



GOING BEYOND A PILOT APPROACH: SOME REFLECTIONS ON SCALING UP A PARTICIPATIVE AND INTEGRATED WATERSHED DEVELOPMENT PROJECT

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WATERSHED DEVELOPMENT UNDER QUESTION

Can we now assume that such programmes have grown into proven rural development concepts, able in a sustainable way to transgress the limitations experienced with earlier area-based rural development interventions?

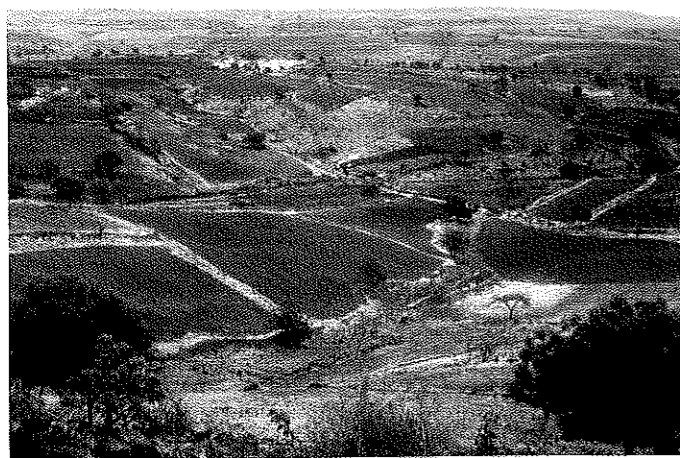
Watershed development has evolved into large programmes all over India. Many of these programmes have their origins in pilot undertakings initiated in the early 1980s in drought prone regions. In those years, comprehensive watershed treatment was identified as a meaningful way to integrate environmental and sustainability concerns into rural development.

Can we now assume that such programmes have grown into proven rural development concepts, able in a sustainable way to transgress the limitations experienced with earlier area-based rural development interventions? Some doubts have crept in which have their origin in the growing number of critical assessments of ongoing watershed programmes and the increasing pressure for tangible impacts on rural livelihood as a justification of the huge financial outlays involved. Moreover, the prospects for a reduction in rural poverty through watershed development are coming under serious scrutiny. With regard to rural development, does the watershed concept thus guide us on the wrong track? Or do the problems encountered in watershed programmes reveal and reflect nothing more than the crucial dilemmas of rural development inherent in almost any larger-scale, rural development effort in modern India?

To ignore such intriguing questions would be highly counter-productive. Indeed, critical assessments of watershed development deserve urgent attention, and may contribute to the debate on the potential and limitations of such programmes. Here, we would like to address a number of crucial issues which surfaced while scaling up a pilot project in the context of Indo-Swiss Development Co-operation. We will first of all provide a brief summary of the main features of this pilot watershed development effort.

PARTICIPATIVE AND INTEGRATED DEVELOPMENT OF WATERSHEDS (PIDOW) IN GULBARGA

The history of PIDOW goes back to negotiations at the beginning of the 1980s between the Government of Karnataka and the Swiss Development Co-operation (SDC) on development assistance in semi-arid areas - negotiations which at the time still had a long way to go. It was only in 1985 that an agreement emerged on a pilot project with three innovative features: (1) to give the project an agro-ecological reference frame in terms of mini-watersheds of 300-500 ha, (2) to involve the communities in participative planning and implementation, and (3) to introduce an NGO as a partner of equal rights into a bilateral project agreement. With the NGO partnership, India's "Seventh Five Year Plan" (1985-89) - a document that, for the first time, had recommended the involvement of NGOs in government programmes for the fostering of people's participation - had been taken literally. The pilot project was established in Gulbarga district in north Karnataka - an area covering 26,000 ha with roughly 32,000 inhabitants.



Mini-watershed in PIDOW-Project area

The objective was to develop and test a participative and integrated approach for the sustainable development of small watersheds for improving rural livelihoods. We should bear in mind that to achieve this, co-ordination - for the first time with a watershed focus - was required, at least for the programmes run by the Departments of Agriculture, Horticulture and Forestry. And with MYRADA, a well-established NGO had joined the project to assume the task of fostering people's participation and promoting institutional development at the village level.

The project went through four phases (1985-98) and, true to its pilot character, sailed at times through stormy waters. In retrospect, the project can rightfully

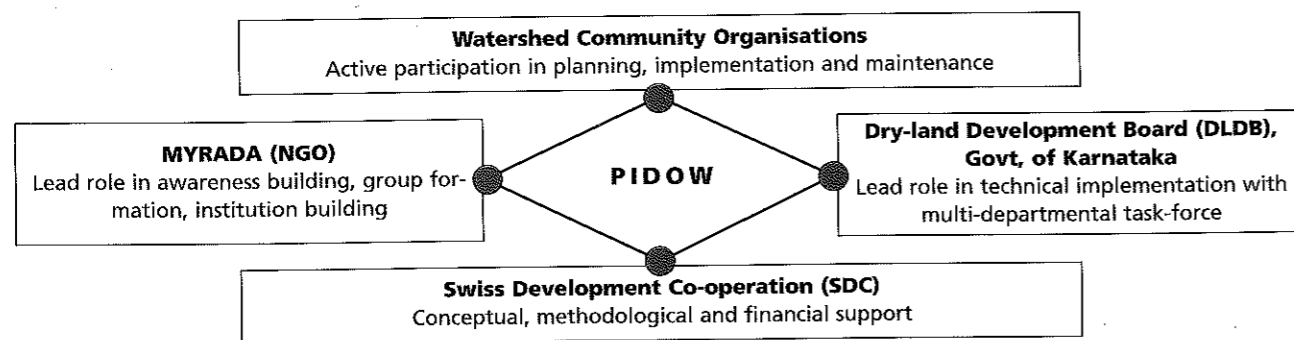
claim to have made a substantial contribution to policy formulation at the national level, especially in the field of innovative partnership arrangements, planning procedures and people's participation. On the operational level, it has demonstrated how PRA can support watershed planning and enhance the validation of local knowledge in soil and water conservation. In PIDOW Robert Chambers conducted the first PRA with an explicit watershed focus. In the field of institution building, the "Sangha and Credit-Group Approach" has attracted justified attention for its ability to benefit and integrate poorer members of the watershed communities.

From 1994 onwards, the experience gained with this project has become the basis for an enlarged Indo-Swiss collaboration on watershed development in five districts of Karnataka, and for a new collaboration: a partnership with the Government of Rajasthan and two NGOs of that state. We have here selected a few crucial issues which evolved from recent appraisals of the Indo-Swiss watershed engagement, and have elevated them from the narrow project context in order to enable a wider discussion of the pros and cons of watershed development.

In search of a functioning partnership model

At least at a first approximation, the partnership model introduced in PIDOW was not only of a convincing rationality; it also reflected progressive development thinking. Based on the idea of inter-institutional co-operation with shared responsibilities, it was further guided, firstly by the logic of comparative strength and competence of the involved partners and secondly, by the conviction that the concerned communities in the watersheds should be fully represented on all project levels. The result was a sharing of roles according to the following figure.

Figure 1: Roles and task sharing in PIDOW



Did this arrangement pass the test on the pilot project level? The answer is evidently in the affirmative, since the scaled-up Indo-Swiss watershed programmes in Karnataka and Rajasthan have replicated the above PIDOW partnership model with only minor modifications. However, initial appraisals of these scaled-up projects strongly suggest a review, not only of the underlying assumptions of the partnership model, but also the operational pre-conditions required for successful functioning.

Project partnership in the reality test

For inter-institutional collaboration to proceed on an equal footing, a culture of sharing and mutual respect among partners is required on at least three levels:

- Sharing of the development philosophy expressed in jointly accepted policies and guidelines without pursuing a hidden agenda.
- Sharing of essential operational functions, from planning to implementation, and monitoring at a mutually accepted professional standard.
- Sharing of the success and shortcomings of the common project among all involved partners, along with the motivation for joint learning.

However, translating such sharing ideals into reality in the field of implementation implies overcoming some irritating dilemmas, namely:

Competition versus co-operation

Government agencies and NGOs can look back on a history of competition rather than co-operation. Very often, NGOs have gained status and recognition as innovative antagonists to mainstream governmental development. But among themselves, government departments also hesitate to join hands, even where development synergies are obvious. With such a legacy, the introduction of a co-operative multi-partner model does not automatically lead to a shared project responsibility in spite of all its convincing rationality. It may even create situations where the village becomes the battleground for the competing development perspectives of project partners. Powerful elites in the communities have quickly learned to exploit such rivalry within the enlarged multi-partner delivery system.

Target- versus process-orientation

While government agencies strongly favour target-oriented development, NGOs cherish the process-oriented approach. Watershed development requires the right mixture of both approaches, calling not only for a mutual acknowledgement of their respective merits, but also for a self-critical assessment of their limitations - a difficult requirement, since "target-orientation" and "process-orientation" are cultivated by government agencies and NGOs as important sources of legitimation and identity.

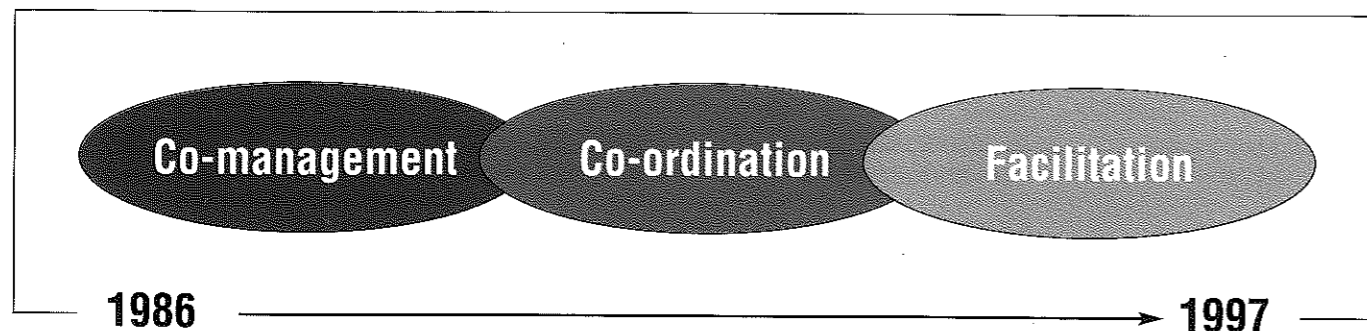
These dilemmas become highly relevant when the outcome of a watershed development programme is directly dependent on successful collaboration between the involved partners, as is the case with the Indo-Swiss watershed programmes. Empirical evidence serves as a warning against regarding the capacity for inter-institutional collaboration as the self-evident quality of a good development agency. That could lead to self-deception.

Replicability of the PIDOW multi-partnership model

The partnership dilemmas discussed in the previous chapter provoke intriguing questions about PIDOW's reputation as a fairly successful pilot project. Did the inter-institutional partnership really have an effective role in the pilot undertaking? Or did PIDOW just turn a blind eye to the above-mentioned conflict areas? The truth lies somewhere between the two.

On many occasions, PIDOW has indeed managed to convert the inherent NGO-Government antagonism into a fruitful mutual challenge. The credit must go to both Indian partners: to MYRADA as a matured and self-confident development agency; and to the Dryland Development Board of the Government of Karnataka as an institution driven by a pioneering spirit, open to new forms of collaboration. For example, officers were encouraged "to learn to unlearn" in order to become open to new approaches and local knowledge. The path was nevertheless a rocky one: partner co-ordination and the development of a collaborative culture became an undeclared "project within the project", at least in the initial years. During the long start-up phase, the SDC project advisor assumed the role of co-ordinator if not co-manager – a function which gradually evolved towards "facilitation" in later phases of the pilot project.

Figure 2: Evolution in project partnership of the Swiss Development Co-operation in PIDOW



Moving from co-ordination to facilitation was understood as progressive development thinking based on an unchallenged belief in the capacity for self-co-ordination between very diverse partners. However, recent project appraisals have shown that this partnership formula must be re-considered.

The lessons learned

Meaningful watershed development remains a multi-partner responsibility

Costly duplication of implementation structures inside and outside the government and based on unsustainable donor support should be avoided. This calls for a longer-term vision of development responsibilities and tasks among government departments, NGOs and village institutions.

In project partnerships, role clarity comes before role sharing

In the given development context, much more thought should be invested in identifying and separating the various project tasks in a sensible way, allocating them to the project partners – striving, in other words, for role clarity – rather than adhering to ideologically-driven joint implementation on all project levels. This is, of course, a sad reflection on the fact that the same development agents put constant pressure on the communities to collaborate by crossing the boundaries of caste and status.

Competent co-ordination is a key factor for success

Participative watershed development is tailor-made and not package driven. Accordingly, the establishment of adequately equipped co-ordinating bodies will remain a major challenge, since any such body may have to guide partners from conflict to collaboration.

Participative watershed development is tailor-made and not package driven

Donors remain stakeholders

Donors with orientation toward poverty alleviation remain stakeholders in programme development and may have to assume responsibilities which go beyond a "distant facilitation" of the programmes they co-finance.

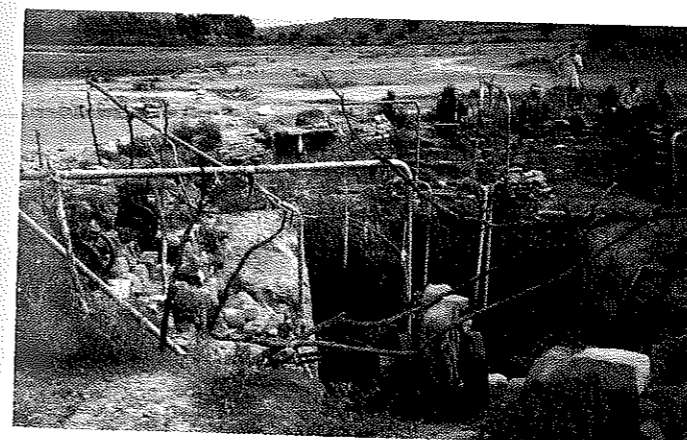
Platforms for mutual learning and for effective conflict solution are key requirements in multi-partner constellations

Such platforms are created through the transparent monitoring of process and results, and the fostering of a culture of self-evaluation. The participation of a self-critical donor is essential. The Indo-Swiss collaboration in Karnataka has shown how a project support centre with competent staff can play an effective role in knowledge management.

SUSTAINABLE WATER MANAGEMENT BETWEEN VISIONS AND REALITY

Agricultural productivity in semi-arid areas depends to a considerable extent on moisture management and the prompt availability of surface and groundwater at least for protective irrigation. Watershed projects aim at a more sustainable management of these resources. The PIDOW watershed interventions, for example, have shown encouraging impacts on the groundwater table. but does the scaling up of such efforts contribute effectively to sustainable water use on a larger scale, and can it balance recharge and abstraction on the long term? There is cause for serious doubts, arising from a closer look into the dynamic changes of water use in dryland agriculture. Water as a classic common pool resource is undergoing a dramatic shift from a common property system of management to an open access regime.

Here, we shall attempt to highlight the relevance of this development to the long-term success of watershed development.



Open well in the tank bed of CR-Palli, Andhra Pradesh, during dry season

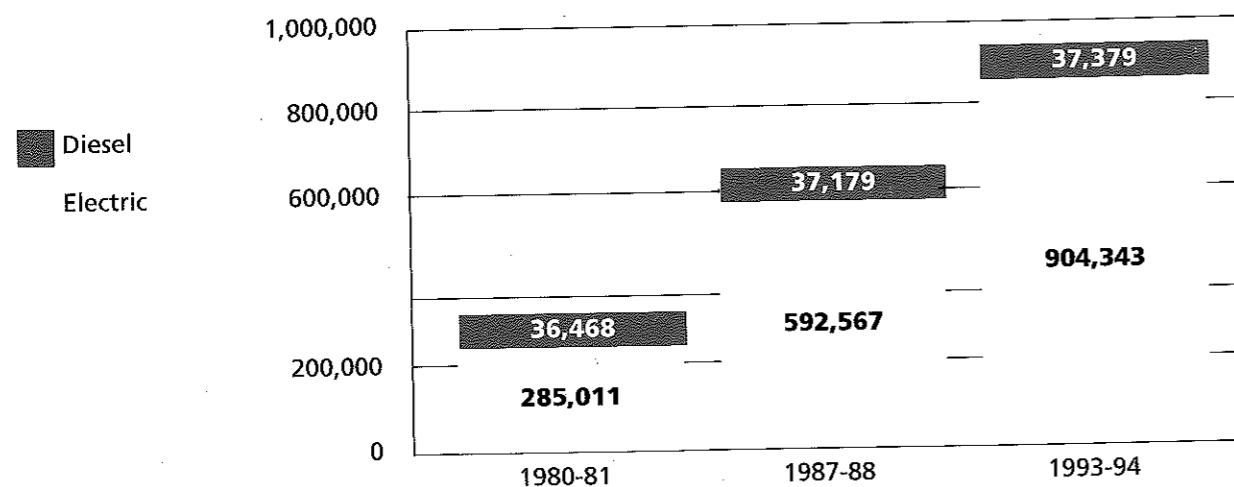
From tank to pump irrigation: the illusion of abundance

Wherever they have no access to perennial water sources, farmers are shifting from tank to pump irrigation. Technically, this is a move from surface water management to groundwater extraction. The illustration shows an open well situated in the tank bed of a community in south India, formerly operated by a bullock-driven matti system. The tank bed around the well is silted up and the well is nowadays crowned with no less than a dozen diesel pump sets installed by households of the land-owning caste of the village. At a stroke, this image thus captures two

dominant aspects of today's watersheds: the neglect of surface water management; and the pressure on groundwater.

This image should, however, not distract us from the fact that the dominant trend is to sink deep tube wells in private fields, operated by electrical pumps sets. Of India's total net irrigated area of approximately million 50 hectares, the proportion of land irrigated by wells and tube wells increased from 38% to 53% between 1970 and 1993. Similar to other states on the semi-arid Deccan plateau, Karnataka offers the following, additional statistical evidence:

Karnataka: Number of pump sets 1980 - 1987 - 1993



The causes of the illustrated trends are multiple and give rise to a discussion about pump subsidies, large-scale well-deepening programmes in times of drought, cheap or even free access to electrical energy and changing cropping patterns where traditional food crops disappear in favour of irrigated cash crops.

As noted in the above, the shift from tank to pump irrigation also represents a shift from common property management of water to an open-access regime. This conforms with the vanishing ability to think in terms of catchments as a system that embraces the harvesting, storage and use of water. Such a perspective also represents a holistic approach to water management by the communities. With the shift to ground water, the perception of such a system, and the notion of water as a finite resource, is rapidly diminishing. Yet, it is precisely this notion which is a cornerstone of sustainable water management in semi-arid areas. And the reasons are obvious: in contrast to river-fed irrigation systems where irrigation relies on a perennial water flow from glacial water sources in the Himalayas, irrigation in south India as well as in many regions of Rajasthan depends on the rainwater impounded during the preceding monsoon. Groundwater bodies regenerate according to the percolation and storage capacities of the soil, supported by systematic water harvesting.

Obstacles in the path to sustainable water management

Sustainable use of water resources is actually a core concern of watershed development. But current experience draws our attention to at least two serious obstacles in the path towards increased sustainability: the first addresses the field of water legislation; the second looks at changing village leadership patterns.

Fostering the illusion of abundance

Successful treatment of catchments increases the recharge of groundwater. Yet, with the prevailing shift of farmers to groundwater use, a temporary increase in water tables nurtures the illusion of abundance which very often translates into the introduction of sugarcane into the cropping pattern. As long as there is no Groundwater Act to stipulate binding parameters for water extraction, farmers will continue to focus on private groundwater abstraction with the constant demand for well deepening and an increase in installed pumping capacities. In turn, this will aggravate the problem of unequal access and unsustainable use of water. Even worse, under these conditions watershed treatment will benefit downstream farmers

at the expense of those farmers who are expected to maintain the rehabilitated upper catchments. If watershed development remains predominantly supply oriented, it cannot promote sustainable water management.

Sustainable use of groundwater requires a de-linking of land and water rights, as well as a command and control mechanism for groundwater regulation above the level of individual watersheds. Ever since the first Model Bill for a groundwater law was circulated by the Central Government way back in 1970, a long and disappointing struggle has shown the enormous resistance still to be overcome by this essential step towards more sustainable water management. Under India's Constitution, water is a matter of the state. Accordingly, water rights should be vested in the state and regional groundwater authorities should assume groundwater regulation. This would not only mean regulated extraction quotas, but also the introduction of water taxes which may, in turn, generate funds for ploughing back into those communities which care for rehabilitated catchments. The promotion of a groundwater law should therefore be the object of a major policy thrust by the watershed movement. We shall now return to the institutional context of watersheds.

Village leadership in transition

The shift from a community-based tank management to maximised abstraction of groundwater on a private basis also reflects changes – some call it the collapse of traditional village institutions. Yet the sustainable maintenance of water in rehabilitated watersheds requires local institutions with the capacity to mobilise the community and local resources in cash, kind and manpower, and the authority for impartial water distribution. Village studies and tank management eco-histories show how such authority for mobilising internal resources was once vested in the traditional village leadership. In the past, village headmen of the dominant landholding caste not only assumed overall responsibility for the sustainable management of the tank systems, but also played a central role in the rituals linked with the use of the water. We can, for example, refer to the ritual of Gangamma Puja, where the village headman and his family traditionally headed the procession to the shrine on the tank bund. Such ascribed roles constituted an important base for the status and legitimation of leaders, as well as a widespread potential for misuse to the benefit of the village elite.

In contrast to the past, village-based resource mobilisation, in today's Panchayat system the status and legitimation of elected leaders stems from their ability to mobilise external resources and efficiently tap the modern rural development delivery system. Large watershed programmes entrenched in a delivery attitude fall into the trap of removing responsibility from the communities involved, and at the same time risk favouring contractor-driven watershed interventions. Effective local contributions therefore become a cornerstone of watershed development in more than one respect: besides the effect of a general sharing of burdens, local contribution permits discrimination between private and community-oriented activities in order to promote greater equity. The willingness to contribute is also an indicator of the commitment to and relevance of the intervention in the context of local livelihood systems. This touches upon the role of local participation.

PEOPLE'S PARTICIPATION AND THE AGENDA SETTING IN WATERSHED DEVELOPMENT

People's participation is manifested in the role patterns assumed by the men and women of a community in the course of identifying, planning and implementing externally supported watershed activities.

Who is setting the agenda?

This simple question about setting the development agenda helps shed light on the type and nature of participation. If the outside development agency assumes this task, people's participation will be mainly passive, limited to contractual arrangements - the engagement, for example, of local people for digging pits for tree planting according to Forestry Department plans. Full and active participation, on the other hand, is understood as "agenda setting" by the members of the community. Nobody would disagree, but many tend to overlook the fact that such agenda setting often takes place in a given system of unevenly distributed power and influence within the community.

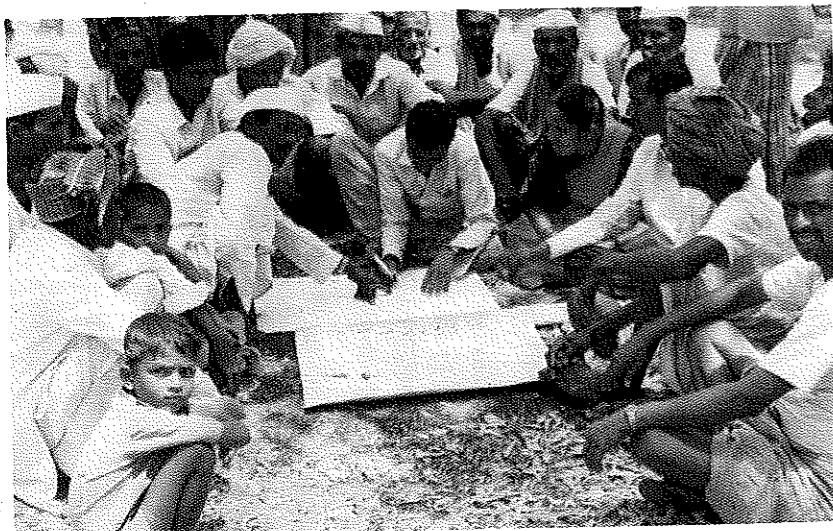
Watershed development attempts to reconcile the objective of sustainable management of natural resources with a poverty orientation - the Indo-Swiss watershed programme belongs to this category - and therefore has no other choice than to interfere with the process of agenda setting in respect of sustainability and poverty alleviation. The watershed plan is thus the outcome of a negotiation process within the community and between external project partners who should acknowledge their role as stakeholders and make this role transparent.

Participative technology development

Local knowledge and know-how - and the way these are blended with external expertise - form a further dimension of rural community agenda setting. Pilot projects have been able to open testing grounds for Participative Technology Development (PTD). They have experienced not only the productivity of such action research, but also the painfully long and cumbersome path towards the introduction of tested approaches into government procedures and the corresponding adjustment of rules and regulations. Scaled-up programmes still have the potential for approach development, and for obvious reasons this potential is most creatively utilised with the help of NGOs. However, without the sanctioned participation and motivated involvement of government officers, such efforts remain without significant impact on the culture of programme implementation. In the absence of meaningful incentives, however, government officers are understandably reluctant to adapt to a PTD.

Progressive watershed policies without teeth?

The formulation of progressive policies for participative watershed development and their conversion into progressive rules and regulations has, however, supported the belief that rules and regulations on their own would assure people's participation. Realities in the field are shaking such beliefs: wherever, for instance, watershed interventions on the village level require approval through the signatures of the village watershed committee, it is not seldom that such committees are formed behind the backs of the majority of villagers. The schemes are thus clandestinely approved, and the path for misappropriation of project funds is free. Political reforms initiated by the 73rd Amendment of the Indian Constitution may constitute an effective challenge to such a practice.



PRA in PIDOW, Gulbarga, Karnataka

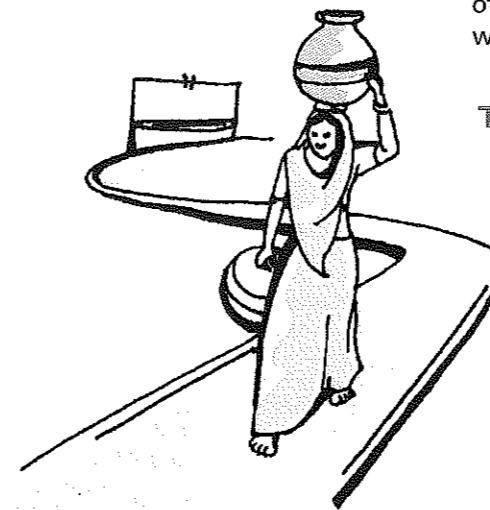
"Good Governance" or the challenge of the 73rd Constitutional amendment

The 73rd Amendment of the Indian Constitution is a bold attempt to empower Panchayats and, in particular, the village assembly - the Gram Sabha - with the definition and development of village development plans. The Constitution has, in fact, directed the legislators of the states "to by law endow the Panchayats with such powers and authority as may be necessary to enable them to function as institutions of self-government". The Constitution does not specify "self-government", and this may serve as a pointer to the obvious vagueness of central issues of the reform. Nevertheless, with the reservation of one third of the seats in the Panchayat for women, and the reservation of seats for the Scheduled Castes and Scheduled Tribes in proportion to their numerical strength in the respective Panchayat area, decision making can be expected to bear the stamp of democratic people's participation. However, the process of devolution of powers, responsibilities and resources has been very slow, and in general the bureaucracy appears reluctant to share them with the Panchayats. As a result, government departments can hardly be expected to spearhead the empowerment process of watershed communities.

The "participation-dilemma" of the NGOs

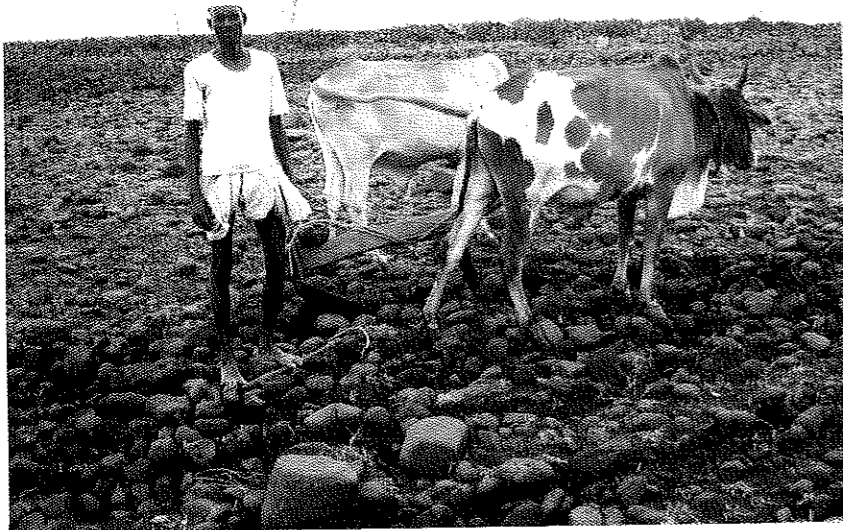
Voluntary organisations engaged in natural resource management in rural communities are facing the following dilemma: if they rely on the Panchayat reforms and thus support institution building and leadership development, they run the risk that short-term vote-bank-oriented decision making will jeopardise their plans for long-term sustainability programmes, such as eco-restoration; if, however, they continue to build up institutions mainly outside the new political establishment, they may contribute to atomised and conflicting responsibilities for natural resource development within the villages. This, in turn, would call for a continued patronage by the involved NGO, which would thus run counter to the goal of fostering "self-governance" in the villages.

Against this background, some NGOs opt for a middle path: they make use of the new arena offered by the Gram Sabha, firstly by creating more transparency with regard to community-oriented schemes and programmes, and secondly by relying on the assembly as a constituency for watershed implementation committees. Such approaches nurture the hope for effective empowerment of the village assembly on the one hand, and for a counterbalance to the mainly outward-oriented accountability of new village leaders on the other. In the final section, we shall return to the core concerns of watershed development.



TOWARDS MORE SUSTAINABLE RURAL LIVELIHOODS

On the development goal level, PIDOW and the scaled-up programmes in Karnataka and Rajasthan are expected to be the main contributors to improved livelihoods for farm households and rural communities. It is generally assumed that increased sustainability in the management of natural resources is a precondition for reaching such a development goal. But what are the sustainability perceptions of rural households?



Too stony for supporting livelihood?

Especially in semi-arid areas with a high degree of seasonal migration, rural families are rapidly diversifying their material sources of livelihood. This is part of a household strategy aiming at increased sustainability on the level of the livelihood system. "Sustainable livelihood" – and not "sustainable use of natural resources" – apparently constitutes the core concern of rural households. Both PIDOW and subsequent research had to realise that livelihood concerns cannot be understood merely on the basis of the visible reality of livelihood systems as represented by material assets such as livestock and productive land. Household strategies are also guided by family orientations, traditional belief systems and emotional

bonds. At the same time, they are influenced by changing collective orientations and the political and economic impacts of a liberalising India.

Among Bhil farmers in the hills of Panchmahal in Gujarat, for example, the notion of sustainable livelihood is captured by the expression "Ghar chavala", meaning "keeping the household going". We conclude that the success of watershed development depends to a considerable extent on the ability to address rural households and communities at the level of their local and culture-specific livelihood concerns, and not merely on the purely rational grounds of "sustainable resource management" - to support, in other words, rural families in their own efforts at "keeping the household going". Accordingly, meaningful watershed development is far more the outcome of well-conceived negotiations based on clear roles, responsibilities and commitments, and does not result from the implementation of pre-conceived concepts.

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WATERSHED APPROACHES FOR MANAGING DEGRADED LANDS IN INDIA – CHALLENGES FOR THE 21ST CENTURY

The KRIBHCO Rainfed Indo-British Project



INTRODUCTION

The KRIBHCO Rainfed Indo-British Project (KRIBP) is a bilateral development project which was designed to develop a participatory approach to rural development in degraded areas of India (Jones et al., 1996). It is funded jointly by the Department for International Development, UK and by the Government of India. It is executed by KRIBHCO, a national fertilizer co-operative in which 51% of the shares are held by the GoI and 49% by member co-operatives. The first implementation phase of the KRIBHCO project started in 1992. The project has focused its attention on the three talukas in Panchmahals district (Gujarat), Banswara district (Rajasthan) and Jhabua district (Madhya Pradesh). The area is populated mostly by members of the scheduled tribes, the Bhils and Bhilala. Many of the villages are fairly socially homogeneous though there are sizeable proportions of scheduled castes in some villages. The area is characterized by undulating land, deforestation, poor soils and low levels of agricultural production.

An important feature of life in the area is the annual migration to urban areas between November and March. The migrants customarily return for the festival of Holi in March. The farmers, and sometimes their wives and families usually go to cities up to 200 or 300 miles away in order to find work as labour. Agricultural production alone is normally inadequate to support families in the project areas and so remittances earned during seasonal migration are an important part of their livelihoods.

The project began work in 5 villages in 1992, selected on the basis of a lack of resources, such as paved roads, schools and medical facilities, and on the existence of social homogeneity. As the project proceeded, new villages were added primarily in response to requests from villages which had heard about the work the project was doing. The project has emphasized the use of savings and credit groups as the basis of planning natural resource and economic development in the villages.

The groups are based primarily in the *falia* or hamlet which often consists of related families or have close social ties and typically consist of about 20 to 30 homesteads. So far, although the groups have been used as a focus for the implementation of the work, there has been no evidence that group funds have been used for soil and water conservation maintenance, though some have indicated that this is their intention. Rather, group funds are used to finance agricultural inputs, capital items such as water pumps for irrigation, and also social needs such as the financing of weddings. In addition to establishing an alternative source of credit and being a focal point for the implementation of natural resource management activities, the groups have helped to build organizational and conflict resolution skills.

The project has employed pairs of "Community Organizers" in groups of 3 or 4 villages termed "clusters" by the project and who live in nearby taluka towns. Village and group meetings are held regularly to discuss simple interventions by the project and carry out community problem analysis and conduct focussed PRAs on various topics. In the early stages of the project involvement, the emphasis has been on confidence building interventions that did not require complex group action,

such as the request for new varieties of seeds or the purchase of small water pumps. Later on, at the request of the communities, major interventions by the project may include soil and water conservation (SWC), tree planting, well construction and irrigation schemes. This paper concentrates on experience gained within the SWC component though subsidies have also been paid for work connected with small scale irrigation, well construction and village and group tree nurseries.

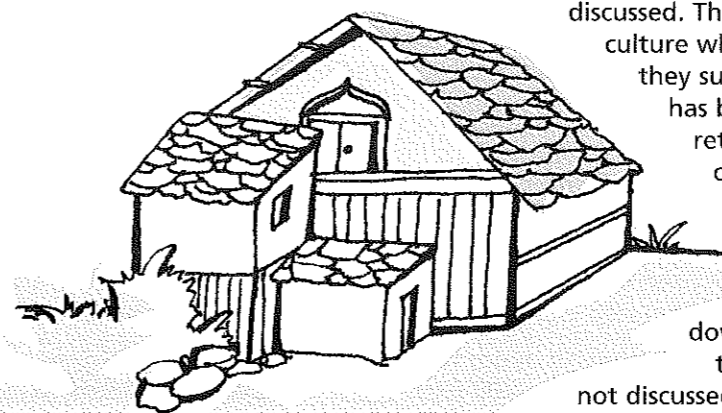
REVIEW OF LITERATURE

The low level of investment in soil and water conservation in areas where there is high seasonal migration has been often noted (Kerr and Sanghi, 1992; Reards et al., 1992, Reij, 1991). The need to make adequate allowance for the opportunity costs of farm labour used on soil and water conservation schemes has been emphasized by Stocking and Abel (1992). The use of subsidies to compensate for the farmers opportunity cost in watershed management projects has had a long history. However, several observers over the last 10 to 20 years have reported that the use of subsidies has been disappointing or even counter-productive. For example Sanders (1988) pointed out the tendency for farmers to expect subsidies from the government or other sources for carrying out soil and water conservation works and that they may even refuse to carry out necessary maintenance unless they are paid to do so. However, Sanders (1988) felt that in general, the conclusions of the Puerto Rico workshop were that subsidies may be effective if their use was "well thought out, properly administered and implemented with care and sensitivity". Sheng and Meiman (1988) at the same workshop advocated the use of incentives such as subsidies, because farmers, especially those in degraded areas, have few resources to invest in soil and water conservation except labour.

The use of incentives for soil conservation and watershed development (SCWD) is also discussed by de Graff (1996). He discusses the role of legislation and moral persuasion as well as economic incentives in the implementation of watershed development projects. He suggested that subsidies may be justified when the benefits from SCWD do not only accrue to the farmers concerned, but also farmers downstream (reduction of flooding and siltation) or future generations of farmers who are represented by today's government. Pretty (1995) has also reviewed the negative effects of subsidies on watershed projects.

Kerr et al. (1996) have made a considerable contribution to the debate in India. They point out that subsidized watershed development has been used for employment generation, to convince farmers to try some new method, to compensate for externalities such as downstream sedimentation, and to "coerce ignorant farmers to do what the project management knows is best".

The considerable political considerations of subsidies are also discussed. They point out that in India there has grown up a culture whereby farmers always expect subsidies. In contrast, they suggest that subsidies are only justifiable when there has been a market failure, that is, when social costs and returns do not equal private costs and returns. In other words, the farmers, discount rate which they apply to the cost of not doing SWC is greater than the government or society's discount rate. In the case of SCWD, this may be true if the considerations of downstream farmers or later generations need to be taken into account. Another market failure, though not discussed in the paper of Kerr et al., is brought about because the market has failed to provide farmers with access to



credit at commercial rates of interest and they must pay interest rates of up to 150% for loans from money lenders.

Kerr et al. point out the drawbacks of subsidies: that they cannot be extended indefinitely (thus failing to fulfill project goals of reproducibility); they are wasteful if there are feasible alternatives; they are difficult to remove at the end of the project, and there may be undesirable side effects. Side effects may include neighbouring villages postponing self-financed SWC until the project arrives in their village or postponing maintenance of physical structures in the hope that future projects will pay for it. In such cases, subsidies may act as a disincentive rather than an incentive. Another disadvantage is that subsidies may become a disincentive to farmers to think for themselves and to try other, perhaps cheaper, solutions and so would constitute the opposite of development (see also Bunch, 1982), Kerr et al. (1966) also claim that farmers do not look after resources they have not paid for themselves.

Predictably, Kerr et al. would prefer to do away with subsidies completely, but they acknowledge the fact that often this will not be possible and the best that can be done is to try and reduce their negative effects and to reduce the level of subsidies below the 100% commonly offered on government schemes. One interesting suggestion they make is the development of a scheme of "matching labour contributions" in which the farmer builds half of the bund himself and the project employs labour to construct the other half.

The effect of placing greater emphasis on the development of village institutions and the use of participatory methods in watershed development in reducing the level of subsidies required has been emphasized by Shah (1994).

The problem of how the opportunity cost of subsidies is taken into account and the inequity of some subsidy programmes has been mentioned by relatively few authors. That subsidies divert resources away from other uses is inescapable and if the work was financed by loans instead of subsidies, the money (or labour in the case of subsidies which are less than 100% of labour costs) may be better utilized elsewhere.

DISCUSSION OF THE KRIBP EXPERIENCE

The need for physical methods of SWC in low rainfall degraded areas

For whatever reasons (the attraction of subsidized work or the perception of a real need for SWC that they had previously felt unable to implement), farmers have consistently requested that the project assist them in the bunding of their land. There was considerable debate among the project advisors at the outset of the project as to whether the project should encourage vegetative methods only since such methods were relatively untried in the area. Furthermore, if physical methods of SWC were to be involved, how these would be paid for?

Insufficient soil moisture is a major reason for low crop productivity in the area. Thus, water conservation is a greater priority for the farmers than soil conservation. Given the nature of the soils, some form of physical barrier was considered a necessary component of watershed management in the area since bunds allow water sufficient time to infiltrate into the soil and encourage soil eroded from up-slope to be deposited and hence to build up the depth of soil near the bunds. This analysis of the situation was voiced equally by farmers and technical advisors.

Besides this, the use of field and nalah bunds has been widely used in the region before the project started. It seems that only the more fertile areas were terraced without outside assistance and in the less fertile areas, various government financed

It seems that only the more fertile areas were terraced without outside assistance and in the less fertile areas, various government financed schemes have been implemented



schemes have been implemented. The technology is not new but the project has tried to develop new ways of implementing the schemes.

At the beginning of the project, there was a preference for the project to encourage contour bunds, but it was quickly realized that nalah bunds were the most popular, followed by field bunds of earth or stone. In some instances farmers developed an innovative method of using bunds to divert water from the hillside into the nalahs, thereby accepting a lower maize crop in favour of their more valued rice crop in the nalahs.

Another innovation by farmers has been to plant a strip, several meters

wide, of rice behind contour and field bunds to maximize the area of their preferred higher value crop. This has the effect of increasing the benefit-cost ratio of the work by increasing the benefits.

In addition to assisting farmers with physical methods of SWC, the use of vegetative methods such as planting grass (fodder) species on terrace bunds, green manuring and mulching has been actively encouraged. Green manuring and mulching were once used by farmers in some villages and the idea of planting of grass on terrace bunds arose naturally after group discussions on bund maintenance, the opportunity cost of the land displaced by the bund, and the shortage of fodder. The project has also assisted farmers to plant small plots of trees and to establish Joint Forest Management schemes. Unfortunately, many of the vegetative techniques (except JFMs) have met with limited success, largely due to the low rainfall on poor soils producing poor establishment and growth and uncontrolled grazing at critical times of the year (and perhaps the absence of subsidies).

The need to finance the opportunity cost of migration

Given the perceived need for some form of physical methods of SWC and given the farmers' need for supplementary income usually obtained from seasonal work, to support their families, either loans or subsidies were considered essential in order to provide alternative finance to support the farm household while the SWC work was being undertaken. Loans were not considered to be a viable option since the farmers were already heavily in debt to moneylenders and were paying 100% interest for other livelihood related activities.

There is a local practice of mutual help, called halma, which is used for various agricultural tasks such as land clearing or planting. Payment is in the form of food, liquor and bidis (cigars made from the leaf of a local tree). However, discussions indicated that the number of days per year were very few (less than 10) and the organization of SWC work on this basis would not be feasible.

Though subsidies came to be considered to be the most practical option, in no way was the project considered to be a rural employment programme.

Inter-generational equity considerations

Soil erosion rates in the project area are generally between 10 and 30 tons ha⁻¹ year⁻¹ (equivalent to a soil depth of 0.5 to 3 mm year⁻¹). This is equivalent to an

erosion rate of 3 to 20 years cm^{-1} or 300 to 2000 years m^{-1} . However, many soils are shallower than 1 m and so in a large part of the project area, if erosion remains unchecked, soils will cease to be capable of sustaining any form of agricultural production in less than 150 years. Already, there are large areas of previously productive land which are now uncultivable, especially in upland areas belonging to the Forest Department and the steeper areas of the villages, now used as pasture land. This clearly raises the issue of intergenerational equity. Continued use of rapidly degrading land without soil and water conservation will have the effect of reducing the income potential of future generations. Responsibility for future generations must be shared between the ancestors and the state (or the states agents - perhaps NGOs) and this was a further justification for the project using subsidies.

The large difference between the social discount rate, as used by society at large or international donors, and the private discount rate as used by individuals has been discussed by several authors. Farmers need to survive and thinking about the severely depleted production levels of future generations if erosion remains unchecked is a relative luxury though most farmers are aware of the problem. Because of their more immediate needs, they tend to use quite high discount rates when (subconsciously) calculating the opportunity cost of investment in SWC. In contrast, society will need to apply low, even zero, discount rates if intergenerational equity is to be maintained. Despite this high private discount rate, there is strong evidence (Smith, 1997) that the physical measures being used in the project area can bring about benefits of increased productivity over a period of a few years.

There is, of course, the question about the best use of money available for subsidies. For example, whether the subsidies be better spent on less degraded or less steep land where the cost of treatment was less, or on some other development activity in the project area or elsewhere.

Implementation of the programme

If (and it invariably is) SWC is identified as a priority by the community, an issue focussed PRA is undertaken in which participatory soil maps of the village are drawn and the maps are used to discuss watershed boundaries, to identify the areas where erosion is greatest and to discuss the range of methodologies that might be used. Farmers decide on the type and siting of the SWC techniques. Unlike many other projects in which "participation" means participation in implementation, in the KRIBP, farmers have been involved extensively in the design and management of the work.

Villagers are not compelled to implement SWC on their land and they could still benefit from participation in the work programme on other farmers' land. There is also no requirement for farmers to participate in the work. However, most do choose to have some form of SWC on their land and most choose to participate in the scheme.

Many subsidized programmes have been criticized for making farmers dependent on outside expertise. For this reason as well as being good for development, the project has put great emphasis on developing local skills related to watershed management. The *falia* (groups) are asked to identify *jankars*, (local artisans) who will assist the group members to implement the soil and water conservation programme. Both male and female *jankars* have been selected by groups. Despite the social constraints upon women in the Bhil community, many of the female *jankars* have been encouraged to develop innovative methods of SWC. The *jankars* are given formal training for several days and regular on-the-job training.

The group also decided how the payments for the SWC is to be apportioned between the group's saving and credit fund and individual savings. Typically, 3% of the project payments to the group go towards group savings and 5% towards individual savings. In addition, 3% of the payments go to pay the *jankars*.

Subsidies have been set nominally at 50% of the cost of labour for work which takes up a significant amount of time - especially the construction of bunds. The payments have been worked out on the basis of the state minimum wage. In practice, the subsidy has been greater than this since the cost of seeds and tree seedlings, transport and some materials, such as wire for gabion structures, have been borne by the project. SWC activities for which subsidies have been paid include the construction of stone and earth field bunds, contour bunds, interception drains, staggered contour trenches, *nalah* bunds, and some gully control measures such as stone check dams.

The work that each group member does is recorded by the *jankar* and verified on a random basis by the Community Organizer or by one of the Project's Agricultural Engineers. Payments are made every two or three weeks and deductions for the payment of the *jankar* and group savings are made at source.

In practice, the work is done in small family groups, often of man and wife, and these small groups agree to share the earnings from the work equally. All participants, regardless of gender are allocated individual savings ledger accounts in the group funds and a fixed percentage of their earnings from SWC is paid into that account.

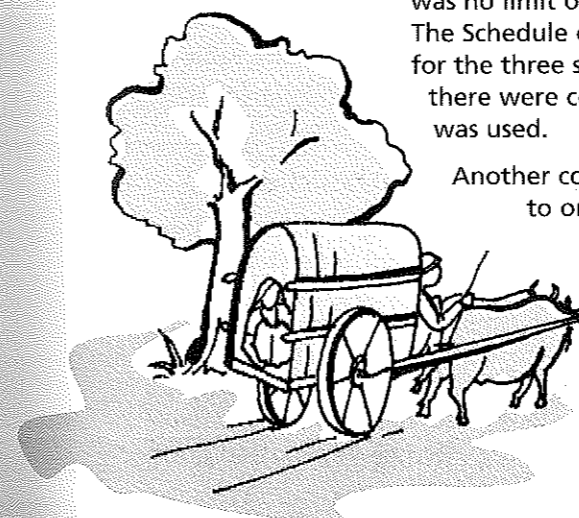
Participant contributions

Participant contributions are in the form of labour. Under the admittedly subsidized project conditions, the average amount of time spent by each household on SWC and other watershed management related activities is 75 days: 48 in year 1, 15 in year 2 and 11 in year 3. Subsequent inputs are estimated to be about 4 or 5 days per year for maintenance and improvements. Not all of this work has been on privately owned land. Approximately 15 to 20% is used for communal land for treatments such as tree planting and pasture rehabilitation.

In contrast to some government schemes in the area which offer a 100% subsidy, a subsidy of 50% was chosen by the project because it was thought that the farmers should contribute part of the cost of the SWC themselves. The reason was that it was anticipated that there would be a short term gain in crop production in addition to the long term benefit of a reduction in soil erosion rates. Initially, participants were paid 50% of the state minimum wage and according to a "Schedule of Rates", a table of expected amounts of earth that can be moved under different conditions on a daily basis. The subsidies were paid to whoever participated in the work and there was no limit on how many members from a particular household could participate. The Schedule of Rates used by the project was initially based on published figures for the three states in which the project was working. This became unworkable, as there were considerable differences between states, and so later, an average rate was used.

Another complication has been the fact that the local wage rate that farmers pay to one another for casual work at village level is normally lower than the state minimum. Hence, the nominal 50% subsidy is, in reality, closer to 60 to 80% of the local wage rates. Moreover, the Schedule of Rates are rather generous and so actual earnings are probably similar to the local wage rates or the remittance amounts.

Participants who normally migrate have to decide whether the remittances earned during migration outweigh the value of the





subsidy, the social advantages of remaining in the village rather than migrating and the expected short and long term benefits obtained from watershed treatment. Since the uptake rate of SWC work has been very high and there has been a considerable reduction in the level of migration, mainly as a result of SWC, we can only assume that the comparison is favourable. It remains to be seen whether the reduction in migration is maintained after the end of the project.

It is important to remember that when making a decision about

whether to work on SWC within the group, group members are not primarily concerned with the good of the whole group and altruism is not likely to figure very highly. The group will only be successful if it is perceived that all the members benefit, even if not equally.

The subsidized SWC programme also means that everyone in the household can work, whereas normally most migrants are male.

Benefits of SWC

Impact assessment studies and informal group interviews have supported the view that the physical methods have worked and increased agricultural production. The mechanisms by which these increases have been obtained, included the following:

- increased cultivated area as a result of fallow land having long periods between cultivation coming into more regular cultivation;
- increased area as a result of reclaimed gully and nalah areas;
- increased yield (mainly in the nalah areas);
- the ability to change from maize to rice in the ponded areas behind bunds;
- the ability to grow improved varieties of maize and rice;
- reduction in the amount of seed and organic material being washed away by surface runoff.

An added advantage mentioned by farmers is the improvement in the value of their land which in the light of the establishment of bank savings accounts, becomes a considerably important factor.

Maintenance of physical works and subsidies

It has been suggested that farmers are reluctant to undertake maintenance of subsidized works. The experience of KRIBP is that this is not true. On the whole, farmers have been quite conscientious in undertaking the maintenance of bunds and other SWC structures, perhaps because in KRIBP there has been a high degree of consultation between the project and the farmers when considering the design and siting of bunds and other physical work. Furthermore, the effects of poor maintenance on the effectiveness of their own structures and the potential deleterious effects on neighbours' structures have often been discussed during

group meetings facilitated by project staff and this has exerted some moral pressures on farmers.

The project area is also somewhat unusual in that the amount of share-cropping or renting of land is minimal and in most cases, farmers have title deeds to their land so this is rarely a reason for poor maintenance. The KRIBP experience has been that farmers will be willing to maintain structures, if:

- they believe the costs of maintenance are less than the benefits;
- they do not think someone else will come and do it for them.

Institutional constraints in fixing the level of subsidies

KRIBHCO officials have found it difficult to approve a reduction in the level of subsidies as they were afraid of being accused of exploiting the farmers. In some areas, villagers have complained that KRIBP rates are lower than the rates of government financed schemes in the area which are usually 100% of the state minimum. This difficulty stems from a perception that the farmers are quasi-employees of the implementing agent. The concept that the payments are grants rather than wages has not always been appreciated. If the idea that group members and jankars are employed by the project is to be removed, new ideas and ways of implementing the project are needed.

Effect of subsidies on savings and credit groups

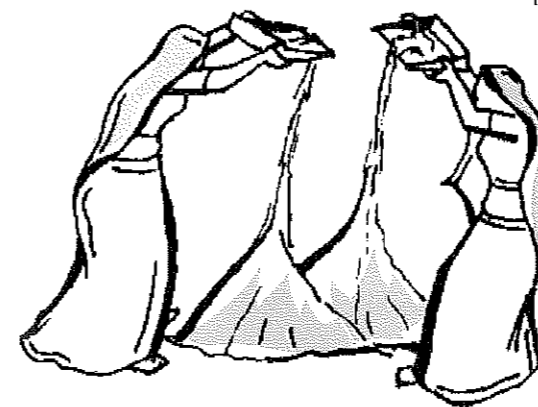
Payments from subsidies have strengthened groups. Subsidy payments by the KRIBP in its first phase have also led to a reduction in the levels of indebtedness to moneylenders. This has naturally caused the project to become unpopular with money-lenders. There is some nervousness on the part of villagers that the money-lenders will no longer be there once the project is over and if the savings and credit groups fall, they will face hardships.

The disadvantage of the present arrangements has been that groups acquire considerable funds before they acquire any experience in managing savings and credits groups. Also, there is no evidence yet of the groups obtaining access to formal credit.

Equity issues

There is a considerable variation in the size of farms in each village. The result is that better-off farmers are given a greater amount of help by the project than poorer farmers. The way of project has been implemented has therefore tended to be regressive rather than progressive. Furthermore, if the payments really are lower than the local wage rates (and farmers only do the work because there is no other work available), then the owners of larger farms are subsidized to a large extent by the poorer farmers. Though the number of landless labourers are very few in the project area, there are some and they lose out even more since they do not benefit from having work done on their land. Because of this, one might expect them to be less keen to work on the project. On the other hand, they may be more eager to work on the project as their opportunity costs may be less.

Not all group members contribute to the SWC work, equally. The poorer farmers tend to do more SWC work. Some of them have complained that they therefore contribute more than others into the group fund because they have done more work. It would seem fairer if there was a maximum contribution that any member would make if the subsidy is to be progressive.



Landless labourers are very few. However, those that are landless, receive no other benefit than the subsidized payments for the SWC work. Hence, the present arrangements for subsidizing SWC is clearly excluding some of the poorest members of the society.

To complicate matters even further, beneficiaries have not always been people from the group. A few people, often relatives of group members, from outside the area have sometimes joined in the work and the project has found it difficult to stop this practice. These people gain neither from the benefits of SWC on their land nor from the benefits of being able to make use of group funds.

Another potential difficulty is that the rules for disbanding the group have not been adequately worked out. It is not clear whether if the group was disbanded, the members would get an equal share or an amount which depended on the amount paid in. On reflection, it seems that all funds should be individual funds since it was unclear how contributions into the group funds relate to the level of credit that can be allowed.

Other socio-economic aspects of subsidies

It has been argued that the payment of subsidies has the effect of creating dependency and causing the farmers to become reluctant to undertake SWC activities on their own initiative. This may be partly true, but is probably an oversimplification. Other factors that prevent individual initiatives are the breakdown of traditional leadership patterns within the village, and as plot sizes become smaller (largely as a result of the expanding population), farmers have to migrate in order to supplement their income. There is now insufficient time to spend on SWC activities.

Discussion with farmers indicate that they view project subsidies very opportunistically. Once the project is over, many will revert to annual migration, though hopefully on a reduced scale.

Another concern that has been expressed is that a temporary reduction of migration may contribute towards the breaking of ties between migratory groups and employers in the cities.

Effect of subsidized work on demonstration and adoption of biological and agronomic methods of watershed management

To some extent, the project has felt a pressure to perceive the disbursement of funds for the payment of subsidies as a measure of success. However, in this regard, it is no different than many other SWC programmes. Although a holistic approach to watershed management was advocated at the outset of the project, most of the effort of the project in terms of time has gone into organizing the physical aspects of SWC. As a result, the demonstration and extension of lower cost methods have suffered and techniques such as: green manuring to improve SWC and reduce erosion; the adoption of improved implements to reduce labour requirements for weeding and increase rates of soil formation; tree planting; rehabilitation of range-lands; plating grass on bunds; grass strips on steeper land; tree planting on uncultivable land; the planting of grass strips on steeper land, have been given a low priority.

Evaluation

De Graff used a number of conditions to evaluate the use of subsidies in SCWD projects in a number of countries. These have been reproduced in the left hand column of Table 1.

Table 1: Evaluation of KRIBP according to conditions given by de Graff (1996)

Condition	Remarks	Score
Moral persuasion would not suffice.	Probably not, but very little has been attempted.	+
Target group would otherwise incur financial loss.	Evidence is that most farmers would benefit over 3 to 4 years.	-
Incentives should reach the target group and be used for the designed purpose and exclude non-target groups and other purposes.	Most subsidies have been used for the purpose. However, a small number of people from other villages have "gate-crashed" on the incentive scheme.	+
Incentives should have minimal side effects that are counter-productive and should not bring about financial loss to other actors.	No negative effects are known. Some worry that the savings and credit groups seeded with subsidy money will antagonize the money-lenders.	+
Value of the incentives should not exceed the net social gains (to other actors and society at large).	Very difficult to assess but if we take into account future generations and use a zero discount rate, it is unlikely that the value of the incentives will exceed the gains.	+
Other actors should consider the incentives as a fair compensation for the financial loss otherwise incurred.	Poorer farmers complain that they subsidize better off farmers	-
The administration of the incentives should be flexible enough to cope with changing socio-economic or environmental conditions.	Institutional constraints have made flexibility difficult.	-
The incentives should leave the land user enough flexibility to reach the intended purpose in his own way.	To some extent though the choice could be improved	-
The incentives should be administered relatively easily and be the simplest or cheapest way to reconcile the conflicts of interest.	Administering of the subsidies has been very expensive for the project in time and money.	-
The incentives should be temporary and withdrawn after 5 to 10 years without creating dependency or counter-productive effects	Yes, but there are worries that the subsidies may have increased the reluctance of farmers to undertake SWC. On the other hand, it can be argued that the project has weaned them off expecting 100% subsidies.	+

POSSIBLE NEW APPROACHES

The ideal situation is that farmers finance improvements to their land themselves because they perceive the short and long term benefits of physical, biological and agronomic approaches to soil and water conservation. Realistically, some way of financing improvements in land management will have to be found, especially among the low-resource farmers in the most severely degraded lands in India. Whilst loans need to be given more careful consideration, in reality, there has grown up a culture in rural areas of expecting subsidies and in the short term, perhaps the best that innovative projects may hope for is to reduce the level of subsidies and to implement them in ways which reduce the effects of any negative impact.

The experience of KRIBP is that more equitable ways of subsidizing work needs to be found or ways of encouraging farmers to take on loans for land improvement or

alternative incentives for SWC should be offered. What is clear is that the project implementing agents need to exercise greater degrees of flexibility in their arrangements than has often been the case. It would seem also that the financing of watershed management work needs to be more focused on households or farmers in future rather than merely subsidizing wage labour. However, small groups would still be the best vehicle for planning watershed work and making payments.

Subsidies and equity issues

Subsidizing payments for daily work carried out is not an equitable method and needs to be substituted with a fairer way of paying for land improvement, perhaps based on properties of households or farms.

...the financing of watershed management work needs to be more focused on households or farmers in future rather than merely subsidizing wage labour.

Until now, subsidies have tended to be regressive in that they have favored the better off farmers and have had the effect of making the poorer farmers subsidize the better off farmers since they work on the land of better off farmers at very low wage rates. To be just, subsidies need to be either progressive, benefiting the poorer farmers more than the better off farmers or at least neutral, benefiting all social groups equally.

Variable subsidy rates

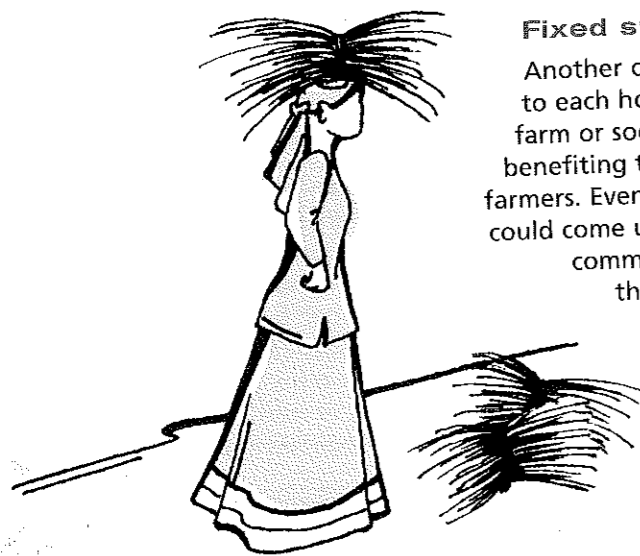
Possible ways of being more equitable may be: to provide subsidies on the basis socio-economic class (SEC), on a household basis, on a per capita basis or perhaps by offering different subsidies according to the size of holding.

If subsidies were paid on the basis of the size of holding, the rate paid would vary according to the size of the holding, larger farms receiving lower percentage subsidies than smaller farms. Thus a farm of say 0.25 ha would receive a full subsidy for SWC on their land but farms of say over 1 ha would receive only a 30% subsidy. Larger farms would in general, correspond to better-off farmers and to the better soils. A refinement would be to take into account the land class and increase the percentage of subsidy on the worst type of land.

If subsidies were paid on the basis of SEC, the levels of subsidies paid to farmers for SWC work on their land would vary according to their socio-economic class. The SEC is assessed as a matter of routine in KRIBP. However, offering subsidies on the basis SEC may be unpopular if people are averse to being branded as "very poor" (though this has not been the experience of the project so far). A further difficulty would be that one it is known that money is involved, wealth ranking will be even more difficult to do accurately.

Fixed subsidy rates

Another option may be to allocate a fixed "land improvement grant" to each household or even to each individual irrespective of size of farm or socio-economic class (SEC). This would have the effect of benefiting the poorer farmers relatively more than the better off farmers. Even landless labourers could be offered the same grant if they could come up with a suitable proposal (perhaps to improve a portion of communal "waste" land that they were given some rights over by the group or village officials). The disadvantage of offering subsidies on a household basis would be that there may be a temptation for single households to claim they are really more than one in order to increase their subsidies. The problem of offering subsidies on a per capita basis would be the difficulty in deciding on when to include absentee household members in the calculations.



A problem with the approach of fixed subsidies would be that it would not be fair on people from the same socio-economic class who had poorer soils. Also, there would be a risk that there would be some areas (on land belong to better-off farmers who were unwilling to take out a loan) where no SWC was undertaken. This may mean that a strict watershed approach would not be feasible. However, following a strict watershed approach has always been difficult where great emphasis is placed on farmer participation, where the watershed boundaries never

coincide with administrative boundaries such as villages and where the Forest Department does not allow SWC activities to be carried out on their land by villagers (for fear of their invariably making a claim to ownership), even though Forest Department land invariably occupies the upper part of the catchment.

In addition to providing households with a grant (however this was organized), there would also be a need to provide a grant to the group or to the village in order to accommodate work done on communal land.

The allocation of funds on a household basis would still require that work on some farms would be done by other group members. The farmers themselves would pay the workers after they receive their grant (probably about Rs. 1500 per household) which would be paid in several payments, of say Rs. 500 each (equivalent to about 16 days work according to payments in the current project) once the work had been verified by project staff.

Greater farmer involvement in selection of technology

Whatever method of financing SWC at the farm level, there would need to be a greater degree of decision making at the household or farm level. To a large extent, farmers themselves, in consultation with the group, and subject to approval by the implementing agency, should be left to decide how the money is to be used (e.g. tree planting, field bunds, contour trenches, nalah bunds). Such an approach would be an interesting way of checking which SWC measures farmers thought were the best.

Reduction of subsidy levels as project progresses

The idea of "weaning" beneficiaries off subsidies as the project progresses has been considered. This would operate by offering say a 50% subsidy in year 1 of the project's involvement in a village and gradually reducing the level each year. The problem would be that if a watershed approach was adopted, those at the top of the watershed would get the greatest amount of subsidy. Jealousies between neighbouring villages are also likely to arise and so this option is not a favoured one.

Loans

Loans have been offered by the project for such items as small water pumps for irrigation. Recovery has been good and the repayments have been made into group funds. There is therefore a precedent for using loans for farm improvement¹. Ashok

(1997) makes some innovative suggestions as to how the use of loans from banks and from the savings and credit groups can be given greater impetus in KRIBP.

Several authors (e.g. Kerr and Sanghi, 1992) have proposed the use of credit for soil and water conservation activities that were profitable to farmers and to limit subsidies to activities that were not profitable. Impact assessment studies carried out by the project in two villages using crop cutting have indicated that the cost of the labour inputs into land improvement through soil and water conservation will often be paid back in increased yields in 2 or 3 years. Offering loans should therefore, in theory, be one option of financing SWC. Farmers would need to be convinced before taking the loan that there is a short term pay-back. Now that KRIBP has been established, this may work since farmers have seen the benefits. On the other hand, many will want to know why subsidies have been stopped.

One approach would be to offer to supplement a fixed land improvement grant awarded on a household basis. The balance of the requirement for the (usually) richer, larger farms could be made up from loans from the project. Loans would not be confined to the richer farmers so long as there was an undertaking to spend the money on SWC and the farmers were convinced that SWC measures would produce a benefit more than the cost of the loan. Unfortunately, many farmers are heavily in debt to money lenders to whom they are paying back as much as 150% in interest (Ashok, 1997). Only the better off farmers with better land may therefore consider taking loans. Although projects could hardly insist on comparable interest rates, the rate would have to include inflation and perhaps 20% for administration. Loans would be only for SWC and would be paid on a reimbursement basis.

Recovery of a large number of loans by a project would of course require a large amount of administration. Also, there would be the problem in a 4 or 5 year long project that the project would be over before the loan was paid back. There seems no way of avoiding the concept of repayments being made into the funds of the savings and credit group.

Title deeds in exchange for SWC work

A novel approach that may work for some farmers who have encroached onto Forest Department land would be to offer the title deeds before the customary 10 years and the waiving of the annual "fee" for illegal cultivation if the farmers undertook SWC work on their land. Apart from the fact that new national legislation would be required, one objection would be that it is the poorer farmers who encroach onto Forest Department land and the land is very unproductive. It also amounts to coercing the farmer to undertake SWC, possibly against his better judgement. But the cost of labour to the farmer would be considerably less than he is now having to pay for the annual "fee". Unfortunately, it is likely that the obstacles of having such a policy agreed upon by the Forest Department would be virtually unsurmountable.

ENDNOTES

- 1 In reality, repayments have been made into group funds and so the loans have actually amounted to a grant to the group.

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