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## **SCALING UP PARTICIPATORY WATERSHED DEVELOPMENT IN INDIA: LESSONS FROM THE INDO-GERMAN WATERSHED DEVELOPMENT PROGRAMME**

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*For several years prior to the full start-up of the Indo-German Watershed Development Programme (IGWDP), its architects were driven by one principal concern: that participatory watershed development should be replicable over wide areas. This stimulated the close engagement of stakeholders at international, national, district and local levels, and the creation of confluences of interest (and corresponding checks and balances) within and across these levels. It has also generated a technically sound but participatory watershed planning methodology, a coherent transition from capacity building to full-scale implementation within watersheds, and a practical framework for field-level collaboration among NGOs, community-based organisations and government departments. The Programme currently covers 92,000 ha of private and other land in 20 districts in Maharashtra, involving 50 NGOs working in 74 watersheds. It is set to expand within Maharashtra as new NGOs register themselves some growing from village groups in successful watersheds and to other States through a system of franchising.*

### **Policy conclusions**

- Cases of participatory microwatershed management especially those managed by NGOs are becoming abundant. Yet, almost without exception, they are very small in scale and can be expanded only by repeating the same slow, costly, in- depth techniques in successive villages.
- By contrast, many government-sponsored approaches have expanded rapidly, but often lack the local ownership and group coherence necessary for sustainable management of the common pool components of watersheds.
- If approaches to micro-watershed rehabilitation are to be participatory and rapidly replicable, then the preconditions for scaling up have to be identified and introduced into the design of projects and programmes.
- These preconditions include:
  - the close engagement of stakeholders, and marshalling of political support, at international, national, state and subsequently district and local levels, and the creation of confluences of interest (and corresponding checks and balances) within and between levels;
  - the creation of a local watershed planning methodology which is technically defensible to

- funding agencies yet is participatory and accessible to community-based organisations (CBOs); the provision of appropriate capacity building and technical support to these;
- the existence of a framework for local-level collaboration among NGOs, CBOs and government departments, including the setting of preconditions for NGOs and CBOs to join the Programme;
- the creation of mechanisms which channel funds to local organisations with as few intermediate stages as possible; some authority by these to contract-in services, especially training;
- the existence of a mechanism for promoting the approach across major political and administrative boundaries.

## **Microwatershed development in India**

Approximately 170m ha in India are classified as degraded land, the majority falling in undulating semi-arid areas where rainfed farming is practised. Growing efforts to reverse this decline currently attracting disbursements from the Government of India alone of some US \$300m/yr are based on interventions at the microwatershed level (approximately 500 1500 ha) aiming at integrated improvement of all categories of land within the watershed. Hitherto, such efforts have been sharply polarised between the highly participatory and apparently productive and sustainable approaches typically championed by NGOs, and the approaches of some government departments characterised by wide coverage, and an emphasis on physical planning. In many cases, the latter exhibit low accountability to intended beneficiaries and insufficient local participation to ensure sustainability. The former are claimed to require long-term 'face-to-face joint learning', have high costs per beneficiary, are less significant in area terms (under 1% of treated watersheds) than the rhetoric surrounding them suggests, and, it can be argued, offer few lessons for wider scale implementation. A recent review of six such projects in India supported by the Ford Foundation concluded that, despite periods of NGO support to local communities ranging from seven to 12 years ... the social organisations or community groups involved do not appear to have reached the stage yet where external support whether operational or institutional' is no longer required' (Sinha and Sinha (eds) (1996) p.139)

This paper describes one approach the Indo-German Watershed Development Programme (IGWDP) which has explicitly attempted to make participatory watershed development replicable over wide areas.

### **Background: origins of IGWDP's approach**

Many of the concepts underlying the IGWDP were developed in the late 1980s at the Social Centre founded in 1968 by a Jesuit priest, Hermann Bacher, in Ahmednagar, Maharashtra. In 1988, the Social Centre began its first watershed work in Pimpalgaon Wagha, a village of 840 ha and some 880 population. Preparations for the first Phase of the IGWDP began in parallel in 1989, and the successful rehabilitation of this watershed by 1994 (Lobo and Kochendšrfer-Lucius, 1995) generated many of the local-level ingredients that the IGWDP began to incorporate. These included:

- social mobilisation in the village and support from an external agency in setting up a Village Watershed Committee (VWC) which then became the executing agency for the project;
- the stimulation of confidence and ownership' among villagers through their participation in the design and implementation of watershed improvements;
- an inflow of external funds, especially in the form of wages, to stimulate the involvement of those whose livelihoods depend on common pool resources;
- links with government departments from the outset to provide technical guidance, especially in Forest Department land where many common pool resources (e.g. fodder and trees) are located;
- training via the agricultural universities;
- credit from the banks for agricultural, livestock and non- agricultural activities;
- limits on the period of involvement of external support agencies such as the Social Centre.
- a strategy to allow each partner (VWC, government departments, agricultural universities) autonomy in their sphere of competence, while ensuring joint responsibility for successful project management;
- a strategy to manage social tensions which allowed the legitimate interests of dominant groups to be met only if those of the weaker groups were also met.

The principal economic gains by 1994 at Pimpalgaon Wagha included: a doubling of crop production; a ten-fold increase in milk production; year-round availability of drinking water; the creation of employment opportunities for landless labour over nine months of the year; diversification of the village economy into artisanal and other activities. Social gains included: active involvement of backward classes in the VWC and in village events; confidence among the villagers to approach banks etc directly; registration of the VWC as a public trust for the maintenance of physical structures, and the accumulation of its own development fund; and the growth of purpose-oriented groups among village women.

One significant factor is that, as a result of experience in Pimpalgaon Wagha, motivation and organisation of a village now takes around six months instead of the 12-18 months formerly required. The success of work in Pimpalgaon Wagha and two other villages was also instrumental in obtaining support from the Government of Maharashtra (GoM) in the form of a Cabinet Resolution extending political, administrative and technical support to NGOs and community-based organisations (CBOs) involved in watershed development under the IGWDP. GoM's agreement to implement Joint Forest Management arrangements on a watershed basis with NGOs and CBOs can also be traced in part to the success in these three villages.

## Background: vision and scope

A recent paper from the IGWDP sets out a basic precondition for successful scaling up: *Upscaling individual success stories to a large scale Programme calls for a perspective of macro-management which at the same time has to be rooted in and be responsive to the micro-level. Unless there is a continuous and enabling cooperation between the key sectors and actors such a process would be bound to get unstuck, thus seriously jeopardising sustainability as well as replicability.* (Lobo, 1996: 5)

A tenet of the IGWDP is that scaling up cannot take place without a long-term vision of what constitutes permanent improvement in the conditions of the intended beneficiaries in this case the rural poor deriving livelihoods from aspects of Renewable Natural Resources (RNR) management within a micro watershed context.

In a nutshell, improvements in the efficiency, equity, stability and sustainability of production deriving from RNR form only one part of this vision in the case of the IGWDP: in many respects a more important part is the sustainable strengthening of the capacity of people at local level to draw on the organs of civil society in order to meet their diverse needs, including those related to the management of watersheds. Furthermore, access to and the management of land and water resources involve essentially political questions both within villages and between local people and various levels of the administration. For both of these reasons, progress towards this vision cannot be made by reliance on local-level resources alone: government provides not only services related to the management of RNR, but also much of the fabric necessary for the functioning of civil society (in the form of legal and administrative systems), and local organisations have to engage with government in order to draw on this fabric and these services in ways which meet their needs.

The IGWDP argues that progress towards this vision needs to be evolutionary: it requires the careful development of good relations on many sides simultaneously, the building on success wherever it occurs, and acceptance of frequent setbacks. Box 1 illustrates the types of difficulty

### Box 1. The need for an evolving relationship between village organisations and the organs of civil society

During a field visit to village X two issues came to light which underline the need for village institutions to evolve.

One is that party politics potentially undermine village unity. This was clearly illustrated in recent local elections when one party, in order to gain the votes of those whose livelihoods were more dependent on herding than on agriculture, promised that it would override the village s ban on uncontrolled grazing which had been introduced as a condition of joining the IGWDP. Those who had already benefited substantially from the improved regulation of water flows, and higher water tables under the project (ie predominantly those concerned with agriculture) were strongly opposed to this, and so the seeds of polarisation were sown. In the event, the ban on grazing was upheld, though only after considerable dispute.

The second concerns the capacity of village institutions to enforce agreements over common resource management. This came to light starkly in the same village, whose regulatory institutions (VWC and FPC) have had time to mature. Even so, they were placed under strain by an unusual case in which farmer A, a senior member of the VWC, was found to be grazing livestock on common land. It was agreed that, as a relatively wealthy farmer, he should face a fine of Rs500. He agreed to pay, but only after the harvest several months later, to alleviate cash flow problems. This was agreed. However, in the meantime, another farmer (B) in the village had been found committing the same offence, but on a smaller scale, and a fine of Rs100 was imposed. Farmer A, as member of the VWC, insisted that an example should be made of B by bringing in the authorities, and extracted a confession from B. By taking this course, farmer A was seeking to achieve two aims: first, to undermine the solidarity of village institutions such as the VWC (as a wealthy farmer, he felt that he would have much to gain by opting out of agreements on shared rights and responsibilities), and, second, to distract attention from the fine which he had incurred in the hope that it might be dropped.

faced. Boxes 2 and 3 present examples of the successes that have been achieved in improving technical and administrative procedures.

In these respects, the IGWDP shares many of the elements of people-centred development' philosophies characteristic of NGOs. But it differs from the philosophy of NGOs in five important respects:

- it sees a smaller role than do many NGOs for autonomous local development depending purely on the resources of CBOs or service-providing NGOs;
- conversely, it sees a need for government organisations at several levels to be intimately engaged in the processes of change;
- it emphasises the importance of introducing appropriate technical skills from outside: indigenous knowledge and practices are important, but have to be supplemented by modern techniques and management practices for substantive impact;
- whilst it recognises the strengths of NGOs in social mobilisation, it also recognises their weaknesses in technical matters. Preconditions for participation by NGOs in the programme include willingness to accept certain types of training and to work with government organisations (see Box 4);
- it does not allow the prospects of scaling up to be undermined by some notion of an ideal' CBO which can only be achieved through intensive, long-term focus on a narrow geographical area such as one or two villages.

## Synergies among individual programme components

An underlying concept of the programme has been the stimulation of confluences of interests among different stakeholders, and the search for corresponding checks and balances. This is done at international, national, state, district and local levels.

At the international level, the Programme receives funds from two distinct organisations under the German Ministry of Economic Cooperation, both of which have an interest in seeing the Programme succeed: the German Development Bank (Kreditanstalt für Wiederaufbau) provides funds to the Indian National Bank for Agricultural and Rural Development (NABARD) at national level, which is then responsible for disbursing funds for the Full-Scale Implementation Phase (FIP four years) to local-level agencies (see below) according to agreed norms. The FIP is preceded by a 12-18 month Capacity Building Phase (CBP) funded through the Watershed Organisation Trust (WOTR see below) by German Technical Cooperation (Deutsche Gesellschaft für technische Zusammenarbeit GtZ).

At the national level, the principal stakeholders are the Ministry of Finance (via NABARD) and the Ministry of Agriculture. The Ministry of Finance is ultimately responsible for the disbursement of funds, but the Ministry of Agriculture is keen to see development of watersheds on the ground and is not without influence. There are several advantages of channelling the funds through NABARD:

- NABARD brings an interest by central government in the performance of the Programme;
- NABARD has an interest in raising the repayment rates it has achieved historically in rainfed farming areas, and so can be expected to commit itself to the success of the Programme;
- individual NGOs and Village Watershed Committees can receive foreign funds channelled through NABARD without having to go through the complexities of obtaining Foreign Exchange Registration.
- several dozen NABARD staff have technical qualifications in subjects broadly related to agriculture and natural resource management. They feel comfortable discussing technical issues with officials of eg the Forestry or Agriculture Departments, and, in turn, command the respect of the technical staff in these Departments.

### Box 2. Supporting innovation in the public sector

The Divisional Forest Officer (DFO) in one of the IGWDP districts had for a number of years been experimenting with different types of soil and water conservation measures on DoF land primarily to enhance the survival rate of trees planted. He had eventually found that Continuous Contour Terraces (CCT), combined with refilling of the terraces using soil gathered from above met survival and soil conservation objectives better than the Staggered Terraces which formed the standard practice of the Forestry Department. However, his efforts to introduce these where he was then working were met with initial scepticism from the DoF. When the IGWDP began to work with this officer in the Ahmednagar district to which he had moved, it decided to try the methods he had been advocating. The Programme feels that its decision has been vindicated: after two years the survival rates under CCT average over 90%, much higher than survival rates under conventional practice, despite the poor rainfall during the period.

The Programme's commitment to working with the public sector facilitated experimentation with new techniques within the Forestry Department, while at the same time allowing information on their potential to be disseminated through the mass media.

- procedures developed with and through NABARD for the disbursement of foreign funds in this way will lend themselves to any subsequent disbursement of GoI funds.

At the state level, the principal stakeholders are the Departments of Agriculture, Soil and Water Conservation and Forestry. Ministers overseeing these Departments successfully promoted a Cabinet Resolution in 1992 in support of the Programme. This has been a key move in facilitating supportive action by line Department staff.

At the local level, during the CBP, the village assembly (Gram Sabha) nominates a Village Watershed Committee, which in matters relating to Forest Department lands in the village works together with the Forest Protection Committee (see below). During the CBP, funds are channelled via WOTR into the NGO's bank account, and the NGO is then responsible for contracting a civil engineer (diploma level) to help in drafting the watershed development plan, together with the villagers themselves, based on net area techniques (see Box 4). The engineer is provided with training in participatory net-based planning by staff of WOTR. Towards the end of the CBP, the draft proposal is considered by the VWC and submitted to NABARD. If approved, funds for the FIP are channelled into a bank account operated jointly by the NGO and the VWC. WOTR provides on-going support during the FIP, and NABARD and the Programme Coordinator are responsible for monitoring and supervision. Management costs go direct to the NGO, whereas project funds go to the joint account of the VWC and the NGO. The expectation is that the role of NGOs will diminish over time as that of local-level membership organisations becomes stronger. Once the rehabilitation works are complete, half of the 16% contribution made by the village to the cost of unskilled labour is returned to the VWC to form the core of a Maintenance Fund.

As a Coordinating and Technical Service Organisation, WOTR also provides technical and managerial training support, and puts the NGOs and CBOs in contact with the line Departments of GoM. Through its Regional Resource Centres, WOTR also monitors progress with, for instance, the physical work on small portions of the watershed, conducted as hands-on' capacity building during the CBP. During the CBP, villagers and the supporting NGO are provided with training in technical skills corresponding with the individual components of watershed development, namely:

- Soil and land management;
- Water management;
- Crop management;
- Afforestation;
- Pasture/fodder development;

### Box 3. Forging agreement among government organisations

The Programme has obtained the agreement of NABARD that the staff vetting the submissions and proposals from villages and NGOs for the Full Scale Implementation Phase (FIP) should be drawn from a defined cadre and not from the pool of NABARD technical staff. This enhances the prospects of constructive interaction between NABARD, WOTR, the Programme Coordinator and the Line Departments involved at field level (Agriculture, Soil and Water Conservation, and Forestry). The benefits of this approach were highlighted in a meeting observed by the authors in November 1996 in which staff from all four organisations discussed the norms and procedures to be applied in the forestry aspects of FIP proposals from 16 villages. The District Forestry Officer, who hosted the meeting, explained that the Continuous Contour Terraces (CCT) that he intended to use in the villages involved some departure from standard DoF practice, but could be achieved within the cost norms agreed between the DoF and the Programme. Following agreement over the technical details of the CCT approach to be used, the discussion turned to the ways in which the intended JFM agreement with the village and supporting NGO was likely to influence costing levels. Agreement was quickly reached that the standard DoF watch and ward and inspection path provisions could be removed, since these were now the responsibility of the FPC. It was also agreed that the standard per hectare charge for a raingauge could be deleted from the costings, since the Programme would maintain raingauges in each of the villages.

The most complex issue on the agenda was the lack of synchronisation between DoF procedures, under which the interventions in any one site would conventionally be phased over four years (ten years was foreseen under the GoM Resolution on JFM of 16 March 1992), and the requirement of the funders of the Programme that all disbursements should be completed before the end of the current Programme, i.e. in four years time. But to start all DoF work in the current year in order to meet the deadline would be logistically infeasible, not least because the DoF would have to time its work outside the agricultural seasons in order to meet its obligation to use village labour. After some discussion, a complex but feasible formula of draw-down of funds and reporting on work completed was agreed to allow obligations to be met within the

- Livestock management;
- Rural energy management;
- other farm and non-farm activities;
- Community development.

These include, for instance, skills in surveying, staking, and nursery raising. They are also trained in skills in interpersonal relations, social mobilisation and the management of village-based organisations. Much of the training is given in the practical context of rehabilitation of a part (typically around 10%) of the watershed. Funds supplied by NABARD to WOTR provide for a Disposition Fund, which acts as a bridging fund so that in those watersheds where FIP has been approved, work can go ahead without waiting for formal procedures to be completed by NABARD.

Funds provided in both CBP and FIP of the Programme are provided as a grant. Funds can be used for: promotion and training costs, including cross-visits to other projects; costs of project preparation, and the costs of hiring technical specialists where necessary; project implementation measures, such as afforestation, pasture development, dryland horticulture and soil and water conservation structures; personnel, equipment and transport, as well as other overheads of the NGOs involved in project preparation and implementation; a limited contribution to a fund for maintaining the measures introduced. To take full advantage of the soil and water conservation measures to be introduced, farmers are expected to obtain loans or invest their own funds in downstream improvements in, for instance, dairy production, horticulture, wells and new crop varieties.

### **Roles of other organisations and individuals**

The Programme Coordinator is responsible for communication on matters of policy with and among different agencies: the NGOs, NABARD, WOTR and Government organisations. The Coordinator also responds to emerging problems among the NGOs and VWCs. Along with NABARD and WOTR, the Coordinator is involved in selecting new NGOs and watershed projects, in helping NGOs and villagers in improving their skills, and in project monitoring. The Coordinator is also a member of the Project Sanctioning Committee, and acts as the common link between capacity building and full implementation stages.

The Project Sanctioning Committee has the mandate to develop standard criteria for selecting NGOs and projects to be included in the Programme. It also considers NGO applications and project proposals. The PSC is headed by NABARD, and in addition comprises four representatives of NGOs, the Programme Coordinator, three representatives of the GoM, a representative of the national Ministry of Agriculture, and special invitees where appropriate.

WOTR the Watershed Organisation Trust is a support organisation for NGOs and CBOs established in December 1993. It is also the institutional base of the Programme Coordinator of the IGWDP. WOTR plays a central role in the Programme's philosophy of creating self-sustaining local organisations: it provides NGOs and village organisations with support and training in awareness creation, social mobilisation, and the planning, implementation and monitoring of watershed development projects. WOTR has 29 staff covering the disciplines of social mobilisation, women's issues, agronomy, civil engineering and computer applications.

WOTR's training approaches are tailored to specific settings, using a combination of structured workshops and less structured techniques such as village meetings and exposure visits. WOTR also provides funds (currently to a ceiling of Rs 500,000 per watershed, including administrative costs) for the development of a small part of each village watershed (generally 100 150 ha) on a learning by doing' basis during the CBP. WOTR has a specialised library containing 2,500 items which are used by its head office and six regional offices, as well as NGOs, research students and individuals interested in watershed management. Its proposed future activities include: the exploration of farm- based and other income-generating opportunities to take advantage of the additional resources created by watershed development; and the provision of extension advice on environmentally sustainable and economically viable dryland farming systems.

### **Procedures for the involvement of stakeholders and preparation of watershed development plans**

Decision-taking and action at the village level involves a combination of traditional authorities and new agencies. The *Gram Sabha* the gathering of all those within a village boundary who have voting rights has traditionally taken decisions on matters of importance facing the village. In many areas, it has recently been subject to party-political pressures. Nevertheless, its role is to consider, and where appropriate, approve the watershed development plan, and nominate a Village Watershed Committee. The Programme Guidelines urge that the VWC should consist of representatives of all social groups and hamlets or other geographical subdivisions in the village, and at least 30% of its members should be women.

Local level planning is participatory, involving all registered owners of land in each watershed in the development of detailed action plans. In this way, local knowledge is brought in. However, technical teams from WOTR and the participating NGOs conduct the detailed surveys and land-use planning together with the VWC. In this way, the intention is to draw local knowledge and preferences into a technically sound plan.

Box 4 summarises the criteria used in the selection of watersheds and of participating villages and NGOs. Technical issues in the design and implementation of watershed programmes include:

- the need to cover the full area from ridge to valley, including private land and that under the Revenue and Forest Departments; any inclination by villagers to treat the lower slopes first must be resisted;
- priority to be given to soil conservation and biomass development first, and then to water harvesting measures. Pressure often comes from farmers wishing to enhance their irrigation resources by constructing check dams on streams. As well as being expensive, these are potentially

inequitable. The overriding priority is to enhance percolation over the whole micro-watershed so that it acts as a large underground reservoir. In this way, positive distributional impact may be achieved insofar as underground flows can reach the mid-slopes some two months ahead of the lower slopes, thereby providing additional water to the (generally) lower income farmers located higher up the slope;

- the Maharashtra Department of Forests has to be involved in the planning of physical measures on land owned by the DoF, under the provisions of GoM's scheme for Forest Management through Involvement of Rural People (1992) part of the national family of Joint Forest Management (JFM) agreements. Grants are available under the Programme for such work, and for work on any additional areas that the DoF is requested by the people to manage. Under the GoM's scheme, the setting up of a Forest Protection Committee is essential;
- the Programme's innovative use of Net Area Planning: in practice, this is a substantive attempt to de-mystify' land-use planning and make the plans produced accessible to NGOs and villages. It is based not on contour maps and fixed norms regarding the type and frequency of watershed development intervention, but on detailed assessment of the characteristics of individually numbered plots and the identification, jointly with farmers, of appropriate interventions (Box 5).

#### **Box 4. IGWDP selection criteria for watersheds, villages and NGOs**

##### *Criteria for the selection of watersheds include, on the technical side:*

- dry and drought-prone villages having assured irrigation on no more than 20% of net cultivated area;
- villages with notable erosion, land degradation, resource depletion or water scarcity problems;
- villages in the upper part of drainage systems;
- watershed size should be around 1000 ha (and not less than 500ha), with an average rainfall of around 1000mm/yr;
- village boundaries should correspond as closely as possible with those of the watershed;
- cropping systems do not include long duration crops with high water requirements, such as sugarcane.

##### *In terms of socio-economic characteristics:*

- villages should be poorer than average with a high proportion (by Maharashtra standards) of Scheduled Tribes and Scheduled Castes;
- there should not be wide disparities in the size of land holding;
- villages should preferably have shown a concern for resource conservation, and should have a known history of coming together for common causes. As a condition for selection, villages must commit themselves to:
  - ban the felling of trees;
  - ban free grazing and undertake social fencing for the protection of vegetation;
  - reduce any excess livestock population and maintain it within the carrying capacity of the watershed;
  - ban water-intensive crops, or as a minimum, keep them to existing levels;
  - make an equitable contribution of 16% of the unskilled labour costs of the project by shramadaan (joint, voluntary labour) or other means. Landless and poor single parent households are exempt;
  - to start a Maintenance Fund for watershed development;
  - to take the steps necessary for achieving and maintaining a sustainable production system;
  - to constitute a Village Watershed Committee and have it registered during the implementation phase. This will be mandated to ensure maintenance of the assets created by the project;
  - ban deep tubewells.

***Criteria for the selection of NGOs to support village organisations include:***

- their reputation and history, the extent to which they have achieved rapport with organisations of the people and of government; their perspective on watershed development and their technical and managerial capability;
- the length of time for which they have been active in the area;
- demonstrated willingness (in the event of weak familiarity with watershed management) to undertake exposure visits elsewhere; to send village youth and others on specific training programmes; to prepare and implement a demonstration project of at least 100 ha;
- willingness (unless already experienced) to go through a Capacity Building Programme and meet the qualifying criteria before undertaking full implementation.

## **Envisaged expansion pathways**

The expansion path is twofold:

- 'Nodes' of approximately 1,000 ha of watershed are used as a central demonstration which neighbouring villages come to see, and as a potential training area once new villages form a VWC; Some VWCs have already begun to register themselves as NGOs, and so obtain the benefit of the funding support available for NGOs whilst at the same time serving as a vehicle for a type of farmer-to-farmer extension;
- the intention is that the essential features of the Maharashtra model be replicated as it spreads to other states. These include: a Cabinet Resolution and various Departmental Orders analogous to those passed in Maharashtra; the role of NABARD in disbursing funds for agreed proposals; the role of NGOs in supporting CBOs, and of WOTR in supporting both, the commitments made by villagers, and the fusion of local knowledge and technical norms in the net area planning approach. Officials from other states (e.g. Gujarat and Andhra Pradesh) have come to observe the approach and are expected to take a franchise' on it, allowing it to remain the intellectual property of the IGWDP.

## Structures and issues at village level

Participating villages are required to establish both a Village Watershed Committee and, wherever applicable, a Forest Protection Committee. Land owned by the DoF falls within the watershed, and so it might appear that there should logically be only one committee. However, Joint Forest Management agreements under the GoM specify that the DoF has to be represented by two officers on all committees concerned with the management of resources on DoF land. Since it would be inappropriate for DoF officers to be represented on the Village Watershed Committee, a Forest Protection Committee has to be established. A further factor is that Joint Forest Management agreements under which FPCs are to be established require that these be tripartite between the DoF, the villagers and the supporting NGO. By contrast, NGOs are not required to be represented on the Village Watershed Committee beyond the initial period.

According to GoM Resolution of 16 March 1992, NGOs may support the FPC in implementing the GoM scheme, but will not be eligible for any benefits. The FPC will be responsible for:

- afforestation of denuded areas of DoF land;
- protection and maintenance of the forests;
- appointing an Executive Committee to prepare details of the scheme and its implementation, but all policy matters have to be finalised in the full FPC;
- managing access to the benefits of the forest in ways compatible with GoM norms (these currently provide for 50% of the eventual harvest of timber, access to harvested timber at concessional rates, plus free access to specified non-timber forest products in year 10 onwards of the life of the plantation).

The Resolution sees support from the village panchayat as essential, and, with the encouragement of the Divisional Forest Officer, the panchayat should arrange elections to the FPC and to its Executive Committee.

### Box 5. Net area land-use planning

The initial planning approach used by the Programme was based on gross area planning in which cost norms provided by NABARD for specific types of intervention and specific land types were routinely applied. A major shortcoming of this approach was that it relied on contour maps, which are inadequate to capture such features as the extent to which individual fields have been levelled. However, for the individual farmer, this is a crucial determinant of what measures are necessary and acceptable. Further, Panchayat maps showing individual land holdings and features such as streams are often inconsistent with both contour maps and with ground reality.

In the net area approach, developed by WOTR in consultation with NABARD, the Social Centre and NGOs, contour maps are not used. Instead, it relies heavily on consultation with farmers in their own fields. The type and location of interventions agreed with farmers are marked both on the ground (with lime) and on land holding maps. Fields (and, often, areas within fields) are assessed for slope, soil depth, soil texture, and erosion status. Fields are then classified into one of eight categories by reference to a standard chart. Computers at each of the six regional centres under the IGWDP allow the data gathered to be multiplied by standard costs and so converted into overall costings. The VWC and NGOs are presented with the proposal as a whole, including maps, and a local language copy of the principal spreadsheet, so that they can discuss it prior to submission. The net planning approach requires a combination of technical skills proposals are unlikely to be financed unless technically sound and the skills, knowledge and opinions of farmers themselves. Using funds allocated to it, the supporting NGO in each watershed is required to hire a civil engineer for the preparation of full proposals. These are given training by WOTR in the net planning approach.

The Executive Committee is responsible for determining policy for the protection of forest, prohibiting encroachment, helping the DoF to bring action against transgressors, and helping the DoF to arrange distribution of produce according to set norms. The FPC can be dissolved by the DoF (with very limited right of appeal) if it is felt to be doing its job inadequately.

Negotiations between the Programme and the DoF over the implementation of JFM proved to be an arduous process: starting with the GoM Resolution of 16 March 1992, correspondence with the Programme continued to July 1996 before broadly satisfactory arrangements were agreed.

## Conclusions

Microwatershed rehabilitation in semi-arid India not only reverses environmental degradation: largely through improved re-charge of groundwater, it permits a quantum shift in sustainable agricultural productivity in the lower slopes of watersheds. Justifiably, it has attracted major funding from government and donors. Yet approaches to watershed planning and implementation which are both participatory and easily replicable have remained elusive: most exhibit one or other of these characteristics, but not both. The experience reported here is still in its early stages, and will need to be adapted to certain variations in baseline conditions such as, for instance, the continuing prevalence of pastoral livestock systems in some drier areas. Also it is more structured and directive than some NGOs (especially the larger, well-established ones) would wish. Nevertheless, it represents a significant step in the search for participatory but rapidly replicable approaches to microwatershed rehabilitation.

## Endnote

1. The elected village-level body responsible for administration and for the implementation of development schemes. The Sarpanch is the elected head of the Panchayat.

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