Can Joint Forest Management Programme Sustain Rural Life: A Livelihood Analysis from Community-based Forest Management Groups

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This empirical study assesses the impact of community-based initiative under gender sensitive joint forest management (JFM) programme on sustainable rural livelihoods (SRL) across the socio-economic groups of forest fringe community based on JFM and non-JFM villages. The study suggests that strong livelihood sustainability criteria within the SRL framework meets for all marginal landholding and landless categories of households, which live below poverty line and that are almost dependent on forest resource for their livelihood security. The study also suggests that law or force can not effectively control the illegal collection of timber forest products (TFPs) for this poor households until and unless a considerable increase in the legal forest products (non-timber forest products like sal leaves and fuel wood) and wage income from forest meets their minimum livelihood security.

Keywords: *Joint forest management programme, gender sensitive forest management groups, sustainable rural livelihood framework, five capital assets, forest income.*

JEL Classification: *Q23, Q12, D78, Q01, Q51.*

A. Introduction

Community-based programme in forest management (which is popularly known as joint forest management in India) is fundamentally a decentralized grassroots/bottom-up movement under localized natural resource management programme initiated by forest fringe communities and government to strengthen communities' livelihood base and to protect natural forests from further degradation. Concerning to the decentralized

planning and participatory programme in joint forest management (JFM), it is said that forestry can play a significant role for the well being of the people living in and around the forest areas and, conversely, these people can play a major part in making the forests around them more productive under local management partnership between the state and local communities. The World Bank Learning Group on 'participatory development' defined participation as process through which stakeholders' influence and share control over development initiatives, and the decisions and resources that affect them (World Bank, 1995:3). This actuality acknowledges the sharing of benefits derived from the programme/project by its beneficiaries and participation as a growth and development. The ad-hoc intergovernmental panel on forests emphasized the crucial importance of sustainable forest management at the fourth session of the Eleventh World Forestry Congress held in October 13-22 1997. The observation of the panel does contribute to an emerging consensus on the feasibility of sustainable livelihood approach of forest fringe communities through decentralized planning and participatory forest management.

In participatory forest management like JFM, people are brought under a common forum for protecting the forest under some common rules and regulations. Participatory forest management emphasizes on institutionalization of forest protection movement with the involvement of stakeholders. The prime stakeholders are people who live in and around the forest and have a *defecto* or *dejure* stake in forest resources. Participation itself is a dynamic process through which stakeholders influence and share control over development initiatives and the decisions and resources that affect them. It has two dimensions: direct and indirect.

The concept of participatory forest management has come into sharp focus due to multiple uses of forest resources like the increasing presence of forest products in the market economy and greater understanding of the non-tangible benefits from forests. The World Bank's partnership with Global Environmental Facility (GEF) has allowed the Bank's 1991 forest strategy consistently with GEF policies to pursue the aspects of sustainable conservation of forest biodiversity. It stresses on participatory approaches for developing collective decision-making, empowering local communities and increasing their social and economic capital (World Bank, 2000a-b, Das 2008). Although community participation has been adopted as a part of the forest policies in many of the

developed countries, the actual participation is quite limited only by those who are directly affected by the policies. The developing countries, like Fiji, Philippines, Indonesia and Pakistan do not mention about direct and active community participation in forest management (Bhattacharya, 2001: 102-4). However, some countries such as Thailand, Nepal and India recognize effective participation by local people in the forest consistent with government policies. Participatory programme in forest management has naturally brought to the fore various interrelated issues concerning forest management, and the past working of the forests, allegedly only for timber extraction and industrial supplies, has come in for criticism. Managing forests primarily with a view to protecting, developing and utilizing the non-timber forest products (NTFPs) is being recommended for sustainable forest management. The new policy lays emphasis on meeting the local needs in particular of the rural poor living near the forest and in safeguarding their traditional rights and concessions subject to the carrying capacity of the forests. To this end, the requirements of the fuel wood, fodder, etc. and construction of timber required by the forest fringe poor for their consumptive and productive purposes have been regarded as the first charge on forest. Thus, the increasing interest in rural poverty alleviation has resulted in a new focus in the forest dependent poor (Fisher, 2004; Pattanayak et al., 2004; Angelsen and Winder, 2003; Kumar, 2002; Kumar et al., 2000; Arnold, 2001; World Bank, 2001; Wunder, 2001; Cavendish, 1999; Scherr et al., 2002; Somanathan, 1991). Forest contributes significantly to the economic, social and environmental well being of a country. Its role is more pronounced in a developing country like India that has a predominantly agriculture-based rural economy.

The objective of this research study is to assess the impact of participatory initiative under a gender sensitive joint forest management programme on sustainable rural livelihoods (SRL) across the different socio-economic groups of forest fringe communities based on micro-level study on forest management groups/units like forest protection committees (FPCs) in a comparative framework. The paper is organized as follows. Section B presents a review of gender sensitive forest management programme. Sustainable livelihood approach is contained in section C. Section D deals with survey design of the empirical exercise. Section E covers the findings of the study. Conclusions and policy implications appear in section F.

B. Review of Gender Sensitive Forest Management Programme

As regards India's people-centered forest policy is concerned, despite over one and half decades of the execution of joint forest management programme (JFMP) in India, rhetoric about women's role in JFMP is minimally present (Locke, 1999:239) and the issues concerning women's involvement in forest development projects have remained in the background so far (Das, 1994:56). Pertaining to joint forest management the central government resolutions (SPWD, 1992, 1998) are totally silent over the nature of women's involvement in the regulation, management and protection of forest. Even the JFM resolutions adapted by the participating states of India reveal that the gender issues in the programme have been skipped by many of them (SPWD, 1998:193). Although some resolutions add the qualification that this may be either man or woman, in practice, it is usually a man (Hobley, 1996:168-69; Locke, 1999:240). Even the JFM resolution of the state of West Bengal, which acted as key precursor to JFM movement in India, based upon, to a large extent, the successful experience of participatory management of forest in Arabari under Midnapore district of West Bengal, does not make explicit mention of women as an independent entity; rather it is silent on women's separate role and involvement in committee formation, site selection, micro-planning, protection, benefit sharing, etc.

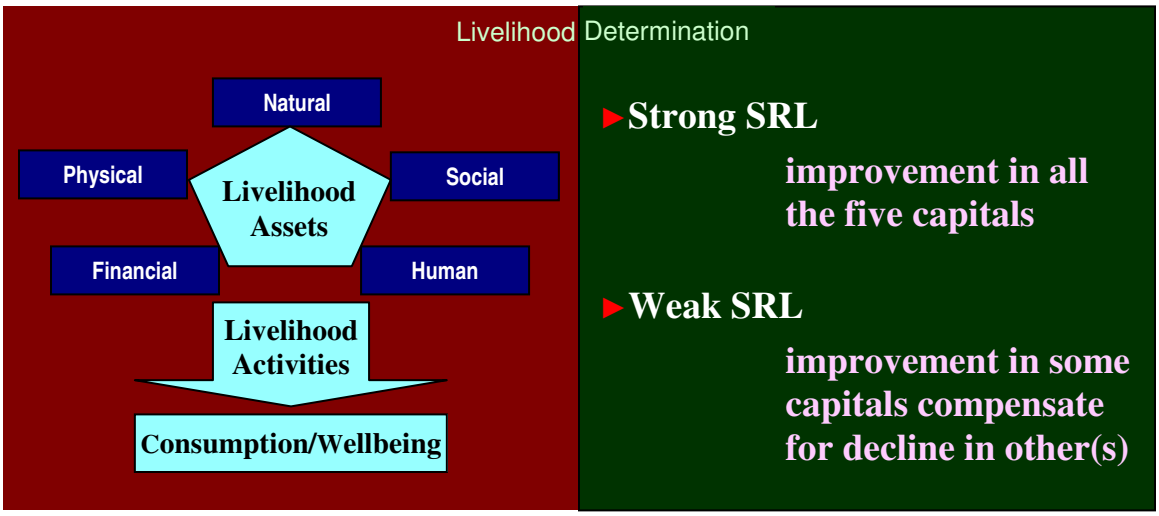
Despite much research work on general (joint or almost male-headed) forest management units of local community under JFMP in India, there is hardly any on female-headed units in India, where government have provided separate provision for women's participation in local forest management institutions by establishing separate female FPC with the necessity of identifying women's needs and knowledge on forest resources and their proper implementation in practice. West Bengal is the first state which establishes new management system of female JFP unit (FPC), exclusively for women, in Bankura district from early 1990s as an experimental basis (SFR, 2000), understanding that women are being deprived of their equal constitutional rights to benefits accruing from the forest in the joint FPC (Das, 2008:6; Sarker and Das, 2002:4411). Seventeen female FPCs have been established only in Bankura district and they cover two thousand nine hundred and thirty six hectares of forest areas under JFMP (SFR, 2001:67, 2005:72; Das, 2008:108). Although the number of female FPCs is very

small the setting up of female FPC in some areas of West Bengal is a new innovative attempt by the Forest Department to motivate women, in particular, in the process of seeking women's involvement and participation in the JFMP by forming their (women) own group along with their own management system.

C. Sustainable Livelihood Approach

When the measurement of sustainability of natural resource management programme in the long run is in question, sustainable rural livelihood framework examines and assess the impact of natural resource management programme from many angles compared with the earlier approaches of assessing costs and benefits (like NPV and CBR) in a narrow sense (Reddy and Soussan, 2004:331; Reddy, 2000; Rao, 2000; Farrington et al., 1999). If one needs to go beyond quantitative measures of cash income and expenditure, the need for adequate measurement is especially important in the context of forest resource for the multidimensionality of rural livelihoods and poverty of forest dependent people (Sunderlin et al., 2005:1385). In order to study the problems and prospects of sustainable natural resource management programme the concept of participatory management tied with sustainable livelihood framework is increasingly being accepted as a viable tool of decentralized participatory forest management programme because the sustainable livelihood framework emphasizes livelihood assets or capital, as the basis for the sustainable improvement of people's livelihoods without undermining the forest resource base (Sarker, 2005). Sustainable livelihood framework refers to a livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living (Carney et al., 1998:4). A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (Reddy et al. 2004:299; Reddy and Soussan, 2004:332). Sustainable livelihood framework is sustainable because it looks at the basic dynamics of livelihoods which comprises the capabilities, assets (including both natural and social resources) and activities required for a means of living and it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets. Central to the framework is the analysis of the range of formal and informal organisational and institutional factors that influence sustainable livelihood outcomes.

The term 'sustainable livelihoods' relates to a wide set of issues which encompass much of the broader debate about the relationships between poverty and environment. Davies (1996) presents a detailed understanding of the dynamics of the livelihoods of the poor in relation to food, because they respond to highly viable conditions (natural and human) that confront them. Davies' conceptual framework is based on five key ideas – livelihood systems and security, entitlement, vulnerability, resilience and sensitivity, and livelihood system diversity – which can be expanded to broader issues of sustainable livelihoods, depending on the different ways people acquire access to food (p.15). The sustainable rural livelihood (SLR) model looks at the basic dynamics of livelihoods and people draw on a set of capital assets as a basis for their livelihoods. Sustainable rural livelihood provides a new way to address poverty issue which is examined in relation to five capitals – natural, physical, financial, human and social (Carney et al., 1998; Chambers and Conway, 1992; Reddy et al., 2001, 2004; Reddy and Soussan, 2004; Sarker, 2005, 2008). The understanding of these concepts can be gained by looking at them in relation to entitlement theory (Sen, 1982, 1985 cited in Reddy et al., 2004:299-300). The livelihood assets, with their perspective, can be seen as a capability or a potential that can be deployed to undertaking or 'invested' livelihood activities. They are not uniform in character; but they influence the viability of livelihood activities.



Each of the five capital assets is measured by some indicators in the present context of sustainable rural livelihood (SRL) framework[1]. For example, forest related structures reflect an indicator of physical capital as livestock created at the household

level under the JFM programme. Similarly, increases in natural capital are measured in terms of changes in access to or improvement in forest resources like NTFPs and TFPs. Natural capital is essentially a flow – the availability of productive potentials as inputs into livelihood activities that appears from the dynamics of ecosystem functioning (Reddy et al, 2004:201). Likewise other capital assets are also measured with their determining factors/indicators.

Improvement in all the five capitals could be termed *strong SRL*, while improvement in some of the capitals that at least compensate for any decline in other capitals could be termed *weak SRL*[2]. Improvements in each of these capitals are in turn dependent on various indicators. The following functional form expresses these linkages:

$$SRL = f(\delta PC, \delta NC, \delta HC, \delta SC, \delta FC, \delta Y_{oth})$$

D. Data Set

The data have been collected through an intensive field enquiry covering all members from FPCs under JFM villages – three sample female FPCs (core group) and three joint FPCs (first control group) – and two non-JFM villages (second control group). For the selection of female FPCs (core group), random sampling technique (SRSWOR) is used. Worthwhile to mention that each FPC under this study was formed in the respective village; so, FPC/village is synonymous in this study. The field survey is conducted during the year 2005-06. In addition to the comparison on current data of after situation of JFM during the year 2005-06, data during before situation of JFM are also collected during the same year from all the households through the *reflexive comparison method* where 'after' and 'before' scenarios are compared for all households under study (Ravallion, 2001; Reddy et al., 2004). As regards the reference period regarding 'before situation' of FPC-villages is concerned, 'before situation' is not same in all JFM villages[3]. Before situation for each JFM village is considered for its preceding one-year period from the starting of JFMP.

E. Findings

Empirical study suggests that any JFM that does not recognize the significance of sustaining livelihoods at the local level has a doubtful future (Sarker and Das, 2006:286a;

Saxena and Sarin, 1999:214). As mentioned earlier, when the measurement of sustainability of natural resource management programme in the long run is in question, sustainable rural livelihood framework examines and assess the impact of natural resource management programme from many angles compared with the earlier approaches of assessing costs and benefits (like NPV and CBR) in a narrow sense. In many parts of India where forest is an essential component of the local livelihood support system, a community-based rights regime with built-in safeguards for access and the livelihood of forest dependent people has historically provided a solution to problems of sustainable forest management as well as sustainable local livelihoods, maintaining biodiversity, ecological balance and environmental stability (Sarker and Das, 2006a:286; Somanathan, 1991). For assessing the impact of JFM in a wider concept of sustainable rural livelihood (SRL) framework, which is increasingly being accepted as providing a basis for understanding poverty in an effective and sustainable manner, it is emphasizes that livelihood assets or capitals is the basis for the sustainable improvement of people's livelihoods (Sarker, 2005; Reddy and Soussan, 2004; Davies, 1996; Carney et al., 1998).

The impact of participatory forest management programme under JFM villages (study group villages) and non-JFM villages (control group villages) is measured in terms of sustainable rural livelihood (SRL) framework by the changes (in percentage) of five capital assets – physical, natural, human, social and financial. As mentioned earlier in the methodology of SRL approach, our surveyed forest fringe community structure reflects physical capital (for example, farm asset and specified asset) which is created at the household level during after and before JFM situations. Physical capital is measured in terms of households' possession of farm asset (land and implement) and specified asset (livestock and durable asset). The result of chances (in percentage) of physical capital is directly observed from the Table 1 and is portrayed again in Table 5a which examines all capital assets (physical, natural, human, social and financial) under SRL framework. Change (in percentage) in natural capital is measured in terms of changes in access to timber and non-timber forest products. Although the physical achievement of various NTFPs is assessed from their quantity of collection (portrayed in Tables 2a for sal leaves, 2b for fuel wood, 2c for fruit, fodder and ritual items, and 2d for sal seeds, kendu leaves and medicinal plants), the estimation of percentage change of NTFPs as a whole is

observed directly from the Table 2e (for household's financial dependence on various forest sources during both after and before situations of JFM programme). As regards direct measurement of human capital is concerned, this study considers changes (in percentage) in education and medical expenditures of surveyed households as a key factor for human capital (Table 3) under SRL framework (discussed earlier in SRL methodology). Although social capital is an attribute of an individual in a social context (Sobel, 2002:139), the growth of social capital depends on the "institutions, relationships, attitudes and values that govern interactions among people and contribute to economic and social development" (World Bank, 2002:2) and difficult to measure, it is directly observed from the earlier Table 4 in the present context, and is portrayed in Table 5a. Change (in percentage) to financial capital under SRL framework in the present context is measured in terms of change in income potential (Table 2e) because of the difficulties in obtaining accurate information on saving for the reluctance of the member of households to talk about their saving (mentioned earlier in methodology section).

The SRL framework is used here in two parts: status of livelihood assets (improvement in various components of capital assets) and impact angle (enhanced livelihood security through this improvement). As far as improvement in various components of capital assets or status of livelihood assets is concerned, it is shown from Table 5a that strong livelihood sustainability criteria meets for all categories of households in all JFM villages (study group villages) because change (in percentage) of five capital assets is greater than zero and the percentage change of their income from non-forest source is less than zero. But for control group villages (non-JFM villages) SRL framework does not hold good. Village-wise, Table 5a shows strong SRL for both female and joint FPC-villages under study group villages because the change of five capital assets is positive and most of these changes are statistically significant while the change of income from 'other' source (non-forest source) is negative and significant; whereas for control group villages, the SRL is somewhat weak because the change of some capital assets is positive (although some are negative) and the change of income from non-forest source is positive. Categorically, SRL is strong for landless and marginal landholding households irrespective of the types of villages (JFM or non-JFM villages). For small landholding households, on the other hand, SRL is somewhat weak for the surveyed

villages in general and control group villages in particular. As regards the impact angle of sustainable livelihood framework, measured on a relative scale – low (≡1), medium (≡2) and high (≡3) – based on enhanced livelihood assets performance among surveyed villages in both JFM and non-JFM villages is concerned, Table 5b shows that the level of performance varies across the capital assets among the villages. The performance of overall livelihood assets in the surveyed villages (as portrayed by aggregate rank on capitals in Table 5b) indicates that female FPC-villages are more favourably placed followed by joint FPC-villages and control group villages (non-JFM villages) respectively. As per average score in each type of villages, female FPC-villages have ranked high (≡3) in one capital asset out of five capital assets with medium (≡2) rank for other four capital assets. Joint FPC-villages possess one high (≡3), three medium (≡2) and one low (≡1) ranks while control group villages, all low (≡1) ranks. Categorically, however, according to aggregate rank the highest level of performance possesses by landless followed by marginal and small landholding households respectively.

F. Conclusions and Policy Implications

Can joint forest management programme sustain rural livelihoods? The result that emerges from the study suggests that JFM programme would sustain rural livelihoods if it meets strong sustainability criteria. Strong sustainability criteria meets for all landless and marginal landholding categories of households, who live below poverty line and that are almost dependent on forest resource for their livelihood security in all FPC/villages, because the change of each type of capital is greater than zero and the change of income from non-forest sources is either less than zero or very near zero. But what is most important is that the change in the illegal collection of TFPs by the poor categories of households is negative in five FPCs, whereas this shift is positive in one FPC/village (Baragari village). Although the positive change of the collection of timber products by the households below poverty line is of help in generating their higher current income, the illegal collection of timber products from forest produces adverse effect on the sustainability of forest resource. But, in fact, the sustainability of forest resource is the pre-condition for the SRL based on forest resource, because it is said that the natural resources must be sustained for the livelihoods to be sustained. The JFM programme

based on the National Forest Policy of 1988 in India lays emphasis on meeting local needs by supporting them fuelwood, fodder, food and other NTFPs, and limited use of TFPs for self consumption, prohibiting the free collection of TFPs by the local people to maintain the carrying capacity of forest. Instead of free collection of TFPs by the local people, they are given a 25 per cent of share from the sell of timber by the forest department/government. But despite forbidden by law regarding the free collection of TFPs, the poor categories of households in one FPC/village have substantially increased their collection of TFPs after JFM programme, mainly, because the other source of forest income – legal collection of NTFPs, etc. – is substantially low for them in relation to the same categories of households in other three FPCs/villages. Clearly, it implies that law or force cannot effectively control the illegal collection of TFPs for the households living below poverty line, which mainly dependent on forest resource for livelihood security, until and unless a considerable increase in the collection of legal forest products (NTFPs) and forest wage income meets their minimum livelihood security.

What are the probable policy prescriptions in order to overcome this situation? This study suggests that the considerable major portion of households is almost dependent on forest resources for their livelihood security and live below poverty line. So, the policy prescription of the JFM programme would be such that those poor categories of people can cope with and recover from stresses and shocks and maintain or enhance the capabilities of livelihood and assets both now and in the future, while not undermining the natural resource base.

Within the existing JFM programme based on the existing field study there seems to be two ways to tackle these problems – one is to increase the production of NTFPs, fuelwood etc. in order that the very poor households may increase the legal collection of those products; but this depends on the participatory forest management programmes and its proper execution which is often long term in nature. The other is to increase the per unit price of Forest Products (FPs) the collectors have to sell to the agents of LAMS. In order to execute the programme, Government should restrict the power of the LAMPs so that the collectors of FPs may sell their products at a higher price in the market and increase their income from the sell of FPs. Although the increase of the market price of TFPs is a short term process, it may not increase considerable income of the households

below poverty line. Together with it, more pro-poor programmes under both government and non-government initiatives that complement the benefit of JFM programme need to be introduced.

Notes

1. For methodological details on SRL framework see Das (2008).

2. SRL is defined as strong if change of each type of capital is greater than zero (i.e., $\delta PC>0$, $\delta NC>0$, $\delta SC>0$, $\delta HC>0$, $\delta FC>0$) and the change of income from non-forest source is less than or equal to zero ($Y_{oth}\leq 0$), SRL is defined as weak if ($\delta PC + \delta NC + \delta HC + \delta SC + \delta FC)>0$ and $\delta Y_{oth}>0$.

3. Although 'after situation of JFM' is simply the survey period (2005-06) of this research study 'before situation of JFM' is not the same for all FPCs/villages. 'Before situation of JFM' of this study implies one preceding year of the formation of each FPC under our survey. It is worth important to mention that before situation of JFM of each surveyed FPC differs from one another. Now a *common before situation* (single period) is measured by the Consumer Price Index for Agricultural Labourer [General]. Computation of common before situation (average of one previous year of respective FPCs formation) is made in the following line:

Type of FPC	Administrative division	Name of FPC	Before situation of JFM	CPIAL of before situation	Average CPIAL
Female FPC	Bankura (N)	Agua	1992-93	169	$\frac{169+230+143}{3} = 180.67 \approx 181^{*}$
	Bankura (S)	Malibona	1995-96	230	
	Panchayat (S C)	Brindabanpur	1990-91	143	
Joint FPC	Bankura (N)	Belboni	1992-93	169	$\frac{169+230+143}{3} = 180.67 \approx 181^{*}$
	Bankura (S)	Baragari	1995-96	230	
	Panchayat (S C)	Katul-2	1990-91	143	

* The average CPIAL of common before situation of JFM is closely nearest to CPIAL of the year 1993-94 (188)

[*Details of methodology and dataset will add shortly in soft version*]

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