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Reorienting the Watershed Development Programme in India

K. J. Joy
Amita Shah
Suhas Paranjape
Shrinivas Badiger
Sharachchandra Lele

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FORUM FOR WATERSHED RESEARCH AND POLICY DIALOGUE

SOPPECOM Society for Promoting Participative Ecosystem Management
GIDR Gujarat Institute of Development Research
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THANKS TO...

This Occasional Paper 'Reorienting the Watershed Development Programme in India' is the first publication by the Forum for Watershed Research and Policy Dialogue. The Ministry of Rural Development, Government of India, had recently set up a Technical Committee under the Chairmanship of Shri A. Parthasarathi to review the watershed guidelines and programmes. This paper is based on the draft presented to the Committee on 26 July 2005 at a Consultative Meeting organised by the Forum in Pune which was later revised and submitted to the Committee in October 2005.

The establishment of the Forum is the culmination of process that was initiated by the discussions that followed the August 2003 workshop "Watershed Development Review: Issues and Prospects" at CISED and the October 2003 INSEE "Watershed Orientation and Training Workshop" at GIDR. The three constituent organisations – Society for Promoting Participative Ecosystem Management (SOPPECOM), Pune, Gujarat Institute of Development Research (GIDR), Ahmedabad, and Centre for Inter-disciplinary Studies in Environment and Development (CISED), Bangalore – established the Forum on the basis of a common recognition of the need for multi-institutional, multi-location, inter-disciplinary and long term research and policy dialogue. The Forum was formally launched at a one-day meeting in Pune in October 2004 that brought together the Core Group and Advisory Committee of the Forum, NGO practitioners, academics, donor organisations and Government officials from all over the country. Since March 2005, the Forum has been able to begin work in the three dryland states of Madhya Pradesh, Maharashtra and Karnataka.

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K. J. Joy, Amita Shah, Suhas Paranjape,
Shrinivas Badiger and Sharchchandra Lele

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K.J. Joy
Amita Shah
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Sharachchandra Lele[1]

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Abstract

Watershed development is increasingly seen as the lynchpin of rural development in dryland areas – one that integrates sectors and provides the foundation for subsequent development. With this premise, the government is apparently committing larger resources for watershed development and plans to bring most of the dryland, degraded lands under the coverage of the programme over the next 25 years or so. Though some of the notable examples of watershed development appear to offer a way out of stagnation and degradation for all those areas that development had seemingly bypassed, various reviews and studies show that, when averaged across all programmes, the performance has not kept pace with the expectations. Reviewing these studies, the authors contend that the programme needs to be restructured significantly, if the watershed development approach has to deliver what it promises. Such a restructuring must clearly embrace a normative framework that treats livelihoods, productivity, sustainability, equity and decentralised governance as its central concerns, and must be based on strategies that respond to the varying socio-ecological contexts and past experiences with implementation.

I. The Context

From the margins of rural development practice and a limited focus on soil and water conservation, the concept of **integrated and participatory watershed development and management** has today emerged as the cornerstone of rural development in the dry and semi-arid regions of India. What began as a set of diverse and isolated experiments in Sukhomajri, Ralegaon Siddhi and the Operations Research Projects of the Indian Council for Agricultural Research (ICAR), became institutionalised in the form of the National Watershed Development Programme for Rainfed Areas (NWDPRA) in 1990. Following the Hanumantha Rao Committee's report, Common Guidelines were formulated in 1994 for all watershed development programmes (WDPs) funded by the Ministry of Rural Development (MoRD). The period 1995-2001 saw the implementation of the first generation projects under the MoRD's programmes and the NWDPRA on a very wide scale. More importantly, it is now acknowledged that integrated watershed development must be the core strategy for stabilising rural livelihoods in dry and semi-arid regions.

The country has made significant investments in this approach. It is estimated that since the mid-1990s a total of Rs. 2400 crores (Farrington *et al.*, 1999) has been spent annually on watershed development in the country. In the next 20-25 years, Government of India has a target of treating 63 million hectares with an estimated outlay of Rs. 76,000 crores (GoI, 2000). Though these investment figures are relatively small compared to the ongoing and proposed investments in major irrigation projects, the key concern is that the benefits realised from watershed development may be far below its potential. Thus, as we embark on the second generation of watershed-based development programmes with heightened targets and expectations, it is important to ensure that the experiences from the first generation of widely implemented watershed development are fully understood and internalised. Recently, the MoRD has appointed a Technical Committee under the Chairpersonship of Mr. A. Parthasarathy to look into various matters pertaining to WDPs in India, including the Hariyali Guidelines (HG). It is therefore, timely to reflect on the past experiences and explore future directions for the next round of policy making on watershed development in India.

This paper attempts to highlight some of the critical issues in watershed development in India, against the backdrop of a conceptual framework developed earlier by some of us. It is assumed that although vested interests abound in keeping watershed programmes as they are today, there is also an emerging willingness to consider an alternative approach. However naive the assumption may appear, we believe that it is worthwhile to present a coherent and constructive alternative approach. It is hoped that the conceptual framework suggested, and the issues raised in the paper, would feed into the ongoing debate on watershed-based development programme in India and also help restructure it along more equitable and sustainable lines.

2. Impending Problems

The results of the first round of widespread implementation appear to be rather mixed. There is certainly evidence of positive impacts in terms of improved soil and water conservation and agricultural productivity in normal rainfall years. On the other hand, several individual studies (e.g., Kerr *et al.*, 1999; Shah, 1997) and reviews (e. g., Joy *et al.*, 2004, Shah, 1998) show that there are also likely to be serious limitations even in the 'model', heavily funded and intensively managed programmes. These limitations include:

- Productivity gains are often limited and temporary.
- Landless and marginal farmers often benefit only marginally or not at all, increasing inequities within the village.
- Common lands do not get adequately treated, and re-vegetation does not take place as expected.
- Gains from recharge of groundwater are rapidly dissipated through increased withdrawal.
- Domestic, livestock and ecosystem water needs often do not get addressed.
- Downstream impacts of intensive upstream water conservation are not being considered.
- Costs at which the gains are achieved seem to be rather high.
- People's participation is limited to the implementation stage; there is no building of institutions for long-term collective management of resources.

These findings seriously question the sanguine approach in popular and policy-level discussions that treat watershed-based development as the new panacea. The reasons for these shortcomings are several, and exist at different levels. In particular,

- Excessive focus on engineering structures; social processes and institutions are either ignored or de-linked from the biophysical interventions.
- Inadequate knowledge of local biophysical conditions, poor technical analysis and no integration of local knowledge.
- Limited focus on common property land resources and the livestock sector.
- Issues of water management or rural domestic water supply needs are typically not addressed.
- 'Self-help groups' and 'user groups' are promoted without addressing deeper issues of democratisation and empowerment.
- Lack of transparency on the part of implementers and rigidity of guidelines.
- Multiplicity and fragmentation of programmes even after adoption of the concept of 'integrated' watershed development. Potential advantages of convergence and synergetic effects are lost.

At a deeper level, the reasons for the above shortcomings in the design and implementation of WDP are of two kinds. First, there is often no clear normative framework as to what 'rural development' is all about. At least for some practitioners, equity or sustainability concerns really do not figure in their frameworks. Second, even when they do,

problems arise because the interactions between the biophysical and the socio-economic processes in WDP are not understood and addressed in an integrated manner:

- Watershed development converts surface flows to groundwater stocks. While surface flows are considered to be common pool resources, groundwater is an unregulated, private access resource. Hence, in the absence of appropriate institutional arrangements, WDP could end up privatising common pool resources and concentrating their ownership in the hands of those who can exploit them.
- Increased water harvesting may often be accompanied by increased use of water, leading eventually to depletion of aquifers and declines in agricultural outputs.
- Once agriculture becomes water- and other input-intensive, agricultural water use acquires higher priority and this may result in shortages of water for drinking and domestic use, or force a shift to deeper aquifers leading to problems of salinity and toxicity.
- While individual micro-watershed interventions may not affect downstream water availability significantly, the cumulative effects of treatment of a contiguous set of micro-watersheds can be significant.

In the following section we present a brief sketch of a normative framework, which provides a backdrop for discussing the gaps noted above, and also some of the important issues being raised in the wake of the recent policy discourse on watershed development in the country.

3. A Normative Framework

It is necessary to state upfront that mere tinkering with the existing guidelines and policies will not help in actualising the full potential of WDP. What is needed is a radical restructuring and re-orientation of the programme - a re-orientation that might be best captured as a shift from "integrated and participatory watershed management" to "integrated and decentralised resource governance". This entails:

a) Adopting productivity, livelihood assurance, sustainability, equity, and democracy as basic values or goals;
b) Integration across all resources and related sectors (forest, livestock, drinking water and sanitation, minor irrigation, etc.) and across scales (micro to milli to sub-basin);
c) Moving towards a statutory system to regulate resource use beyond the life of the watershed programme;
d) Moving towards greater downward accountability;
e) Clearer separation of roles at different levels, with agencies at central and state levels focusing on funding, agencies at district focusing on provision of information, training, technical support, and monitoring, a milli-watershed level institution handling implementation and some regulatory aspects, and micro-watershed level institutions handling planning and long-term regulation;
f) Looking at drought not as a purely hydrological drought but as a social phenomenon triggered by it, and therefore requiring the incorporation of the notion of dependability.

3.1 Need for explicit incorporation of sustainability, equity and democratisation goals

The problems with WDPs begin with the fact that the notion of 'development' that underpins the concept of 'integrated watershed development' is rather narrow, i.e., focused on production or income gains. Currently, the main goals of WDPs do not include equity and sustainability or, if they are mentioned at all, they are understood very narrowly or not properly articulated. For example, sustainable water use is not thought through clearly — the thrust is on water resource augmentation. Equity is often assumed to be impossible to attain and hence sidelined. Similarly, participation is simplistically assumed to ensure democracy. Even productivity gains are usually measured in average years and do not encompass the livelihood systems of all the groups within the watershed.

We believe that, besides productivity enhancement and livelihood assurance, the normative framework should include at least the following:

Sustainability

- Sustainable use of the water resource
- Sustaining productivity of agricultural and common lands (including low-input, low-impact agricultural practices)
- Ensuring sustainability of downstream agro-ecosystems

Equity

- Greater sharing of benefits accruing from WDPs
- More equitable access to natural resources, especially to the augmented resource generated by the WDPs
- Livelihood assurance for the rural poor and disadvantaged

Democratisation

- More control for local communities over the design and implementation of the WDPs, including downward accountability of the higher-level agencies
- More voice for marginal groups within the local community

This normative framework is discussed in greater detail in Joy *et al.* (2004).

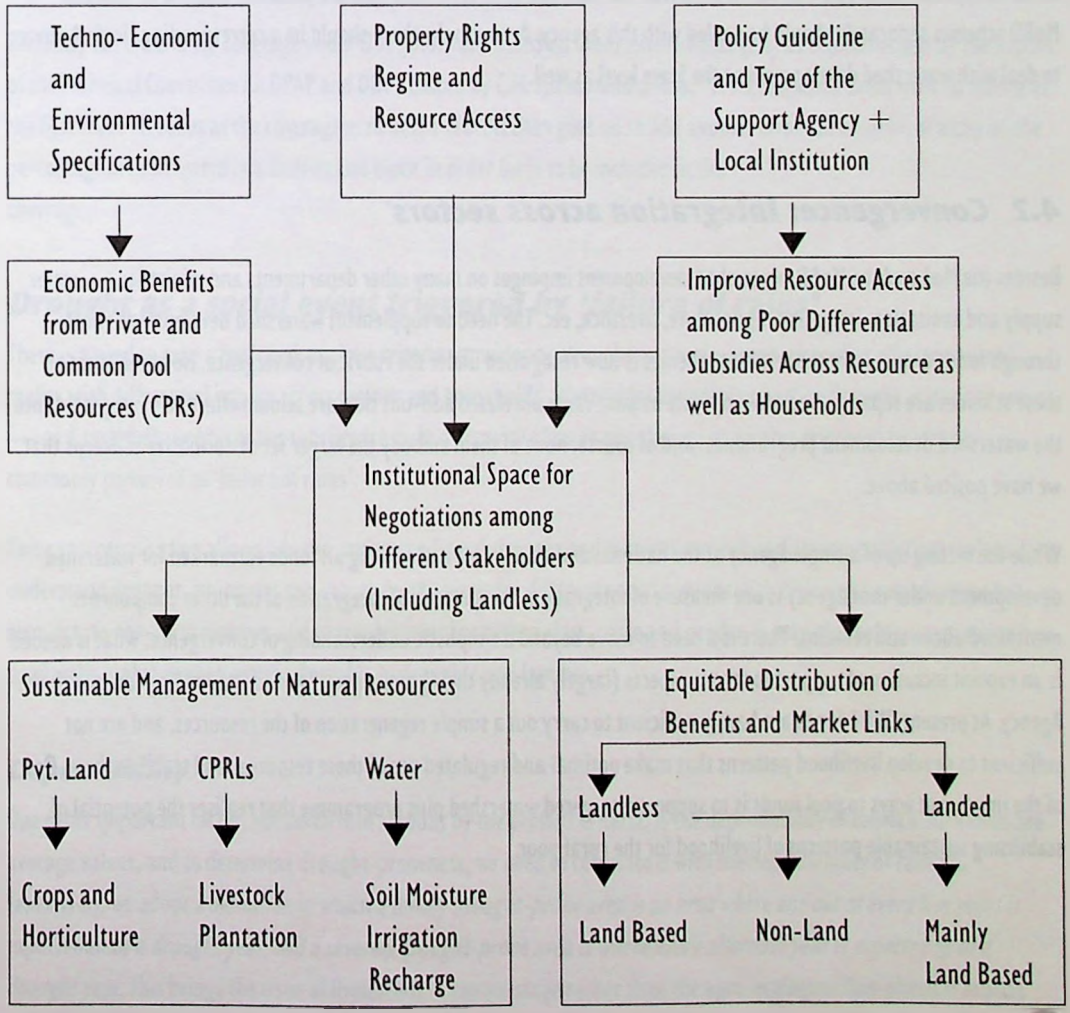
3.2 What WDP can and cannot do: overcoming limitations

It is important to realise that while WDPs can go a long way towards providing a base for livelihood assurance, by themselves they may not be able to provide that assurance for a variety of reasons.[2] This does not mean removing livelihoods from the WDP agenda in the name of the 'Art of the Possible,' but implies clear understanding of how far WDP by itself can go in sustainable livelihood enhancement of the poorer sections of the community, so as to articulate clearly how and in what manner it should be integrated with other schemes. This helps planners as well as practitioners to look for alternative avenues for promoting livelihoods for the poor.

However, how far WDPs can go in providing livelihood assurance for the rural poor, or in ensuring environmentally sustainable resource augmentation and use, etc., is dependent on how clearly these goals are articulated and how they are incorporated into WDP practice. If WDP is not envisaged as providing the foundation for sustainable enhancement of the production base in the rural economy and equitable access, it will revert to the old concept of soil and water conservation, with a bit of drinking water and common land regeneration thrown in. We therefore believe that the new set of guidelines must reflect the developmental dynamics underlying WDP and followed by clear statements of the outcomes expected at the end of project implementation, and in the long run when all the potential outcomes are realised. In fact the prescriptions about allocation of funds, processes and institutional arrangements have to be worked out by identifying the expected outcomes in the light of a logical framework. A tentative outline for such a framework is presented in Chart 1.

Chart 1

Conceptual Framework for Watershed Development Dynamics



4. Integration on All Possible Fronts

4.1 Integration across programmes

At present WDPs of the MoRD and the Ministry of Agriculture (MoA) are run separately and are allotted different funds from different programmes — DDP, DPAP, IWDP for the MoRD and NWDPRA and River Basin Programme (RBP) for MoA. Council for Advancement of People's Action and Rural Technology (CAPART) also funds its own watershed development programmes. In addition, the programmes are allotted funds from employment-oriented schemes like the Jawahar Rozgar Yojana (JRY), Employment Assurance Scheme (EAS) and Swarna Jayanti Swayamrozgar Yojana (SJSY). At the outset, we would like to emphasise the importance of integrating all watershed development programmes and funds.

For this, there is a need to set up a *single Agency/Mission /Authority to deal with watershed development at the National level.* All types of funds (DDP, DPAP, IWDP, NWDPRA, RBP, JRY, EAS, SJSY, etc.) that are presently allotted to MoA and MoRD schemes separately should be pooled with this agency. Accordingly, there should be a corresponding single Agency to deal with watershed development at the State level as well.

4.2 Convergence: Integration across sectors

Besides the MoA and the MoRD, watershed development impinges on many other departments and ministries — water supply and sanitation, irrigation, agriculture, livestock, etc. The need to supplement watershed development efforts through funds drawn from the relevant schemes is now recognised under the rubric of convergence. However, most of these schemes are separate and often operate as *post-facto* unrelated add-ons that are seldom effectively integrated into the watershed development programmes. And of course, none of them embody the larger set of normative concerns that we have posited above.

While the setting up of a single agency at the national and state levels and pooling all funds earmarked for watershed development under that agency is one measure of integration, the question of integration of the other components mentioned above still remains. There is a need to move beyond a simplistic understanding of convergence; what is needed is an explicit inclusion of support for those aspects (largely already there) and a pooling of corresponding funds with the Agency. At present, WDP funds are barely sufficient to carry out a simple regeneration of the resources, and are not sufficient to develop livelihood patterns that make optimal and regulated use of those resources and stabilise them. One of the important ways to pool funds is to support a targeted watershed plus programme that realises the potential of stabilising sustainable patterns of livelihood for the rural poor.

5. Criteria: From Coverage to Priority

While funds from many sources and schemes are now being pooled together for WDP, it is still customary to define the coverage and implementation of the different programmes separately. Since the origin of many of the programmes like the DDP, DPAP, IWDP, etc., pre-date the emergence of the concept of watershed development, it becomes difficult to reconcile the objectives of these separate programmes with watershed concepts. *Moreover, it is now clear that watershed development concepts are relevant for almost all areas with respect to developing and strengthening local water systems and resources* so that, in principle, almost the entire geographical area of the country falls within the coverage area of watershed development. The various criteria for DDP, DPAP etc., should then be seen as instruments of prioritisation rather than as criteria for determining coverage.

5.1 Criteria for coverage: Need for a re-look

Presently the criteria for coverage under DDP/DPAP are based on the Moisture Index (MI) as recommended by the Report of the Technical Committee on DPAP and DDP chaired by C.H. Hanumantha Rao.[3] It recommends areas with MI falling in the first three MI zones as the coverage area of the WDP. It then goes on to add another criterion in terms of a cap on the percentage area irrigated in a district and block in order for it to be included in the coverage.

Drought as a social event triggered by 'failure of rains'

There is a need to take a fresh look at these criteria, considering drought as a socio-economic-politically constructed reality with differential impact across regions and households. It would be preferable to define drought as a social event — as a severe disruption of the subsistence cycle of activity of large populations in an area triggered by what is commonly perceived as 'failure of rains'.

This conceptualisation allows a better understanding of drought and requires somewhat different analytical tools to understand drought, its impact and coping mechanisms for different social sections with different kinds of access to resource, to non-farm incomes and to employment because of class, caste and gender. It may also help us appreciate how patriarchy makes women more vulnerable to droughts and famines.

Dependability

One other important factor, not taken into account by the present criteria, is the dependability of rainfall. All values are average values, and to determine drought-proneness, we need to correlate it with the dependability of rainfall. Tentatively, we adopt a definition in which *a mildly drought-prone area is an area where one out of every five years is expected to be a drought year, and a severely drought-prone area is where every alternate year is expected to be a drought year.* This brings the issue of livelihoods to centre-stage rather than the agro-ecological/bio-physical aspects

alone. Hence, to determine whether and to what degree a region/district/block is drought-prone, the following method is suggested: determine the main or core livelihood patterns in a region, and see what happens to that activity under conditions that obtain with 80% dependability rainfall, and with 50% dependability rainfall. If it is disrupted at 80% dependability rainfall but not at 50%, then the area is classed as mildly drought-prone; and if it is disrupted even at 50% probability rainfall, then it is severely drought-prone. The suggested criteria/methodology for drought-proneness take decisive account of livelihood pattern and dependability.

The criteria suggested also imply that the impact of bio-physical drought is differential, and while broad assessments are essential for prioritising areas, it is also necessary to pay attention to the way that the more vulnerable sections in the region obtain their livelihood. So while the broader assessment based on the main or core livelihood patterns in a region provide a broad classification, there is also the need for supplementary studies which may show that there are sections of the population more vulnerable to drought and there is a specific need to prioritise them, and that they may be present even within areas that we may not initially identify as drought-prone.

While the criteria above help to identify the site- and section-specific character of drought- proneness, broad criteria are also needed at the block/district level. For such a purpose it is important to work with the series of actual moisture deficit indices over a number of years corresponding to the crop period of the dominant crop in the area.[4]

A further question is the unit/level at which the degree of drought-proneness is to be determined. The Hanumantha Rao Committee determines coverage at two levels, district and block. Instead, we suggest that the block/tehsil should be the single level of classification. Similar criteria should be utilised for prioritisation within the block. Willingness for collective action could be used as additional qualification for prioritising an area within a block, given that the areas have a similar score on the basic criteria.

5.2 Cap on irrigation percentage needs refinement

The earlier criteria allow for up to 30% irrigation for arid zone, up to 20% for semi-arid and up to 15% for dry sub humid zone for block level classification into the different zones. The idea is that the drier a region, the more its need for irrigation, and so the cap on the area irrigated should be higher.

However, there is also the issue of the type of irrigation coverage. In many drought-prone areas, irrigation is provided as imported water and in a concentrated command, turning the irrigated area into an alien water-intensive island maintained at high social, economic and ecological cost. If the irrigation provided by medium and major projects in drought-prone areas is not widely dispersed, in a manner that supplements and upgrades the local water system as a whole, there is a need to take account of this. It is important to evolve an index that reflects not only the extent of irrigation, but also its distribution within a block.

Similarly, it is necessary to distinguish between groundwater and surface water irrigation from the viewpoint of sustainability. It is likely that several of the dry land areas, having higher than the prescribed norm of irrigation, have depleted groundwater and hence, may require watershed treatment as well as regulation for checking groundwater

extraction. Such areas may be considered as areas with fragile ecosystems requiring watershed development as well as special measures in spite of having high percentages of irrigation.

5.3 From coverage to priority: implications

While the earlier criteria covered more than 75% of the geographical area of the country, the suggested criteria will cover something to the order of 35 to 40% of the geographical area, though the exact percentage can only be determined after a detailed analysis. What exactly are the implications of this change? The coverage of the programme will actually be expanded, since now, in principle, watershed programmes are treated as relevant for practically all parts of the country. Within this increased WDP coverage, the criteria would help focus on the drought-prone areas that should receive a higher priority and larger amount of funds per unit area. Thus with the suggested criteria, the potential coverage would become almost 100 % with 35% counting as a priority area. The point about magnitude of investment per unit is particularly important in the context of social definition of drought, with livelihood stability at the core of the project outcome.

However, earlier criteria incorporated an automatic allocation mechanism (arid zone was earmarked for DDP and the other two zones for DPAP funds). As pointed out earlier, the programmes pre-date watershed concepts and therefore are not as easily reconciled with those concepts. It is suggested that, except for part of the specific objectives of DDP, other objectives of DDP, DPAP, IWDP, NWDPRA etc. may all be treated as being covered under WDP by including some of them as prioritising criteria. Only some of the special cases (such as sand blown areas, areas with steeply sloping terrain, coastal areas, etc.) may need special treatment and programmes.

5.4 Aggregation units

Parallel to the increasing realisation of the importance of micro-watershed development, there is also the increasing awareness of the importance of the sub-basin and basin planning and management of water resources. However, these two processes never seem to combine.. There is a need to bring about convergence.

Ideally, all basins should be divided into a hierarchy of aggregation units and with each unit being given a clearly delineated identification at each level.

Milli-watershed – of the order of 5 to10,000 ha

Watershed – of the order of 50 to 200,000 ha

...

Sub-basin

Basin

It is suggested that this delineation be done at least at the milli- and micro- watershed levels for every district.

A sequence of milli-watersheds should be identified (following the criteria for area, i.e., block- prioritisation mentioned above), progressing from the highest upland and peripheral milli-watershed to the lowest-lying and central portions of the sub basin/basin on the basis of the prioritisation criteria. The effort should be to bring the area under coverage milli-watershed by milli-watershed in the identified sequence, so that an aggregated and co-ordinated impact is obtained.

The priority list should apply to all WDPs, including those supported through non-government funds. Therefore, non-government funded watershed development projects may follow their own course, but they will be expected to act in co-ordination with the State Watershed Agencies and provide all the relevant data to the Support Agencies (see below).

The criteria for prioritising choice of a micro-watershed within a milli-watershed may be specified as follows:

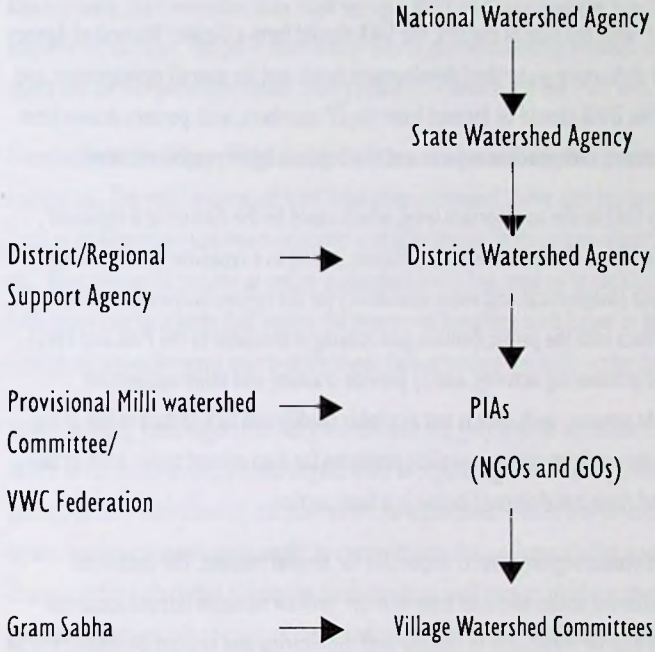
- Drinking water distress
- Classification of drought-proneness
- Per cent of agricultural area covered by irrigation less than the norm
- Proportion of degraded land, wasteland and common property land resources together greater than 15%
- Significant proportion of SC/ST population, together about 20%
- Significant proportion of people BPL (according to the old criteria), say about 25%

The sequence is self-explanatory and the prioritisation criteria taken together are expected to cover what has been called the "poverty geography of India". Drinking water distress has been placed at the top of the heap for two reasons: first, it is evidently one of the most basic of needs; second, it has been sufficiently demonstrated that, provided drinking water needs are prioritised with proper attention, WDP is capable of fulfilling this need in almost all arid and semi-arid regions. It may, however, be noted that the availability of safe and adequate drinking water in certain problem areas may need provision for intra-basin transfer of water and co-ordination with schemes with specific focus on drinking water.

While a general sequence of prioritisation criteria has been suggested here, it should also be recognised that states and regions within states vary greatly in their agro-climatic and socio-economic contexts and that these criteria may need to be fine-tuned to suit such conditions. The guidelines should therefore, encourage and empower the states to fine-tune these criteria and priorities.

6. Institutional Arrangements

The institutional structure that is suggested may be summarised as follows:



6.1 National and state-level institutions

At the national level there should be one unified agency – National Watershed Agency (NWA) with its main function being to pool the resources together from different programmes and departments and make it available to the state level agency on the basis of agreed upon norms for prioritisation of areas (discussed earlier). At state level, also there should be one unified, independent agency – State Watershed Agency (SWA). Its main function would include a) receiving the funds from the Centre and pooling them with the resources available at the state level and set up a Watershed Development Fund (WDF), b) disburse funds from the WDF to the District Watershed Agencies (DWAs) and monitor the functioning of DWAs; c) form Support Agencies (SAs) and monitor their functioning; and d) consolidate data and information (including evaluation reports, studies, etc.) and put them in the public domain.

6.2 District/regional level institutions

Logically, the levels of aggregation of watersheds should proceed through micro-watersheds, to milli-watersheds, watersheds, . . . sub-basins to basin. However, most government activity is not organised this way (except for the nascent and rudimentary river basin agencies). District is the unit of governance of central importance at a sub-state level in the

rural areas and has to be taken cognisance of in delineating watershed activity as well. However, there is a need to find ways of following the progression of micro-watershed to basin, not only for watershed activity, but also for Integrated Water Resource Management (IWRM), as well as legal provisions concerning water sector governance that are now coming up.

At the district level, firstly, it is suggested that, with the help of the ZPs, the SWA should form a District Watershed Agency (DWA) under their auspices for receiving and disbursing watershed development funds and for overall management and guidance of district level watershed activity. The DWA should be formed from the ZP members, with persons drawn from the various line departments, NGO representatives, independent experts and the Support Agency representatives.

SWA should also help set up a Support Agency (SA) at the appropriate level, which could be the district or a regional/ divisional level as determined by the SWA. The SA has the function of a) collation, acting as a repository and clearing house for the various kinds of information/data (biophysical and socio-economic) for the region/district down to micro-watershed level, b) putting this information/data into the public domain and making it available to the PIAs and VWCs for use in WDP planning, implementation and monitoring activity, and c) provide training and other support for watershed activity within its region/district. At present, such data is not available readily and lack of data is one of the important obstacles. The watershed programme needs to make an explicit provision for data related tasks, both at the micro-watershed level and at higher levels and these are discussed below in a later section.

The existence of a SA at a sub-state (district/division/region) level is important for several reasons. The data in its repository can support studies of impact at different scales and over time in order to draw valuable lessons about the changes being brought about by WDPs. It will also be invaluable in dealing with monitoring and evaluation issues. The SA should be headed by a reputed professional/academic and should be an independent entity free to draw on personnel on deputation from the government as well as recruiting persons directly from the non-government sectors. It is important that the SA evolve into an entity that is trusted for its authentic data and analysis. It needs to be supported by adequate provisions from the programme as is discussed below.

6.3 Provisional Milli-watershed level Committee, VWC Federation and PIA

The other institutional arrangement is the Project Implementation Agency (PIA) at the milli-watershed level that provides the technical and executive support for the micro-watershed activities through a full time Watershed Development Team (WDT). A full time WDT does not seem to be viable unless it handles a number of micro-watersheds; otherwise, in principle, a VWC could decide to set up its own WDT.

Earlier guidelines allowed NGOs as well as Line Departments to constitute PIAs and the Hanumantha Rao Committee report recommended the gradual inclusion of NGOs as PIAs, recommending that NGO participation should be raised to 25%. In contrast, the Hariyali Guidelines (HG) concentrate on Line Departments and PRIs as PIAs and recommend NGO participation only in the event none of these are forthcoming,, and that too with explicitly more stringent conditions and procedures. This has been one of the most controversial portions of the HG.[5]

As suggested earlier, prioritisation is carried out in terms of sequencing and results in a specific sequence in which milli-watersheds should be taken up by the programme. In this respect it is our suggestion that all the GPs falling under the milli-watershed should hold Gram Sabhas and select one member each to constitute a Provisional Milli-watershed Committee to discuss and decide which agency to choose as PIA to provide it with the WDT services that it needs. Alternatively, the Committee may itself set up a WDT and take over the function of a PIA if it so wishes and should be empowered to do so. The point here is to preserve the relationship between the VWCs/PRIs as the bodies who choose and select the service providers rather than a relation in which it is the PIAs who 'set up' the VWCs.

Eventually, as the Village Watershed Committees are formed, a Federation of VWCs should replace this provisional committee. The milli-watershed level federation proposed above also has another important aspect. There are issues such as downstream-upstream relations and allocations, inter-micro-watershed issues, meso scale effects, externalities, etc., that cannot be tackled at micro-watershed levels but need to be tackled at progressively higher scales. The federation can be a body that begins the process of handling such issues at higher scales. It should be empowered to resolve all issues between micro-watersheds falling within the milli-watershed.

Understanding (and regulation) of groundwater is a grey area in the context of WDP. One of the significant learnings of WDPs so far in the country is the urgent need to regulate groundwater pumping. However, the issue of groundwater cannot be fully addressed at the scale of micro-watershed – both bio-physically and institutionally. Hydrological and hydro-geological monitoring ought to continue into the implementation and assessment phases of WDP to pick up changes taking place due to interventions inside as well as outside the watershed project area. Milli-watershed could be a better scale to capture these and the Federation of VWAs at the milli-watershed level can take up this function.[6]

6.4 Micro-watershed level decision making body

There has been a lot of discussion about the institutional arrangements, especially the place of NGOs and PRIs in the whole scheme. The earlier guidelines recommended the formation of a Watershed Association as the supreme decision-making body at the micro-watershed level, and if the watershed substantially coincided with the village, recommended the Gram Sabha (GS). Others have variously recommended User Groups, SHGs, Area Groups and/or their federations as the decision-making body at the micro-watershed level. The Hariyali Guidelines (HG) mention the GSs, but in operational terms tend to lay greater stress on the Gram Panchayat (GP) — the statutory body consisting of the elected members of the village/s.

We believe that there is a need to make a distinction between the GS and the GP. Much of the literature implicitly or explicitly treats the GP rather than the GS as the final decision-making body in PRI matters. There is a need to assert the primacy of the GS. Firstly, for the simple reason that it is more consistent with democratic principles. Secondly, while there is an undoubted need for devolution of greater powers to PRIs, there is also undoubted evidence that the current structure and procedures of GPs and PRIs are such that GP functioning is not transparent, accountable and responsive.

In this respect we should separate the administrative or management aspects from the allocation and decision-making aspects. While routine management and implementation functions may be handled by a PIA, the issue of allocation and decision-making aspects is essentially a political issue of democratisation and the final decision-making body in respect of all such matters should be the GS.

It is therefore suggested that the GS elects a Village Watershed Committee (VWC) to look after the watershed matters at the micro-watershed level acting within the policies and prescriptions that the GS may specify. The GS is free to select GP members on the VWC if it so feels, and in practice many GS would select some GP members to the VWC. However, it would be wrong to simply turn over the watershed activity to the GP statutorily, without the need for going through the GS, because it would make for less transparency and leave it open for greater misuse. It should be understood that participation by VWC members in other bodies, individually or collectively, is *ex-officio* and they may be recalled/ replaced by the GS.

7 ▸

7. Programme Phasing and Allocations

Programme phasing and allocations in the HG has acquired a more administrative flavour. There was some attempt in the earlier guidelines to allow for some flexibility within the programme, but such aspects have become even more inflexible in the HG. There is a need to radically rethink the phasing and allocation aspect of the programme. We would suggest that the main watershed development programme should be divided into two phases: a preparatory phase, and the main programme phase that follows the successful completion of the preparatory phase. In addition, a more targeted watershed plus phase is suggested to follow the main programme in the more promising micro-watersheds.

7.1 Two-phase programme

The earlier guidelines had a weak provision for a preparatory phase that has been virtually eliminated in the HG. On the other hand, there is strong evidence from the NABARD-Indo German Watershed Programme, as well as from the successful cases in the Adarsh Gaon Yojana in Maharashtra, that the successful completion of a well-defined preparatory phase generally makes for better programme implementation.

We suggest dividing the programme into the following two phases:

The Preparatory phase: In this two-year phase, the coverage of the programme is small, the main emphasis is a) on building up necessary skills, and b) on negotiating a consensus on resource use policy. Only micro-watersheds in which this phase is successfully completed pass on to the next phase.

The Watershed Development phase: In this three-year phase, coverage is extended to the entire micro-watershed area.

It is suggested that besides the successful completion of the work component, the following six conditions should be fulfilled in the preparatory phase for qualifying for the second phase of the programme:

a) *Shramdan* (voluntary labour): the readiness to contribute voluntary labour for the programme. A significant proportion of the labour input in this phase should come from *shramdan.*

b) *Kulhadi-bandi* (ban on tree felling): the acceptance of a ban on tree felling.

c) *Charai bandi* (ban on free grazing): the acceptance of a ban on free grazing in a phased manner with adequate provisions for fodder/grazing access for the rural poor and their small ruminants, or the acceptance of a rotational grazing arrangement.

d) Agreement to maintain the structures and works carried out in the programme and bear collectively the cost of repair and maintenance.

e) Agreement on resource use regulation: There should be some consensus on the regulation of resource use to keep it within sustainable limits.

f) Agreement on cost sharing and recurring payment for recurrent benefit: While most guidelines have stipulated certain cost sharing for work on private lands, there is no provision for cost sharing by beneficiaries for the benefit they receive from common activity. There is not only a need for beneficiaries to contribute towards costs but also make some payments towards recurrent benefits that they receive (for example, those who benefit from an increase in irrigation should pay a water charge).

7.2 Regulating resource use

With respect to e) above, it should be recognised that there are many ways that such an agreement can be reached. For example: in Ralegaon Siddhi, decision to draw water from single common wells downstream of check dams; in Hivre Bazar, decision that no borewell shall be used for irrigation purposes; in Kurburhalli in Andhra Pradesh, decision that no irrigation bore more than 100 ft deep. What is important is that the community discusses these arrangements, looks at different ways in which others have done so, and comes to a consensus as to what is best in their situation. At this stage of the process, though it may be more a declaration of intent about future resource use, discussing the issues and reaching consensus *before* the beginning of the second phase is important.

The importance of cost sharing relates more to non-monetary aspects namely strengthening of people's stakes, providing a platform for negotiations across different stakeholders, and building up of reserve funds or resource enhancement for future development. This should not be treated as a mechanism for cost-cutting, or reducing public investment in these areas. More importantly, it provides an opportunity to address, at least partly, the issues of equity by introducing, for example, differential norms for different households based on the capacity to pay and benefits received.

7.3 The Watershed Plus phase

In addition to the main programme, a Watershed Plus phase is suggested for adoption in the more promising areas. We suggest a targeted two-year phase comprising a) stabilising the livelihoods of the poor and disadvantaged sections within the watershed and b) stabilising the social arrangements to ensure sustainable resource use. It is expected that this phase will also have a strong credit or private contribution component that will supplement the grant from the programme.

However, we suggest that in order to qualify for the Watershed Plus phase, 'successful completion' of the work component should firstly include provision of safe and adequate drinking water supply, regeneration of community pastures (CPLRs) and forests, rejuvenation of the existing water harvesting structures, drainage line treatment, etc., and secondly that the consensus embodied in the six conditions above should have been largely brought into practice.

In the long run, the resource enhancement achieved through the grants spent on the WDP must help mobilise credit and capital formation and a sustainable process of livelihood enhancement. In this respect the Watershed Plus phase should be seen as an enabling transition link in this direction and needs to be planned with this perspective. The target in this phase should be to combine the grant of Rs. 4,000 with employment and food for work-oriented funds and credit on commercial or concessional terms to evolve a programme of sustainable livelihood assurance to all. There should be also a corresponding change in attitude in providing assistance: from grants to risk cover, credit and some amount of employment support.

7.4 Legal empowerment of GS for regulation of resource use

It is also important that legal provisions be made to empower the GS to evolve a consensus on resource use in the interests of equity and sustainability and to make such consensus enforceable. At present, such consensus is working on the ground in spite of the lack of such empowerment and could break down in the face of a legal challenge. For example, the 'single common well below a check dam' measure in Ralegaon Siddhi and the 'no bore well for irrigation' measure in Hivre Bazar are working simply because of the social weight of their decisions. However, in more fragile situations where the majority consensus may be obstructed by a privileged few, enabling provisions are needed that will empower GS to enforce consensus in favour of equity and sustainability.

7.5 Financial allocation

An allocation of Rs. 2,000 per ha of watershed area for the preparatory phase and Rs. 6,000 for the main watershed development phase is suggested, increasing the overall allocation to Rs. 8,000 per ha. However, this is not a simple pro-rata increase in all components of cost as suggested in the HG but is tied to specific recommendations outlined below.[7]

8. Monitoring, Evaluation and Beyond

8.1 Data needs

There is a great need to combine participative resource mapping and sophisticated scientific techniques. Benchmarking the socio-economic and resource situation within the watershed, including who uses how much of what resource in what form and returns how much in what form and subsequent monitoring for resource use regulation requires dedicated efforts and funds. These needs have never found a place in the programme. Consequently, in spite of progressively increasing coverage of WDP there is very little information on WDP, the changes and the learnings it has brought about. It is not possible even to find in one place a simple list of all watershed programmes implemented so far.

It is suggested that Rs. 400 /ha be allocated as data system costs at the micro-watershed level and another Rs. 400 /ha at the SA level to be divided equally between the two phases of the programme. These allocations are meant to help put in place a firm database, build long term monitoring skills and processes within the micro-watershed and also build up a corresponding repository of the required information with the SA.

8.2 Process

There can be no transparency and accountability without suitable provisions for sanction, monitoring and evaluation. The transitions from the preparatory phase to main phase and later to the watershed plus phase depend crucially on an evaluation and monitoring process that not only is impartial but is also seen as impartial. Of many such arrangements possible, suggested here is a tripartite mechanism that draws on the PRIs (ZP in this case), the VWCs and the SA with equal weights in the sanction, monitoring and evaluation process. It is expected that incorporation of the data tasks explicitly into the preparatory and main watershed development phases and the separation of the data repository function would greatly facilitate the timely availability and authenticity of the data. Another way is to devise a method whereby sanction is treated as automatic and an initial amount is disbursed, pending a monitoring/evaluation based decision within a stipulated period. Alternatively, sanction may be automatic and there could be a *post-facto* evaluation that could decide to turn some of the grant into a recoverable loan. These mechanisms would also build in some degree of much needed accountability of government agencies to the PRIs and the people.

Besides the fund already set aside for monitoring and evaluation, an additional sum (of say 1 to 2 per cent) may go for data collection, analyses, and monitoring by independent agencies, preferably the SA, starting right from the initial phase of the project. For greater transparency a) the Monitoring and Evaluation Reports must be easily available public documents and b) in addition to routine monitoring there should be surprise checks as well as detailed monitoring of sample watersheds.

8.3 Beyond monitoring: Research and policy dialogue

There is absence of rigour and transparency in the monitoring and evaluation mechanisms and no effort to build an integrated understanding through long-term research. Most studies, or evaluations, of WDP lack coherence in concepts, rigour in methodology, and comprehensiveness of scope. In particular,

- Studies often adopt narrow, poorly defined and disparate notions of what constitutes 'proper' rural development, largely within a 'project' framework.
- Controls and benchmark data are largely missing.
- Studies are short-term, whereas real impacts are visible only much later, especially in sequential drought years.
- Biophysical changes are not linked to their socio-economic impacts and *vice-versa*.
- Macro-level impacts of contiguously treated watersheds on downstream hydrology are not assessed.
- Participatory monitoring approaches are largely absent and there is an increasing reliance on high-tech (but limited) monitoring such as through remote sensing.
- A simplistic focus on aggregate, discounted economic returns masks inequity and unsustainability of impacts.
- An excessive focus on assessing outcomes in economic terms leads to limited understanding of the socio-ecological processes through which resources are regenerated, technologies adopted and modified, conflicts negotiated, and social norms developed.
- The absence of a comprehensive source of information on the large number and variety of WDPs and their evaluations makes it difficult to know what has been the pattern of implementation, monitoring and findings across the larger region.

As a result of these shortcomings in research, it is difficult to derive robust insights and comprehensive recommendations. Considering the amount of public resources being invested in WDP, the limited information on which the policies and programmes are being drawn up is a matter of serious concern.

There are four simultaneous gaps that need to be bridged if the research and policy dialogue process related to WDPs is to provide meaningful results. These are 1) **the conceptual gap** — the normative framework within which watershed development is taken up is itself narrow; 2) **the research gap** — limited and poor quality research that does not generate the required critical feedback and prevents formulation of clear-cut policy recommendations; 3) **the outreach gap** — critical findings from rigorous studies do not reach the policy makers, donors and practitioners, or the wider public so no pressure is brought on these agencies to change their policies and practices; and 4) **the monitoring capacity gap** — inability of practitioners themselves to identify and address some of these issues in the course of implementation.

If watershed development is to be more successful in every sense of the term, these gaps need to be addressed urgently. In the long run, this would require continuous and intense interaction between policy-makers, researchers and practitioners. Given this context, we have made a modest beginning by initiating a programme under the auspices of the

Forum for Watershed Research and Policy Dialogue for a **rigorous, multi-disciplinary, multi-locational action-research, policy advocacy and capacity-building programme**, in collaboration with selected practitioners.[8]

9. Summing Up

The main purpose of the foregoing discussion on the restructuring of watershed development programmes in India is to bring together the various dimensions of watershed development under an overarching perspective of equitable, productive and sustainable development. The proposition that such a vision of development is feasible itself needs continuous evaluation and an active feedback system. In fact the question is not so much as to whether watershed development is a desirable approach or not. Rather the critical issues that need constant reflection and innovation pertain to how to make it work, and how much to expect from the initial interventions. Seeking practical answers to these would necessitate a two-pronged approach of conceptual formulations on the one hand, and setting up of practical targets on the other. The approach may then help identify further linkages and coherence with other related interventions in the field of natural resource-based initiatives. However, there is no final word on the concepts or on the practical wisdom. The process therefore has to continue. . Our initiative under the Forum is one of the numerous building blocks needed to keep the discussion going. The Forum invites suggestions and active debate on the issues raised in the paper.

NOTES

[1] The authors are members of the Core Group of the newly initiated Forum for Watershed Research and Policy Dialogue (see below). This article is based upon discussions that have taken place over the past two years. We would like to acknowledge the contributions of the Forums' Advisory Committee to these discussions, and the financial support provided by the Ford Foundation and WaterAid India that has enabled this process.

[2] For example, in the arid zones/severely drought prone areas they may make a difference in better years, but may not be able to be of as much help in the bad years. There is a possibility that such areas may need import of and dispersed access to exogenous water to supplement local water systems and ensure basic needs. Similarly, WDPs create a potential preferential access to the resource poor that may be acceptable to the resource rich because the resource cake increases for everyone (positive sum game), yet may not fully achieve livelihood goals by themselves. Lack of consistent and pro-active approaches and high incidence of landlessness could both prove serious limitations. Even in areas where it offers substantial benefit to the rural poor, WDP may not be able to ensure full employment for all and may need to be supplemented by an alternative approach to non-farm incomes in order to provide livelihoods for all.

[3] Government of India (1994). The MI expresses the excess of Annual Precipitation over Annual Potential Evapotranspiration as a percentage of the latter. On this basis the Report divides the country into the following zones.

M.I.	Climatic Zone	Per cent area
< -66.7	Arid	19.6
-66.6 to –33.3	Semi-arid	37.0
-33.2 to 0	Dry sub-humid	21.1
0 to + 20	Moist sub-humid	10.2
+ 20.1 to 99.9	Humid	7.8
100	Per-humid	8.3

It recommends that the coverage of the watershed development programme should be the first three zones. The prescribed criteria pertaining to irrigation for identifying districts in different ecosystems are as follows:

M.I. (Moisture Index)	Programme	Ecosystem	% irrigated area Permissible
< -66.7	DDP	Arid	50%
-66.6 to –33.3	DPAP	Semi-arid	40%
-33.2 to 0	DPAP	Dry sub-humid	30%

The criteria to be used for identification of blocks within eligible districts as follows:

Ecosystem	Percentage of Irrigation (Eligible for Inclusion)
Arid	up to 30
Semi arid	up to 20
Dry Sub-humid	up to 15

These are the general criteria that govern coverage of the programme. This constitutes 19.6 + 37.0 + 21.1 = 77.7% of the country's geographical area.

[4] It is also important to note that most of the criteria do not really deal adequately with groundwater issues; there can very well be a groundwater drought even where all other budgets may not indicate drought. Groundwater is a grey area in WDPs and needs to be given much greater attention than what we have been able to give in this note. Some details of these issues are described in the note, *Some Important Aspects on 'Groundwater Resources' In Watershed Programmes* by Dr. Himanshu Kulkarni of ACWADAM, Pune.

[5] The Common Guidelines of 1994 got revised in 2001 (Revised Common Guidelines). These were further revised in 2003 as the Hariyali Guidelines, which became applicable from April 1, 2003. In the Hariyali Guidelines, though the alleged aim is 'to further simplify procedures and involve the Panchayat Raj Institutions (PRIs) more meaningfully in planning, implementation and management of economic development activities in rural areas', the main criticism has been that there has not been enough devolution of powers and also that the space of the NGOS, CBOs, etc. has been reduced. For a detailed discussion refer to Shah (2003) and also the WASSAN website, www.wassan.org for related material on Hariyali - workshop reports, recommendations, consultations with CBOs/ PRIs/ NGOs, concept papers on Hariyali.

[6] Some details of the issues related to groundwater and WDP are discussed in Kulkarni (DATE?).

[7] It may however, be noted that attaining livelihood goals would imply greater mobilisation of resources, which ideally should be obtained through pooling of funds from several schemes at Gram Sabha level.

[8] The Forum for Watershed Research and Policy Dialogue is a collaborative effort of the Society for Promoting Participative Ecosystem Management (SOPPECOM), Pune, the Gujarat Institute of Development Research (GIDR), Ahmedabad and the Centre for Interdisciplinary Studies in Environment and Development (CISED), Bangalore. For further details contact: K. J. Joy, SOPPECOM, 16 Kale Park, Someshwarwadi Road, Pashan, Pune 411 008, Tel: 020-25880786/6542, e-mail: soppecom@vsnl.com. Its main objectives are: a) To build a comprehensive public domain and GIS-linked database on all completed and ongoing watershed development efforts; b) To develop coherent and comprehensive frameworks and indicators of watershed development success, and rigorous interdisciplinary methodologies for assessing outcomes and processes; c) To conduct multi-locational, multi-disciplinary research on pressing research questions identified in partnership with practitioners; d) To synthesise and disseminate as widely as possible key project findings through working papers, journal articles, policy briefs and popular articles; e) Actively participate in the formulation and modification of national and state level watershed guidelines, particularly in light of findings of the proposed research; f) To work towards an institutionalised embedding of a minimum set of research protocols in watershed development activities; g) To create a partnership between researchers and practitioners to engage them in mutual identification of research issues and assist in the modification of research and watershed practices

Regionally, the Forum would initially focus on five states in Western and Southern India, viz., Rajasthan, Gujarat, Madhya Pradesh, Maharashtra and Karnataka. The focus shall be on the large contiguous tract of drought-prone, arid and semi-arid region that runs through these states, which is in some sense the most vulnerable and often the most backward region within these states.

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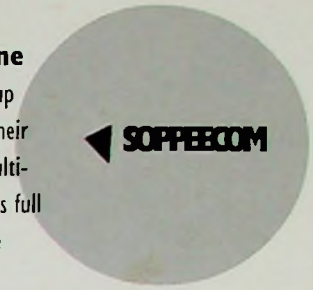
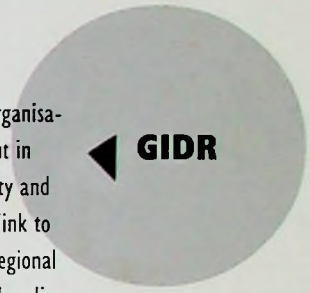
Society for Promoting Participative Ecosystem Management (SOPPECOM), Pune
SOPPECOM carries out action research, implements pilot projects, provides training and capacity building, takes up research and evaluation studies and provides support to grassroots initiatives to help rural populations manage their ecosystem resources like land, water and biomass on which they depend for their livelihoods. SOPPECOM has a multi-disciplinary core team comprising engineers, soil scientists and social scientists some of whom have also worked as full time grassroots activists. SOPPECOM has made significant contributions to the water sector through its innovative approach, research, action research and experimentation, writings and policy advocacy.



Contact:
K. J. Joy
Society for Promoting Participative Ecosystem Management (SOPPECOM)
16 Kale Park, Someshwarwadi, Pashan, Pune 411 008
Phone: 020-25880786 & 25886542
Fax: 020-25886542, Email: soppecom@vsnl.com

Gujarat Institute of Development Research (GIDR), Ahmedabad GIDR is a premier organisation recognised and supported by the Indian Council of Social Science Research. The Institute faculty has carried out in depth studies relating to some of the major development interventions focusing mainly on economic viability, equity and institutional mechanisms and the Institute's major strength lies in its understanding of micro processes and their link to macro issues. Its research agenda now covers a fairly wide range of issues pertaining to development both at the regional as well as the national level. There is active mutual interaction through networking and collaborative research with policy makers, non-governmental and government organisations and other academicians and international agencies and academicians. This has helped the Institute to influence policy directly and indirectly.



Contact:
Amita Shah
Gujarat Institute of Development Research (GIDR)
Near Gota Char Rasta, Gota, Ahmedabad-380060
Tel: 079-3742366/342367/3742368, Email: amita@gidr.ac.in, amitagidr@gmail.com

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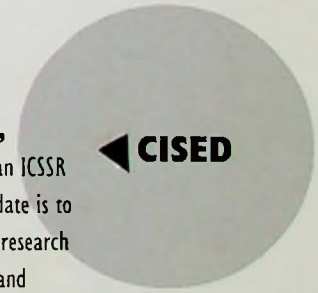

Contact:
Shrinivas Badiger
Centre For Interdisciplinary Studies in Environment and Development (CISED)
Institute for Economic and Social Change (ISEC) Campus, Nagarabhavi, Bangalore 560 072
Tel: 080-23217014, Email: sbadiger@isec.ac.in

ABOUT THE FORUM

The Forum for Watershed Research and Policy Dialogue has been formed by SOPPECOM, GIDR and CISED (for details of the three institutions, see inside back cover) to address the four gaps they believe are mainly responsible for the divergence between the official hopes and beliefs and the reality about watershed:

- First, the conceptual gap the normative framework within which watershed development is taken up is itself narrow.
- Second, the research gap limited, short term and poor quality research does not generate the kind of critical feedback that is required and prevents the formulation of clear-cut policy recommendations.
- Third, the outreach gap critical findings or warning signals from rigorous studies do not reach policy-makers, donors and practitioners, or the wider public. d) Finally, the monitoring capacity gap the inability of practitioners to identify and address many important issues in the course of implementation itself.

It proposes to make a beginning in this direction by initiating a rigorous, multi-disciplinary, multi-locational action-research and policy analyses programme, in collaboration with selected practitioners with the following objectives:

- To develop coherent and comprehensive frameworks and indicators of watershed development success, and rigorous interdisciplinary methodologies for assessing outcomes and processes
- To initiate multi-locational, multi-disciplinary research on pressing research questions identified in partnership with practitioners
- To build a comprehensive public-domain and GIS-linked database on watershed development efforts
- To carry out post-facto and comparative research on completed watershed projects and clusters
- To involve policy makers, practitioners and civil society in synthesising and communicating key findings of research
- To create a partnership with practitioners to engage them in identification of research issues and to feed the results of research immediately into their practice.

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Contact person

K. J. Joy,
SOPPECOM, 16 Kale Park, Someshwarwadi Road, Pashan, Pune 411008.
Phone: 020-25880786 & 25886542
Fax: 020-25886542
Email: soppecom@vsnl.com