
Microfinance, social capital and natural resource management systems: conceptual issues and empirical evidences

K.S. Murali

Environmental Management and Policy Research Institute
Urban Ecopark, Peenya Industrial Area
Bangalore 560058, India
E-mail: murali.kallur@gmail.com

Abstract: This paper attempts to trace the causes and consequences of natural resources' degradation as stated from various reviews. The paper also attempts to link poverty, environmental degradation and conceptual issues involved in recovery of natural resources through building social capital. This is a review of various papers on microfinance programmes undertaken in natural resource management projects. An attempt is made to understand how the building of social capital enhances the propensity to develop natural capital. It is argued that there is lack of evidence to show that social capital increases the chance of improving natural capital and discusses various issues associated with natural resource management. The paper also stresses the need to adopt an integrated approach to seek evidence of natural resource building efforts through improving social capital.

Keywords: social capital; natural resource management; microfinance; natural capital; common property resource.

Reference to this paper should be made as follows: Murali, K.S. (2006) 'Microfinance, social capital and natural resource management systems: conceptual issues and empirical evidences', *Int. J. Agricultural Resources Governance and Ecology*, Vol. 5, No. 4, pp.327–337.

Biographical notes: Dr. K.S. Murali is Ecologist by training and holds a PhD in Ecology from Indian Institute of Science, Bangalore, India. He is working on various fields such as conservation biology, community forestry, evolutionary ecology, and environmental monitoring. He has authored many books and research articles in international journal addressing social, ecological, and economic issues. Currently, he is Consultant to Karnataka State Council for Science and Technology, Indian Institute of Science, Bangalore.

1 Introduction

Natural resource degradation is one of the main concerns today. With increasing population and standard of living (as defined by the development perspective), the limiting resources – be it water, soil, or land – are all degrading with due disregard to the future of biological well-being of humans and other living beings (Murali and Hegde, 1996). It is argued that population pressure is largely responsible for resource degradation

(Myers, 1993). Thus, building natural resources can be achieved through reducing reliance of people on natural resources (Panayotou, 1990) and enhanced income through value addition. The crucial role of natural resource conservation in reducing poverty is through regenerating, upgrading, and equitably harnessing natural resources and enhancing the livelihood options of the rural poor (Dasgupta, 1996).

Natural resources such as forests, water bodies, agriculture, and soil occupy a central place in sustaining diversified, land-based activities. Forests, along with agriculture, link different biomass-based economic and ecological functions, typically a diversified economy for constant flow of resources. Ideally, functions and contributions are integrated with positive ecological and socio-economic links, wherein communities have adopted sustainable resource use practices. However, with increased accessibility, economies of scale, and market interventions, the closed system has changed to open systems wherein resource outflow has increased with much less inflows and therefore resource degradation has set in.

A paradigm shift from social mobilisation to conservation and sustainable use of natural resources was introduced through formation of Self Help Groups (SHGs) and creation a revolving fund to meet rural credit needs of the people (Anderson *et al.*, 2002). Such a mechanism was thought to address natural resource management issues because the rural credits are critical in arresting degradation, if timely cash needs of the community are met. To meet these critical cash needs, particularly during lean periods, people extract natural resources. In this paper, attempts are made to understand whether credit systems so generated have directly or indirectly influenced natural resource conservation. The examples depicted in the papers published in this issue taken from Maharashtra, Kerala and Karnataka attempt towards influence of microfinance on natural resource management. Different programmes taken in the study include watershed management, dairy, small holder agriculture, and community forestry. All of these programmes focus on alleviating poverty through judicious use of natural resources. In the process the projects have generated interest among other allied fields such as microfinance, energy-efficient stoves, alternate energy sources such as gasifiers, biogas solar *etc.*, to reduce the reliance on natural resources. Microfinance, in many occasions has helped people to undertake other vocations that help them wean away from using natural resources for their cash needs.

1.1 Poverty, resource degradation and social mobilisation

The poverty and resource degradation link are perceived due to the widespread coexistence of poverty and environmental resource degradation in developing countries. This reasoning is focused on the consequence rather than the cause (Murali and Hegde, 1996; Jodha, 1996). Natural resource degradation, initiated and accelerated through different processes, has led to situations where the poor emerge as the principal users of degraded natural resources. This is due to the lack of other options and a very low opportunity cost of labour in comparison with the rich. However, in the mainstream discourse on the subject, the link is emphasised so frequently and effectively (Durning, 1989; Mink, 1993) that it has acquired the status of a stereotype. This not only diverts attention from several basic issues involved in the process of resource degradation (Panayotou, 1990; Metz, 1991), but also prevents the recognition and analysis of simple field-level observations.

The explanation for the coexistence of poverty and better status of natural resources lies in the processes that influence patterns of resource use. First, the poor have limited needs and limited resource-extractive capacities with which to erode the natural resources. More importantly, they are spared from external interventions and forces that often accompany the rising affluence of communities. Consequently, poor communities have an undiminished stake in the health and productivity of their environmental resources, and they have institutional norms and practices to safeguard this stake. Dilution or disintegration of this community stake, and the erosion of grassroots-level mechanisms to protect and enhance it, constitute the fundamental reason behind natural resource degradation, regardless of the poverty or richness of communities (Bromley and Chapagain, 1984). This critical factor is largely ignored by the generalised mainstream's view that attributes resource degradation to poverty. Consequently, the focus tends to be on proximate factors (*e.g.*, poverty) rather than ultimate forces causing degradation of natural resources (Prakash, 1997). More than poverty, it is inequality in resource ownership, access, power, and other endowments that promotes environmental degradation (Boyce, 1994).

In view of extensive dependence of poor people on natural resource; and to alleviate them from this dependence, social mobilisation for conservation is the recent trend. There are many success stories of social mobilisation, not only in natural resource management and poverty eradication (Ford Foundation, 2002). Other examples come from programmes that focus on decentralisation and community participation in poverty eradication, like in Nepal (PDDP, 2001; LGP, 2001). Projects elsewhere have also helped in building group action for poverty eradication (IFAD, 2002). Thus, social mobilisation for natural asset-building and other development activities is not only being increasingly emphasised but has also demonstrated effectiveness in several areas.

1.2 Economic incentives

One of the most effective means to ensure enhanced economic gains from natural assets is internalisation of the benefits from efficient management that accrues to external economies at very low costs. Most of the successful social mobilisation efforts is through economic incentives realised by communities. Many interventions are devised in such programmes to create opportunities that offer some immediate or intermediate economic benefits such as subsidies; soft loans; encouragement for local specific resource mobilisation, microcredit schemes; and support for local demand-driven initiatives rather than top-down, supply-driven activities. In the case of natural assets, the globalisation process can also offer much-needed economic incentives for development and efficient management by encouraging the trade-in of high-value NTFPs such as certified organic products. These can promote diversification and value-adding processes to enhance gains from healthy and productive natural assets, as seen in the case of parts of China, India, and Nepal (Jodha, 2002). If equitably shared, these changes can further encourage community participation.

An important factor that helped in rebuilding communities' stake in natural resources and converting them into natural assets is community control over resources. Traditionally, mainstream decision-makers have permitted greater local autonomy to communities in several mountain areas. However, this was more due to default – that is, their inaccessibility-imposed ignorance and indifference toward mountain areas – rather

than a conscious decision. With the increased physical and administrative integration of fragile, remote, and marginal areas with the mainstream political-economic systems, most of the local natural resources belonging to the communities have been taken over by the state either through formal law or through disregard of customary laws and practices (Hiremath, 1997; Poffenberger *et al.*, 1996; Guha, 1983). In India, it happened through the colonial British government extending its control over forests and establishing forest departments that manage commercial extraction as property of the Crown. After independence, national governments inherited the system, with some recent changes (Hobley, 1996). In Nepal, a major change happened with the nationalisation of forests in 1957. Lynch and Talbott (1995) analyse similar processes in different Asian countries. The consequent lack of local control over local resources prevents community protection and regulation of the use of natural resources. Deprived of forest ownership, communities tend to over-extract their resources (Bromley and Chapagain, 1984). The importance of changing this situation can hardly be overstated.

2 Microfinance, social capital and natural capital

Traditionally, people engaged in forests through collective action. Farming community collaborated on water management, labour and marketing; pastoralists managed grasslands; and fishing community managed aquatic resources (Pretty and Ward, 2001). This management was possible due to strong institutional arrangements. Over the years, due to resource degradation, those institutions have lost their relevance. However, in India, such institutions managing resources such as forests (Ravindranath *et al.*, 2000) exist. Pretty and Ward (2001) lists four strong institutional operations that help strong cooperation among members. They are relations of trust; reciprocity and exchange; common rules, norms and sanctions; and connectedness, networks and groups. They argue that trust enhances cooperative activity, while reciprocity and exchange develop long term obligations among people (Platteau, 1997). Common rules and norms would place the group interests higher than individual interests. These rules also give confidence among people to involve in collective activities. Finally, connectedness and networks build the most important social capital to successful collective activity such as natural resource management.

The question of how would microfinance builds the social capital still needs to be explored. The mechanism, through which microfinance could build social capital and how such activity would lead to effective/efficient management of natural resources, needs empirical evidence. Pretty (2003), Pretty and Ward (2001) and Anderson *et al.*, (2002) provide some circumstantial evidence on impact of microfinance in natural resource management or common pool resources. Some of the changes that seem to bring about changes in community behaviour listed by Anderson *et al.* (2002) are as follows:

- Microfinance to poor allows them to undertake microenterprises such as tailoring (through procuring sewing machines), looms, bicycles, *etc.* If successful, such vocations would increase resource capital and ownership. Such an improved quality of life may demand better environment quality. Furthermore, microfinance allows income diversification. Income diversification reduces risk of loss and, therefore, has beneficial effects on environment (Dasgupta and Göran-Malër, 1994)

- Microfinance, to women, generally reduces fertility, as they occupy themselves in entrepreneurial activities, as compared to women who solely engage in household activities. Reduced fertility also means lower child mortality and improved childcare. The cumulative effects of reduced number of children have positive effect on the environment.

In most occasions, microfinances are ground-lending. Ground-lending encourages people to meet frequently at regular intervals and enhances discussion on issues pertaining to common property resources or natural resources. Such frequently attended meetings also enhance the interactions and accountability on issues already discussed in the preceding meetings. It is seen that under Joint Forest Management programme in India (Ravindranath and Sudha, 2004), though there are stipulated number of meetings to be conducted in a year, such meetings are either recorded as conducted or not conducted at all. However, in microfinance activity, as the weekly or monthly meetings involve financial transactions, people invariably attend meetings and get to know the transactions. Such co-opted meetings smoothen discussions, connectedness, and networking. Group-lending further involves strategic planning, assuming responsibility, and collective decision making. This aspect seems to work positively towards building social capital, which influences management of resources though mechanisms of such pattern are still not understood.

3 Some evidences showing impact of microfinance on natural resource management

3.1 Dairy enterprise

Impact of microfinance on dairy has made India the largest producer of milk in the world today. The dairy enterprise has emerged as a dependable sector in development economy of rural India and most suitable for drought-prone area such as Kolar district in Karnataka. It is characterised predominantly by rainfed agriculture and daily wage, the only means of income generation. The dairy development in the region has made significant impact on additional income and employment generation and contributed for overall development of region, particularly improvement of socio-economic condition of the dependent households. The spread of dairy in the Kolar district is very significant, as it is a leading district in Karnataka that contributes higher milk production with better infrastructure and institutional development.

The introduction of various microfinance schemes to assist and enhance the capability of the economically weaker people has brought positive and significant results. The initiation of Swarnima micro finance scheme by the Karnataka backward classes development corporation, with help of Karnataka Milk Federation to promote socially backward people in the district, provided remarkable achievement to reduce level of poverty by improving socio-economic condition of the beneficiaries. The case study conducted at beneficiaries level is evident to prove the impact of microfinance on changing livelihood patterns and adding overall life standards to needy people in the socio-economic spectrum of the country (Ramakrishnappa and Rao, 2005).

The economic feasibility of the Swarnima Scheme in the study area indicates high recovery of the loans extended to its beneficiaries. The recovery pattern of the loan under New Swarnima scheme in the state achieved 75% of the recovery out of total amount disbursed as loan. Furthermore, in Kolar district, the loan recovered from 537 beneficiaries accounts for 53.1%. In spite of four years of consecutive drought in this region, the recovery of loans is substantial, as community have developed positive attitude with dairy. Additional income and employment generated out dairy activities have built confidence to undertake enterprise and working under challenge.

Though Ramakrishnappa and Rao (2005) have given details about income and employment generation and socio-economic improvement, a lot remains to be explored, as far as natural resource utilisation generated through dairy is concerned. Of course, that needs a substantial effort from various institutions which may make the study complete. Yet, we have evidence that social capital has been built and the natural capital is also built, owned by the poor and disadvantaged social groups. One of the striking features of the study is that only women and weaker sections of the society have availed loans. What needs to be done is to understand the impact of dairy enterprise on the environment. For instance, dairy enterprise may have put India on top of milk producing countries in the world, but genetic erosion of native breeds of cow remains to be answered. On the other hand, had the dairy enterprise been supported with installation of biogas devices that would have provided cost-effective means of generating light and cooking gas for these beneficial families that started dairy enterprise and in addition would have earned money through manure generated from the enterprise. The NGOs and microfinance providing institutions must take lead in streamlining such activities that aim at integrated development.

3.2 Joint forest management and microfinance

Formation of Self-help Groups (SHG) in rural areas has gained social and economic freedom for local communities. The study by Rao (2005) indicates that economic strengthening has led to social and overall personal development of the individuals and contributes to integrated development of villages. SHG concept has taken a shape of a movement that brings socio-economic change among poor and marginal people by providing additional employment and income. However, such efforts to link microfinance activities with natural resource conservation and management are not enough, as this is a growing sector where millions of families depend for main or subsidiary income. Further case studies conducted at five VFCs clearly demonstrate efforts of SHG in generating microfinances and linking natural resource management as economically and socially viable and feasible.

3.2.1 Conservation and regeneration of natural resources

At the time when our country is facing severe degradation of natural resources, SHGs have taken up in conservation, regeneration, and utilisation of sustainable natural resources in rural area. The participation of SHG in planning, decision making, protection, and management of natural resources are the indicators to improve resource status and its productive use in the county. Linking micro credits to various activities under natural resource management by SHG have provided gainful employment and income to needy people and their participation in conservation and regeneration of resources.

3.2.2 *Impact on women members*

Participation in group processes and activities has also enabled women to develop their self-confidence and generally their social and communication skills. On personal level, women have gained more respect at home and among family members resulting in improved relations in the household.

3.2.3 *Economic and social gains*

Economic gains for SHG members from various activities were used for various family commitments such as repayment of various types of loans and, more important, day to day household expenditures during the lean season, as well as for marriage, childbirth, death, *etc.* The enhanced contribution of a member to household income and the freedom in economic decision making at the household level have, to some extent, given them a measure of economic independence. However, more than the economic gains, the impact on member's self-confidence and self-esteem have improved. The experience of working in groups and shouldering collective responsibilities has enhanced skills in interpersonal relationships as well as in microenterprise management.

The study by Rao (2005) generates various *issues and dilemmas* to strengthen SHGs as best formal microfinance institution at rural area by linking productive activities under natural resource management.

Development and demonstration of various productive activities under natural resource management, such as processing of NTFP, value addition programmes in wood, bamboo and medicinal plants should be undertaken. These enterprises should be economically viable and socially acceptable to extend microfinance by SHG itself and also to other finance institutions. By this, they can achieve sustainable use of resources by extending hands in conservation and regeneration of such resources.

3.3 *Impact on biodiversity*

A strong indicator of positive impact comes from Kerala state where Vasantha Sena (green women brigade) showed how community could change the social scenario. The idea of perambulating forests came out from the SHGs in Thekkady region and later spread to neighbouring SHGs. The lobbying of women in the SHGs, for a good cause, resulted in the formation of a special group called *Vasantha Sena*. Women members numbering 100 from eight EDCs, voluntarily conduct forest patrol everyday from 11 am to 5 pm in small batches of six persons on rotation claiming no remuneration. Their presence in the forest during daytime has helped conservation of biodiversity through sensitising fuel wood collectors, controlling biomass extraction, discouraging illegal entry and helps control cattle-grazing, reduced plastic litter, recording wildlife sightings, *etc.* Thus, women have attained the status of environmental protectors, and have become an agent of change. Their selfless action has attracted the attention of a cross section of people around the park as well as from outside. It is slowly emerging as a model for other areas of similar nature and environment. Finally, *Vasantha Sena* bagged the P.V. Thampi Memorial Endowment Award for the year 2003, instituted by the Environmental Monitoring Forum, Kochi (Pillai and Suchinta, 2005).

Periyar case is the result of involving women and other marginalised group on all levels of decision making and implementation. The formation of EDCs and women SHGs has resulted in building social capital and operating on social fence towards conservation of natural resources. Periyar case may be an ambitious road map in the history of biodiversity conservation. Thus, there is no doubt that Periyar is emerging as a role model of women empowerment for biodiversity conservation. It can be replicated in other areas with similar environment.

3.4 Impact on watershed and small-scale agriculture

Microfinance can have major environmental impacts, particularly in a rural context. Impacts include pollution (and health hazards) from pesticides and fertilisers, which are often purchased with the use of credit. Farm expansion is also facilitated by credit, resulting in increased deforestation and habitat loss or encroachment. Increased cattle-grazing and animal husbandry is facilitated since a significant amount of rural credit is used to purchase cattle. While these are complex environmental problems, microfinance provides a key interface to address some of these concerns. The role of microfinance institutions in environmental management is important considering the rapid growth of microfinance, its environmental impact, and the need for environmental institutions in the vast informal sector (Lal and Israel, 2005).

Several options for environmental management have been described. The most cost-effective methods are favoured due to the serious financial constraints MFIs face in achieving financial sustainability. Policymakers should be sensitive to those cost constraints, and take care not to place the entire cost of environmental protection on MFIs. MFIs and NGOs working in the informal sector should seek out incentives that will encourage improved environmental practices among microentrepreneurs. Microentrepreneurs will better adhere to approaches that have both environmental *and* economic benefits.

Donors that fund microfinance initiatives should also evaluate the environmental impact of their funding activities, and support efforts to improve environmental performance in the informal sector. In the case of sustainable agriculture, improved environmental practices generally lead to higher, and sustained crop production. Agriculture is a rich sector with potential win-win solutions for protecting the environment while fostering rural development.

4 Implication and conclusion

Erosion of traditional values and systems of resource management due to various factors have also lead to degradation of natural resources. This may have stemmed from the changed outlook of centrally controlled resource management systems than decentralised systems that existed earlier. Part of this change in management system in tropical countries may have arisen out of colonial regime that existed till middle of the last century (Poffenberger, 2001). However, reversion of management to decentralised systems and efforts to build social capital may improve status of natural resources, if the analysis of this paper is considered as an indication.

Microfinance is argued to help in building social capital and thereby facilitate conservation of natural resources (Pretty and Ward, 2001; Anderson *et al.*, 2002; Pretty, 2003) such as common property resources. The evidences that emerge from the studies in this issue support such a view, though not strongly. Thus, it is difficult to conclude that microfinance could build trust, cooperative behaviour, and collective action leading to prudent natural resource management. The study from Kerala (Pillai and Suchintha, 2005) gives a rosy picture of things to expect in the future, though social improvement in other words, social capital building, is substantial. One of the major drawbacks of most studies listed in this issue is the lack of relevant observations on ecological parameters that corroborates the findings of building of social capital. Many studies have shown substantial economic and social gain (Ramakrishnappa and Rao, 2005) but not the improved natural capital. Even in Kerala, substantial improvement in social capital has been demonstrated and associated impositions among the community to refrain from degrading natural capital, but objectively demonstrating the change in natural capital between two time regimes is lacking. This does not argue that natural capital has not improved, but as a scientific method the efforts to demonstrate improved natural capital is lacking. All the above studies suggest the necessity to undertake studies that assess building capital along with improving natural capital. Improvements compared across two time regimes or across different stages of natural or capital building would enhance the objective criteria to demonstrate the link of social capital and natural capital.

Such information on strong link of social capital and natural capital would help policy advocacy, natural resource managers, and social activists to take necessary steps to improve natural capital and social well-being of the country there by enhancing the economy and resourcefulness of the country. Furthermore, such demonstrations would also bring us to rethink the issues that have been so far visualised such as conservation efforts that keeps the community isolated from participation. Even if they participated, their only concerns are on peripheral issues. Undoubtedly, demonstration of strong links of social capital and natural capital would help restoration of world ecosystems that are in state of degradation. The real challenge is how these principles could be implemented.

Acknowledgments

I thank Ford Foundation, New Delhi and Centre for sustainable Technology, Indian Institute of Science for supporting me to undertake this work. I thank Prof. N.H. Ravindranath and Prof. M.K. Surappa for their encouragement and support.

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