

## **Review of Literature**

In this chapter the existing literature on various aspects of JFM is reviewed. At first in section 2.1 history of the genesis and development of forest management activities in India in general and West Bengal in particular is studied. This explains how and under what condition JFM has emerged. It then examines the available literature with an aim to identify the salient factors that influence the JFM program in the subsequent sections.

### **2.1 Historical Background of Forest Management in India**

Forest has a profound impact on the life of the people who live in and around the forest areas. On the one hand, the rapid degradation of forest resources in the country has caused deterioration in the quality of forest. On the other hand, the shrinking and deteriorating quality of forest has negative impact on meeting the survival need of the people from the forest. In consequence, this spiral of forest land threatens both the environment as well as social and economic stability of the region (Poffenberger and Mcgean, 1996). Palit (1993) has described that this degradation has continued over a long period of time and divided it into pre colonial, colonial and post independence stages. Indian forests were under government control for over a hundred years with very little public participation. Like other parts of the country West Bengal has also witnessed a rapid erosion of forest resources over the past decades. According to Gadgil and Guha (1992), until the arrival of the British, homogeneous social groups used to control the resource use through their own social norms. The Indian Forest Department was created in 1864. The first Forest Act was introduced in 1865 to establish state control over forest followed by the 1878 Act that has further alienated local people from the access to forest. It has brought the forest under complete state control and granted mere privileges and concession to them (Guha, 1996). Poffenberger and Singh (1996) argued that the Act emphasised commercial use of forest, particularly for looking after the need of the railways, ship building, defense and industry (Palit 1993). The commercial orientation of the forest department for management of the forest on the one hand and the deprivation of the local people to enjoy the traditional forest rights on the other has given rise to animosity between the forest department and the local people.

## **2.2 Evolution of Forest Management in West Bengal**

### **2.2.1 Pre Independence Era**

South West Bengal has the largest concentration of JFMCs, i.e., 78% of the total JFMCs in the state in the three districts of Midnapur, Bankura and Purulia only (State Forest Report 2008-09). The area historically was under the rule of local principalities. Under the permanent settlement of 1793, the British allocated designated territories including forest lands to Zamindars (landlords). Due to heavy demand of sal, the principal species, the rotation for coppice felling is reduced to 5-6 years. The short rotation period has accelerated soil erosion. The Bengal Private Forests Act in 1945 was issued to regulate forest felling by intermediaries and the rotation was fixed at 10 -15 years for harvesting sal trees. After the enactment of West Bengal Estate Acquisition Act, 1953 the management of forest came into the direct control of the forest department (Guhathakurta and Roy, 2000).

On the other hand North Bengal forests had a long history of scientific management under the direct control of forest department. Conservancy of forest in India started in August 1864 and the first set of reservations were notified on July 13, 1865 for some hill forests of Darjeeling and sal forest of the terai. Forest demarcation and reservation proceeded fast under this act and then under Indian Forest Act of 1878. By 1896, almost the entire forest area under Darjeeling and Jalpaiguri districts were notified as Reserved Forests (RF) after extinguishing the rights therein barring a forest block under the Zamindar of Baikunthapur. The forest was managed based on working plan prescriptions since 1874-75 in the plains (Guhathakurta and Roy, 2000).

In case of Sundarbans leases were granted to convert forest lands for cultivation for better revenue earning since 1773. Till 1853, the government had declared that the primary objective of its policy in the Sundarbans was a speedy reclamation of the area for cultivation. With the intervention of Dr. Brandis, government stopped granting leases and the permit system was adopted from 1872-73 for regulation of collection of forest products. Between 1878 and 1879, the entire area was notified as Protected Forests. Reservations started from 1928 and by 1943 almost the whole area was notified as Reserve Forest (Guhathakurta and Roy, 2000).

### **2.2.2 Post Independence Forest Management Policies**

Even after independence, the Indian Forest Policy 1952 granted the sole responsibility of collecting and marketing timber and other forest produces to the forest department (Jodha, 1986). It has stated that timber production for industry and other national purposes like defence and

communication is the main objective and that use of forests by the villagers could not be at the cost of national interest. As a result, plantation of few commercially valuable timber were promoted upto fifth plan period (Guhathakurta and Roy, 2000). Although concerns were articulated in the 1952 National Forest policy with respect to degradation and diversion of forestlands, little was done to present this at the implementation stage (Ray, 1998).

Through enactment of West Bengal Estate Acquisition Act 1953, vast stretches of forests came under the control of forest department. After local ownership was relinquished and before the land was brought under state control, massive exploitation of forest took place (Poffenberger and Singh, 1996). According to Palit (1996) forest department still continued to view people as the main offenders and hurdle in forest protection and for the community, forest department was their main enemy.

New Acts like Wild Life Protection Act 1972, Forest Conservation Act 1980 were also introduced depriving people further of their customary rights. Restrictions in designated wildlife protected areas were made more stringent by Wildlife Protection Act. Though Forest Conservation Act placed control over logging and recognised the need of the local people but custodial policing failed to protect the forest.

Two important factors, which are often considered as prominent in forest degradation are over grazing and fuel wood collection beyond the carrying capacity of forest ecosystem (Lal, 1992 as quoted in Ray, 1998).

The National Commission on Agriculture through its report in 1976 advocated social forestry on non forest land to take care of rural demand for forest produce for the poor, while forest lands were sought to be assigned to the industry (Guhathakurta and Roy, 2000).

Social Forestry Program was introduced in the early '80's to solve the fuel and fodder need of the people from outside forest. West Bengal Social Forestry Project (1982- 1991) was funded by the World Bank and the government of West Bengal. This program for the first time opened the avenue for discussion between forest department and community (Poffenberger 1996). Social Forestry programme was initiated to solve the fuel and fodder need of the community in early 1980's in West Bengal but has failed to address the conflicts regarding tenure rights, equity and responsibilities over natural forest systems. (Palit 1996).

Since the adoption of Estate Acquisition Act in 1953, conflicts between the villagers and the forest department started mounting as they used to view forest department as prohibitor to use the Common Property Resource. Plantations and field nurseries were burnt. In North Bengal, violent agitations were made by Forest Villagers to abolish the system of free labour during 1960's. Encroachment of forest lands were made by the migrants from Bangladesh, Nepal and Bhutan. Organised maffia groups engaged villagers for timber felling in North Bengal. Due to declaration of Sundarban Tiger Reserve, hundreds of people have denied access to their age old livelihood of honey collection, fishing and wood collection that had again caused conflicts (Guhathakurta and Roy, 2000).

All these conflicts have given rise to a bundle of very complex and serious problems including loss of forest resources, dwindling forest revenue, loss of lives of forest staff, social boycotts and harassment of the field staff.

Within this hostile backdrop during early 70's there were some successful cases of involving people for protection of forests by some of the forest officials in Arabari in Midnapur district and Purulia district (Malhotra and Poffenberger 1989, Roy 1993, Sarin et al 1996, Banerjee 1996, Chatterjee 1996,).

According to Poffenberger (1996), independent community initiatives as well as those promoted by progressive foresters remained isolated from one another barring individual efforts of some forest officers at their levels.

Based on the success story of Arabari, West Bengal Government issued orders in 1989 and amended it in 1990, 1991 and 2008 on formation of FPCs/Joint Forest Management Committees (JFMCs) under JFM in the degraded sal forest areas for the whole of South West Bengal which for the first time put emphasis on the importance of protecting the security of livelihood of the people living in and around the forest along with the ecological and environmental objectives of forest management (Rangachari and Mukherjee, 2000). More significantly, the policy document stated that "a massive people's movement" with the active involvement of women should be created to meet the country's forest management objectives (Blaikie and Baginski, 2007).

West Bengal Forestry Project funded by World Bank, started in 1992 had further emphasized the spread of JFM in the state. Poffenbegerr and Mcgean (1996) consider JFM as a spontaneous

movement of the community. Sivaramakrishnan (1998) agreed that the failure of existing management practice and success stories regarding community initiatives helped in adopting JFM as a viable option. Joshi on the other hand describes that the forest front line staff played an important role in promoting JFM in West Bengal.

## **2.3 National Forest Policy 1988 and spread of JFM in the country**

It is the Forest Policy of 1988 that emphasised for the first time on environmental stability than to earn revenue. The objectives of the Policy are not only to maintain and improve the forest resources and ecological balance, but also to meet the requirements of fuelwood, fodder, minor forest produce and small timber of rural and tribal population. The adoption of the Policy creates a conducive environment for the emergence of JFM (Lynch and Talbott, 1995, Agarwal and Saigal, 1996, Muarli et al 2002).

### **2.3.1 Guidelines issued by MOEF to adopt JFM**

Government of India issued a Circular (No. 6.21/89-F.P dated 1.06.1990) to all the states to adopt JFM and endorses the Government of West Bengal's Policy in favour of FPCS. India's JFM programme, implemented through the Circular, is to a large extent based upon the successful experience of joint management of forest in Arabari in Midnapore district of West Bengal, which have demonstrated beyond doubt that local communities can protect forest patches near their villages and that the forest department too can work with the people if it wants (Mitra, 1997).

Between 1989 and 2008 the Government of West Bengal subsequently issued several government orders to spread JFM across the state. Even though in 2000, the Ministry of Environment and Forests, Government of India issued guidelines stating that JFM may be extended to "good forest" yet the recent Government Order issued in 2008 also mentions about the formation of JFMCS in the degraded forest areas or the areas prone to the forces of degradation.

## **2.4 Agro climatic variations and forest management**

The forest types in the state vary with different agro climatic conditions. Based on the forest types, different objectives are being set for silvicultural management of forests and the management plan prescriptions are fixed accordingly. The Working Plans of different forest divisions describe how the silviculture management prescriptions are made in different agro climatic zones. The coppice sal forest of Bankura and West Medinipur and Sal and Teak forests of North Bengal plains have different felling cycles. Accordingly, other cultural operations like mechanical thinning,

pruning, weeding, multiple shoot cutting etc also vary. This gives rise to differing scope for interventions in the forest area by the forest department and generating scope for employment opportunities (Working Plans of Bankura, Midnapur, Jalpaiguri and Baikunthapur).

#### **2.4.1 Role of Forest condition in promoting JFM**

In this context, several authors have argued that the condition of resource itself plays an important role in functioning of the JFMCs. Guhathakurta and Roy (2000) inferred that an inadequate quantum of forest land per family and absence of natural forest in the area protected by the JFMCs are major obstacles in performance. Sarin (1996) opined that in case of West Bengal, a strong felt need due to scarcity of resources is one of the major reasons for successful JFM in South West Bengal. According to Roy (1995), generally scarcity of resource makes people realize its value and helps them to come forward for collective management. Swaminath (2004) argued that the coppice sal forest provides the best cost effective option for JFM in West Bengal giving return to people at a regular interval.

## **2.5 Interventions under JFM**

### **2.5.1 Institutional Arrangements for protection of forest**

A new institution in the form of Forest Protection Committee (FPCs), lately known as Joint Forest Management Committees (JFMCs), has emerged under JFM. JFMCs have evolved a number of institutional mechanisms to ensure forest protection, regeneration and development. A good number of studies have been carried out to study the institutional mechanism in JFM (Roy 1995, Sarin 1996, Poffenberger, 1996 Sivaramakrishnan 1998, Vira 1999, Guhathakurta and Roy, 2000, Ravindranath and Sudha 2004, Banerjee 2004, Mishra et al 2005). The studies have revealed how the JFMCs developed mechanisms to control illicit felling and fire, grazing management and encroachment eviction as well as sharing of information among themselves and with the forest department.

In a study conducted by IBRAD (2007) covering 17 states of India, have shown that the positive synergy between the JFMC members and the forest department facilitates to develop institutional mechanism to adopt human interventions that have positive impact on forest, irrespective of regional and agro climatic variations. It has shown that West Bengal is marked with conspicuous community participation and high degree of institutionalization, even though compared to western and southern region of the country it has less degree of external funding.

Mukhopadhyay et al (2006) in her study has shown that institutional arrangement is one of the most important factors that affect functioning of JFMCs.

### **2.5.2 Interventions to improve forest condition**

Studies conducted by Guhathakurta and Roy, 2000; IBRAD 2007; and the State Forest Reports have shown that number of interventions have been made by the forest department within and outside the forest area in terms of plantation, soil & moisture conservation measures, silvicultural operations, Non Timber Forest Produce (NTFP) management, village development through microplanning and value addition of NTFPs to promote regeneration of the forest on the one hand and well ensure being of the forest fringe dwellers on the other. All these have an impact on the JFM program.

Number of issues and aspects has been studied under JFM including the role of NTFP ( Palit, 1996; Mishra et al 2005) Policy issue (Roy1992), and product use and marketing issues (Malhotra et al. 1992, Dutta et al 2004, Banerjee 2007).

In a study conducted by Mishra et al (2004) covering 200 FPCs in South West Bengal it was observed that in all the areas there has been an increase in the number of species and canopy cover in natural forests as well as in plantations.

There is rich empirical evidence to support the claim that forest is an important source of income for the poor forest fringe households, through the extraction of wood (timber and firewood) and non-timber forest products (NTFPs) or non-wood forest products (NWFPs) by preserving the forest resource sustainable with the help of cooperative management (Somanathan, 2002; Jodha, 1986 ).

### **2.5.3 Forest and livelihood**

In a study conducted by Malhotra et al, IBRAD (1992) in Jamboni forest range in West Medinipur district in West Bengal, it was found that the contribution to the total family income made by the NTFP income among the tribal HH is much higher (22%) compared to the caste HH (13%). For the pooled data the contribution is 15%. The income flow from NTFP in a HH is three fold greater than the amount the HH will get from the sale of poles after 10 years.

This is supported by another study conducted by Dr. Ajit Banerjee in collaboration with Dr. Oliver Springate – Baginski in 10 FPCs from Purulia, Bankura and West Midnapore in 2004 which states

that contribution of NTFPs to the total income of the families is estimated to be 11.18% which is generated mainly from NTFPS. Less than 5% comes from the share of the final felling of timber.

In another study conducted by Dutta, Roy et al in 58 villages in South West Bengal it was estimated that NTFP constituted an average of 30% of all incomes of the family.

In a study conducted in three villages of Sundarbans by Anshu Singh et al (2004) it was found that annual average income from the forests contribute to 88.60% of which prawn contributes to 52.20% followed by 44.92% from fishes, 1.43% from honey, 1.26% from crab and 0.205 from wax.

Das and Sarkar (2009) in their study conducted in eight villages in Bankura district has shown that, a common feature that emerges is that annual per capita net real income from forest source accounts for major share of per capita annual net real income for all categories of households under both JFM and non- JFM villages. It also shows that per capita annual net real income for all categories of households has increased after JFM. The higher increase in income for landless and marginal categories of households under JFM villages has been made possible only due to substantial increase in income from forest source after JFM.

Baginski and Blaikie (2007) opined that the implementation of participatory forest management like JFM may involve a number of steps that can affect local people's livelihood in a range of ways like changes to institutional arrangements, local forest management practices, wage labour opportunities, changes to condition of forests, revenue sharing, community funds and local development works etc.

The State Forest Report (2008) described the amount of timber share distributed among the 64344 JFMC members from 583 JFMCs in West Bengal with an average per capita share of Rs 2312/- in the year 2008-09.

## **2.6 Post JFM Forest condition**

The forest report of West Bengal reveals that the overexploitation of trees for timber was so severe that thousand and thousand hectares of forest lands in the South West Bengal except Sundarban were almost treated as bare plain land, when the JFM was established; but such lands are almost secured after JFM programme (SFR, 2000). Government revenue from the degraded forest was almost nil when the JFM was established, but it has significantly increased after JFM

(Das and Sarker, 2009). It has also been reported through report of Forest Survey of India (2009) that there has been a gain of 24 sq Km forest cover in the state. The positive changes have occurred mostly in the districts of South 24 Parganas, Jalpaiguri, Medinipur and Bankura covered under JFM.

Thus, it has been revealed through the literature review that JFM has been established as the viable forest management option in West Bengal and has a positive impact both on the forest regeneration status and the well being of people through number of direct and indirect benefits. JFM not only plays important role in the forestry sector in West Bengal, but the experience and success of West Bengal JFM is recognized at the international level. Moreover, Government of India has considered JFM as the central and integral aspect for implementation of National Afforestation program from 10<sup>th</sup> plan period by formation of Forest Development Agencies with the JFMCs and routing the funds directly to the JFMC account from the centre. Thus, after the initiation of formal JFM program in 1989 it's importance is increasing in the mainstream forestry sector development. As a result exploration of different factors influencing the functioning of JFM is considered as important research area.

Study on existing literature shows that though many studies have been carried out on JFM, but there has not been any significant study where JFM has been studied covering different agro climatic regions. Most of the studies are confined to South West Bengal only. JFM in North Bengal and Sundarbans are hardly reported. There has not been any study to find out whether the nature of human interventions vary across the agro climatic regions and what has been there impact on JFM. Hence, the researcher is encouraged to take up the study to find out the role of agro climatic variations and human interventions in Joint Forest Management of West Bengal.