of locals in forests. In 1935 with the passing of **Government of India Act, 1935**, forestry administration came under the authority and control of provincial legislatures and role of central government was restricted to research and education but it still continued to exert strong influence in practice. The last legislation in context of Indian forest policy under British colonial rule came in 1944 in response to increasing public outcry and its capitalization by Gandhi during Civil Disobedience Movement. Based on the guidelines of 1894 Act the status quo was maintained by asserting that as per **Act of 1944** preservation of physical and climatic conditions were top priority, and a minimum amount of forest should be maintained to ensure the country's well being. If these conditions were fulfilled, then agriculture should take precedence over forestry (Haeuber 1993: 56-58).

2.6 Railways and Scientific Forestry³

The initial years of railways expansion witnessed an unprecedented assault on the forest wealth. Large areas of forests were destroyed to meet the demand for railway sleepers, no supervision was exercised over the felling operations. Before the coal mines of Raniganj became fully operative, the railways companies also indulged in widespread use of local timber as fuel for the locomotives. The crisis in the words of Ramchandra Guha became more acute since only three Indian timbers i.e. *sal*, *teak* and *deodar*, were strong enough in their natural state to be utilized as railway sleepers. Sal and teak, being available near railway lines in peninsular India, were very heavily worked out in early years, necessitating expeditions into the North-Western Himalayas to search for deodar forests. The deodars of

³ The protection of the forests and their rational use with commercial consideration was called 'scientific forestry'.

the Sutlej valley were rapidly exhausted in the years following the inception of Forest Department (Gadgil and Guha 1983: 1884). Guha further states that one must not underestimate the changes happened in the forest ecology as the task of colonial forestry was to change the species composition of the largely mixed forests of India in favour of component species that had an established market value i.e. conversion of mixed coniferous/broad leaved forest of Himalayas into pure coniferous stands (Guha and Gadgil 1989: 147).

Moreover the railway network was created to meet the need for rapid troop communication felt after the mutiny (revolt of 1857) and for enabling the characteristic pattern of colonial trade i.e. export of primary commodities from the colony and import of finished goods into the colony from the metropolis besides opening the outlets for investment of British surplus capital abroad. But the extension of the railways and roads took its toll on traditional grain and goods carriers i.e. *banjaras*. The result of railway extension was that the wheeled transport had completely displaced pack transport, and the banjara had lost his former means of livelihood. Hitherto, the banjaras had brought cattle to the large cattle markets. The decimation of the banjara cattle trade led to the decline of cattle quality and breeding. This also paved the way for the proliferation of cattle diseases in the region (Satya 2004: 75-76).

2.7 Control over Grazing and Shifting Cultivation

Grazing and Shifting cultivation, the life blood of tens of millions of Indians, was singled out by foresters as activities to be totally banned in areas under their control. Such hostilities, Guha asserts, bears the mark of its origins, for, in other countries dominated by German forestry techniques, agriculture and forestry were likewise considered separate and often opposed activities (Gadgil and Guha 2000: 141). The Colonial Forest Policy affirmed that grazing in forest particularly uncontrolled grazing was incompatible with scientific forestry (Guha 1985: 1943). One of the colonial official, Forsyth, explained that teak saplings in Betul rarely grew into large and well-shaped trees in the absence of careful thinning and pruning. Several officials favoured the exclusion of livestock in order to assist the regeneration of teak. Therefore prohibition of grazing was seen as the only way of improving teak re-growth (Rangrajan 1996: 66). However, according to R. Guha, the impact of grazing on young regeneration has been a subject of debate among Indian foresters for over a century (Guha 1985: 1943). The other reason that led to the scarcity of grazing lands was the encroachment on wastelands by the colonial forest department. Once the forests were designated for commercial exploitation, all movement inside was banned as an obstacle to commercialization. Since cattle in Berar, as L. D. Satya informs, had moved freely in and out of the forests before the government resumption of forest lands, the first order of business after the takeover was to put a stop to this movement. In the name of protecting and conserving the forests, a new colonial ideology was devised to remove cattle and people from the forests (Satya 2004: 83).

According to Laxman D. Satya one way to raise revenues from fast disappearing common lands was by controlling cattle, grazing, and farmers. He elucidates in context of Berar that after coming under the colonial control of British East India Company, a grazing tax was levied to raise revenues. The peculiarity of this tax was that it was levied on every head of cattle per annum. It was in 1854-55 that attention was paid to Grazing Tax which was formerly not levied and it was sold by the contract. From the modest beginning of a 1 anna tax per head of cattle, the grazing levy gradually increased in value and became more and more profitable to the state. The overall collection of grazing dues increased tremendously from a modest Rs. 5000 in 1854-5 to Rs 34,213 in 1857-8.

However, the year 1884-5 marked a watershed in the state cattle revenue gathering mechanism in Berar. There was a transition from 'contract farming system' to colonial pass system'. These passes allotted limited access to the shrinking pasturelands. Passes were granted to cattle owners under which they could graze their cattle from the commencement of the rains till the end of October. Cattle and their owners were however, left to fend for themselves beyond the time limit on the passes. These passes had to be renewed annually and the colonial government had the discretion to permit or deny renewal. Every cattle owner was issued a passbook upon declaration of the number of cattle in his possession that would graze in the state's grazing land. This passbook was issued on payment of tax for every head of cattle and the owner had to carry it on his person (Satya 2004: 79-80).

Also the exclusion of fires from the forests was an important feature of the Forest Management Programme. As *jhum* or shifting cultivation involved the clearing and cultivation of patches of forest in rotation, the individual plots were burned and cultivated by local tribes of hilly regions for few years and then they were left fallow for an extended period allowing the soil to recover the lost nutrients. Cultivators then move on to the next plot, abandoning it in turn when its productivity starts declining. Colonial administration viewed *jhum* with disfavor as a primitive, unremunerative and the most destructive of all practices for the forest. It was more so because timber operation of administration competed with *jhum* for territorial control of the forest and official hostility to *jhum* gained an added impetus with the commercialization of the forest (Gadgil and Guha 1989: 151-152). Guha writes that Korkus of the Pachmarhi hills cleared land for temporary cultivation by burning forests, while foresters saw fire as the fatal foe of timber trees (Rangarajan 1996: 66).

2.8 Colonial injunctions and control over nomadic life

The rapid contraction of pastures and grazing lands aided in the creation of government forest reserves. However, there was yet another political reason for the takeover of forests, pastures, and grazing lands. This was the state's fear of the indigenous people with a migratory lifestyle (Satya 2004: 73-74). In his study of the *baigas* of the Central Provinces David Baker has revealed how the colonial state systematically decimated the lifestyle and culture of these forest dwellers who for generations had successfully combined hunting-gathering with slash and burn agriculture (Shifting agriculture) into a rather unique system called *bewar*. This naturally called for a migratory lifestyle that came in conflict with British commercialization of forests and fear of migratory people (Baker 2004: 74).

In reference to Berar, L.D. Satya mentions that since time immemorial, various social groups had lived a migratory lifestyle. While the *korkus* and *gonds* lived in the forests of Melghat, the *banjaras* were the traditional grazers and keepers of carts and cattle over the Deccan plateau and provided goods and services on their bullock carts and cattle. The people of the plains and hills conducted agriculture and animal husbandry and interacted with the forest dwellers and the banjaras at both the commercial and social level. Berar's society was a complex mix of forest dwellers, pastoral nomads, and agriculturists who depended upon each other for their survival. Through its political and legal instruments, the state launched a massive attack on the korkus and banjaras with the ulterior motive of making them settle down permanently. The colonial police and military forces were brought to force them into a sedentary lifestyle after the courts had declared them as criminal castes and tribes (Satya 2004: 74).

In reference to western Punjab and expansion of canal irrigation there, Indu Agnihotri writes that to the colonizers the vast grazing grounds of western Punjab represented nothing but 'wastes'. Legislations such as Forest Act, 1878 as well as Criminal Tribes Act, 1871 were

invoked to appropriate the vast 'wastes' and to curb the rights of the original settlers to these tracts. Pastoral nomads were of little consequence in a plan as unique as the one laid out for Punjab. Neeladri Bhattacharya in his *Pastoralists in a Colonial World* referring to Punjab says that the Criminal Tribes Act of 1871 gave legal sanction to official actions against 'wanderers'. By this Act, wandering became a crime and habitual wanderers were confined to their villages. Licences of leave were to be issued and anyone found wandering without a licence was to be prosecuted, fined, and arrested. Pastoralists in the Canal Colonies were classified as criminal; in many districts *Gujars*, *Bhattisi*, and other pastoral groups appeared in the list of criminal tribes (Bhattacharya 2012: 306).

2.9 Colonialism and the Conservation Policy

Conservation to Britishers, according to Michael Mann, did not mean preservation of forests but simply a guarantee of timber supply by forces of a market and simultaneously, preventing the exhaustion of forests above their capacity of natural regeneration. Securing profits from trade on the one hand and revenue income from duties and taxes on the other hand became the main purposes of early colonial forest policy. The depletion of Indian forests and requirement of timber for commercial purposes i.e. railways (1850 onwards) led to the formation of forest departments, whose forest management was institutionalized with the passing of the Indian Forest Act in 1878. The protection of the forests and their rational use with commercial consideration was called 'scientific forestry' (Mann 2011:431-432).

In his study on afforestation of Chambal-Jamuna Doab of ravine ecology, he elaborates that ecologically *dhak* tree was the most apposite specie to be planted as it could serve to maintain the ecological balance of the countryside in the unique way as it not only grow in damp soil but also flourishes in the salty soil and before the deforestation of the region it was the dominant tree. But during the afforestation programme its plantation was not taken into consideration and rather it was replaced by *babul* tree as the bark of the *dhak* did not meet the needs of the tanning industry of the region (Mann 2011: 441).

2.10 Ecological Changes

Two case studies below will manifest how in the case of former the improper implementation of colonial irrigation project led to the ecological imbalance in the geological environment of the Punjab region which resulted in the spread of Malaria disease and the later study would reveal that how the unfounded reasons and fear of colonial officials about Malarial disease in forest area while chasing tribal led to their destruction of forest and its ecology.

In case of Western Punjab the canal irrigation was extended to regions where settled agriculture was not yet the established mode of livelihood. Here irrigation was not designed to assist agriculture and diminish the losses from seasonal vagaries, but to create it where before it did not exist. The root of the problem lay in the manner in which a vast scheme was launched without paying attention to specifics. The trouble arose in the irrigated tracts, due to water-logging and the formation of alkali lands, had been owing to the failure to correlate a new irrigation system with the natural drainage of the tract. The report on soil and agriculture in Punjab also concluded that on account of the construction of the big canal systems and the consequent seepage, or sometimes an interruption in natural drainage, water had accumulated in the upper soil layers to such an extent that some of the soils were going out of cultivation on account of water-logging. Water-logging was usually accompanied by patches of *kallar* (salts), which did not allow the seeds to germinate. In many places, irrigation water had washed the saline matter through to the subsoil water table. Subsequently, with the evaporation of water, these deposited salts formed a

persistent *kallar*, impossible to deal with except by drainage on a large scale. Irrigation tended to accelerate this weathering process and with the rise of the water table saline matter undoubtedly came to the surface in greater quantities (Agnihotri 2012: 48-53).

Canals undoubtedly brought malaria and other fevers. The mosquito has made a permanent home with damp soil. Malaria, which was a periodic epidemic of the rainy season was now became perennial disease. Between 1860 and 1947 in Punjab, fever as a cause often accounted for half to three-fourth of reported deaths. The physique of the agricultural classes was gravely endangered, for a malaria-ridden peasantry cannot hope for other than weakly offspring. Apart from fever, in the first decade itself the Colonies suffered from cholera in 1892, 1899, 1900, 1903, 1904 and 1908 and plague in 1902, 1903, 1907, and 1909 (Agnihotri 2012: 55).

In the second case, according to Arnold David from about 1770 in the Jungle Mahals on the western borders of Bengal, from 1819 in Kandesh, and from the 1820s and 1830s in the hill tracts of the Northern Sircars in Madras, the British launched punitive raids against hill and jungle, tribes, sometimes capturing, imprisoning, or executing a hill raja, or winning the promise of future obedience from 'refractory chiefs'. But soon it became evident, hill and forest populations were protected in no small part by the terrain, vegetation, and diseases of the regions they inhabited. The endemicity of many forests or tribal areas was an obstacle to outside intervention and control and when Company troops were sent on a punitive expedition into the hills there commander soon reported the severe sickness paralyzing their efforts and disheartening them. In many of these tribal/forested regions the support that disease and other environmental factors gave to political dissent lasted well into the second half of the nineteenth century. Of the 2,400 soldiers sent to suppress the rebellion in Rampa in 1879-80, nearly a quarter were rapidly incapacitated by malaria. As late as the Rampa rising of 1922-4 malaria and blackwater fever severely hampered military operations against the rebels (Arnold 2012: 148-149).

Even though the precise cause of malaria remained obscure, it was widely believed that forest clearance helped to remove the disease. Endemic malaria was so closely associated with forests that the term 'jungle fever' was used for it. Finally when the cause of malaria was later identified it was concluded that destroying the forest habitat in which malarial anophelines flourished was due to material improvement and more effective government in such regions. And once the forests were felled, the ecological package that had helped protect the tribal for so long rapidly fell apart, and further encroachment ensued. But it should be noted too that a high degree of tolerance of endemic malaria did not help tribal when it came to other disease. As roads, railways, and markets brought tribal populations into greater contact with the outside world, so were they exposed to disease against which they had no immunity. Smallpox and cholera took their toll, and so too did bubonic plague which followed the opening of the Bengal-Nagpur Railway into the tribal interior of Orissa and the eastern Central Provinces in 1903-4. Even more destructive was the influenza epidemic of 1918-19 in areas like Rampa (Arnold 2012: 152-157).

2.11 Conclusion

Colonial Forestry is a long saga of exploitation which started with colonizers' increasing need for revenue leading them to clear as much forested land as was possible for agricultural purpose because later was the mainstay of their revenue generation. But beginning of railway networks and impending crisis of timber due to mindless felling of trees by both Indian and European private contractors brought colonial administration to the realization that forest wealth of India was not inexhaustible. In the wake of above realization followed establishment of Forest Department and formation of series of legislation and forest

conservation and management policies. All these measures were formulated and implemented not for serving the ecological needs of India but for maintaining and sustaining the strategic and commercial interest of colonial rule and it was justified through the instrument of Scientific Forestry. What followed was the degradation of forest resources of India, ruination of its village community and culture and devastation of life of millions of tribal, nomads, rhythm of whose life was based on practices developed over ages in consonance with the local and regional Environment. The unplanned projects of colonizers not only spoiled the ecology but also paved way for fatal diseases which took away precious lives both human and animal. Though the exploitation of forests happened in pre-colonial time as well but it was gradual and non-adversarial but colonial period witnessed this at disproportionate level which was neither sustainable nor recoverable and had done the damage which could not be repaired long after independence as ecology of the sub-continent itself was greatly transformed.



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Exercise:

- In what ways new land revenue settlements transformed the land relations in colonial India?
- Discuss the reasons for the Indebtedness of peasantry.
- How far Permanent and Ryotwari land settlements were responsible for breaking the village community based rural society?
- Discuss the process of Commercialization of Agriculture and its impact on Indian economy.
- Discuss the impact of colonial forest policy on tribal and nomadic life.
- What do you understand by Scientific Forestry?
- Discuss the process of evolution of colonial legislation in reference to forests?
- Role of Railways in the creation of forest policy.

