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# **Understanding of Social Capital in Gender-based Participatory JFM Programme: An Evidence from West Bengal**

Das, Nimai

Centre for Studies in Social Sciences, Calcutta (CSSSC), R-1  
Baishnabghata Patuli Township, Kolkata – 700094 (INDIA)

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# Understanding of Social Capital in Gender-based Participatory JFM Programme: An Evidence from West Bengal

**NIMAI DAS**

*This paper presents an empirical investigation to measure the level of social capital in a gender sensitive planning on joint forest management programme in West Bengal. The study suggests that the pre-existing traditional characteristics of community solidarity, mutual trust and coordinated action are the inner dynamic for the development of social capital in JFM villages compared with non-JFM villages. Within JFM villages such a dynamics of social capital is more pronounced in female FPC-villages in general and among very poor (landless) category of households in particular, and the food livelihood insecurity cannot destroy such institution of social capital.*

**Keywords:** *Joint forest management programme, forest protection committee villages, social capital, productivity, equity, sustainability.*

**JEL Classification:** *D71, E22, P32, Q23, Q56.*

## **I. Introduction**

Participatory 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. Basically, bottom-up development functions in and through social relations among people with common neighborhood, ethnic, religious, or familial ties. Such social integration 'constitutes an important source of social capital, enabling participants to provide one another with a range of services and resources'

(Woolcock, 1998:171). The highest is the endowment of social capital if there exists more intensive social ties and generalized trust within a given community. Thus for developmental outcomes to be achieved in forest fringe communities, linkage needs to be combined with integration. High levels of integration or strong intra-community ties can be beneficial to the extent they are complemented by some measure of linkage. The initial benefits of intensive intra-community integration, such as they are, must give way over time to extensive extra-community linkages for development to proceed in poor communities. A community's stock of social capital in the form of integration can be the basis for launching development initiatives (ibid:175). Participatory forest management, therefore, is a phenomenon sapped by social relations and community structure that needs formal and informal institutional arrangements in the management of this common property natural resource. In the context of natural resource management, a prerequisite for institutional arrangements is collective action/participatory management, the critical ingredient for sustainability (GoI, 1994 cited in Reddy, 2000:3438). The recent and perhaps most famous study that could be placed in the category of the participation for institutional efficiency is R. Putnam's work on 'strong, responsive and effective representative local governments in different regions of Italy' in which the participants of the civic community are bound together by horizontal relations of reciprocity and cooperation. This constitutes what is termed 'social capital'. Social capital includes 'features of social organization, such as trust, norms and networks of relationship which can improve the efficiency of society by facilitating coordinated actions' (Putnam *et al.*, 1993:36). The idea of social capital and civic participation providing the raw material for successful policy-making soon picked up by influential policy institutions like the World Bank and social capital is assuming an increasing important role in the World Bank's poverty reduction strategy. Building social capital is at core of the empowerment agenda, along with prompting pro-poor institutional reforms and removing social barrier; it is an asset that creates opportunities for enhancing well being, for achieving greater security and for reducing vulnerability (World Bank, 2002:1-2). So far as decentralized common pool resource management is concerned, joint forest management (JFM) has proved a major initiative towards local community involvement in forestry. Empirical study shows that local level institutions have been more successful than others in managing localized

forest resources because of their existence of existing higher level of social capital in the society (Mukherjee, 2002:2994-97; D'Silva and Pai, 2003:1404-15; Chopra, 2002:2911-16; Jayal, 2001:655-64). Under JFM programme the local level management institutions like Forest Protection Committees/Van Suraksha Samities/Van Panchayats, where the community members came together, and resolve their conflicts among themselves and with the forest department, enabled to increase mutual trust and faith of group members and could build a viable alternative livelihood option for the local communities from forest resources. They performed better and had higher level of social capital. Such a community-based programme builds social capital through developing and strengthening economic and social networks of the members (Mayoux, 2001:439).

As regards the understanding of the gender aspects of social capital manifested in the groups for natural resource management is concerned, it is increasingly well established that social capital, an important factor in building and maintaining collective action in gender differentiated social groups, is fundamental to substantial and long run changes in natural resource management (Westermann *et al.*, 2005; Agrawal and Gibson, 1999; Baland and Platteau, 1996; Bromley, 1992; Ostrom, 1990; Pretty, 2002; Pretty and Smith, 2004; Reddy, 2000; Steins and Edwards, 1999). The potential consequences of such collective natural resource management based on the analysis of different and complementary roles of women and men in social capital formation is guided by the proposition that women tend to build more relational social capital (that is informal social relations and networks based on norms of collaboration and conflict management) than men (Folbre, 1994; Molinas, 1998; Sarma, 1980; White, 1992). This is due to the fact that women supposedly value collaboration, altruism and conflict resolution more highly than men, and so form stronger kinship and friendship relations than men who tend to rely more on formal relations such as protection groups and community councils that improve access to economic resources and decision-making (Agarwal, 2000; Molyneux, 2002; More, 1990; Riddell *et al.*, 2001). Several studies found that collaboration, solidarity and conflict resolution all increase with women's presence in the groups (Westermann *et al.*, 2005; Molinas, 1998; Odame, 2002). Because of their greater interdependency and their every day experience of collaboration, women are better able to overcome social

divisions and conflicts (Agarwal, 2000; Cleaver, 1998). As a consequence, women are expected to perform better in groups and to achieve better outcomes for collective natural resource management as a result of their greater dependency on natural resource due to their household division of labour (Agarwal, 2000). As norms of reciprocity facilitate collective management of natural resources by providing trust, gender differences in stock and use of relational social capital may translate into different natural resource management outcomes. It is argued that the role of gender differences in natural resource management may be of particular importance to understand and create social capital in order to sustain natural resource management groups (Westermann *et al.*, 2005; Agarwal, 2000; Krishna, 2000; Pretty and Frank, 2000; Pretty and Ward, 2001).

But where gender relations are acknowledged as key factor shaping peoples access to and use of natural resource like forest gender has been largely absent from effort made to define social capital (Westermann *et al.*, 2005:1784-5). However, several studies have found that men and women may have different kinds and qualities of social capital based on differences in their social networks, values and capacity for conflict management (ibid:1785). Likewise, empirical evidence has also showed that women are seen as “a transcultural and transhistorical category of humanity with an inherent closeness to nature”(Jackson, 1998:314) and thus likely to be the principal managers of the environmental resources at the local level (Green *et al.*, 1998 cited in Westermann *et al.*, 2005:1784). According to these authors, gender differences in environmental resource management like JFM should be understood as, and equated with, social relations. Under joint forest management programme (JFMP), policy-makers and advocates agree that women’s involvement in JFM will assist the solution of environmental problems<sup>1</sup>, improve the efficiency of environmental projects<sup>2</sup> and act as the most appropriate participant in environmental conservation as the main victims of environmental degradation (Shah and Shah, 1995). But the actual functioning of women in local level management institutions under JFMP like general joint *forest protection committees* (almost male-headed) restricts them to the role of passive receiver of information, passive role of committee formation, micro planning, site selection, protection, benefit-sharing etc. (Kameswari, 2002:800). Women are commonly excluded or unable to participate in

community institutions for JFMP. Even there are instances that women resigned from executive body of village *forest protection committees* (FPCs) as their husband did not approve of their taking part in public activities and beat them up whenever they came to attend meetings of the executive committee (ibid:799). As the formal provisions for women's participation in JFMP within the various policy statements of the Indian government, rhetoric about women's role in JFMP is minimally present (Locke, 1999:239). But the successful collective action, which is in turn fundamental for natural resource management like JFM, is dependent on the degree of women's participation (Westermann *et al.*, 2005:1783). Despite the case for viewing gender relations of JFM programme has been identified as the key to progress, understanding of gender differentiated social capital has to be found in the dependency of social networks that obliges women to work in group (Agarwal, 2000:292). Most discussion of social capital so far appears to have been almost gender blind (Molyneux, 2002:117) or even critical toward women's role in the formation and maintenance of social capital (Riddell *et al.*, 2001 cited in Westermann *et al.*, 2005:1785). Although JFM programme in India is currently being tried in almost all the states, the progress report of JFM in India suggests that the forest management group in Andhra Pradesh successfully involved women (World Bank, 2000; Agarwal, 1997). Even the 1990 circular make no mention of women specifically and refer only to beneficiaries (MoEF, 1990). West Bengal, the pioneer state of JFM movement in India, has also made some active initiatives in this regard by establishing a new management system of female FPCs (female-headed FPCs). To this end, seventeen female FPCs have established only in Bankura district and those female FPCs have been extended to all the forest divisions of the district (Sarker and Das, 2002:4411). However, the gender dimensions of JFM are frequently analyzed in terms of the increasing dependency on forest resources which poor rural women experience due to poverty and inherent closeness to nature; women can also be seen as a diverse group of people who vary according to class and culture as well as resource endowments and decision making power both between and within households (Westermann *et al.*, 2005:1785).

This paper thus presents an empirical investigation to measure the level of social capital in a gender sensitive planning on JFM programme in West Bengal under a comparative

study between JFM and non-JFM villages. Why is the study important in West Bengal? Although National Forest Policy (1988) of the Indian government asserted “creating a massive people’s involvement with the involvement of women” as one of its basic objectives (MoEF, 1988: para 2.1), Government of West Bengal (GoWB) Order (dated July 12, 1989) does not make explicit mention of women as an independent entity; the membership is either joint or male/female. Beyond this, the Order is silent on women’s separate role and involvement in committee formation, micro-planning, site selection, protection, benefit sharing etc. (Sarker and Das, 2002:4410-4411). Consequently, women, who by her nature of work (Women, Environment and Development), on the basis of her natural and spiritual content (Ecofeminism) and on their livelihood base (Gender, Environment and Development) are very ‘close to nature’, lose an important opportunity to participate actively under formal institutional framework in JFM movement in West Bengal. Thus, understanding that women are being deprived of their equal constitutional rights to benefits accruing from the forest, efforts have been made very recently (from the early 1990s) by the Forest Department, GoWB to establish new management system of ‘women forest committee’ (i.e. female-headed forest protection committee) in West Bengal. To this end seventeen *female* forest protection committees (FPCs) has been established primarily only in Bankura district in West Bengal. It has been extended to all the three forest divisions of the district (ibid:4411). Although compared with general joint FPCs (almost male-headed FPCs) the number of female FPCs (female-headed FPCs) is insignificant, the movement has been started by the government effort, primarily, from Bankura district. This study tries to explore the whether female-headed FPCs have been more successful than general joint FPCs (almost male-headed) in building higher level of social capital and have ensured more development strategies and benefits to the rural communities in a gender sensitive planning in JFM programme in West Bengal.

This paper is organized as follows. Section II presents the theoretical framework of the understanding of social capital. Measurement framework of social capital under JFM programme is contained in section III. Section IV deals with data set and findings of the empirical exercise. Conclusion of the study appears in section V.

## II . Theoretical Framework of Social Capital

The term ‘social capital’ is not new, but now, it appears in titles at such a high rate that it is worthwhile to think about what social capital is, what we have learnt about literature and what issues deserve further consideration. Social capital is broadly defined as ‘the institutions, relationships, attitudes and values that govern interactions among people and contribute to economic and social development’ (World Bank, 2002:2). As regards social capital is concerned, it affects economic development in developing countries in three forms, mainly by facilitating transactions among individuals, households, and groups (World Bank, 2002:8-9). First, participation by individuals in social networks increases the availability of information and lowers its costs; second, participation in local networks and attitudes of mutual trust make it easier for any group to reach collective decisions and implement collective action – result in more productive use of resources; and finally, networks and attitudes reduce opportunistic behavior by community members through social pressures and fear of exclusion. But the current thinking in social capital is still fragmented, the only common point being that social capital is the existing stock of social relationships in a society (Piazza-Georgi, 2002:461). It appears to be a dynamic category that changes over time (Jayal, 2001:663). Social capital is the network that helps create linkages that in turn forge rules, conventions and norms governing the development process at different levels in all societies. It is the network of relationships between the agents within an economy. The greater the stock of social capital, the more developed is the network (Barr, 2000:539)<sup>3</sup>. By facilitating coordinated actions, the features of social organization like trust, norms and networks can improve the efficiency of society by making institutions more democratic and efficient (Putnam *et al.*, 1993:34-45; Woolcock, 1998:151-208)<sup>4</sup>. The distinguishing feature of social capital as an input into development is that it ensures qualitative changes in procedures governing the development process to ensure its embeddedness and linkage with development at higher levels (Mayer, 2001:691).

The classification of social capital appears in variety of disciplines of social sciences. The first, which Uphoff (2000) breaks social capital down into structural and cognitive components. Structural social capital refers to relatively objective and externally



observable social structures, such as networks and associations or the institutional structures that link members (Uphoff, 2000:216; World Bank, 2000a:10-11; World Bank, 2002:3). Cognitive social capital, on the other hand, comprises more subjective and intangible elements such as generally accepted attitudes and norms of behavior, reciprocity, shared values and trust (World Bank, 2002:3). The latter component allows isolating the elements of social capital based on its scope that can be observed at the micro, meso and macro level (ibid). At micro level, social capital is in the form of horizontal networks of individuals and households and the associated norms and values that underlie these networks. At the meso level, social capital captures horizontal and vertical relations among groups (i.e., between individuals and society as a whole). Finally, social capital can be observed at the macro level in the form of the institutional and political environment that serves as a backdrop of all economic and social activity, and the quality of the governance arrangements.

More importantly, although the exact definition of social capital and the approaches taken to measure it varied slightly among the studies, there is little disagreement about the role of social capital in facilitating collective action, economic growth, and development. Building social capital is at the core of the empowerment agenda, together with promoting pro-poor institutional reform and removing social barriers. The similarities and overlaps between the sets of definitions in the above discussion underscore the unique multidisciplinary aspects of social capital research. Not surprising, the lack of an agreed upon and established definition of social capital, combined with its multidisciplinary appeal, has led to the spontaneous growth of different interpretations of the concept. This lack of agreement has led to define social capital broadly as ‘the institutions, relationships, attitudes, and values that govern interactions among people and contribute to economic and social development’ (World Bank, 2002:2).

While acknowledging the strength of different views on social capital in the literature, the advisory group of World Bank arranged social capital into *six* broad sections within its conceptual framework based at the household level (World Bank, 2003:5). These are: *groups and networks* – the nature and extent of a household member’s participation in various types of social organizations and informal networks, the range of contributions

that one gives and receives from them, the diversity of a given membership, how its leadership is selected, and how one's involvement has change over time; *trust and solidarity* – data on trust towards neighbors, key service providers, and how one's involvement has changed overtime; *collective action and cooperation* – whether and how household members have worked with other in their community or joint projects or/and in response to a crisis, and the consequences of violating community expectations regarding participation; *information and communication* – the ways and means by which poor households receive information regarding market conditions and public services, and the extent of their access to communication infrastructure; *social cohesion and inclusion* – the nature and extent of various forms of division and difference that lead to difference among communities, the mechanisms by which they are managed, and every day forms of social interaction; and *empowerment and political action* – household members' sense of happiness, personal efficacy, and capacity to influence both local events and broader political outcomes. So far as the local level institutions like forest protection committees under JFM programme are concerned, formation of social capital is crucial for the successful functioning of community organizations in terms of productive, equitable and sustaining of the project (Mukherjee, 2002; D'Silva and Pai, 2003; Chopra, 2002; Jayal, 2001; Poffenberger *et al.*, 1996; Chopra *et al.*, 1990). The three generic criteria productivity, equity and sustainability – have been considered for measuring social capital in community-based resource management like JFM (Mukherjee, 2002). The specific measure for measuring the criterion 'productivity' includes those elements that enhance productivity/growth of social capital. The generic criterion for measuring 'equity' includes criteria such as making sense of group objectives for all its members and active participation of members in decision-making. The measuring criterion 'sustainability' includes the determinants that promote sustain and continuity of group efforts and maintain assets and capital stock for future (Mukherjee, 2002:2994). Under the three generic criteria, Mukherjee (2002) measured social capital using fifteen indicators<sup>5</sup> in the context of FPCs of the JFM programme. D'Silva and Pai (2003) also used ten indicators<sup>6</sup> to measure social capital without any categorization in the context of joint forest management programme in two villages and watershed development programme in one village.

Although social capital has been conceptualized at the micro, meso, and macro levels, in practice, most experience has gained with measurement at the household (micro) and community (meso) levels (World Bank, 2002:9). But admittedly, the household information can also be aggregated at the level of the community and cross tabulated by different characteristics of the community (ibid:41). Growing empirical evidence in social capital research including economic research also indicates that social capital is the best measure that uses a variety of qualitative and quantitative instruments (ibid:9, 22). A tool for measuring social capital that integrated both qualitative and quantitative methods is likely to be more reliable and useful than measures based on only one type of research methodology (ibid:22). The different dimensions of social capital that are captured by the *social capital assessment tool* and qualitatively tabulated across socioeconomic characteristics of the households under the study are provided data for quantitative analysis. Nevertheless, efforts have been made in the empirical literature to see to what degree certain observable factors can explain various indicators of social capital through regression analysis. The study of Krishna and Uphoff (1999), for example, focuses on the role of collective action for conserving and developing watershed in Rajasthan (India) by specifying some determinants<sup>7</sup> that are associated with higher level of social capital at household and community levels. The quantitative analysis of social capital data also provides an answer of the question of whether accumulation of social capital by the poor is needed help them escapes poverty or at least provides them with relatively higher returns than other assets (World Bank, 2002:72). There are instances that the participation of poor households in local community-based organization is a potentially valuable ingredient of poverty alleviation policy. Social capital provides the poor households with greater returns and hence occupies a more prominent place in their portfolio of assets (ibid: 73). Although the poor have little access to other capital assets, they have substantial social capital which allow them to whether subsistence crises and might even afford them the possibility of capital accumulation and a way out of poverty (Kay, 2006:462). But as regard gender issues of social capital are concerned, most discussions of social capital so far appears to have been almost gender blind (Molyneux, 2000:292) or even critical towards women's role in the formation and maintenance of social capital (Riddell *et al.*, 2001 cited in Westermann *et al.*, 2005: 1784). It is said that men and

women commonly differ to build and use social capital, and the potential consequences of such differences are translated by the fact that collaboration, trust, solidarity, etc. increase with the women's presence in the group enabling them to organize more effective collective action than men (Molinas, 1998; Odame, 2002; Pretty, 2003; Westermann *et al.*, 2005).

### **III . Measurement Framework of Social Capital**

Following Mukherjee (2002), Sarker and Das (2006b) who measured social capital in the context of FPCs under JFM programme in *three generic criteria* (productivity, equity and sustainability), we have considered three generic criteria for the measurement of social capital under a qualitative framework in the context of localized decentralized management<sup>8</sup> of forest resources<sup>9</sup> in a comparative perspective between female FPCs and joint FPCs related to JFM programme, and between JFM and non-JFM villages under Bankura district of West Bengal<sup>10</sup>. But more importantly, each of the criteria of social capital is further categorized into six common dimensions – *groups and networks, trust and solidarity, collective action and cooperation, information and communication, social cohesion and inclusion, and empowerment and political action* – in keeping with the framework of advisory groups of World Bank who arranged social capital into these six broad dimensions based at the household level (World Bank, 2003:5). We have used forty two indicators under six common dimensions of social capital for the criteria of productivity, equity and sustainability, the distribution being nineteen, eleven and twelve respectively. All the indicators are qualitatively ranked by the response description against each indicator given on a four-point scale. The qualitative scores are then quantified to arrive at average score on social capital for each category of households and for each village. Finally, score of social capital is worked out from total scores of the generic criteria – productivity, equity and sustainability. It has also been used for multivariate analysis to the determinants of social capital at the household level (World Bank, 2002:56).

The generic criterion *productivity* enhances growth of social capital due to productive activities of the households under JFM and non-JFM villages. Structure 1 provided the description of various determinants of social capital under productivity has been

categorized into six broad dimensions. *Equity* includes group-based participation in JFM and/or other public projects by various classes in the society that might help in creating space for social capital. The description of different determinants of equity has shown by Structure 2. *Sustainability* promotes sustenance and continuity of group efforts which might help the maintenance of forest and other resources of the community in future (Structure 3).

In order to examine the impact of the determinants of household level social capital, the following linear regression model is used:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + c_1D_1 + c_2D_{21} + c_3D_{22} + u$$

#### **IV . Data Set and Findings**

The data needed for the study of social capital at household level relating to JFM programme have been collected through an intensive field enquiry covering all members from FPCs/villages under JFM villages (study group villages) and non-JFM villages (control group villages) – three sample female FPCs (core group), three joint FPCs (first control group) and two non-JFM villages (second control group). For the selection of sample, random sampling technique (SRSWOR) is used (Das, 2008:51-2; Sarker and Das, 2007:81, 2006b:544). The control group villages (non-JFM villages) are selected in such a way that the households of the village have nearest distance from forest and to a large extent depend on forest for their livelihood but have still not incorporated under JFMP by forming their FPCs<sup>11</sup>. In addition to the comparison on current data of after situation of JFM programme, data during before situation of JFM are also collected from all the households through the *reflexive comparison method* where ‘after’ and ‘before’ scenarios are compared for the participating households (Ravallion, 2001; Reddy et al., 2004; Reddy, and Soussan, 2004). During our survey Participatory Rural Appraisal (PRA) sessions held in eight villages provide the basis for estimation of social capital, but data were collected from all individual members of the respective FPCs/villages through the scheduled questionnaire.

At the very outset, we look at some basic characteristics of JFM and non-JFM villages under study. A considerable majority of members of households in FPC-villages (JFM

villages) and control group villages (non-JFM villages) are either schedule caste (SC) or schedule tribe (ST), the existence of female members in joint FPCs – both in general and in executive committees – is insignificant, more than 75 per cent households in each sample FPC/village live below poverty line<sup>12</sup>, major part of income for household below poverty line in all FPC-villages and control group villages is yielded from forest source. All these might lead to low economic and social status of forest fringe communities in rural Indian society.

Tables 1a, 1b and 1c provide a glimpse of the measure of social capital estimated for different FPCs/villages during after and before situations of JFM programme under our study based on productivity, equity and sustainability respectively. The study suggests that coordinated action related to productivity is successful where an underlying tendency for united action already exists in a community based on tradition and cultural values, absence or weak presence of traditional ascriptive hierarchies, endemic factionalism, strong leadership, and trust among community members along with active tendency to participate in community work, sense of responsibility among members and their network of relation with officials, members' ability to take decision, and accountability and transparency of institution (Table 1a). Such a tradition of pre-existing community solidarity with common identity is the basic principle for the success of united action to other criteria – equity (Table 1b) and sustainability (Table 1c) – considered for measuring social capital of institutions. Aggregate results of social capital during both after and before situations are portrayed in Table 2. It is seen from Table 2 that the level of social capital is significantly high during after situation of JFM for the FPC-villages as compared with before situation of JFM, the aggregate increase lying between 46.24 and 78.62 in percentages. As regard the control group (non-JFM village) is concerned, although the level of social capital is high during after situation compared with its before situation (the aggregate increase lying between 3.34 and 5.57 in percentages), the change is not significant. The comparative study between JFM villages (study group villages) and non-JFM villages (control group villages) shows that during after JFM situation the level of social capital is considerably higher in all study group villages than that of in control group villages (Table 2) because all the traditional characteristics of community

solidarity and coordinated action are more prevalent among each of the FPC-villages than that of control group villages. The comparative study between female FPC (female-headed) and joint FPC (male-headed) under JFM villages (FPC villages) during after JFM situation reveals that female FPC is capable to create higher level of social capital under JFM programme. This is consistent with the argument that women exhibit more coordinate behaviour than men due to greater interdependency and altruism (Folbre, 1994; Sarma, 1980; White, 1992). The key to understand such gender differentiated social capital has to be found in the dependency of social networks and value of collaboration as the gender division of labour often obliges women to work in group (Agarwal, 2000:292). Our study is also in conformity with the studies of Molinas (1998) and Westermann *et al.* (2005) who suggest that coordinated action has increased with the participation of women. Moreover, among all FPCs, the level of social capital in Brindabanpur female FPC is the highest (Table 2) because it possesses all these traditional characteristics along with existing steadfast and effective leadership in building strong community solidarity. Despite the presence of higher level of education (Table 1a) and ample scope of food-livelihood security from forest resources (Table 1b), the level of social capital at Baragari joint FPC under study group is the lowest (Table 2) because differences already existed in this village based on lower ranking of scores relating to all these traditional characteristics along with low cohesiveness within the community on leadership issue. Moreover, there is an underlying conflict within the community to resolve conflicts among themselves as well as with the forest department (Table 1c) and many members are not convinced about their duties and responsibilities of collective actions as a group (Table 1b). In so far as the land-based economic status of the households of FPCs/villages under the study is concerned, the level of social capital during both after and before situations with/without JFM the households of landless and marginal categories register higher level as compared with small category of households (Table 2). This result corroborates with the study of Kay (2006) who argues that while the poor have little access to other capital assets, they often do have substantial social capital, such as social networks and connections through membership of organization, clunelism, and so on, which allow them to whither subsistence crises and might even afford them the possibility of capital accumulation and a way out of poverty (p.462).

Moreover, one of the most fundamental indicators of productivity, to which all joint FPCs are lacking behind all female FPCs, is the active supporting role of officials (Table 1a). Although all joint FPCs have low social capital for low active supporting role of officials in relation to all female FPCs, what is more important is that all joint FPCs have higher literacy level than all female FPCs, but the former possesses lower active supporting role of officials. This may be, mainly, judged by the fact that mistrust within community combined with traditional conflict regarding social structure, leadership, group capacity and confidence and socio-cultural factors in the joint FPCs compared with female FPCs helps to beget collision between forest officials along with other public officials and members of joint FPCs in building consensus for action plan of JFMP, financial grants for such plan and make lower social motivation for such activities among the former FPC members. All these factors also influence low level group-based natural resource regeneration and conservation, poor internal norms, mutual trust and role of clarity, high conflict to raise issues and resolves those issues, poor group attachment and low level maintenance of forest resources for all joint FPCs compared with female FPCs (Table 1c). The underlying tendency for conflict that already existed among the FPC members of joint FPCs from the past seems to be the major factor for lower active supporting role of officials (Table 1a) and poor training by the forest officials to the FPC members of joint FPCs in relation to female FPCs (Table 1c). In this situation, forest officials along with other local officials and local panchayat officials should play more positive role to build up harmonious relationships within community, try to change the values and attitudes of local people through prolonged interaction with local people in the joint FPCs. It is argued that for joint forest management partnership to succeed the relationship between FPCs and local officials must be based upon mutual acceptance of clearly defined rights, responsibilities, accountability and shared understanding of participation (D'Silva and Pai, 2003:1414). Where social cohesion and tradition of community solidarity are weak, effective village leadership and support of local officials can help building community solidarity that might contribute to build up high level of social capital. The work of Evans (1996) suggests that prior existence of higher level of social capital in many situations is not the crucial factor that creates synergy, bureaucratic institutions and people's organized participatory groups complement each other and



public officials disseminate information, build consensus, tutor and cajole-leading to successful working of joint programmes (Evans, 1996:1122). As D'Silva and Pai (2003) points out, local officials must play a facilitative role in the establishment and functioning of FPCs<sup>13</sup>. But there is a lack of effective initiative in providing such a facilitative role by the local officials in joint FPCs under our study.

The above tabular analysis of social capital, based on three basic criteria – productivity, equity and sustainability, is a simple and convenient way to organize data and to extract the basic messages that the members of FPC/village households survey pertain to the extent of social capital observed across different FPCs/villages and the dimensions of social capital. The overall study, however, suggests that building up higher level of social capital has been more successful in those FPC-villages where there already exists an underlying tendency for united action based on traditional and cultural norms, presence of higher degree of social cohesiveness due to lower degree of traditional hierarchies and lower endemic factionalism and fewer divisions arising out of differences in education, income and lifestyles.

Now we turn to quantitative analysis in a multivariate linear regression model, with social capital as the dependent variable, to estimate the significant predictors of the amount of social capital. Regression results of FPCs/villages during both after and before situation of JFM programme are shown in Table 3. As the table shows, four crucial factors (prior experience, rules, participation and information) are of expected sign (positive) and turn out to be highly significant predictors of social capital as did gender, study group, and landless and marginal categories of households. Although education negatively affects the level of social capital, it is also significant predictor of the amount of social capital. In contrast, caste and family size do not prove to be significant predictors of social capital. Our study, however, is almost in conformity with that of Krishna and Uphoff (1999). Thus, our regression result (Table 3) suggests that local level community-based organizational setup is helpful for building up social capital in the form of participation, information, rules etc. This is consistent with our earlier tabular analysis. Regression results also imply that gender is an important predictor of the level of social capital in such a way that higher value of gender of female category is associated with higher level

of social capital. Our tabular analysis also supports this phenomenon. Westermann *et al.* (2005) also found social capital in terms of self sustaining collective action, solidarity, conflict resolution increased with women's presence and social capital was significantly higher in the women's groups. Further, our regression result also corroborates with the study of Kay (2006) who found that poor (marginal farmer and landless households) had substantial level of social capital in relation to others.

## V. Conclusion

As the idea of social capital is emerging with greater frequency in discussion of development, whether of poor countries or of poor areas of industrialized countries, the measurement of social capital in the present micro level study, based on forty-two indicators under three generic criteria of productivity, equity and sustainability, might provide us an idea of the progress made by local decentralized institutions like *forest protection committees* in terms of building up social capital in the JFM and non-JFM villages, where most of the households live below poverty line and are mainly dependent on forest resources for their food-livelihood security. This study shows that the tradition of community solidarity and developed network of relationship based on tradition and cultural values, absence or poor presence of traditional ascriptive hierarchies and endemic factionalism, and common identity on social and economic issues are the basic indicators for collective achievements that contribute in building trust among communities and provide coordinated actions creating an inner dynamic of the development of social capital. The study suggests that the level of social capital is higher for all female FPCs because all these pre-existing traditional characteristics of community solidarity, common identity, mutual trust and coordinated actions for development are more existent in each of the female FPC compared with that of joint FPCs and control group villages. The level of social capital at Brindabanpur female FPC is the highest as it possesses the highest ranking of all these characteristics along with effective leadership in building strong community solidarity, collective action and the most developed network of relationships. The establishment of Brindabanpur female FPC is the classic example of the understanding profound pre-existing community solidarity and collective actions because, unlike the usual procedure of the establishment of FPCs in this region, the

primary initiative of the establishment of female FPC was undertaken by the female members themselves with the help of male household members and forest officials responded to it (Sarker and Das, 2006b:548). This study, however, supports that women's involvement in JFMP improves the efficiency of environmental projects by coordinated action and group solidarity influencing thereby to contribute to environmental sustainability.

Turning to the joint FPCs, where women's role are insignificant, Baragari Joint FPC has the lowest level of social capital due to existence of traditional mutual suspicion, mistrust, endemic factionalism, traditional hierarchies that marred its collective life, despite its possession of highest level of ranking in education and ample scope of food-livelihood security for poor forest community. Likewise, control group villages are observed to exist lower level of social capital in relation to the study group villages. This may be due to non-involvement of the former under JFM programme. This study also suggests that the food-livelihood insecurity cannot destroy the level of social capital of institutions if there already exists an underlying tendency for united actions based on all these traditional social and cultural characteristics along with common identity based on education, income and lifestyles. But some of the common indicators, to which all joint FPCs are lacking behind all female FPCs, are related to the more facilitative role of officials in the establishment and functioning of the former FPCs. As regards land-based economic status is concerned, the level of social capital of landless and marginal categories of households during both after and before situations of JFM is high as compared with the small categories of households. A comparative study between control group villages and JFM villages suggests that the level of social capital in control group villages is significantly low during both after and before situations compared with the JFM villages. The existence of lower level of social capital in control group villages may be, mainly, due to pre-existing high presence of traditional ascriptive hierarchies, community solidarity, endemic factionalism, mistrust and non-coordinated action among communities.

Our regression analysis, which examines the relative contribution of the determinants of social capital in a multivariate quantitative model, also suggests that the tradition of

community solidarity and developed network of relationships based on prior experience, traditional rules, participatory decision-making and the sources of information turns out to be highly significant predictors of the amount of social capital. This is usually expected, because our qualitative analysis of social capital also suggests that the pre-existing traditional characteristics of community solidarity, mutual trust and coordinated action for development are the inner dynamic of the improvement of social capital. It also indicates that such a dynamic of social capital is more pronounced in women FPCs and among landless or near landless (marginal) categories of households.

There are instances that prior existence of social capital in many situations is not the critical factor in building social capital of institutions; public officials play a significant role in building social capital by ensuing broad-based selection of members along with inclusion of all disadvantaged groups in the decision-making process, acting as intervening role in resolving group conflicts (with the help of conflict-management mechanism), providing a supporting role related to the recommendation and execution of action plan, conservation and regeneration of forest resources and training to the FPC members, and acting as intervening role by introducing progressive changes in the fragmented character of traditional village structure. However, building social capital under JFMP in those local decentralized institutions where the role of pre-existing community solidarity and the tradition of collective action based on traditional cultural values, high cohesive social structure and common identity on social and economic issues are strong, the network constitutes an input into development which needs to be accumulated and sustained over time; but for institution where such traditional network are weak, local officials should play more facilitative role in building social capital and also can help to sustain it for longer period of time.

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## Notes

1. Women are seen being closer to nature for their natural procreative function (Ortner, 1974:71; Hobley, 1996:19; Tinker, 1994:367; Locke, 1999:235). The theoretical viewpoint of WED (Women Environment and Development) and Ecofeminism recognize special relationship between women and environment or women's 'closeness' to nature on the basis of material role of women, and of natural and spiritual content of women's 'closeness' with nature (Sarker and Das, 2002: 4408).
2. After a long claim against development theory by feminist academics, it is suggested that development plans and projects would not succeed unless women's potential and actual productive roles are recognized. There is now a new equation: women + production = efficiency (Kabeer, 1994). A progress report on the World Bank's initiative for WID (Women in Development), which started during 1980s, focuses on increasing women's productivity and income, because this is considered the best way to help themselves and contribute to economic performance, poverty reduction, slower population growth and environmental sustainability (World Bank, 1990:61).
3. In his empirical works based on the performance of Ghanaian manufacturing industry, Barr (2000) observes that social capital in the form of network takes seriously as a possible determinant for sustained endogenous economic growth.
4. The central concern in Putnam's study of civic associations in Italy has been democracy and democratic functioning of institutions. He examined social capital in terms of degree of civic involvement as measured by voter's turnout, newspaper reading, membership in societies and clubs, and confidence in public institutions (Mayer, 2001:684-5). According to him social capital consists of 'the features of social organization, such as networks, norms, and trust that facilitate coordination and cooperation for mutual benefit' (Putnam et al., 1993:36). Woolcock's discussion of the concept of social capital that facilitates analysis across various levels within a unified and comprehensive framework incorporated four dimensions of social capital (Woolcock, 1998: 162-87; Piazza-Georgi, 2002: 473; World Bank, 2000d: 6-7). Seven substantive fields of social capital research in his works are: 1) family and youth behavior problems; 2) schooling and education; 3) community life; 4) work and organization; 5) democracy

and governance; 6) general cases and collective action problem; 7) economic development.

**5.** For the measurement of social capital the indicators related to the criterion *productivity* are: group membership, keenness, leadership and sense of responsibility; group capacity and level of confidence; status of financial capital base; external linkages – vertical and horizontal; and technologies and improvement. The indicators considered for reflecting *equity* in the measurement of social capital are: broad-based understanding of group activities and worldview; group participation in decision-making; equity in benefit-flows; and livelihood impacts and reduction in vulnerabilities. The indicators of *sustainability* aspect related to the measurement of social capital are: vision/ideas for future; group-based natural resource regeneration/ conservation; internal norms, mutual trust and role of clarity; group attachment/ownership; ability to raise issues and resolve conflict; and maintenance of asset/s.

**6.** The indicators are: social cohesion; education/literacy level; local leadership; active role of women; supportive role of officials; accountability and transparency of local institutions; collective action in conserving resources; trust within community; keeping long-term interest of village; and democratic functioning of local institutions.

**7.** The determinants are: prior experience with collective action; existence of rules of behavior in the community; extent of participatory decision-making; number of sources of information; education; economic status; demographic characteristics; and district history (Krishna and Uphoff, 1999:44; World Bank, 2002:74).

**8.** The original definitions by Coleman and others emphasize that social capital is what lies beyond formal organizations and legislation. Coleman's (1988) three forms of social capital – obligations and expectations, information channels, and social norms – show this trend of thought clearly: formal regulations and organizations are not included. Fukuyama, a conservative thinker, goes as far as seeing social capital as being in opposition to government-related institutions, in the sense that the more of the latter, the less will be of the former (Piazza-Georgi, 2002:472). For extensive discussion on this point, see Blomkvist and Swain (2001) and Knack and Keefer (1997).

**9.** The forest is an important natural resource on which the life of individuals and households in the community is critically dependent. Community initiatives to manage

these frequently take the form of effective local institutions with defined structures, which are governed by collectively formulated norms and procedures, and impart a certain abiding quality to the social cooperation expressed through them. Such institutions would arguably not be possible except in communities, which have a fair degree of social capital (Jayal, 2001:655).

**10.** It is relevant to mention that the measurement of social capital related to local community-based JFM programme under the three generic criteria in our study villages (excluding control group) during after situation of JFM appeared in Sarker and Das (2006b).

**11.** It is important to mention that almost all villages under our survey area have been incorporated under JFM programme

**12.** Poverty line income in rural West Bengal on the basis of PCME (per capita monthly expenditure) by NSS of 56<sup>th</sup> round (1999-00) is Rs. 350.17. Based on the CPIAL (Consumer Price Index of Agricultural Labour [General]) the poverty line income for the year 2005-06 is calculated as Rs. 394 /- approximately.

**13.** The facilitative roles played by local officials are: first, they must ensure that the selection process of the community institutions is transparent and includes all disadvantaged groups in the decision-making process. Second, periodic conflict is inevitable when villagers are required to sacrifice individual benefits for a larger common goal, but if conflict-management mechanisms are put in place, the problems can be contained; third, the intervention of officials can introduce progressive changes in the traditional village structure.

**14.** Panchayat, the lowest tier of the Indian federation, is a statutory village authority.

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

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**Dr. Nimai Das** is Research Officer of Economics at the Centre for Studies in Social Sciences, Calcutta (CSSSC), R-1 Baishnabhata Patuli Township, Kolkata - 700094, India.

[Email: [nimai\\_econ@rediffmail.com](mailto:nimai_econ@rediffmail.com), [nimai\\_das@cssscal.org](mailto:nimai_das@cssscal.org)]

Author **Nimai Das**