

12 Investments in Collective Capacity and Social Capital

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Why Connectedness is Important

For as long as people have managed natural resources, they have engaged in forms of collective action. Farming households have collaborated on water management, labour sharing and marketing; pastoralists have co-managed grasslands; fishing families and their communities have jointly managed aquatic resources. Such collaboration has been institutionalized in many forms of local association, through clan or kin groups, traditional leadership, water users' groups, grazing societies, women's self-help groups, youth clubs, farmer experimentation groups and religious groups (Pretty, 2002).

Constructive resource management rules and norms have been embedded in many cultures and societies, from collective water management in Egypt, Mesopotamia and Indonesia to herders of the Andes and dryland Africa; from water harvesting in Roman North Africa and south-west North America to shifting agricultural systems. It has, however, been rare for the importance of such local groups and institutions to be recognized in recent agricultural and rural development. In both developing- and industrialized-country contexts, policy and practice has tended not to focus on groups or communities as agents of change (Pretty, 2003).

In some contexts, this has meant that local-level institutions have been undermined to the

point that they no longer monitor, regulate and protect local resource bases. In India, the loss of management systems for common property resources has been a critical factor in the increased overexploitation, poor maintenance and physical degradation observed over the past half century. Jodha's (1990) now classic study of 82 villages in seven states found that only 10% of villages still regulated grazing or provided watchmen compared with the 1950s; none levied grazing taxes or had penalties for violating of local regulations; and only 16% still obliged users to maintain and repair common resources. Elsewhere in India, private ownership or the operation of surface and ground-water use for irrigation has generally replaced collective systems (Kothari *et al.*, 1998). The future for both natural resources and the many rural households that rely on them is bleak in the absence of these disappearing institutional structures.

Where access to resources is marginally regulated or not at all, the likelihood of 'freeriding' increases, as does the likelihood that the resource will be exploited unsustainably. Under-regulated resources tend to be economically undervalued. A key reason for this is that the resource becomes non-exclusionary, with users unable to restrict other users from access. Under such circumstances, 'tragedy of the commons' scenarios arise, and the sustainability of the resource cannot be assured.

Social institutions based on trust and reciprocity, and agreed norms and rules for behaviour, can mediate this kind of unfettered exploitation. An increasing number of studies are now showing that when people are well organized in groups whose knowledge is sought, incorporated and built upon during planning and implementation, then agricultural and natural resource productivity can benefit in the long term.

It is clear that new thinking and practices are needed, particularly to develop forms of social organization that are structurally suited for natural resource management and protection at local levels (Cernea, 1991). This usually means more than just reviving old institutions and traditions. More commonly, it means new forms of organization, association and platforms for common action. Since the late 1990s, we have seen a growing recognition of the effectiveness of such local groups and associations for sustainable environmental and economic outcomes, together with the idea that social connectedness should be seen as a capital asset (but see Fine, 2001, for a sceptical view).

What is Social Capital?

There has been a rapid growth in interest in the term 'social capital' in recent years. The term captures the idea that social bonds and norms are important for sustainable livelihoods. It was given a novel theoretical framework by Coleman (1988), and brought to wide attention by Putnam (Putnam *et al.*, 1993; Putnam, 2000). Coleman describes it as 'the structure of relations between actors and among actors' that encourages productive activities. As it lowers the costs of working together, social capital facilitates cooperation. People have the confidence to invest in collective activities, knowing that others will also do so. They are also less likely to engage in unfettered private actions that result in resource degradation. The concept of social capital is built on four central aspects (Pretty and Ward, 2001; Pretty, 2003; Westerman *et al.*, 2005): (i) relations of trust; (ii) reciprocity and exchanges; (iii) common rules, norms and sanctions; and (iv) connectedness, networks and groups.

Trust lubricates cooperation. It reduces the transaction costs between people and so

liberates resources. Instead of having to invest in monitoring others, individuals are able to trust them to act as expected. This saves money and time. It can also create a social obligation – by trusting someone this engenders reciprocal trust. There are two types of trust: the trust we have in individuals whom we know and the trust we have in those we do not know but which arises because of our confidence in a known social structure. Trust takes time to build but is easily broken (Fukuyama, 1995), and when a society is pervaded by distrust, co-operative arrangements are unlikely to emerge. Trust can only work if an adequate monitoring framework exists, such as a social network. In this way, social capital is both dependent on – but also creates – trust through the monitoring that it generates.

Reciprocity and exchanges also increase trust. There are two types of reciprocity: specific reciprocity, which refers to simultaneous exchanges of items of roughly equal value; and diffuse reciprocity, which is a continuing relationship of exchange that at any given time may not be met but eventually is repaid and balanced. This contributes to the development of long-term obligations between people.

Common rules, norms and sanctions are the mutually agreed or handed-down norms of behaviour that place group interests above those of individuals. They give individuals the confidence to invest in collective or group activities, knowing that others will also do so. Individuals can take responsibility and ensure their rights are not infringed. Mutually agreed sanctions ensure that those who break the rules know they will be punished – and, in a network, there is a high chance that they will be detected if they violate these rules. Formal rules are those set out by authorities, such as laws and regulations, while informal ones are those individuals use to shape their own everyday behaviour. Norms are, by contrast, preferences and indicate how individuals should act. Such norms are often understood to be social institutions, and high social capital implies that a community or group of people have a strong internal institutional fabric, in which individuals balance individual rights with collective responsibilities.

Connectedness, networks and groups are a vital aspect of social capital. Three types of connectedness are important: bonding,

bridging and linking types of social capital (Woolcock, 2001). Bonding describes the links between people with similar outlooks and objectives, and is manifested in different types of groups at the local level – from guilds and mutual aid societies to sports clubs and credit groups, to forest or fisheries management groups, and to literary societies and mothers' groups (Putnam, 2000). Bridging describes the capacity of groups to make links with others that may have different views, particularly across communities (Putnam, 2000). Such horizontal connections can sometimes lead to the establishment of new platforms and apex organizations that represent large numbers of individuals and groups. Linking describes the ability of groups to engage vertically with external agencies, either to influence their policies or to draw on resources.

Even though some agencies may recognize the value of social capital, it is common to find not all of these connections being emphasized. For example, a government may stress the importance of integrated approaches between different sectors and/or disciplines but fail to encourage two-way vertical connections with local groups. A development agency may emphasize the formation of local associations without building their linkages upwards with other external agencies, which could threaten success. Others may miss the importance of women in group formation (Westerman *et al.*, 2005).

In general: (i) the more linkages the better; (ii) two-way relationships are better than one-way; and (iii) linkages subject to regular update are generally better than historically embedded ones. Rowley's (1999) study of social capital in sub-Saharan Africa found a loose relationship between connectedness and wealth, but causality was unclear: 'did well-connected people become rich or rich people able to afford to be well connected?'. There may, however, be cases where a group might benefit from isolation, because it can avoid costly external demands.

There is growing evidence that high social capital is associated with improved economic and social well-being. Households with greater connectedness have been shown to have higher incomes, such as in Tanzania, India and China (Narayan and Pritchett, 1996; Krishna, 2002; Wu and Pretty, 2004), better health (Pevalin and Rose, 2003), improved edu-

cational achievements (Fukuyama, 2000), and better social cohesion and more constructive links with government (Putnam, 2000).

There is a danger, of course, of appearing too optimistic about local groups and their capacity to deliver economic and environmental benefits. It is important to be aware of the divisions and differences within and between communities, and how conflicts can result in environmental damage. Not all forms of social relations are necessarily good for everyone in a community. A society may be well organized, have strong institutions and have embedded reciprocal mechanisms but may not be based on trust but on fear and power, such as in feudal, racist and unjust societies (Knight, 1992). Formal rules and norms can also trap people within harmful social arrangements. Again a system may appear to have high levels of social assets, with strong families and religious groups, but contain abused individuals or those in conditions of slavery or other exploitation. Some associations can also act as obstacles to the emergence of sustainability, encouraging conformity, perpetuating adversity and inequity, and allowing some individuals to get others to act in ways that suit only themselves. We must always be aware of these potentially negative social relations and connections (Portes and Landolt, 1996).

Recent Evidence from Agricultural and Natural Resource Sectors

Recent years have seen an extraordinary expansion in collective management programmes throughout the world, described variously by such terms as community management, participatory management, joint management, decentralized management, indigenous management, user-participation and co-management. These investments in social capital creation and development have centred on participatory and deliberative learning processes, leading to local group formation in eight sectors: (i) watershed and catchment management; (ii) irrigation management; (iii) microfinance delivery; (iv) forest management; (v) integrated pest management; (vi) wildlife management; (vii) farmers' research groups; and (viii) fisheries management. It has been estimated that since the late

1990s 400,000–500,000 new groups have arisen in these sectors – mostly in developing countries (Pretty and Ward, 2001; Pretty, 2003). Most have evolved to be of similar small rather than large size, typically with 20–30 active members, putting the total involvement at some 8–15 million people. Most groups show the collective effort and inclusive characteristics that Flora and Flora (1993) identified as vital for improving community well-being and leading to sustainable outcomes (see also Westerman *et al.*, 2005).

Watershed and catchment management groups

Governments and NGOs have increasingly come to realize that the protection of whole watersheds or catchments cannot be achieved without the willing participation of local people. Indeed, for sustainable solutions to emerge, farmers need to be sufficiently motivated to want to use resource-conserving practices on their own farms. This in turn needs investment in participatory processes to bring people together to deliberate common problems and form new groups or associations capable of developing practices of common benefit.

This had led to an expansion in programmes focused on microcatchments – not whole river basins but areas of probably no more than several hundred ha, in which people know and trust each other. The resulting uptake has been extraordinary, with most programmes reporting substantial yield improvements, often in the order of two- to threefold. At the same time, most also report the substantial public benefits, including groundwater recharge, reappearance of springs, increased tree cover and microclimate change, increased common-land revegetation, and benefits for local economies. It is estimated that some 50,000 watershed and sustainable agriculture groups have been formed in the past decade in Australia, Brazil, Burkina Faso, Guatemala, Honduras, India, Kenya, Niger and the USA (Pretty and Ward, 2001).

Irrigation and water users' groups

Although irrigation is a vital resource for agriculture, water is rarely used efficiently and

effectively. Without regulation or control, water can easily be overused by those who have access to it first, resulting in shortages for tail-enders, conflicts over water allocation, and waterlogging, drainage and salinity problems. But where social capital is well developed, then local water users' groups with locally developed rules and sanctions are able to make more of existing resources than individuals working alone or in competition. The resulting impacts, such as in the Philippines and Sri Lanka, typically involve increased rice yields, increased farmer contributions to the design and maintenance of systems, dramatic changes in the efficiency and equity of water use, decreased breakdown of systems and reduced complaints to government departments (de los Reyes and Jopillo, 1986; Ostrom, 1990; Uphoff, 1992, 2002; Singh and Ballabh, 1997). Lam's (1998) analysis of 150 irrigation systems in Nepal indicates that irrigation systems that are governed by farmers themselves deliver more water to the tail end of the system and have higher productivity than those governed by the state irrigation department.

Microfinance institutions

One of the great recent revolutions in developing countries has been the development of credit and savings systems for poor families. Such families lack the kinds of collateral that banks typically demand, appearing to represent too high a risk, so have to rely on moneylenders who charge extortionate rates of interest. A major change in thinking and practice occurred when professionals began to realize that it was possible to provide microfinance to groups, and so ensure high repayment rates. When local groups are trusted to manage financial resources, they can be much more efficient and effective than banks.

The Grameen Bank in Bangladesh was the first to help people find a way out of the credit trap. It helps women to organize into groups, and then lends to these groups. The Grameen Bank now has more than 2 million members in 34,000 villages, who are organized into subgroups of five members, which are joined together into 40-member centres (Grameen Trust, 2002). Elsewhere in Bangladesh, the

NGO Proshika has helped to form some 75,000 local groups. Such 'microfinance institutions' are now receiving worldwide prominence: the 57 microfinance initiatives (in Nepal, India, Sri Lanka, Vietnam, China, the Philippines, Fiji, Tonga, Solomon Islands, Papua New Guinea, Indonesia and Malaysia) analysed for the Bank-Poor 1996 meeting in Malaysia have 5.1 million members in some 127,000–170,000 groups, who have mobilized US\$132 million in their own savings (Fernandez, 1992; Gibbons, 1996).

Joint and participatory forest management

In many countries, forests are owned and/or managed by the state. In some cases, people are actively excluded; in others, some are permitted use rights for certain products. But governments have not been entirely successful in protecting forests. In India, for example, less than 50% of forests remain under closed canopies, with the remainder in various stages of degradation (SPWD, 1998). But recent years have seen growing recognition amongst governments that they cannot hope to protect forests without the help and involvement of local communities. This means the granting of rights to use a range of timber and non-timber produce, and the allocation of joint responsibility for protecting and improving degraded land.

The most significant changes have occurred in India and Nepal, where experimental local initiatives in the 1980s so increased biological regeneration and income flows that governments issued new policies for joint and participatory forest management in 1990 (India) and 1993 (Nepal). These encouraged the involvement of NGOs as intermediaries and facilitators of local group formation. There are now some 65,000 forest protection committees and forest users' groups in these two countries, managing several million ha of forest, mostly with their own rules and sanctions (Shrestha, 1997; SPWD, 1998; Mukherjee, 2001; Murali *et al.*, 2002, 2003). Benefits include increased fuelwood and fodder productivity, improved biodiversity in regenerated forests and income growth amongst the poorest of households. Old attitudes are changing, as foresters come to appreciate the remarkable regeneration of

degraded lands following community protection, and the growing satisfaction of working with, rather than against, local people (although some 31 million ha of forest are still said to be degraded in India).

Integrated pest management and farmer field schools

Integrated pest management (IPM) is the integrated use of a range of pest (insect, weed or disease) control strategies in a way that reduces pest populations to satisfactory levels and is sustainable and non-polluting. Inevitably, IPM is a more complex process than relying simply on pesticide applications: it requires a high level of human capital in the form of analytical skills and understanding of agroecological principles; it also requires cooperation between farmers. Recent years have seen the establishment of 'farmer field schools' (FFS) ('schools without walls', in which a group of up to 25 farmers meets weekly during the growing season to engage in experiential learning) and farmers' groups for IPM (cf. Matteson *et al.*, 1992; Braun *et al.*, 2005; Gallagher *et al.*, 2005).

The FFS revolution began in South-east Asia, where research on rice systems demonstrated that pesticide use was correlated with pest outbreaks (Kenmore *et al.*, 1984). The loss of natural enemies, and the services that these provided for pest control, was a cost that exceeded the benefits of pesticide use. The FFS programme is supported by FAO and other bilateral development assistance agencies and has since spread to many countries in Asia and Africa (Uphoff, 2002; Gallagher *et al.*, 2005). At the last estimate, some 1.8 million farmers are thought to have made a transition to more sustainable FFS-based rice farming as a result.

Community-based wildlife management

So-called 'fortress' styles of wildlife management are common throughout the world, and represent a key form of wildlife protection. In many countries (such as Kenya, Tanzania and Uganda), national parks attract very large numbers of visitors annually, contributing substantial funds to national treasuries. There are,

however, very sharp contrasts between the wealthy tourists these parks tend to serve and the impoverished residents of land adjacent to them. In many cases, the benefits that nations derive from protected areas appear not to benefit these neighbouring communities. This contrast is starkly enhanced when one remembers that, in many cases, the creation of protected areas has been a substantial loss for local communities, represented in terms of lost grazing, farming and/or other forms of land-use opportunities (cf. Adams and McShane, 1996).

As a consequence, many developing countries are coming under increasing pressure to demonstrate that local communities can benefit from wildlife conservation. In addition, because protected areas are a very visible form of environmental protection, it becomes important to demonstrate that claims that communities can be relied upon to protect wildlife are valid. Typically, protected areas fall under state protection, and in many developing countries, poachers or other trespassers risk getting shot. The development of state–community wildlife management partnerships are, therefore, often typified by the state retaining the upper hand in the relationship and highly unequal relationships (cf. examples in Hulme and Marshall, 2001).

There are, however, notable exceptions. As the popularity of ‘ecotourism’ has increased, so too have many communities seized the initiative to set aside land within their own territory for wildlife and established facilities to receive tourists. In north-central Kenya, the Lewa Downs Wildlife Conservancy, a wildlife conservation trust, found its range insufficient to support its elephant and rhino populations. As a result, the trust agreed with the neighbouring Ndorobo Maasai community of Il Ngwesi to establish the Il Ngwesi Group Ranch, a 6500 ha area, into which the trust’s elephant and rhino can migrate. In 1996, Lewa Downs helped the Il Ngwesi to build a luxury tourist lodge, from which the community gains an income. The group ranch employs 28 people from the local community, 14 of whom work in the lodge looking after visitors. The remainder work as Il Ngwesi’s ranger force, providing security for the animals and people in the region. Il Ngwesi has elected a Group Ranch Committee and Chairman to represent 499 households, comprising over 6000 people. A general meeting is

held once a year to discuss matters including revenue distribution, management policies, registration of new members, and election of a management committee, which carries out day-to-day management for the rest of the year (LWC, 2007).

The initiative has had a spectacular success on the conservation of the area’s rhino and elephant, as well as many other animal species, while at the same time providing the Il Ngwesi community with a valuable income source and international recognition.

How examples such as this and multiple others across the African continent fare in the future remains to be seen. Whatever the case, they do suggest that conservation that draws on local social capital, and drawing on both indigenous and external knowledge, can, and does, yield positive conservation outcomes while also meeting livelihood aspirations (cf. Boyd, 1999).

Farmers’ groups for co-learning and research

The normal mode of agricultural research has been to experiment under controlled conditions on research stations, with the resulting technologies being passed to farmers. In this process farmers have little control, and many technologies do not suit them, thus reducing the efficiency of research systems. Farmers’ organizations can, however, make a difference. They can help research institutions become more responsive to local needs and can create extra local value by working on technology generation and adaptation. Self-learning is vital for sustainable agriculture, and by experimenting themselves, farmers increase their own awareness of what does and does not work. There have been many innovations in both industrialized and developing countries, though generally the numbers of groups in each initiative tend to be much smaller than in watershed, irrigation, forestry, microfinance and IPM programmes (cf. Pretty, 1995; van Veldhuizen *et al.*, 1997; Uphoff, 2002; Gallagher *et al.*, 2005).

Fisheries management

Fisheries, like many forest resources, are common property, which means that it is extra-

ordinarily difficult – without the cooperation of the whole fishing community – to exclude would-be users and freeriders. Hence, if they are to be managed successfully, this needs to be done ‘in common’. Fishing communities are a very rich source of information on social capital and community-based systems of natural resource management. Johannes’s (1981) classic study of Micronesian fishing communities amply served to demonstrate the potential of social capital to monitor and manage this resource.

Community-based fisheries management is, however, rare today. In most cases, responsibility for fisheries management has been removed from fishing communities by understaffed and cash-strapped developing-country governments. It is with these restrictions in mind that many are now exploring ways of tapping into social capital to better regulate these fisheries resources and ensure that their benefits are more equitably distributed (cf. Jentoft and McCay, 1995). The key challenge in this regard resides in the ability to identify social capital on which such systems can be built and to identify the best possible ways in which its capacity can be enhanced and adequately supported.

Implications for Development Assistance

To what extent, then, are new configurations of livelihood assets, in particular social and human capital, prerequisites for long-term improvements in agriculture and natural resources? It is true that natural capital can be improved in the short term with no explicit attention to social and human capital. Regulations and economic incentives are commonly used to encourage change in behaviour. These include the establishment of strictly protected areas, regulations for erosion control or adoption of conservation farming, economic incentives for habitat protection, and environmental taxes (Pretty *et al.*, 2001). But though these may change practice, there is rarely a long-term effect on attitudes: resource users commonly revert to old practices when the incentives end or regulations are no longer enforced (Dobbs and Pretty, 2004).

The social and human capital necessary for sustainable and equitable solutions to natural resource management comprises a mix of existing endowments. It is likely that these need to

be supported and facilitated by external agencies. Such agencies or individuals can act on or work with individuals to increase their knowledge and skills, their leadership capacity and their motivations to act. They can act on or work with communities to create the conditions for the emergence of new local associations with appropriate rules and norms for resource management. If these then lead to the desired natural capital improvements, then this again has a positive feedback on both social and human capital.

For farmers to invest in these approaches, the benefits derived from group, joint or collective approaches must be discernibly greater than acting individually. External agencies, by contrast, must be convinced that the required investment of resources to help develop social and human capital, through participatory approaches or adult education, will produce sufficient benefits to exceed the costs (Grootaert, 1998; Dasgupta and Serageldin, 2000).

Amongst vulnerable populations, change of virtually any type represents a threat to such security as these communities have and is therefore regarded with deep suspicion. Simply trying to persuade communities of the benefits of collective action is a substantial undertaking and represents costs for both the intervention agency and the local community. The World Bank’s internal ‘Learning Group on Participatory Development’ conducted a study to measure the comparative benefits and costs of participatory versus non-participatory projects (World Bank, 1994). The principal benefits were found to be increased uptake of services, decreased operational costs, increased rate of return and increased stakeholder incomes. But it was also found that the costs of participation were greater, notably that the total staff time in the design phase (42 projects) was 10–15% more than in non-participatory projects, and that the total staff time for supervision was 60% more than in non-participatory projects (loaded at front end). The costs were primarily for convincing borrowers of the value of participation, for conducting extensive institutional assessments, for building capacity and social institutions, for running interactive workshops and making field visits, and for negotiating between stakeholder groups.

It makes sense, therefore, to identify pre-existing social capital and associated institutions

and to build these up, support them and gradually broaden their scope to capture larger and larger numbers of community members. Although initially problematic, the impact of demonstration can be, and often is, a powerful accelerant to success in such initiatives.

There is a danger, of course, of appearing too optimistic about local groups and their capacity to deliver economic and environmental benefits (cf. Cooke and Kothari, 2001). As mentioned above, we must be aware of the divisions and differences within and between communities, how conflicts can result in environmental damage and how many societies may contain unjust elements and highly unequal power relationships.

Some types of social capital are known to be on the decline, such as bowling leagues, church attendance and voting patterns in the USA (Putnam *et al.*, 1993), but these are being replaced by new forms of social capital, such as community-based organizations, cross-denominational churches and new public-private partnerships (Sirianni and Friedland, 1997). Thus, the total social capital may not be the key indicator – membership in the national Federation of Women's Clubs in the USA is down by 50% since the 1960s, but newer women's groups have addressed issues such as domestic violence, which were previously not dealt with in old forms of social capital (CPN, 1999).

It is important, therefore, to distinguish between social capital embodied in such groups as sports clubs, denominational churches, parent-school associations and even bowling leagues, and that in resource-oriented groups concerned with watershed management, microfinance, irrigation management, pest management, and farmer-research. It is also important to distinguish social capital in contexts with a large number of institutions (high density) but little cross-membership and high excludability from that in contexts with fewer institutions but multiple, overlapping membership of many individuals.

The Civic Practices Network (CPN, 1999) focuses on the types of social capital that 'enhance capacities to solve public problems and empower communities' rather than just quantitative increases or decreases in social capital. This is an important distinction for the

challenges of sustainable development. In the face of growing uncertainty (e.g. economies, climates, political processes), the capacity of people both to innovate and to adapt technologies and practices to suit new conditions becomes vital. Some believe uncertainty is growing – if it is, then there is greater need for innovation. An important question is whether or not forms of social capital can be accumulated to enhance such innovation (Boyte, 1995; Hamilton, 1995; unpublished thesis).

Another issue is the notion of 'path-dependence'. It is now appreciated that social capital can increase with use. Under certain circumstances, the more it is used, the more it regenerates. Social capital is self-reinforcing when reciprocity increases connectedness between people, leading to greater trust, confidence and the capacity to innovate. So, can social capital be created where it has been missing and can it lead to positive environmental outcomes?

Issues and Challenges for Resource Management

Does the term 'social capital' actually add anything new to the discussion?

With regard to the term 'social capital', it was noted that this is just another way of expressing ideas of participation, networking, community organizing and strengthening of local institutions. Individually, however, none of these terms captures the full meaning of social capital, which brings together all of the above. Furthermore, the term 'capital' is useful, in that it points to the problem of asset depletion. Social capital has been conceptualized as one of five key assets for sustainable livelihoods (the others being natural, human, physical and financial). This in itself is useful, in that it draws attention to the importance of trust, norms and institutions for the sustainable functioning of agricultural systems.

Is a high degree of social capital necessarily a good thing?

Groups with a high degree of social capital can act perfectly rationally to destroy rather than

conserve their natural resource base, for example when they are in conflict with other groups over some common resource. Furthermore, not all forms of social relations are necessarily good for everyone in the community. It is thus not sufficient to assess only the total social capital within a society. The type of social capital as expressed in the structure and purpose of groups (e.g. recreational versus resource management) is important, as is the difference between contexts with a large number of institutions (high density) but little cross-membership and high excludability, and contexts with fewer institutions but multiple, overlapping membership of many individuals.

The problem of dependence on charismatic leaders

The formation and functioning of groups often depends on a few charismatic leaders, and the 'bright spots' work referred to in this volume does reveal that leadership is an important component in both the formation and success of social capital systems. This can, however, be a problem. On the one hand, charismatic leaders can leave, die or simply burn out. If the group depends on these leaders to a high degree, this will put their continued functioning in jeopardy. On the other hand, charismatic leaders might turn into dictators who use group structures to further their own interests, thereby neglecting the common good. Thus, a broad leadership base and a high degree of participation in decision making are crucial for the smooth functioning of groups and networks.

What defines a group? What about those who are not allowed in?

In this context, it was also pointed out that, in most cases, groups within a society will leave out certain members of that society. For those who are left out, who are most often the poorest and most disadvantaged, situations with high social capital may well make matters worse, in that development efforts will concentrate on existing groups and their members. Thus, group composition and inclusiveness are two important parameters when assessing social capital in any

given situation. The first challenge, however, will be to delineate the boundaries of the community. Only when the entity in question has been clearly defined will it be possible to determine to what extent social capital exists and whether it is helping or hindering the achievement of development goals. Empirical studies suggest that the optimum average group size lies between 20 and 30 people – this is a realistic number of people anyone can know well and work with.

What is the relationship between social capital, individual initiative and entrepreneurship?

The question was raised whether communities with high social capital – i.e. high number of groups, rules and sanctions – will make it more difficult for individuals to be different, be innovative and to 'stick their necks out'. In some situations, innovations may happen more easily when members of the community are loosely, rather than tightly, linked. It has to be emphasized that the appropriate social organization of any society cannot be predefined but depends on the situation of society in its current situation in time, space and technological status. Both centralized and participatory modes of decision making may have a role to play in different settings.

Is the small size of many rural communities an advantage or a constraint with regard to social capital?

In many places, the whole village is already a group and acts as a group. Does applying the concept of social capital add anything new here? While it might not add anything to the community itself (apart from providing the analytical background for looking at social structures within this community), it might add something to the donor's or development agency's approach to this community – instead of working with individuals, the donor or development agency should work with the whole group to achieve better results in terms of impact and sustainability.

Supporting Social Capital Formation

There is a need to incorporate ideas about social capital in projects and programmes. There are two priorities: (i) build social capital through participatory and social learning methods (the software); and (ii) develop information technologies to support networks.

'Participation' can be interpreted in many different ways, but here it refers to the incorporation of communities into learning processes. It has become increasingly clear that social learning is a necessary, though not sole, part of the process of adjusting or improving natural resource management. But this is neither simple nor mechanistic. It is to do with building the capacity of communities to learn about the ecological and physical complexity in their fields, farms and ecosystems, and then to act in different ways. The process of learning, if it is socially embedded and jointly engaged upon, provokes changes in behaviour and can bring forth a new world.

Since the late 1990s, we've seen an increasing understanding of how to develop these operating systems through the transformation of both social and human capital. This is social learning – a process that fosters innovation and adaptation of technologies embedded in individual and social transformation. It is associated, when it works well, with participation, rapid exchange and transfer of information when trust is good, better understanding of key ecological relationships, and rural people working in groups. The empirical evidence tells us several important things about the benefits. Social learning leads to greater innovation as well as an increased likelihood that social processes producing new practices will persist.

Information is an important commodity for rural people short of access to financial resources. Yet information and associated technologies, whether locally or externally sourced, are vital for making improvements to livelihoods and economies. These can take many forms, including market information, technology updates, policy signals and climate/weather summaries. Provision of information alone does not, however, guarantee that recipients will find it useful or even understand it. Networks that are socially and culturally contextualized in this way need to be built on demand-side rather than supply-side principles.

Decentralized networks for information technologies can therefore help in sharing and exchange of new ideas, advance understanding of the policy connections for rural development, and build power amongst rural people to demand the information they require. This necessitates a participatory approach to networking, including capacity building for civil society organizations, and a commitment to investments in hardware and the skills base to operate such technology. An advantage of such an approach is to widen the base for information management and control, thus allowing people to have more choice in the face of increasingly monopolized global media.

The Wider Priorities

What, then, can be done both to encourage the greater adoption of group-based programmes for environmental improvements and to identify the necessary support for groups to evolve to maturity, and thence to spread and connect with others? It seems vital that international agencies, governments, banks and NGOs must invest more in social and human capital creation through a variety of mechanisms (Röling, 2005). The danger is in not going far enough – being satisfied with any degree of partial progress, resulting in the creation of dependent citizens rather than entrepreneurial citizens (Ostrom, 1999). The costs of development assistance will also inevitably increase – it is not costless to build human capital and establish new organizations.

Although group-based approaches that help build social and human capital are necessary, they are alone insufficient conditions for achieving improvements in agriculture and natural resources. Policy reform, in the patterns of ownership, new incentives and protective regulations, plus the removal and destructive subsidies, is an additional condition for shaping the wider context, so as to make it more favourable to the emergence and sustenance of local groups. This has worked well in India for the spread of joint forest management, in Sri Lanka with the national policy for water users' groups taking charge of irrigation systems, in Nepal with buffer zone management, and in Brazil for microwatershed programmes (Pretty, 2002).

One way to ensure the stability of social capital is for groups to work together by federating to influence district, regional or even national bodies. This can open up economies of scale to bring greater economic and ecological benefits. The emergence of such federated groups with strong leadership also makes it easier for government and non-governmental organizations to develop direct links with poor and excluded groups, though if these groups were dominated by the wealthy, the opposite would be true. This could result in the greater empowerment of poor households, as they better draw on public services. Such interconnectedness between groups is more likely to lead to improvements in natural resources than regulatory schemes alone (Baland and Platteau, 1998).

But these policy issues raise further questions that must be addressed – what happens to state–community relations when social capital in the form of local associations and their federated bodies spreads to very large numbers of people? What are the wider outcomes of improved human capital, and will the state seek to colonize these new groups? What new broad-based forms of democratic governance could

emerge to support a transition to wider and greater positive outcomes for natural resources?

There are, though, concerns that the establishment of new community institutions and users' groups may not always benefit the poor. There are signs that they can all too easily become a new rhetoric without fundamentally improving equity and natural resources. If, for example, joint forest management becomes the new order of the day for foresters, then there is a very real danger that some will coerce local people into externally run groups so as to meet targets and quotas.

This is, however, an inevitable part of any transformation process. The old guard adopts the new language, implies they were doing it all the time and little really seems to change. But this is not a reason for abandoning the new. Just because some groups are captured by the wealthy, or are run by government staff with little real local participation, does not mean that all are seriously flawed. What it does show clearly is that the critical frontiers are inside us. Transformations must occur in the way we all think if there are to be real transformations and improvements in the lives of people and the environments on which they rely.

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