

Global Theme on Agroecosystems

Report no. 48

Guidelines for Planning and Implementation of Watershed Development Program in India: A Review



INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS

ICRISAT Science with a human face

Citation: Raju KV, Aziz Abdul, Meenakshi Sundaram SS, Sekher Madhushree, Wani P Suhas and Sreedevi TK. 2008. Guidelines for Planning and Implementation of Watershed Development Program in India: A Review. Global Theme on Agroecosystems Report no. 48. Patancheru 502 324, Andhra Pradesh, India; International Crops Research Institute for the Semi-Arid Tropics. 92 pp.

Abstract

Various impact assessment studies of the watershed development program have indicated that guidelines for planning and implementation of watershed development programs in India are evolving and updated over the years for enhancing the program's impact. During the Comprehensive Assessment of Watershed Programs in India undertaken by the ICRISAT-led consortium, guidelines for planning and implementation covering village selection, community participation, planning process, disbursement of funds, sustainability and equity issues, implementation process, institutions, capacity building, and monitoring and evaluation options were studied and the way forward is reported.

Watershed development is identified as an excellent approach for developing all rain-fed regions (arid, semi-arid and sub-humid tropics). It is recommended that watersheds be developed in clusters so that those micro-watersheds larger than 1200 ha could be developed. For prioritization of watersheds, emphasis should be on high proportion of rain-fed areas, low GDP (more poverty), prime constraint of water scarcity (drinking and agriculture), low crop yields and proneness to severe land degradation.

For enchainning community participation, a knowledge-based entry point activity (EPA) is proposed in place of cash-based EPA with cooperation and collegiate mode of community participation rather than contractual mode of participation. Participatory planning involving farmers, landless people and women is recommended in place of ad-hoc planning process. Increased allocation of Rs. 20,000 per ha for holistic watershed development encompassing productivity enhancement and livelihood activities in addition to soil and water conservation activities with an implementation period of 7-8 years are recommended. Timely release of funds could be achieved by direct release of the funds to the district watershed coordination committee from the national level.

Capacity building is identified as the weakest link for scaling-up the benefits of watershed programs in the country. Capacity building through quality service providers by adopting the consortium approach is recommended. Similarly, monitoring and evaluation should be undertaken by qualified and trained staff only using simple and limited indicators in all the watersheds. Detailed monitoring, which needs technical inputs could be done only at benchmark watersheds in target-ecoregions/district by qualified technical institutes.

Appropriate strengthening of community-based institutions with proper training and hand-holding through quality capacity building efforts would go a long way to enhance the impact and sustainability of watershed programs to address the issues of equity, construction of low-cost rainwater harvesting structures throughout the toposequence along with in-situ conservation measures including productivity enhancement, to benefit small-scale land holders.

This publication is part of the research project "Comprehensive Assessment of Watershed Programs in India" co-funded by the Ministry of Agriculture and the Ministry of Rural Development, Government of India, and implemented by ICRISAT, Patancheru, India

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**Guidelines for Planning and Implementation
of Watershed Development Program
in India: A Review**

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Science with a human face

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Ministry of Rural Development
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2008

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Acknowledgements

We sincerely thank Drs Amita Shah of Gujarat Institute of Development Research, Ahmedabad and PK Joshi, National Centre for Agricultural Economics and Policy Research, New Delhi, India for reviewing the manuscript and providing constructive comments. We also thank Ms N Srilakshmi and Mr KNV Satyanarayana for word processing and page setting, Ms N Shalini for editorial assistance and staff of Communication Office for production of this report. We gratefully acknowledge the financial support provided by Government of India through Ministry of Agriculture and Ministry of Rural Development for the Comprehensive Assessment of Watershed Program in India.

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1. Background and History of Watershed Development

1.1 Background

The Ministry of Agriculture and the Ministry of Rural Development and Panchayati Raj of the Government of India have requested the ICRISAT and a consortium of organizations to carry out a Comprehensive Assessment (CA) of Watershed Programs in India. As part of this study, ICRISAT has requested the Centre for Ecological Economics and Natural Resources of the Institute for Social and Economic Change, Bangalore, to review the guidelines and take the lead for planning and implementation of watershed programs in India. Historical perspective of watershed development in India has been covered in greater detail in other components of ICRISAT-led consortium's study.

Over the decades, the concerned authorities in India have been drawing up a series of guidelines from time to time—each time revising them to suit the changing situation, objectives and to make them more flexible, specific to regional variations and to the demands of new developments in the science and art of natural resource management. In addition, there are different sets of guidelines formulated during the evolution by various donor agencies and the NGOs, based on their own understanding of the ground situation and norms of planning and implementation of the watershed development projects. The objective of this paper is to critically review all guidelines for planning and implementation of watershed development program in India in the perspective of the demands warranted by the dynamic needs in time and space, changing natural resource management requirements and by assessing as to how far the guidelines have evolved from time to time and kept pace with the time and space considering dynamic objectives. These guidelines relate to planning and implementation of the watershed development projects, institutional set up and the process of monitoring and evaluation of the projects in particular and the program in general.

1.2 Objectives and Framework of Analysis

The methodology of the paper consists in:

- documenting these guidelines and putting them in the form of annexures;
- reviewing the available academic studies¹ and from their findings to draw implications to the kind of guidelines suggestive of such studies;
- evaluating the received guidelines in the light of the implied guidelines arising from the academic studies; and
- suggesting future actions for the bridging the gaps identified during the review.

The guidelines of watershed development project management seem to have three basic elements:

- firstly, the set of guidelines dealing with the process of mechanism of planning and implementation of the projects. As the projects need to be planned and implemented at the grass root level i.e. at the village cluster level, the tasks involved are:-identification of the watershed, preparing the proposal and getting it approved/sanctioned, planning for the grounding of the project, implementing the project and management of the assets created. Each of these tasks would have sub-tasks;

¹ This is to acknowledge that for obtaining the critical comments of the academics, we extensively used the review of literature prepared by Ananda Vadivelu, Ph.D Fellow of Institute for Social and Economic Change, Bangalore, for his dissertation on 'Watershed Development in Karnataka, India: An Institutional Analysis'.

- second, the set of guidelines that relate to the organizations, where the stakeholders get together for decision-making and the institutions/rules that converge the stakeholders in all activities; and
- finally, there are a set of guidelines that are expected to serve as a guide to monitoring and evaluation of the watershed development projects.

Given that there are three sets of guidelines, we propose to examine each one in relation to a normative reference point, which would give optimum results of watershed project management. The normative reference points are derived from the micro level planning theory in general and project management theory in particular. Instead of merely stating these theories, what we plan to draw upon the critique of watershed project management synthesized by the academics by operationalising the propositions implied in the theory of micro level planning and the theory of project management. In other words, for evaluating the guidelines evolved and suggested by the concerned authorities the reference point is the critique and the suggestions arising out of such a critique considering the academic and practitioners views. Though such a reference point may fall short of an ideal point, it certainly can serve better as an approximation.

The Importance of Rain-fed Agriculture in India

The Government of India has before it a wealth of reviews and reports concerning agriculture in general and rain-fed agriculture and watershed in particular. The rain-fed agriculture contributes 58 per cent to world's food basket from 80 per cent agriculture lands. In India, 60 per cent of 142 M ha arable land is rain-fed. The rain-fed areas are the hotspots of poverty, malnutrition, food insecurity, prone to severe land degradation, water scarcity and poor social and institutional infrastructure (Rockstorm et al. 2007; and Wani et al. 2007).

The report of National Commission on Farmers highlighted the importance of rain-fed agriculture and the need to strengthen and upgrade integrated watershed development program in India. The commission stressed the need to improve convergence and coordination of watershed development initiatives undertaken by different ministries and formation of watershed coordinating agencies at national, state and district levels. It also recommended consortium approach to implement watersheds with holistic livelihood approach and release of money from national coordination cell to the district watershed coordinating agency (Gol 2005).

Dr. Manmohan Singh, Prime Minister of India, on 15th August 2005 declared formation of National Rain-fed Area Authority to emphasize importance of rain-fed agriculture to achieve food security and inclusive growth in India. The NRAA was established in 2007 and new common guidelines for watershed development (Annexure VII) were released by the Government of India (Gol 2008).

Current 11th Five Year Plan recognizes the 'rain-fed cum watershed' theme. This report may help with guidance to operationalise the theme for the 11th Five Year Plan, providing an opportunity to build on what has already been achieved in watershed work and giving a momentum by consciously seeking to address these different goals: production, environmental, poverty and resilience within the watershed context, while recognizing that the approach is applicable to all rain-fed regions though the specific technical and social interventions are different in areas of different rainfall and that a paradigm shift in thinking is needed, to approach watershed development not just as another scheme but as a *sine qua none* for the rain-fed areas.

1.3 Brief History of Watershed Development Program in India

We are undertaking the Comprehensive Assessment of Watershed Programs in India on behalf of the Ministry of Agriculture and Ministry of Rural Development. For this activity, we have put together a group of institutes and enlisted the help of scientists throughout India who are working on various aspects of watershed program.

The first initiative in the country relative to efficient management of rainwater was through the setting up of a few irrigation projects in various parts of India by the Famine Commission in 1880. Mr. VA Thampane initiated research on dry farming for the scarcity tracts of erstwhile Bombay state in 1923; Mr. NV Kanitkar continued such work from 1926. Later, the Imperial Council of Agricultural Research provided financial support for a comprehensive project on dryland farming at five centres in the country. Recommendations from these experiments included mainly soil and moisture conservation measures. Indian Council of Agricultural Research (ICAR) had established eight Soil Conservation Research centres and Demonstration & Training centres in 1954.

The Drought Prone Area Program (DPAP) was one of the area development programs launched by the Government of India in 1972-73 to tackle the special problems faced by those fragile areas that are constantly affected by severe drought conditions and in addition, there were several operational research projects under DPAP. The Central Soil and Water Conservation, Research and Training Institute (CSWCRTI), was reconstituted in April 1974 to attend to soil and water conservation issues on arable and non-arable lands, evolve and demonstrate conservation technology on watershed basis, and capacity building through training. In 1983, a program for development of dryland agriculture on watershed basis was initiated and the work began in 47 model watersheds on soil and water conservation measures, crop management and alternate land use systems. After the severe drought experienced in 1987, the Government of India had initiated the National Watershed Development Project for Rain-fed Areas (NWDPR) in 1990-91 during the 8th Five Year Plan.

The programs evolved and the projects designed for using the watershed development approach were the Drought Prone Area Program (DPAP), the Desert Development Program (DDP), River Valley Project (RVP), National Watershed Development Project for Rain-fed Areas (NWDPR), and the Integrated Wasteland Development Program (IWDP). These projects being primarily engineering-oriented ones, largely focussed on water harvesting through construction of percolation tanks, contour bunds, gully control structures, contour trenches etc. and came under state governments' soil and water conservation projects. There were also some projects launched by the NGOs like MYRADA, WOTR, BAIF, AKRSP, Seva Mandir, FES, Sadguru Foundation, etc., and projects involving movements by people like Pani Panchayat and Anna Hazare's Adarsha Gaon Yojana efforts whose focus was on socio-economic development of the resource-poor sections. That apart, we have the donor agency sponsored projects sponsored by the DFID, GTZ, KFW, World Bank and DANIDA. In addition, national and international research organizations like CSWCRTI, CRIDA, CAZRI and ICRISAT have conducted research on various aspects of watershed development and management.

Changes in Watershed Approaches

In the beginning, watershed program went through the structure-driven approach for soil conservation and rainwater harvesting, aiming at only some productivity enhancements. Soil conservation program became synonymous with contour bunding and water conservation with check-dams. This was a compartmental and top-down contractual approach. This led to less transparency and inequitable benefits among the community members. The rich who could invest in a bore-well have harnessed the

benefits of the augmented water sources. On the other hand, small and poor landholders comprising about 85-90% of the community could not get any equitable benefit from the conservation measures. As such, these interventions were looked at as the employment opportunities during the project period and people's participation was inadequate (Wani et al. 2002). Also, most of the projects implemented by non-government organizations (NGOs) and government line departments lacked technical backstopping.

However, at the present time, watershed models are being developed giving priority to the empowerment of the community and the stakeholders so that the projects operate not as a supply-driven project but as a demand-driven project. Earlier experiences from the various watershed projects have indicated that a straightjacket approach will not yield desired results and mix up of individual and community based interventions are essential. Multi-disciplinary teams are involved to provide all the technical expertise to solve the problems at the community level. The benefits are transparent and distributed well among the community members including women. As a result, the level of participation has improved. This approach, ensured participation and the watershed is considered as an entry point for improving the livelihoods of the people. The journey through the evolution of watershed approach evolved in India is shown in Figure.1.1 (Wani et al. 2006).

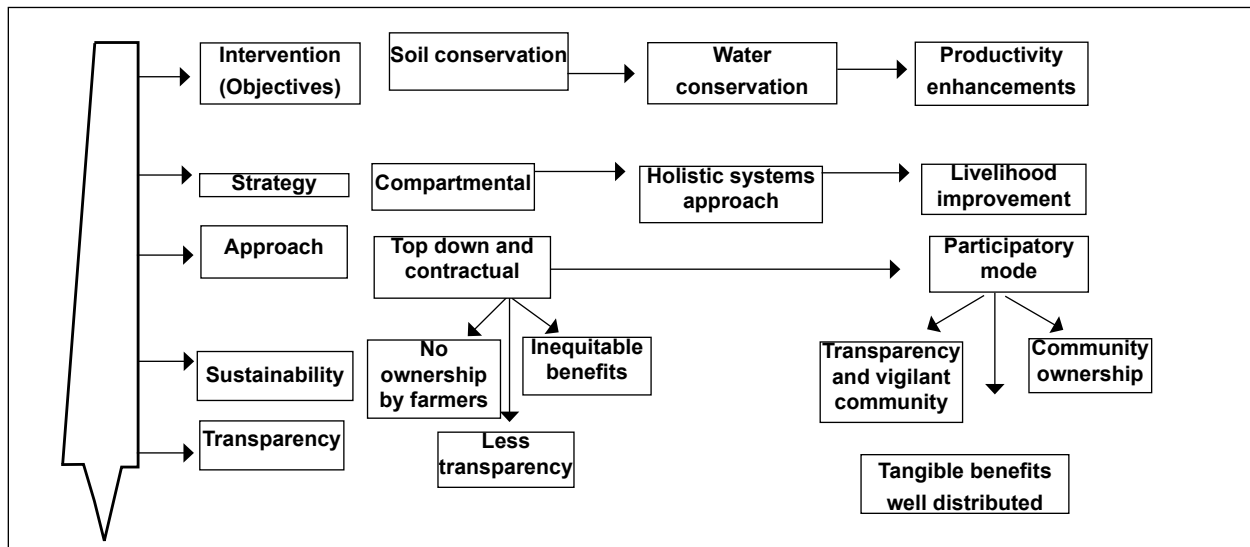


Figure 1.1 Journey through watershed approach in India (Wani et al. 2005 and 2006).

The watershed development program is now planned, implemented, monitored and maintained by the watershed communities. To bring about uniformity in programs being implemented by various agencies in India, the WARASA-Jan Sahbhagita Guidelines were formulated in conformity with the "Common Approach/Principles for Watershed Development" agreed upon by the Ministries of Agriculture and Rural Development, Government of India.

NWDPRA has been considerably restructured during the 9th Five Year Plan with greater decentralization and community participation, higher degree of flexibility in choice of technology and suitable institutional arrangements for ensuring long-term sustainability. An area of 2.76 M ha has been treated with an expenditure of Rs. 9108 million during 9th Five Year Plan period.

To involve village communities in the implementation of watershed projects under all the area development programs namely, Integrated Wastelands Development Program (IWDP), Drought Prone Area Program (DPAP) and Desert Development Program (DDP), the Guidelines for Watershed Development were adopted in 1995 (GoI 1994) and subsequently revised in 2001. The 1994 guidelines

provide special emphasis to improve the economic and social conditions of the resource-poor and the disadvantaged sections of the watershed community. The guidelines include:

- more equitable distribution of the benefits of land and water resources development and the consequent biomass production, and greater access to income-generation opportunities and focus on farm resource development;
- participating villages should be selected based on the community's willingness to provide voluntary contribution and take over management of the assets created through the project when the project activities cease;
- at least 5% of the cost of investment should come from the village community or *panchayat* (local self government) or users, who are likely to derive the benefits of such investments;
- at least 10% of the cost of investment on individual works on private property must come from the beneficiary users (5% for schedule castes, schedule tribes and people below poverty line).

The guidelines suggest the approximate size of the watershed as 500 ha and its selection in consultation with village community and emphasizes the criteria of acute shortage of water, preponderance of wasteland and common lands, community participation in implementation and evaluation, community empowerment, etc.

Guidelines for Hariyali were issued in April 2003 (DOLR 2003) by the Department of Land Resources, Ministry of Rural Development, Government of India, to further simplify procedures and involve the *panchayati raj* institutions (PRIs) more meaningfully in planning, implementation and management of economic development activities in rural areas.

The Hanumantha Rao Committee (1994) had already recommended a set of operational guidelines for implementing the watershed development program. As a follow-up, guidelines for watershed development were framed by the DOLR and applied the same to all the above programs from April 1995 (see Box 1.1 for a summary and Annexure I for details of these guidelines).

The realization that two-thirds of the cultivated area in the country was under dry land cultivation, the Ministry of Agriculture (MoA) launched in 1990-91 the National Watershed Development Project for Rain-fed Areas (NWDPR) Program with the following objectives:

- conservation, development and management of natural resources;
- enhancement of sustainable agricultural productivity and production;
- restoration of ecological balance by greening the degraded lands;
- reduction in disparities in irrigated and rain-fed regions;
- and creation of sustained empowerment opportunities for the rural poor and the landless.

The Common Approach for Watershed Development jointly formulated by MoA and MoRD resulted in the drafting of new guidelines for implementing the NWDPR that came into effect in November 2000 (WARASA-JAN SAHABHAGITA Guidelines). These guidelines actually provide decentralization of procedures, flexibility in the choice of technology and provisions for active involvement of the watershed community in planning, execution and evaluation of the program. The main elements of the guidelines provided include: natural resource conservation, natural and social resources integrated development, ridge-to-valley approach, livelihood support to the landless, decentralized decision-making, community mobilization, contributory community participation, building on indigenous innovations and ideas, equity for poor and empowering women, moving towards self-reliant development and convergence of government and NGO activities and schemes. The more detailed guidelines relating to planning and implementation of the development programs, and community involvement in these tasks are presented in Box No.1.2.

With gaining experience in the field and learning from the findings of many studies on watershed development, a need was felt to revise the guidelines with a view to introduce some amount of flexibility to suit the varying local needs and conditions and to make them “contemporary, transparent and easy to follow”. As a follow-up, the new guidelines for watershed development were framed in 2001 (see Annexure II) which are now program specific, which contain flexibility, clearly give specific role to various institutions, greater role to women, SHGs, PRIs and so on.

Box No.1.1

The Hanumantha Rao Committee Guidelines

The MoRD had prepared and issued guidelines for planning and implementation of watershed development program. Since these guidelines were prepared initially in the backdrop of absence of any experience, in due course some drawbacks were brought to the notice of the authorities. With a view to formally and thoroughly overhauling these guidelines, the Government of India appointed a committee under the chairmanship of Prof. C.H. Hanumantha Rao. The terms of reference were: to review and modify the existing criteria for identification of areas to be covered under DPAP and DDP; to review the programme contents, methodology of planning, pattern of funding and recommend appropriate modifications; to examine the possibilities of integrating DPAP and DDP with related area development programmes; to examine and identify relevant technologies for dry land farming; to recommend measures intended to promote the role of watershed committee, Pani Panchayats, NGOs, etc.

The Hanumantha Rao committee identified the following drawbacks:

- lack of an integrated approach for developing the resources of a watershed on a “mini watershed” of 500 ha principle;
- planning of watershed program on a “sectoral basis and in isolated patches”;
- failure to ensure coordination among the three ministries viz., MoA, MoEF and MoRD; and
- failure to ensure local participation and to involve *panchayats*.

Considering these drawbacks, the committee recommended: development of land, water and vegetative resources on watershed basis in the area development programmes including IWDP; treatment for the watershed should include all categories of land including private, village commons, revenue and degraded forestlands; a micro-watershed with about 500 ha may be taken up for management and development; watershed development programme should be implemented with the total participation of the beneficiaries; awareness raising including dissemination of relevant information relating to the programme should be given priority; state and district level committees be constituted to monitor the programmes; states involved in the program should also contribute a suitable matching share in watershed development schemes; training at various levels for the preparation of a watershed development plan should be arranged; for identification of blocks to be covered under DPAP and DDP, the criteria of moisture index, three eco-systems – arid, semi-arid and dry sub-humid and area under irrigation may be taken into consideration; it is necessary to organise independent evaluation studies on a regular basis through reputed independent and autonomous institutions.

Based on these recommendations, Guidelines for Watershed Development were issued in October 1994 that came into effect from 1.4.1995. These guidelines were applicable to three main programmes, namely, Integrated Wastelands Development Programme (IWDP), Drought Prone Areas Programme (DPAP) and Desert Development Programme (DDP). The government attached utmost importance for development of waste and degraded lands by increasing their productivity following the principle of equity, transparency and community empowerment by adopting low-cost locally available technology and material.

These guidelines were in operation for a period of over six years. However, a need was felt for:

- a) ensuring greater flexibility into the guidelines to enhance their response to the regionally differentiated demands of rural areas, b) freeing the field functionaries from the rigidity and encouraging them to innovate, c) securing the motivation and loyalty of the stake holders by generating enthusiasm and by ensuring benefits to them.

Box No.1.2
The WARSA – Janasahabagita Guidelines

Community Organization:

The guidelines lay emphasis on mobilization of the community for participatory planning and implementation of the development project. The first step in this direction is awareness building regarding the new strategy as well as the main features of the participatory watershed development and management. For this purpose repeated meetings in groups is suggested and street plays and folk songs are recommended to communicate the spirit of the restructured watershed program.

The community mobilization thus initiated should culminate in the organization of four groups at the village level, viz., SHG, UG, WA and WC. The WC is to be organized at the end after the first three groups are organized. It is also suggested that these groups should be linked to the legal bodies like the PRIs in the interest of long term sustainability of the project. The community participation must take the form of contribution towards project implementation in terms of cash or kind.

Planning for Watershed Projects:

The guidelines in this phase are: after the training, the WDT members are to conduct a series of participatory rural appraisal (PRA) exercises in each of the villages to collect data on land, water and human resources, soil types and soil erosion, rainfall, groundwater levels, surface run off, pasture land, forests, fuel, fodder, crop production system and so on. This data is to be verified with the available secondary data and supplemented through conventional survey methods. On the basis of such data a strategic plan of watershed development is to be prepared. This is to be followed by the WDT and WC members preparing an annual action plan for implementation. The watershed area has to be divided into 4 to 5 block or mini-watersheds to be planned and implemented on an annual basis which should be approved by the District Nodal Agency.

It is specified that for a unit of 500 hectares there can be a budget provision of Rs.22.5 lakh to Rs.30 lakh of which 22.5% is to be earmarked for management component and the balance of 77.5% for development component. Of this development component, the utilization pattern suggested is: 50% for natural resource development, 20% for improving farm production system and 7.5% for providing livelihood support to landless and marginal farmers.

The suggested technologies for resource development under the program are:

- conservation and upgradation technologies for natural resources development
- production system technologies for enhancement of production productivity of different commodities.

Detailed guidelines are provided in regard to development and treatment of private lands which are fallow, lands which suffer erosion, treatment of drainage lines. Similarly, guidelines for development of land owned by the state governments, revenue department and village panchayats are provided. In respect of forest land resource development the project staff is expected to work in cooperation with the concerned forest officials and the village forest committees. As for water resource development in terms of moisture conservation, water harvesting, exploitation of groundwater and surplus water run off, as far as possible local wisdom and technologies have to be used. The striking suggestions for water conservation and avoiding its over exploitation are: the recharged water have to be used judiciously, equitably, cropping pattern have to be modified in favour of less water requiring crops and during dry years, water is to be used for meeting the drinking water needs of humans and animals only.

The committee listed seven ways of ensuring equity and gender empowerment under the program. These are: equal wage and equal employment opportunities for women during project implementation; preferential allocation of usufruct right of the commons to the resource poor; development of land assigned to the poor and women headed families; location of water harvesting structures nearer

wells and land owned by the resource-poor; equity in sharing of additional water resource developed; convergence of other schemes designed to resource poor and women; and high priority to SHGs through credit and providing support to the livelihoods of the landless.

As the participatory approach to the watershed, development program is designed to empower the community to carry out activities on their own after the exit of state machinery, a withdrawal strategy is to be worked out by the WDT in the beginning itself. The suggested strategy for this purpose is to provide working experience to the village level institutions on post-project maintenance of watershed structures, operational aspects of sustainable utilization of a watershed development fund, facilitating the convergence of other schemes linkage with credit institutions and so on.

Box No.1.3 Revised Guidelines in 2001

Keeping in view the feedback received from field studies, interaction with the NGOs, field functionaries all over the country and 73rd amendment of the Constitution of India empowering the PRIs, these guidelines were revised and issued in August 2001, which had the following salient features (Gol. 2001):

- revision of cost norm from Rs.4000 per hectare to Rs.6000 per hectare;
- a program specific and focused project approach with destinations, road maps and milestones;
- convergence of other programs of the Ministry of Rural Development and other departments into the watershed areas;
- greater role for PRIs especially the *gram panchayats/gram sabhas* and for women;
- effective use of remote sensing data in selection of watershed, formulation of action plans, etc;
- value added two-way feedback from local institutions at district and state level in a new partnership mode;
- a twin-track approach in realising short-term quick returns, along with long-term objectives to secure greater motivation;
- SHGs comprising the poor to be brought into the center-stage;
- establishing credit linkage with financial institutions; and
- an exit protocol for the project implementation agencies.

The revised guidelines, it may be noted, envisaged greater role for PRIs, particularly *gram panchayats* and self-help groups (SHGs)/user groups (UGs) in the implementation of watershed development program. It has been provided that the project implementing agencies (PIAs) should preferably be selected from amongst the PRIs. Further, it has been made mandatory for the secretary of watershed committee to provide all information in respect of action plan, funds earmarked for various activities, details of expenditure incurred, progress of work and future action plan to the *gram panchayats/gram sabhas*. The watershed action plan shall also form part of annual action plan of *gram sabha*.

A need was felt subsequently to further simplify the procedures and to involve the PRIs more meaningfully and actively in planning, implementing and managing rural development projects including the watershed development projects. Therefore, the DOLR formulated what have come to be called “the Hariyali Guidelines 2003” (see Annexure III).

Subsequently, in February 2005, the DOLR constituted a technical committee under the chairmanship of S. Parthasarathy, better known as “From Hariyalli to Neeranchal Committee”, which submitted its report in January 2006. The committee after duly evaluating the entire government-sponsored watershed related programs and the NGO and donor implemented programs suggested a shift in focus “away from a purely engineering and structural focus to a deeper concern with livelihood issues”. Keeping this shift in full view, the committee drew up suggestions for watershed development

Box No.1.4
Hariyali Guidelines in 2003

Under the new umbrella guidelines “Hariyali” some amendments have been carried out giving more powers to *gram sabha/gram panchayats*. These guidelines have been made applicable to the new projects sanctioned from 1.4.2003. The execution of watershed projects is to be carried out by *gram panchayat*. The block level or *zilla panchayat* will act as a project implementing agency (PIA). In case they do not have the expertise to implement the project, a line department of the government or an NGO can be appointed as PIA. Funds will be released in five annual instalments.

The programmes are to be implemented exclusively on watershed basis in project mode, the area of which is 500 hectares. All activities relating to watershed development and management like planning, execution and maintenance of assets created are to be taken-up by the local people through their own organisations specifically created for the purpose. Government agencies provide necessary financial and technical back-up to the watershed communities. The thrust may be on common lands and on livelihood opportunities to landless.

(see Annexure IV). The committee, which sought to move from Hariyali to Neeranchal, has tried to build on the Hariyali guidelines and to address the contentious issue of the Hariyali guidelines viz., the problem of their applicability to differential state situations.

Following the announcement of the Union Finance Minister in his budget speech of 1999-2000 creation of a watershed development fund (WDF) with NABARD to unify multiple watershed development programs into a single national initiative, such a fund was created in NABARD with a contribution of Rs.100 crores each from NABARD and Government of India. The main objective of the fund is to spread the message of participatory Watershed Development. The fund has two components namely, loans amounting to two-thirds going to state governments for watershed development and grants to them for promotional efforts, capacity building and replication of Indo-Germany watershed development model in other states. The revised guidelines put up by NABARD in January 2006 cover funds utilisation and criteria of selection of districts, villages and NGOs. These guidelines were provided specifically for the benefit of the NGOs. The fund is to be utilised mainly for financing watershed projects, and for promotional efforts with communities, NGOs, SHGs, *panchayats*, banks and government departments and for capacity building projects.

On selection of districts, priority is to be given to those among the lowest proportion of irrigated area in the district. As for selection of villages, those with the physical characteristics like dry and drought proneness, noticeable soil erosion, land degradation, water scarcity being in the upper part of the drainage system and those which do not cultivate high water demanding and long duration crops like sugarcane, banana will be given priority. Similarly, villages with the following socio-economic features will get priority: predominantly poor, with high proportion of SC/ST population, with known history of coming together for a cause, villages willing to commit themselves to ban felling of trees, free grazing, reduce cattle population, contribute “*shramdan*” on watershed treatment works, promote equity for women and poor, constitute a VWC and contribute to a watershed maintenance fund.

As for the NGOs, the criteria for their selection to implement the watershed projects are their reputation and financial management capacity, method of operation, rapport with people and local governments, nature of projects handled, technical and managerial capability, sensitivity towards group action/conflict resolution and equity for poor and women, and finally, ability to motivate the community for “*shramdan*”.

Following the decision taken by the plan coordination division, a working group on natural resource management in the context of the formulation of the 11th Five Year Plan with Prof. RB Singh as chairman was constituted in June 2006. The terms of reference of the working group were to: critically review the performance and impact of ongoing programs, suggest measures for decentralisation of the program, suggest how best to integrate and converge various programs, evaluate to what extent the benefits of program are equitable, examine the sustainability of the institutions and mechanisms created as also the issue of user rights over common property resources (CPRs), suggest modalities to enable *gram panchayats* (GP) to access funds, study the feasibility for the involvement of public private partnership in these programs and so on.

The working group which submitted its report recommended that a clear national policy to identify rights on CPR in favour of local communities especially, user groups, ensure equity for resource-poor families and women, social regulation of groundwater resources, revise financial norms of the watershed program and alter the allocation of funds to various components of the program, convergence of National Rural Employment Guarantee (NREG) program funds with that of watershed development program to enable *gram panchayats* to have access to funds, later focus on participatory planning, implementation, monitoring and evaluation, redesigning of community-based organizations to meet the emerging needs, mainstreaming of women SHGs, further decentralisation of governance and execution of works, reforms in delivery mechanisms, enhancement of project duration, strategy for sustainable development of livelihood, new role for NGOs and so on (see Annexure V).

In the above pages, we have highlighted the work of the various committees which provided guidelines for planning and implementation of the watershed development program and projects. We wish to conclude this chapter by making a brief reference to the Eswaran Committee – the Committee on Training for Watershed Development, which submitted its report in November 1997.

The CH Hanumantha Rao Committee strongly felt a need for moving away from the conventional approach of the government department to the bureaucratic planning without involving local communities in the planning and implementation of the watershed development program. It further emphasised a participatory planning and implementation process following which a new approach has been in place with some kind of a partnership between the government machinery and the local communities like people, their organizations and NGOs. It was recognised that the bureaucrats and the local community members have a new role to play in the changed situation and that to enable them to effectively play their new role, the need of training the watershed development functionaries was recognised. As a follow up, the Government of India appointed a committee under the chairmanship of Shri Eswaran with a view, among others, to assess the training requirements for capacity building at grass root level and to recommend modules of training of different functionaries engaged in watershed development. Table 1.1 presents a brief summary of the guidelines laid down by the committee in regard to the groups to be trained, duration of training and training modules.

Table 1.1. Eswaran Committee Guidelines regarding capacity-building among various groups involved in watershed development program.

Sl.No.	Name of the group	Duration of the training	Training modules
1.	Watershed development team	4 weeks	<ol style="list-style-type: none"> 1. Watershed treatment technologies and alternate land uses. 2. Participatory rural appraisal methods and community organisation techniques plus group behaviour and convergence of services. 3. Project management tools and techniques such as activity analysis, PERT, CPM, time management, etc. 4. Administration of various rural development programs, accounting procedures, engineering works, computerisation and so on.
2.	Members of <i>gram panchayat</i>	3 days	<ol style="list-style-type: none"> 1. Need and rationale of watershed 2. Land degradation and soil and water conservation, natural resource management including common property resources 3. Organising the rural communities and conflict resolution 4. Issues of sustainability and equity, and involvement of women 5. Social auditing and social fencing 6. Issues relating to review and monitoring and to the question of convergence of other development programmes.
3.	Village level government functionaries such as <i>patwari, gram sevak, secretary to gram panchayat, anganwadi worker, school teacher, forest guard, etc.</i>	One day workshop at the block headquarters for sensitising these personnel	<p>The workshop issues could be:</p> <ol style="list-style-type: none"> 1. sensitisation to enlist their support and involvement in watershed development; 2. concept and importance of watershed development programmes; 3. support for community organization, formation of group and village level institutions.
4.	User groups such as farmers, agricultural laborers and the landless	Two hours for training-cum-interaction at a time when the day-to-day farm activities are over	The subjects of discussion could be aspects of land degradation, watershed development concept and its need, interdependence of land use with natural resource generation, soil and water conservation measures, management of CPR, land use planning, animal husbandry and social fencing, community organisation and sharing of benefits, copying pattern, horticulture and farm forestry as sources of livelihood system.
5.	Self help groups	Four hours discussion	Discussion sessions on thrift and saving, skill upgradation, marketing and linkages and dependence and sustenance on watershed development for fuel and fodder, and for agricultural raw material for agro-based activities.
6.	Women	For a few hours once in every fortnight	Subjects for discussion: concept of watershed development and how it helps in increased availability of fuel, fodder and drinking water; animal husbandry and use of animal waste for developing sources of energy; skill upgradation and income generation activities; convergence of other women development programs; and community organisation including development of women groups.
7.	Members of watershed association (WA)	Training for a few hours but to be repeated under the general supervision of the members of the PIA and WDT	The topics to be discussed are: concept of watershed development organisation, need for regeneration of natural resources and community organisations including village institutions, management of the commons including social fencing, need for contribution to WDF and for paying for the usufructs, various types of infrastructure for soil and water conservation, maintaining moisture balance, specific cropping pattern and need for providing for resource poor and the disadvantaged sections of the society.

Continued

Continued.

Sl.No.	Name of the group	Duration of the training	Training modules
8.	Members of the watershed committee	Training for two days at a time	All the modules listed for training of the members of WA plus on issues relating to administration, finance and accounts.
9.	Watershed secretary	Professional training for two weeks-one week for accounts and administration and the other week for technical aspects of watershed and natural resource development	The training to cover topics relating to administration, finance and accounts, maintenance of records and proceedings of WA and WC and all other aspects of training of members of WDT as shown in what follows under Sl.No.11 below.
10.	Project implementing agency (PIA) which could be a voluntary agency, a university, a co-operative society, <i>panchayati raj</i> institution, private and public commercial organisations or even a government department	One week duration training	The subjects to be covered in the training programme are: concept of watershed development, need for natural resource management and community organisations such as user groups, self-help groups, development of village level institutions including coordination with PRIs, development of watershed development plan, PRA exercise, management of common pool resources, sustainability and equity issues, involvement of women, monitoring of the project progress, finance and accounts and so on.
11.	Watershed development team (WDT)	Three weeks program	In addition to the modules prepared by MANAGE, the subjects to be covered are: sustainability issues, programmes for self-help groups, management of commons and sharing of usufructs, equity issues, role of PRIs and remote sensing and other scientific inputs for watershed planning.
12.	Block and district level functionaries such as officers of the Department of Agriculture, soil conservation, ground water, forest and animal husbandry, public health engineering, <i>panchayati raj</i> on the one hand and the members of <i>taluk panchayats</i> and district <i>panchayats</i>	A three-day training programme for officers and a one-week program for the <i>taluk</i> and <i>zilla panchayat</i> members	The topics for training could be: concept and components of watershed, integrated approach and inter-departmental coordination, new guidelines of watershed development, community organisation and building village level institutions, sustainability and equity issues, development and management of commons, involvement of women and role of PRIs.
13.	State level functionaries such as secretaries and heads of concerned line departments	A two-day workshop to be organised every year	All the modules indicated for the block and district level officers.

2. Guidelines for Identification, Planning and Implementation

The widened scope of policy focusing on water and soil conservation made planning and implementation of watershed development projects more complex and beyond the capacities of the bureaucrats. As already stated earlier, this called for guidance to them to be able to plan and implement the projects effectively and professionally. The Government of India had indeed evolved and suggested some guidelines for the benefit of the bureaucracy involved in planning and implementing the watershed development programs. It is proposed here to critically examine the relevance of these guidelines.

2.1 Watershed Development Policy

Improving agriculture productivity being the focus of agriculture development the government had formulated appropriate policies and strategies to achieve this objective. Initially the focus of the agriculture policy was on the provisioning of yield-increasing inputs like irrigation, improved seeds and fertilisers. But when it was realised that the scope for increasing yields through this means, especially by using river water was limited, the state policy shifted its focus to soil and water conservation. For, it was realised that though India had vast area, much of the land available was degraded and by reason of which it was not suitable for intensive cultivation. Also, the land under cultivation was affected by soil erosion. Therefore, with a view to checking soil erosion and conserving soil and water, the governments at the center and the state level launched soil and water conservation programs. After taking leads from the experience with the soil and water conservation, the government shifted its policy focus from mere conservation to that of integrated land management with focus on conservation and management of land and water resources. The aim now was retention of water, soil, moisture, bio-mass production and enhancing incomes of the farmers and expanding their livelihood options. This amounted to a policy shift from soil and water conservation to watershed development, which emphasises on supporting livelihood system of the people residing in the degraded land zones. Since the emphasis now on supporting the livelihood system of the people it called for a shift from line department's top-down planning approach to participatory approach for watershed development (Fig. 1). Also a shift from engineering focus to livelihood development attracted players other than the state such as NGOs and people's movements and more recently private entrepreneurs in launching planning and implementing the watershed development programs. (Wani et al. 2005 and 2006).

2.2 Analytical Framework

For a meaningful analysis of the relevance and appropriateness of the guidelines evolved by the government, NGOs and donor agencies, a framework of analysis may be needed. Such a framework should suggest the areas of watershed in regard to which guidelines should be attempted. The aspects of the watershed development that call for a careful planning in advance, as suggested in the available literature (e.g., Farrington et al. 1999), are the following:

- identification and selection of watersheds and villages;
- identification and mobilisation of the stakeholders;
- resolution of outstanding disputes over land and other assets, if any;
- ensuring participatory planning and implementation;
- working out common pool resource management and protection;
- building-up a watershed fund;
- planning for regeneration of vegetation and rehabilitation of the poor particularly, the landless who are not benefited by the project;
- following through and exit strategies of the government, NGOs and donor agencies and leaving the project to be managed by the stakeholders;
- finally, creation of institutions for planning, implementing and managing the project.

2.3 Review of Government of India Guidelines

In this section, we review the guidelines evolved by the Government of India from time to time and to evaluate them in the light of the changing requirements of the project and the inputs provided by the academic studies. The basic information on which this exercise is carried out is presented

in Annexures I to V. The write-up follows the sequence of broad headings listed out under the analytical framework presented in the above paragraphs.

At the outset, it should be admitted that when the watershed development program was initiated on a big scale by the State, there were guidelines laid down that were also followed by the NGOs whenever they took up some programs in a small way. There was, therefore, a base available for the State to build on it when it went on to issue guidelines for the benefit of its bureaucracy. It would not be wrong to say that such a base was taken advantage of by the Hanumantha Rao Committee whose recommendations became a basis of the 1995 government guidelines. A second point to be noted is that the guidelines evolved after 1995 were meant to be those that were improvements over/revisions of the ones laid down in the immediate past taking into account the requirements of the changing times and the inputs from academic and practising experts on the subject. In effect, this would amount to dropping those guidelines which are no longer relevant, retaining those which continue to be relevant and adding the ones that arise from the changing situation. In this sense, there should be a link between the past and the present and from the present to the future. Also, the term “changing situation/condition” here has reference to the shift in emphasis towards 1) efficiency arising from the globalisation concerns on the one hand and towards; 2) equity arising from the market failure causing the government to take care of the welfare concerns of the weaker sections and the resource-poor; and 3) future challenges of climate change due to global warming. Therefore, a review of the government guidelines ought to be done from these angles and situate them in that perspective. In the following pages we are presenting our comments on the government guidelines keeping the above perspective and to build resilience to challenges such as global warming and climate change, etc.

2.3.1 Objectives of the Program

The objectives of the watershed development program were for the first time clearly spelt out by the revised guidelines of 2001. Strangely, there was no reference to these objectives in the MoRD guidelines of 1995. Developing the waste/degraded lands, promoting overall development, restoring ecological balance, improving the socio-economic conditions of the resource poor and encouraging village community for sustained community action are the objectives mentioned by the 2001 guidelines. Hariyali guidelines added to this list include harvesting of rainwater for irrigation and drinking water purpose, creating regular source of income for *panchayats*, employment generation and poverty alleviation, and promoting use of simple and affordable technological solutions and institutional arrangements. Subsequently issued guidelines somehow did not state what the objectives of the programs were.

2.3.2 Selection of Watershed Area and Villages

The MoRD guidelines of 1995 did insist on a mandatory assurance of contribution as a pre-condition for selection of the watershed area and villages. However, it is the revised 2001 guidelines which provided detailed criteria for selection of watershed area and villages. It is stated that watershed may have an area of 500 ha, that such area must have acute shortage of drinking water, have a large proportion of SC and ST population, preponderance of degraded land and common lands, and that the area where actual wages are lower and where people’s participation is assured through contribution in cash and/or kind. These criteria were reiterated by the Hariyali guidelines. Both the revised and the Hariyali guidelines talked about selection of villages that are contiguous to or encompassed by

the project. Research studies have highlighted the need to use remote sensing data for prioritizing and selection of watersheds, larger size watersheds. For e.g., Milli watershed approach adopted by Rajiv Gandhi Watershed Mission, low agricultural productivity, demand driven approach and low GDP areas for achieving higher impacts (Joshi et al. 2005). The Neeranchal study while reiterating all the above selection criteria added low gross irrigated area, high incidence of poverty, positive history of women and community actions and the proposed watershed to be contiguous to another watershed. The Neeranchal made two innovative suggestions: one, with a view to filling the gaps created by the untreated watersheds in the district, a milli or micro watershed in the district is to be identified and taken-up for implementation, and; secondly, to facilitate real participation by women, a separate women's watershed council (WWC) is to be formed in each village. The WDT is charged with the responsibility of mobilising women who can actively participate in the meetings of the WWC.

Meta analysis of 311 watershed case studies in India (Joshi et al. 2005) and drivers of success in watershed programs (Sreedevi et al. 2004) and development of new consortium approach for integrated watershed management (Wani et al. 2002, 2003a; D'Silva et al. 2004; Dixit et al. 2005; and Sreedevi et al. 2006) along with detailed studies by ICRISAT on socio-economic and policy research in watershed management in India (Joshi et al. 2004), institutional learnings (Shambhu Prasad et al. 2006) and meta analysis of 636 watershed case studies undertaken for the current Comprehensive Assessment of Watershed Programs in India (Joshi et al. 2008) along with other CA studies (Wani et al. 2008 a, b and Sreedevi et al. 2008) have provided good insights about watershed areas and village selection for enhancing the impacts of watershed program, which are:

- larger size watersheds (>1250 ha) showed more impact than smaller size watersheds (<500ha) as the water flows are connected. Milli watershed approach for implementing smaller watersheds proved more efficient. In a milli watershed, we should have a cluster approach to develop and implement the watersheds;
- selection of watersheds should be based on demand from the community along with technical information available at national level (remote sensing) for prioritising the watershed development rather than supply driven. Greater proportion of rain-fed area, water scarcity (drinking and for supplemental irrigation), low crop yields, poverty factors need to be considered while selecting the watersheds;
- simultaneous development of land, water and biomass (because of the symbiotic and farming systems approach in the watersheds rather than compartmental approach of soil and water conservation);
- appropriate technologies for different rainfall zones are needed as it is evident that current technologies are suitable for 700-1100 mm rainfall zone. There is a need to develop suitable technologies for watershed development in <700 and >1100 mm rainfall zone;
- improving land productivity through convergence of improved cultivars, cropping systems, fertility management, pest and disease management along with technologies for efficient use of water i.e. integrated genetic and natural resource management (IGNRM) approach is essential;
- technological backstopping through a consortium of research institutions for the development agencies is needed. In the watershed development program, provisions for technical support by research institutions is needed;
- convergence of different actors (NGOs, government line departments, research institutions, private entrepreneurs and CBOs) in the watersheds is needed for enhancing the impacts of the programs;

- policies for sustainable use of water resources is urgently needed for sustaining the development in the watersheds as over exploitation of water resources can trigger the process of degradation;
- ensuring environmental sustainability along with economic viability (through the promotion of low-cost, environment-friendly technologies) for soil and water conservation, nutrient, pest management and crop production technologies;
- creation of non-farm employment (either to release population pressures on land, or to create employment for the landless households) through income-generating activities for better collective action by the community;
- development of community-based organizations (CBOs) and empowerment of stakeholders for enhanced impact and sustainability of watershed programs. Community participation is very critical for enhancing impact and sustainability of watershed programs;
- no free rides and cost sharing by the individuals and community is pre requisite for sustainability. Ensuring tangible economic benefits to large number of small and marginal farmers through knowledge sharing and empowerment of the stakeholders rather than depending on contractual mode of participation through subsidy-based interventions;
- cost sharing has to be 'real'. More *shramdhan* or contribution of voluntary labor does not necessarily create a feeling of ownership of the assets created for land and water development. Cash contribution and private investment with or without credit ensures commitment to the institution as well as to the project as a whole;
- capacity building and empowerment is the key for the success of the watershed programs through sustainable institutions. It is more than creating awareness, technical training and exposure visits. It should lead to empowerment of the community and all the stakeholders up to policy makers for informed decision-making. Capacity building has to be approached as a human resource development strategy for sustainable management of the natural resource base and for addressing poverty and livelihood security;
- strong, dedicated and committed leadership helps to bind groups and give direction to the fulfillment of goals and objectives. There is need to develop social capital in order to have sustainable institutions and watershed program;
- an assured flow of funds to the project maintains a high level of motivation. If project activities cannot be completed, or project implementation is delayed, then people's commitment to the project cannot be sustained. Lack of motivation and commitment weakens the local institutions;
- the watershed activities must be backed-up by assured prices and appropriate market arrangements for the resulting goods and services produced. Forward and backward market linkages are critical for the success of watershed interventions;
- involvement of women in the watershed program is critical and can be assured through targeted income-generating activities for the SHGs included in watershed development plans;
- a shared perception of benefits by all group members is needed. The benefits may not be equal, but equitable, as every member perceives some benefit for himself/herself. The benefits for the landless and women need to be ensured through inclusion of development of common property resources; and
- transparency and concurrent monitoring and evaluation by the stakeholders is needed to do the mid-course corrections.

2.3.3 Community Mobilization

The 1995 guidelines explicitly refer to the need for community mobilization by constituting SHGs and UGs with help from the WDT. Besides, these guidelines insist on the members of these groups to get trained on technical and organizational aspects of running SHGs and UGs. The community organization procedure, it is stated, should consist of conducting awareness creation camp on social and economic issues, and identifying community leaders, opinion makers and village youth who can be involved in organising SHGs and UGs, and more importantly identifying and organising the stakeholders. Initiating mutual confidence building activities such as exposure visits to successful project sites where they could see for themselves the impact of cooperative actions like social fencing, equitable water sharing and use of innovative technologies was another suggestion made. By insisting on community contribution and community participation in planning and implementation of the project, the guidelines issued subsequently indirectly talk about community mobilisation. However, their thrust is not as extensive as under the 1995 guidelines.

Rajasekhar et al. (2003) showed that inspite of a strong presence of community organizations like SHGs, the process of planning has tended to bypass these institutions. It is observed that NGO staffs have tended to play a more dominant role, particularly in selecting beneficiaries, and ascertaining whether the latter were willing to join the group and to contribute towards watershed activities.

2.3.4 Resolution of Disputes

The guidelines did not seem to have recognised the possibility of disputes arising during or after the project implementation over land and other assets. As such no important guidelines were provided for dispute resolution except suggesting that the *gram sabha* should resolve differences if any, among different SHGs/UGs or among members of these groups (Hariyali). However, where watersheds encompass forest land, the 2001 and Hariyali guidelines suggested that in order to avoid inter-departmental disputes the proposed watershed program should get the technical sanction from the concerned DFO, should co-opt a forest official as a member of the WDT and the project plan to conform to the Forest Conservation Act. Neeranchal appears to have overlooked the need for dispute resolution among the stakeholders. The working group on natural resource management however made an important suggestion on how to prevent conflicts among the stakeholders. In this regard, it held that if appropriate legal provisions were made on such aspects as formal allocation of user rights over CPRs, de-encroachment of common land, social regulation against over exploitation of CPRs, much of the dispute potential could be avoided (targeted intervention for drinking water issues will bring suitable preconditions for selection of watersheds).

2.3.5 Participatory Planning and Implementation

Under the 1995 guidelines the WC, based on the action plans prepared by the UGs, was expected to prepare an integrated watershed development plan in consultation with the WDT and submit the same to the WA. The plan would be transmitted to the ZP after due scrutiny for sanction and release of funds. But there was nothing here suggesting on what lines the plan should be prepared. It is the 2001 revised guidelines which suggested that the participatory rural appraisal (PRA) should be carried out before a plan for watershed development project is prepared. The main items of the plan were listed by these guidelines and a suggestion was made to the effect that the action plan for implementation should clearly specify the preset deliverable output, elaborate roadmap and exit protocol. However, with a view to making the plan actually more participatory, it is the Hariyali which made the following suggestions. It insisted that the plan should be prepared

in *gram sabha* meetings on the basis of the benchmark survey of the watershed areas using PRA exercises. Following this, *gram panchayat* (GP) should prepare the action plan. It may be noted here that the Hariyali gave a bigger role to PRIs in the planning and implementation of the watershed development program. It is also the Hariyali which insisted on transparency in planning and implementation of the projects. It stated that transparency could be ensured by preparing the plans by GPs in consultation with SHGs/UGs, approval of the plan in the open meetings of Gram Sabhas, display of the approved action plan on notice boards, review of progress of the project through periodical meetings. The Neeranchal with its focus on women's participation wanted a role for women in the preparation of the action plan. Neeranchal also emphasised the need for transparency in plan preparation and implementation (JFM talk about the constituent members of this '*gram sabha*' where men and women of a family are entitled for a membership).

An important dimension of the planning process that became the subject of the guidelines is the need to link watershed development program with the other local development programs. Thus, the revised guidelines of 2001, Hariyali and Neeranchal study, recognising the fact that since watershed development programs aim at a holistic development of natural resources and people, suggested that there should be a convergence of all the programs of MORD such as JGSY, SGSY, rural drinking water, etc. and the programs of other ministries like health, education and agriculture.

However, regarding the planning process, Shah and Memom (1999) found that the planning process was ad hoc and not participatory. This according to them is due to the fact that since the PIAs were under pressure to submit their proposal within the time limit laid down to take-up the project work, they had very little time to go through the consultation process. Also they found that the plan process was largely influenced by the ideology of PIAs.

The available studies also clearly reflect on problems in the implementation process arising from the following reasons: (1) the project team consisting of personnel drawn from the line departments are given to interacting with their own superiors and as such are not comfortable to do so with the people; (2) since targets are fixed they have no time to go through the participatory process; (3) participatory approach which gives power to local communities reduces rent seeking behaviour of the bureaucracy. Hence, no incentive mechanism is built into the system such that these personnel could be motivated to be efficient.

Rajashekar et al. (2003) in this connection also argued that deputation of personnel from line departments like agriculture and horticulture departments have affected these departments because of increase in administrative staff to technical staff ratio in those departments. They also bring out the point that watershed committee members extensively complained that the line department staff hardly visited the villages and interacted with them. Kerr et al. (2000) also made similar observations during their interaction with line department staff and it appears to be more with the contractors than with the farmers!

2.3.6 Capacity Building

Capacity building among the stakeholders and those involved in planning watershed development program need not be over emphasised. Recognising such a need as far back as the nineties, the Hanumantha Rao Committee had suggested that the functionaries involved in this program and others must get training in planning and implementation processes. It was the Eswaran Committee which devoted a large space in its report to spell out in detail who needs to be trained and what modules to be developed for the purpose and so on.

A quick look at Table 1.1 of the previous chapter which summarises the Eswaran Committee recommendations will show that the groups to be trained are members of watershed development team, gram panchayats, user groups, village level government functionaries, self-help groups, women, watershed association, watershed committee, project implementing agency, block and district level functionaries and state level functionaries.

The committee has evolved and recommended an assortment of training modules for each of these groups separately. These modules by and large emphasise on teaching the need for regeneration of natural resources and their effective utilisation, the role and rationale of the watershed development program, the organizational aspects of the program, its planning and implementation methodology and mechanisms, the functions and composition of various committees and groups if people involved in this process, the need as also the manner of people's participation in the program, the questions of equity and sustainability, people's contribution towards implementing the project and a host of other themes related to planning and implementation of the program.

2.3.7 Project Benefit Target

The 1995 guidelines had missed out on the issue of targeting benefits to different sections of the community. The revised guidelines made no effort at discussing this issue except to end-up by saying that it is the responsibility of the PIA to look into the question of targeting benefits. It also stated that not only short-term benefits which enthuse people but also long-term benefits which motivate people to make the program a movement that should be aimed at by PIA. Barring some such statements the government guidelines appear to have drawn a blank on how to target benefits to the interest groups under the program, particularly to the weaker sections and the resource poor.

Deshpande et al. (2002) argued that since one-third of the land based activities were undertaken in the lands of SCs of their study area, the equity goal of the program was achieved. However, Rajashekar et al. (2003) say that the design of the program in terms of treatment components, which is biased towards irrigation in terms of quantum of funds allocated, the beneficiary selection would tend to benefit the well-endowed farmers who already have irrigation facility. Wani et al. (2002a, 2005) observed that as watershed interventions augmented and increased groundwater recharge, well-endowed farmers who could draw groundwater benefited and large number (80-85%) of small and marginal farmers did not get any benefits from the program. As a result, small and marginal farmers who had time to participate did not participate and large farmers who benefited had no time and interest to participate. The same view was held earlier by Shah and Memom (1999) and Kerr et al. (2000). However, the latter found that the NGO implemented projects were more successful in rejuvenating the commons and that these projects tended to be more equity oriented because of the strength the NGOs possessed in social organization in contrast to the government staff whose skills in social organization were not good enough to tackle the complexities of rejuvenating the commons. Appropriate guidelines need to be developed on this point.

The available literature obviously presents a mixed bag of what has happened to the equity question. However, wherever NGOs have involved themselves, because of their organizational abilities, equity could be ensured. However, guidelines to invest on productivity enhancement measure on small and marginal farmers are needed.

2.3.8 Project Duration and Funds of the Program

The project duration specified varies from one set of guidelines to the other. Thus, the duration conceived under 1995 guidelines is four years; the Neeranchal study talks about an eight-year duration with three phases. There is, however, no reference to the duration of projects by the other guidelines.

All the guidelines talk about building a project fund into which government grant and stakeholder contributions are to be remitted. People's contribution suggested by the guidelines varies from 5 per cent to 10 per cent of the cost of the project. All of them talk about a stringent procedure in regard to release of installments. The release of installment is subject to spending a certain portion of previous installment received or subject to submission of the progress report or report of an independent evaluation study.

The cost norms of the project are fixed by the guidelines. The various items of expenditure allowed are watershed development activities which account for nearly 80 per cent of the total, community organization, training and administrative overheads. The extent of expenditure permitted varies from one set of guidelines to the other. Apart from the government grants made available for financing the project, the guidelines urge the WA, SHG and UGs to explore possibilities of availing bank credit for their activities.

Particularly, regarding fund disbursement for the watershed development program, studies show that often it is affected by problems like delays in sanction of funds, and also in the release and use of the funds (Rajasekhar et al. 2003; Shah and Memom 1999). This, in turn, could lead to delays in the processes in the implementation of the project, like in identification of community needs, mobilizing people's contribution and the process of planning and implementation.

2.3.9 Exit Protocol

The guidelines insist that an exit protocol is to be evolved for the management and maintenance of the assets created by the project implementation authority. However, clear guidelines are not spelt-out, which means that modalities of managing and maintaining the assets are left to the concerned institutions.

Once the project is completed, its sustainability will depend on how readily the stakeholders take over and manage the assets. In this connection, one problem is that constructing rainwater-harvesting structures in the catchment areas of tanks would lead to some tradeoffs arising from reduced inflow of water into irrigation tanks such as: (1) irrigation benefits of the project came at the cost of tank irrigation use such as bathing, washing and meeting drinking water needs of the livestock; (2) tanks which served as perennial sources of recharge for wells in the command area and drinking water wells in the villages were found to have dried-up; (3) also there was the problem arising from the conversion of surface flows into sub-surface flows that facilitate groundwater recharge had triggered pumping race by the farmers. This had affected groundwater availability. Once these adverse developments take place people may lose faith in the watershed development program. There is a need to undertake coordinated planning of water resources in the watersheds.

2.4 Review of NGO-Donor Agency Guidelines

The government guidelines, though more comprehensive and productivity-oriented, had one problem i.e., they were not adequately equity oriented in the sense that the outcomes of the watershed development were not fully poor-friendly and weaker section-oriented, at least in the initial stages.

Some studies had highlighted this drawback in the guidelines provided by the government. One writer (Mascarenhas 1998) had summarised this point when he presented a table showing how there were several biases against the poor in the watershed development programs despite the state providing guidelines. These biases were classified by him as follows.

- **Investment biases:** Disproportionately more was spent on private lands usually located in the more productive lower lands in the watershed and usually owned by the relatively rich.
- **Technological biases:** (a) Over-emphasis on water harvesting structures likely to be useful to better-off farmers in lower slopes; (b) under-emphasis on soil and moisture conserving measures in the upper reaches; and (c) disregard of indigenous approaches to soil and water conservation.
- **Capital formation biases:** Opportunities for savings and credit, creation of assets, infrastructure, human capital like leadership skills and social capital were biased towards wealthier areas and individuals to the utter neglect of the needs of the weaker sections.

It is in the backdrop of these biases one may understand how and why the guidelines formulated by the NGOs and donor agencies largely addressed this issue. As a matter of fact, the guidelines formulated by them were largely guided by the equity consideration. And one may even go a step further and say that the revised guidelines formulated by the government in the initial years of the present century have taken lessons from the NGO-donor agency approaches as will be illustrated in the pages that follow. We may in the following paragraphs present the approaches of these organizations in support of the points made above keeping in view the broad framework of analysis stated in the previous pages².

2.4.1 Selection of Watershed Area and Villages

In the selection of the watershed zone, the NGO-donor agency combine appears to have considered the criteria that:

- the watershed/village be located in the dry and drought-prone area with and not more than 20 per cent of the cultivated area under irrigation and the rest of the cultivated area should be rain-fed, located in the upper part of drainage systems with a project area of 500 to 1000 ha with an average rainfall of 1000 mm per annum. The dominant cropping systems generally should not include high water demanding and long duration crops such as sugarcane or banana;
- watershed location should be that the village boundaries coincide with the greatest extent possible with the watershed boundary;
- the criteria used for selecting the watershed village are derived from the premise that the program should be essentially a community organization process of facilitating, organising and empowering the whole village. As such the Indo-German Watershed Development Program's (IGWDP 1996) village selection procedure emphasised that the project agency should not get involved unless requested by the village population and that the latter should be willing to participate in the planning, implementing and managing the project. As part of a pre-condition to choosing the watershed village it is insisted that there should have been a history of coming together for a common cause, demonstrated concern for resource conservation such that the villagers will ban felling trees, ban free grazing, reduce livestock population, come forward with a plan of "social fencing" to protect vegetation, ban cultivation of water-intensive crops, contribute *shramdhan* or cash of the order of 10 per cent of the project cost from all except the landless and the poor, contribute towards building a maintenance fund and constitute a village watershed committee to maintain the assets created by the program. The other criteria for the village selection are that it should have predominantly poor households, and presence of a high proportion of SC and ST population; and

² Drawn heavily from Farrington et al. (1999) and to some extent from Reddy, M (1999).

- just before entry, the NGOs normally examine if in the village concerned there are any groups which are undertaking economic activities like artisans, production, marketing or savings-cum-credit, women and child health so that they can help these groups to expand the activities beyond and to get into motivating them for a participatory watershed development activity.

2.4.2 Community Mobilization

As for the mobilization of community, NGOs insist and place emphasis on mobilizing people on group and community action and as part of getting good results, give priority to developing leadership skills among rural people, skills of conflict resolution and to plan for joint action to address local developmental issues. It is intended in all this to prepare the village people to resolve any disputes, if any over land and other assets that may arise in the course of implementation and management of the watershed development project.

2.4.3 Participatory Planning and Implementation

Once the ground is prepared, the NGOs then are expected to get into consultations with the interest groups on issues such as: what rights exist for access to natural resources; what responsibilities are there for maintaining them; how livelihoods of the people would be affected by the program and what safeguards need to be taken to overcome the possible adverse impact of the program. The inputs obtained from the interest groups should be supplemented by a report of the current status and future production potential—both of which should become the base for planning and implementing the watershed development program through participatory mechanism.

A case of participatory planning by a donor agency driven projects may be presented as an illustration. Since the DANIDA projects derive their logic from the Danish Development Assistance policy document of 1990, they as a matter of routine follow the participatory approaches in watershed development too by involving the stakeholders, especially the weaker sections such as the landless, marginal farmers, artisans and women.

The DANIDA projects are said to be following what is called “the bio-mass based” watershed development principles, so that the livelihood systems of the weaker sections viz., biomass processing, cottage industries, rearing of small ruminants and backyard poultry, bee-keeping, kitchen gardens, are enhanced and the rural poor also participate (Seth and Damgaard 1998). In the watershed development program the approach followed by DANIDA projects to ensure that the interests of the poor are not affected is: financial assistance is given in a phased manner so that the powerful persons in the village do not see that large amounts of money are available for expropriation; secondly, the executive committee members normally are changed once in a year or two so that the committee is not controlled by the same persons all the time.

An interesting feature of the DANIDA projects is, different variants of participatory approaches are followed depending on the local conditions like rural power structure, literacy levels, social composition of the population, etc. The Karnataka Watershed Development Project launched in 1990 had in the initial stage provided for a watershed operation group consisting of WDC members, elected members of *panchayats* and selected heads of line departments. With the gaining of experience, in the next phase, broad based representative organizations were constituted. Thus, instead of the entire village population electing the WDC members, self help groups, user groups, common interest groups which are gender, occupation, caste and landholding based groups are first constituted from each of which a member is drawn to be in the village development committee (VDC). The

members of VDC elected the executive committee, elaborate training was imparted to project staff, SHGs and WDC in participatory planning and implementation. Instead of straight away plunging into project implementation, the first year was devoted to create awareness, learning, building trust and confidence, organising SHGs and VDCs, participatory rural appraisals and preparing plans.

The Watershed Development Project launched in the early 90s in Tirunelveli and Ramanathapuram of Tamil Nadu had the basic objective of rehabilitating the degraded land, land prone to wind and water erosion. The strategy adopted initially was to involve NGOs and government field functionaries to bring about attitudinal changes among the stakeholders by interacting with rural households. This was followed by discussions between government, NGO staff and beneficiaries, rapport and confidence building, formation of associations and election of office bearers and training of their members, socio-economic surveys, participatory watershed plan formulation, fixing implementation responsibilities and time schedule and budget, a savings-linked financial assistance.

The Comprehensive Watershed Development Project of Koraput in Orissa launched in 1992 too aimed at rehabilitating the undulated and eroded land. The main features of participatory program are:

as a large proportion of population is tribal, the village committees are headed by the traditional village headman with representatives of the landless, women's group and small and marginal farmers. Two youth facilitators—one male and one female—are selected to facilitate participatory development. There are also be one male and one female field organisers from the local NGO;

four representatives of the village committees drawn from each village constitute the watershed development committee, which is headed by the elected *panchayat* president. Intensive training is provided to these members as also the youth facilitator and the project staff. The project staff carries out technical survey and NGOs carry out socio-economic survey, involving the youth facilitators and members of the village committees and WDC. The village plans prepared on the basis of these surveys are combined to develop a watershed development plan. At the implementation stage contractors are not allowed. The village committee members ensure that laborers from the same village are employed and paid full wages. Savings-linked financial assistance is provided to the SHGs – the amount provided is linked to their performance.

Before the rehabilitation of the degraded land commences, the NGOs emphasize on the need for the village groups coming to agreement on how to manage the resources. Such agreements relate to:

- social fencing of pastures and forest areas;
- preventing access till the resource is rehabilitated;
- banning open grazing, sinking of deep tube wells, cultivation of water intensive crops (which are meant to prevent the better off farmers from benefiting more than their due share); and
- who should benefit from additional availability of water and in what form this resource is to be exploited.

The guidelines evolved by NGOs with respect to implementation of the program are largely poor-friendly and benefit targeting is more to the poor than to the non-poor. This is evident from the following implementation guidelines:

- NGOs normally follow what is called the “ridge-to-valley” rehabilitation because of their perception that poor rely more heavily on resources in the upper than the lower slopes.

- NGO led rehabilitation emphasises on regeneration of indigenous vegetation, use of traditional methods of construction of check-dams, employment of local labor, project work content to be suited to the most disadvantaged, equal wage for men and women, and creation of additional income earning opportunities for the poor in the form of, say developing and managing nurseries for tree seedlings.

2.4.4 Watershed Fund

Creation of watershed fund is in the agenda of the NGOs. For, they perceive that success of the program lies not only in implementing rehabilitation of the degraded land but also in implementation of maintenance activities. The methods favoured by them are:

- villagers make contribution, which ensures a stake in project maintenance;
- calculate the monetary equivalent of the villagers' *shramdhan* and this amount to be deposited in the fund by the project authorities for maintenance—a method followed under the IGWDP.

2.4.5 Exit Protocol

On the question of exit strategy, the guideline followed is that the NGOs hold the fort so long as the poor required support. Experience has it that land encroachments by the betteroff are common in the rehabilitated lands and that this will disempower the poor by decreasing the availability of the common resource. Hence, the criteria followed for the NGO exit strategy are that the rural poor assert themselves against the vested interests, are strong enough to deal with land disputes problem and can throw up from among their leaders who could work as a local political force.

3. Institutional Structures for Watershed Development

The brief history of watershed development programs in India, as outlined in Chapter 1, indicates that –

- (i) Early history of watersheds were characterized by suspicion of customary use patterns, emphasis on 'scientific' solutions, non-failure to link degradation to institutional arrangements and exclusion of people in the management process. In this scenario, the objective to increase productivity and equity issues was not linked to the management of the watershed resources, and community participation was restricted to mere labor contributions.
- (ii) In contrast to the line-department approach of the government watershed programs, there emerged a number of participative, people's movements that brought innovative measures to conserving soil and water, such as the Pani Panchayats at Naigaon and Anna Hazare's efforts at Ralegaon-Siddhi. The success of these programs, together with pressures from donors, led to a major revision of the government's orientation in the 1990s.

Since the nineties the country has, thus, witnessed the formulation of watershed development guidelines by the various technical committees for evolving institutional structures for the purpose. In this chapter, we review the different watershed development guidelines to assess how the guidelines have addressed the issue of appropriate institutional mechanisms for watershed programs in the country. Focussing on institutions at the operational level, the first section brings out the shifts in policy regarding appropriate institutional arrangements for watershed development and management in India; the second, briefly reviews the different Government of India guidelines evolved from time to time to examine how these guidelines have set out the institutional strategy for watershed development in the country; the third, succinctly evaluates the changing institutional provisions in the

light of inputs from existing studies on institutions and watershed development in India; the fourth and final section draws on an empirical study to throw light on the functions that local institutional structures actually carry out within the framework of participatory watershed program.

3.1 Mapping Shifts in Policy Outlining Institutions for Watershed Programs

At the macro-level, watershed development in the country is a state-driven strategy with the Ministry of Agriculture (MoA), the Ministry of Rural Development (MoRD) and the Ministry of Environment and Forests (MoEF), along with their respective line departments, as the three main government ministries in charge of watershed protection and development. Each ministry focuses on different aspects and activities within the criteria of ministries for developing watersheds. The MoA deals with issues like: erosion prone agricultural lands, optimising production in rain-fed areas and reclaiming degraded lands. The Department of Agriculture and Cooperation (DAC) and the Department of Agricultural Research and Education (DARE) of MoA are involved in all aspects of watershed development, and are supported by two autonomous bodies: the Indian Council for Agricultural Research (ICAR), and National Institute for Agricultural Extension and Management (MANAGE). The MoA implements several schemes/programs including the National WSD Project for Rain-fed Areas (NWDPR), Soil and Water Conservation in the Catchments of River Valley Projects (RVP) and Flood Prone Rivers (FRP), Reclamation of Alkali Soils, WSD Project in Shifting Cultivation Areas (WDPSCA) and various Externally Aided Projects (EAPs).

The MoRD, on its part, deals with non-forest wastelands and poverty alleviation programs with important components of soil and water conservation. The key department in MoRD dealing with watershed program is the Department of Land Resources. There are two other departments, the Department of Drinking Water Supply and Department of Rural Development, that are also involved in watershed development activities. Two organizations support the MoRD: the National Institute of Rural Development (NIRD) and the Council for Advancement of People's Action and Rural Technology (CAPART). The former provides advice on policy matters about watersheds, through the Centre for Natural Resources Management (CRES), whilst CAPART deals with the voluntary sector. CAPART also has a division that sanctions watershed projects to the non-government sector.

The MoEF is another ministry dealing with forest and wasteland issues. Since 1989, the ministry has been implementing the Integrated Afforestation and Eco-development Projects Scheme (IAEPS) with the intention of promoting afforestation and the development of degraded forests within an integrated watershed approach. Between the MoEF and MoRD, the former is expected to take control of forested areas, whereas the MoRD has to keep control of any of the schemes such as DPAP, DDP and IWDP.

While watersheds constitute an integration of physical areas, the villages form the social and administrative units at the operating level that could exist within or across the physical boundaries of the watershed. In this situation, the institutional mechanism at the operational level, which shape decisions, individuals or groups of individuals make the use and management of the resources, which becomes critical for the management and development of watersheds. But until 1995 multi-sectoral programs with differing objectives officially coordinated watershed development projects in India. After review of various watershed programs in 1999 by the MoRD and the MoA, a common set of operational guidelines was established in 2001 (the Revised Watershed Development Guidelines, 2001- refer Annexure II) for watershed development programs in India. Considering

their significance in the overall objective to develop watersheds in the country, and looking at the focus of the different guidelines for planning and implementing watershed programs in the country, this section attempts to trace the shifts in policy on institutional arrangements at the operational level. Broadly, three major shifts in policy can be observed regarding institutions at the operating level for watershed development in the country since the launching of the first watershed-based scheme (the River Valley Projects) in 1962-63.

3.1.1 Line Department Model

The early watershed models were designed on 'scientific' principles with little input from user communities. The Government of India's report of the technical committee on DPAP and DDP programs for the Ninth Five Year Plan (GoI 1994a) notes that 'while the focus of these programs may have differed, the common theme amongst these programs has been their basic objective of land and water resource management for sustainable production'. Local participation, either in planning or managing resources, was of marginal interest at best. The early projects were often characterized by a line department approach, in which watershed development and management (WDM) was under the overall administrative control of respective departments. This approach suffered from numerous institutional related problems, such as:

- a. lack of co-ordination between line departments in the implementation;
- b. stereotyped approach and the tackling of problems in an isolated manner;
- c. looking at project activities as mere additions to the departmental targets;
- d. the lack of innovative strategies; and
- e. the lack of flexibility.

The importance of coordination between departments, and of the integration of skills and technologies, led to the adoption of more unified programs, such as DPAP, DDP and NWDPPRA, which adopted a watershed approach with more effective coordination between line departments. However, various programs had their distinct approach, technical components, guidelines, norms and funding patterns.

Local participation continued to be minimal, but it was not the case that concerns of devolution/ participation being entirely missing. However, critically for this earlier model, the method of ensuring this participation was not spelt out. Further, by people's participation, the approach developed here mostly implied the participation of NGOs and that too in a limited capacity as supplements rather than as alternatives. The approach with regard to the type of village level institution was that – it should be left to the people themselves. In other words, the organizational form was to be by the people for their participation. The organizations for people's participation were to function along with and assist the state government in improving the design as well as of performance of watershed development works.

At the same time, the donor driven watershed programs that were started during this period also placed emphasis on gaining local participation in the projects for WDM. For example, the World Bank Pilot Project for Watershed Development started in 1984 (based on the premise that low-cost soil and water conservation measures and improved agronomic practices could make a strong contribution to rain-fed agriculture at a minimal cost) put special emphasis on local participation. However, the mechanism was left to NGOs, and without any specific institutional objective, participation was arbitrary and token. The second generation World Bank projects also took the same technical approach but with a focus on developing and strengthening local organization as a means of garnering people's participation in WDM.

3.1.2 The Participatory Institutional Strategy

Whilst the donors had been experimenting with participatory methodologies since the 1980s, 'participatory watershed management' was only effectively 'institutionalised' in government policy in 1993. Following this, the emphasis shifted from technological to social aspects, based on the rationale that institutions have to precede any physical work for the work to be sustainable. In order to ensure this participation it was accepted that the government would have to decentralize management and implementation, both to local committees and to the project implementing agencies (PIAs).

The turning point for 'participation' came in 1993 with the constitution of the Hanumantha Rao Committee to evaluate and suggest ways to refocus DPAP and DDP (Box No.1.1). The guidelines drafted subsequently (the MoRD Guidelines of 1995 for details, refer Annexure 1) laid great emphasis on local participation, suggesting that restoration of ecological balance in the village would be maintained through 'sustained community action for maintenance of assets created and further development of the natural resources in the watershed'. Local participation was to be ensured through the use of 'simple, easy and affordable' technological solutions and community level institutional mechanisms like SHGs, user groups (UGs) and *panchayats* (Gol. 1994b).

The various Guidelines proposed have generally been consistent about the preferred institutional structure for WDM. At the district level, the district rural development agency (DRDA) or the *zilla panchayat* was assigned the responsibility for implementing the program through a watershed development advisory committee with the chief executive as the chairman. This committee would select PIAs from among the departments, NGOs, or corporations interested in implementing the projects. Each PIA was responsible for 10 to 12 watersheds and was expected to appoint a multi-disciplinary watershed development team (WDT). At each watershed, the watershed executive committee (WEC) implemented the project. It was a nominated body of the watershed development association (WDA) and consisted of representatives of UGs, SHGs, the *gram panchayat*. The WDA comprised all adults from the concerned *gram panchayat* / community who are directly or indirectly dependent on the watershed area and representatives from the WEC. The WEC had to work under the guidance of the WDA. The funds for the project were to be released directly to the implementing organization in the village or the WDT, as the case may be. The village implementing organization (VIO) was structurally linked to the village watershed association (VWA). The VWA, in turn, comprised of representatives from the various SHGs and UGs located in the village.

In this institutional scenario, the functional assignment of the institutions is as follows:

- (i) The DRDA or *zilla panchayats* are assigned the overall responsibility for program implementation in the district with the watershed development advisory committee advising it on issues such as the selection of villages, training and monitoring.
- (ii) At the implementation level, watershed projects were to be planned and implemented by the WDA with the help of a multi-disciplinary WDT constituted by the PIAs.
- (iii) After completion of the watershed project, the VWA and WEC take over the operation and maintenance of assets at the end of projects, through a Watershed Development Fund (WDF) created with contributions from UGs and SHGs.

3.1.3 Panchayats and the Decentralised Institutional Strategy

The role of *gram panchayats* was clarified in the recommendations of expert committee of the government on Area Development Programs and Integrated Watershed Planning for Wasteland Development (Gol. 1995). The *gram panchayat*, according to this committee, had to:

- (i) be fully involved in the implementation of the program, especially community organization and training programs, to support and encourage the formation of SHGs/UGs and the operation and maintenance of the assets created;
- (ii) ensure that funds from other developmental programs are used to supplement and complement WDM;
- (iii) monitor and review the program to ensure that norms under watershed development schemes are strictly followed;
- (iv) ensure that as far as possible, decisions are to be taken in the full meeting of the *gram sabha* so that there is widest acceptability.

The district/*zilla panchayats*, block/*taluk panchayats* and the *gram panchayats* are also entitled to take on the responsibility of implementing a cluster of watershed projects in the capacity of PIAs. The role of the panchayats in WDM received a fillip with the Hariyali Guidelines (Annexure III). These guidelines, which came into effect in 2003, have made the *gram panchayat* as the watershed-implementing agency for watershed program, especially those carried out under DPAP and DDP, without creating new institutional structures. The watershed program are to be implemented as a *gram panchayat* activity, with the sarpanch and the *panchayat* secretary as cosignatories for operating finance and administrative related matters for the programs.

These three major shifts in policy about institutions for WDM are not mutually exclusive. Rather, they imply a progression in the institutional arrangements for WDM, with both the state and the community playing a complementary role with the focus being on participatory processes. Within this institutional landscape, legislation promoting state adaptation of the programs and the involvement of outside parties and autonomous agencies has today lead to a myriad of watershed development programs and involvement of multiple institutions at the state, district and community levels. The difficulties in disseminating knowledge, experience, scientifically validated information and methodologies is made worse by the lack of any common framework between states and departments for the implementation of and dissemination in watershed development. This is accentuated further by the lack of a common set of agreed institutional strategies for such programs.

3.2 Brief Review of Government of India Guidelines

This section briefly reviews the various guidelines formulated by the Government of India that have been evolved since the 1990s to examine the institutional structure laid down by these policy documents and the process outlined in them for developing and managing watersheds in the country (for basic information on the different guidelines, refer Annexure I to VI).

3.2.1 Guidelines of the MoRD, 1995

The Department of Wastelands Development and the Ministry of Rural Development in 1994 issued guidelines for watershed development (GoI 1994b). They set out a strategy to decentralize watershed management and set up partnerships between government line departments, NGOs and newly-formed local resource and user groups (Table 3.1). By confronting problems in the rain-fed areas of India, the strategy aims to reduce the ill effects of environmental degradation on poverty and employment. The approach seeks to harness social mobilization as a means to develop long-term capacity and responsiveness of communities to plan effectively for the development of rain-fed areas. The strategy sets up a national framework that adopts (if ambiguous) and makes synergies between state and civil society.

The 1995 watershed guidelines were thus an important initiative towards institutionally and ecologically sustainable enhancement of rural livelihoods. Problems lay not so much in any shortcomings in the guidelines themselves as in the capacity at different levels to implement them (Turton et al. 1998a). The limiting factors in this respect are:

Table 3.1. Watershed Development Guidelines 1995 for the institutional arrangements.

Objectives	Institutional arrangements	Users group/ process
To promote the economic development of the village community, which is directly or indirectly dependent on the watershed	The Department of Rural Development shall be the nodal agency to service this committee. <i>Zilla parishads</i> shall receive the funds from Government directly to implement the WS projects	Community organization programme
Optimum utilization of the watershed's natural resources like land, water, vegetation, etc., that will mitigate the adverse effects of drought and prevent further ecological degradation.	Watershed development advisory committee under the chairman ship of CEO of ZP	Identification of village volunteers
Employment generation and development of the human and other economic resources of the village in order to promote savings and other income-generation activities.	Project implementation agencies at the district level,	Liaison with research/ technical institutions
To encourage restoration of ecological balance in the village.	Role of <i>panchayati raj</i> institutions, at the village level, the GP shall be fully involved in the programme implementation	Formation of users group
Sustained community action for the operation and maintenance of assets created and further development of the potential of the natural resources in the watershed. Simple, easy and affordable technological solutions and institutional arrangements that make use of and build upon, local technical knowledge and available materials.	Watershed association	Training of SHG members
Special emphasis to improve the economic and social condition of the resources-poor and the disadvantaged sections of the watershed community such as the asset less and the women	Watershed committee overall supervision and control of the watershed association	Constitutions of WASSAN
More equitable distribution of the benefits of land and water resources development and the consequent bio mass production. Greater access to income-generating opportunities and focus on their human resource development.		Constitutions of WCs Appoint of WS secretary Training of members

- watershed development (WSD) is not yet being planned strategically in the context of other rural development initiatives;
- at the project implementation agency (PIA) level, funding is insufficient for NGOs to attract and maintain quality staff; government PIAs lack adequate skills and have inappropriate incentive structures;
- at the community level, there is inadequate effort to engage weaker groups in the process of WSD. To provide the poor and women with an equitable share of benefits requires more effort and vigilance than most implementing agencies can provide;
- procedures for selecting (and de-selecting) villages and PIAs remain weak.

Acknowledging the need for building capacity of the institutional arrangements at different levels, the Eswaran Committee Guidelines of 1997 (Table 1.1) suggested mechanisms for strengthening capacity not only at the PIA, but also at the community level. Among the important instruments set out by these guidelines for capacity building, the important ones are—(i) the need for developing watershed treatment technologies and community organization as well as project management techniques at the PIA level, including capacity building of the watershed management team; and (ii) upgrading the skills of the community level institutional arrangements to organise and undertake conservation and resource management measures, to share benefits and take-up other equity and sustainability related activities for WDM, as well as training on administration, finance and accounting. There appears to be a clear-cut understanding in these guidelines on training needs of institutions involving the primary stakeholders (the resource users) and institutional structures supporting the primary stakeholder institutions³.

Besides capacity building, there is also a need for an integrated institutional strategy. WSD is not a panacea; it works best where it is integrated with other means of enhancing livelihoods, and needs to be tailored to local agro-ecological, socio-economic and infrastructural conditions. Besides the different institutions arrangements at the operational level, other types of institutions facilitating and supporting watershed program implementation like banks, line department and other supporting agencies, also need to be engaged in this wider context for determining efficiency and sustainability. While donors can best pilot new solutions to these difficulties, projects resulting in parallel institutional mechanisms for delivering watershed development activities are an irrelevance (Turton et al. 1998b).

The Watershed Development Guidelines of 1995 represented a major effort to replicate/implement the strengths of NGO approaches on a wider scale. The guidelines also responded to concerns over the lack of consistency of different existing approaches, and over inadequate adaptation to local biophysical and socio-economic conditions. They are innovative in three main respects (Turton et al. 1998a): (i) in their devolution of decision-taking power to district and village levels; (ii) in the financial allocations made to local level organizations; and (iii) in their provisions for partnerships between government, NGOs and people's organizations.

3.2.2 Revised Guidelines for Watershed Development

The Revised Guidelines of 2001 widened the scope of the program by not restricting it to rain-fed areas alone (Table 3.2). This brought in the other heavy rainfall regions under the scope of NWDP, reducing the concentration of resources on the lagging regions. The philosophy behind this 'all-region' approach stems out of planning for large basin watersheds (Desphande and Thimmaiah 1999).

³ For details about the institutional structures of primary stakeholders and the support structures for watershed development, For details about the institutional structures of primary stakeholders and the support structures for watershed development, refer to - Sreedevi, T.K. et al. (2008) 'Institutional Arrangements in Watershed Development Projects: A Comparative Analysis of Different Approaches' ICRSISAT, Hyderabad. (In press)

The guidelines should be taken as general principles for implementation of watershed development projects and should not be used as a tool to make their implementation a complex exercise. The basic philosophy of these general principles is to seek gainful and transparent utilization of public funds for watershed development, with a view to enhancing productivity and promoting overall economic development in the watersheds, while also improving the socio-economic condition of the resource poor and the disadvantaged sections of the people inhabiting the project areas. The state watershed development committees are empowered to clarify the provisions of these guidelines to suit local social, infrastructure, and geographical problems subject to the basic philosophy mentioned earlier on.

3.2.3 Hariyali Guidelines

To involve village communities in the implementation of watershed projects under all the area development programs namely, Integrated Wastelands Development Program (IWDP), Drought Prone Areas Program (DPAP) and Desert Development Program (DDP), the Guidelines for Watershed Development were adopted w.e.f. 1.4.1995 and subsequently revised in August 2001. To further simplify procedures and involve the *panchayati raj* institutions (PRIs) more meaningfully in planning, implementation and management of economic development activities in rural areas, the new guidelines called Guidelines for Hariyali were issued.

Table 3.2. Revised Watershed Development Guidelines 2001.

Objectives	Institutional arrangements	Users group/ process
Developing wastelands/degraded lands, drought-prone and desert areas on watershed basis, keeping in view the capability of land, site-conditions and local needs.	A state watershed development committee shall be constituted under the chairmanship of additional chief secretary /agricultural production commissioner/ development commissioner.	The PIA shall also constitute UGs in the watershed area with the help of WDT.
Promoting the overall economic development and improving the socio-economic condition of the resource poor and disadvantaged sections inhabiting the program areas.	A district watershed committee shall be constituted under the chairperson of <i>zilla parishad</i>	
Mitigating the adverse effects of extreme climatic conditions such as drought and desertification on crops, human and livestock population for their overall improvement.	The PRIs shall have the right to monitor and review the implementation of the program	
Restoring ecological balance by harnessing, conserving and developing natural resources i.e. land, water, vegetative cover.	At the village level, the Gram Panchayat shall be fully involved in the implementation of the program, specially community organization and training programs.	
Sustained community action for the operation and maintenance of assets created and further development of the potential of the natural resources in the watershed.		
Simple, easy and affordable technological solutions and institutional arrangements that make use of, and build upon, local technical knowledge and available materials.		
Employment generation, poverty alleviation, community empowerment and development of human and other economic resources of the village.	Each PIA shall carry out its duties through a multi-disciplinary team designated as the watershed development team (WDT).	

Table 3.3. Hariyali Watershed Development Guidelines 2003.

Objectives	Institutional arrangements	Process / Users group
Harvesting every drop of rainwater for purposes of irrigation, plantations including horticulture and floriculture, pasture development, fisheries etc., to create sustainable sources of income for the village community as well as for drinking water supplies.	Central government	The ZP/DRDA shall explore and encourage availing of credit facilities provided by banks or other financial institutions by the SHGs, UGs, <i>panchayats</i> and individuals for further developmental activities in watershed areas.
Ensuring overall development of rural areas through the <i>gram panchayats</i> and creating regular sources of income for the Panchayats from rainwater harvesting and management.	State government	
Employment generation, poverty alleviation, community empowerment and development of human and other economic resources of the rural areas.	ZP/DRDA	
Mitigating the adverse effects of extreme climatic conditions such as drought and desertification on crops, human and livestock population for the overall improvement of rural areas.	PIA	
Restoring ecological balance by harnessing, conserving and developing natural resources i.e. land, water, vegetative cover especially plantations.	WDT	
Encouraging village community towards sustained community action for the operation and maintenance of assets created and further development of the potential of the natural resources in the watershed.	GP	

3.2.4 Need for Revision: Neeranchal

Meanwhile, a number of studies have been conducted, evaluations undertaken and soundings taken in various fora about the Hariyali Guidelines which culminated in the emergence of many suggestions to make the watershed guidelines contemporary, transparent and easy to follow. The need has also been felt to infuse a greater degree of flexibility into the guidelines in view of the large variation in local conditions, needs and the social structure. Encompassing all this in one place and making the intentions more specific, the Neeranchal Suggestions for Watershed Development (2006) have now been reformulated (Table 3.4). These seek to ensure

- (i) program-specific and focused project approach;
- (ii) greater flexibility in implementation;
- (iii) well-defined role for state, district and village level Institutions;
- (iv) removal of overlaps;
- (v) an "Exit Protocol" for the PIAs;
- (vi) a "Twin track" approach to the implementation of projects;
- (vii) seeking a combination of GO/NGO as PIA;
- (viii) a greater role for women;

- (ix) an effective role for the *Panchayati raj* institutions;
- (x) bringing to centre-stage SHGs comprising rural poor, especially those, belonging to SC/ST categories;
- (xi) establishing a credit facility from financial institutions;
- (xii) transparency in implementation;
- (xiii) effective use of remote sensing data furnished by NRSA.

Table 3.4. Neeranchal watershed development suggestions.

Objectives of the Program	Institutional arrangements	Process/ Users group
Harvesting rainwater for drinking water security, protective irrigation, plantations, pasture development, fisheries, livestock development and other means of sustainable livelihoods. Employment generation, poverty alleviation, redressal of socio-economic and gender-based inequalities, community empowerment, human development and sustainable economic development of the rural areas. Mitigating the adverse effects of extreme climatic conditions such as drought and desertification on crops, human and livestock population for the overall improvement of rural areas. Restoring ecological balance by harnessing, conserving and developing natural resources, i.e., land, water and biomass. Encouraging village community, gram <i>panchayat</i> and <i>gram sabha</i> to develop local institutional mechanisms towards sustained community action for the operation and maintenance of assets created and sustainable development of the potential of the natural resources in the watershed. Promoting use of simple, easy and affordable technological solutions and institutional arrangements that make use of, and build upon, local technical knowledge and available materials.	Milli-watershed council	Women's watershed council

3.3 Insights from Existing Studies

The Indian Government has been giving considerable importance to securing the livelihoods of the people depending on land in rural areas through watershed development activities since the inception of five-year plans, though the relative importance differed across different five-year plans. A review of different programs⁴ during and at the end of plan periods resulted in the following changes in the policies and programs relating to rain-fed agriculture, in general, and watershed development, in particular:

- the approach to development of India's drylands has shifted from soil conservation to watershed development (Gol, 1994a, b; Deshpande and Narayanamoorthy 2000);
- the strategy has shifted from mere soil and water conservation to supporting the entire livelihood system of the people residing in ecologically fragile zones (Turton et al. 1998b, Wani et al. 2002). The concerns of the poor and women have been sought to be included;

⁴ See Deshpande and Narayanamoorthy (2000) for more details

- the 'top-down' and 'line department' oriented planning was sought to be replaced by 'participatory watershed development' to involve the key stakeholders in planning, implementation and monitoring (Gol 1994a, b; Deshpande and Narayanamoorthy 2000; Kolavalli and Kerr 2002); and
- the implementation arrangement changed from that of predominantly line department program to the one where different types of organizations are involved in the implementation (Shah 1998).

These changes have influenced a shift towards participatory watershed development practices. Multi-agency partnerships such as between government agencies, NGOs and membership organizations are recognized as important for strengthening institutional arrangements for participatory management of community resources (Turton et al. 1998b). Thus, since the 1990s, the forming of micro-watershed groups has become the central focus of the line departments, the PRIs, bilateral and multilateral agencies involved in formulating and implementing programs for watershed development in the country.

On one side, 'collective action' is acknowledged as an important institutional requirement for strengthening management of land and water resources. The other important institutional determinant is the 'implementing and monitoring' options in the resource management process. Analysis undertaken in this regard indicate that the institutional environment for collective action is influenced, among other factors, by the links between the grassroots-level associations/ community organizations with higher level decision-making agencies (Krishna 2001). The links between the local organizations with higher-level agencies is what implies the channel of program implementation and monitoring in the participatory watershed development process⁵.

However, while lot of attention is being paid to mechanisms and processes for watershed development programs at the micro-watershed/community level, there appears to be insufficient focus on inter-agency cooperation, coordination and integration (Gol 2005; and World Bank 2006). This is important to facilitate the efficiency and sustainability of watershed development program and its absence is often at the root of most environmental management problem in the country, including difficulties with compliance and enforcement. Literature recognizes the importance of various formal institutional mechanisms that need to be in place for inter-agency integration, such as:

- the need for aligning the development and implementation of new area-based or/and multi-sectoral environmental programs like watershed development program with on-going institutional processes like the decentralization processes set in motion in the country by the 73rd and 74th Constitutional Amendment Acts and to have a multi-level organizational structure for program success (Esman and Uphoff 1984 and Krishna 1997);
- the importance of the policies of implementing agencies or the funding organization in mainstreaming development and management of watershed program (Kolavalli and Kerr 2002). In this connection, the lack of appropriate policy in the case of water resources for regulating the access to, control and over use of the resource, the absence of well defined property rights and requisite data base for its judicious planning and management and the fragmented approach to its management, has a critical impact on designing and implementing watershed development programs leading to a number of problems (Singh 2001) such as (a) there is a multiplicity of agencies concerned directly or indirectly with the resource management and, the agencies do not co-ordinate their activities and often work at cross-purposes⁶; (b) there is the absence of a unified agency responsible for overall planning,

⁵ For details on institutional options for implementation, see Chapter 5 of this report.

⁶ In most states of the country, water resource management is the responsibility of the Ministry of Water Resources Development. But there are numerous other governmental, and semi- governmental agencies involved directly or indirectly in managing the resource like the Ministry of Environment and Forests, Ministries of Agriculture, Ministries of Rural Development, Irrigation Departments, the Ground Water Development Boards, Water Supply and sewerage Boards, and so on. A host of local government and non-governmental organizations (NGOs) and international funding and development agencies are also engaged in supporting watermanagement projects in the country.

implementation, and management of the resource. Consequently, there is confusion at all levels as to who is responsible for ensuring judicious use and management of watershed resources in the country; (c) besides, there is unnecessary duplication of effort and hence the wastage of money, materials and manpower; (d) this apart, the most dominant and pervasive approach is supply focused. Little attention is paid to demand management approach to reduce the gap between the existing supplies and demand. These problems accentuate the need for inter-agency integration in WSD programs.

It is now becoming apparent that while significant efforts have been made by the government as part of its declared official policy to strengthen the institutional arrangements for watershed development activities in the country, the various schemes for watershed development do not seem to have made desired impact on the overall picture of rain-fed agriculture (Joshi et al. 2005) and vast scope existed for upgrading watershed development programs (Wani et al. 2003a, 2008; Rockström et al. 2007; Sreedevi et al. 2004, 2006 and Joshi et al. 2008). Based on material available in numerous evaluations and critical appraisals, three major factors are attributed to this (Vaidyanathan 2001)–(a) inadequate technical data and analysis for design of projects; (b) paucity of credible data on the magnitude of impact on water availability and productivity; and (c) institutional weakness. Particularly, planning for watershed development requires inputs on these three factors at the micro-watershed level, and a concerted effort to overcome these hurdles is necessary to strengthen the efficiency and sustainability of WSD program in the country.

3.4 Functions of Local Organizations under Participatory Watershed Program

A study on the role of local organizations in participatory watershed program carried out at ISEC (Rajasekhar et al. 2003) shows that the organizations identified and formed under externally funded watershed projects (the case of KAWAD in Karnataka and IWDP Hills-II in Uttaranchal) and government watershed programs (DDP, DPAP, NWDPR and IWDP) implemented by the line departments have been mandated to undertake certain functions to achieve development outcomes (Table 2.5). At the state level the primary functional assignment of organizations is to implement the watershed development works within the framework of the watershed guidelines/project guidelines and agreements with the sponsoring agencies. Among their other mandated functions, the state level organizations undertake the functions of coordination and monitoring. Financing, staffing and information sharing is the function of the state level organizations only under the two externally sponsored projects–KAWAD and Hills-II projects.

However, the function of provision of services has not been assigned to the state level organization under any of the three watershed programs under reference here (Table 3.5) as this function is normally undertaken by the village level organizations. But the PIAs in case of two watershed programs – the project implementing office at the district level in Hills-II project and the PIA at the block level in government watershed programs have also been assigned provisioning function as support to the village organizations for carrying out the watershed works. Conflict resolution is another function that has not been assigned to the state level organization (except in the case of the secretariat in KAWAD program), whereas staffing has been assigned to the state level organizations. Further, in case of the government watershed programs and the KAWAD program, financing is a mandated function of the district level organizations as in the PIA in KAWAD and the ZP/DRDA in government programs. This functional assignment involves the responsibility of dispersal of the project funds in case of KAWAD program and matching grant in case of the government programs. But in the case of

government watershed programs, financing (mainly involving scrutiny of the funds of the various government watershed programs) is not the mandated function of the state level organizations (the Central Government directly disburses the funds to the district organizations, ZP/DRDA).

The state and district level organizations have all being mandated to undertake the same functions of coordination, monitoring and implementation, except under the Hills-II project wherein the coordination function has not been assigned to the district level organizations. In addition, the district coordination committee and not the district project implementing office undertake the monitoring function at the district level under the Hills-II project.

An analysis of functions mandated to the organizations at the block and village levels indicates that the functions of implementation, capacity building, monitoring and coordination have been assigned to the different local organizations in all the three programs (Table 3.5). But it is only in the government watershed and KAWAD programs that the local government institutions (*gram panchayat* and *gram sabha*) have any role in executing the watershed works. It has the mandated function to resolve conflicts at the local level and also ensure accountability for carrying out the KAWAD and government watershed works within their jurisdiction.

Particularly in the context of the functions of the *panchayat* institutions in watershed development programs, Rajashekar et al. (2003) found that the *grama panchayats* did not evince much interest in involving themselves in the watershed works because of the following reasons: (1) GPs are bigger units and as such their boundaries hardly coincided with those of watersheds; (2) PRIs are more interested in pursuing political goals that evolve around immediate projects like house and road construction rather than the long gestation projects like watershed development; (3) the role assigned to *panchayats* is minimal in the sense that it is the *gram sabhas* that are expected to approve the composition of SHGs, watershed committees and development of plans of watershed. But since *gram sabhas* would not meet regularly, even this limited role assigned to the *panchayats* was not performed by them.

A review of the functional assignments, thus, indicates that:

- the functional assignments cannot be really treated as duplication because the organizations are at different tiers of the same program to fulfill the objectives of the watershed works;
- the functional assignments have been made keeping in view the suitability of the organization to carry out the function, mainly keeping in view their position in the organizational hierarchy for carrying out the particular watershed program;
- provisioning, implementation and conflict resolution are the two main functional mandates of the village level organizations, while monitoring, coordination, staffing, and financing are the major functional assignments for the state level organizations. At the district level, the organizations are mainly mandated to carry out the functions of implementation and monitoring. At the block level, the mandated functions of the organizations pertain to providing staffing support to the village organizations and helping them to implement the watershed works by providing logistic support, monitoring the works and addressing local conflicts.

3.5 Institutional Arrangements for WSD: Status and Way Forward

From the review of the guidelines evolved over years it is evident that the interventions institutions of the state, NGOs and donor agencies in improving rural livelihoods through watershed development have undergone changes over the years as follows:

- the approach to development of India's drylands has shifted from soil conservation to watershed development;
- the strategy has shifted from mere soil and water conservation to supporting the entire livelihood systems of the people residing in the ecologically fragile zones;
- the line department oriented planning is replaced by participatory watershed development;
- the project funding practice has moved primarily from solely government grant to government grant-cum-user contribution;
- the purpose-wise fund allocation is changing from predominantly natural resource development to natural resource development plus administrative, evaluative and livelihood development;
- there is a move towards more and more of social regulation in natural resource use by various groups;
- there is also a move towards targeting benefits of the projects to resource-poor and women groups; and
- the guidelines have moved from generalities to specific to the needs of time and space.

These institutional changes have influenced the line departments, PRIs, bilateral and multi-lateral agencies to formulate programs under which watershed development have to be achieved since 1990s. These developments in the approach and thrust of the guidelines are indeed welcome. But there are still some differences between the government guidelines and those of NGOs and donor agencies. The NGO-donor agency guidelines appear to be:

- more rigorous in regard to identification of villages and watershed development projects;
- more equitable and weaker section oriented when it comes to distribution of project benefits;
- insist on user groups' contribution towards project costs more rigorously;
- more stringent when it comes to project fund building and its management;
- emphasise more on participatory planning, implementation, monitoring and evaluation; and
- more willingness to follow the project exit protocol plans and support and encourage user groups and SHGs to take-over project assets for management thereafter.

These distinct features of NGO-donor agency guidelines are important lessons to government agencies in their effort at formulating and revising guidelines for strengthening the institutional arrangements for watershed development. It may not be out of place here to identify some areas where further action is required. While one can be happy about the frequent changes in and revisions to, the watershed development guidelines by government keeping in view the changing needs of the project and the recommendations of technical committees and academic studies, there is still a need to:

- maintain continuity and link between the past and future in regard to guidelines which have a proven internal strength;
- clearly indicate, for the benefit of project planning and implementing, which aspects of the previous guidelines are to be ignored and which are to be retained and followed;
- further clarify, especially when emphasis changes in regard to a specific guideline, to what extent the implementing institution can depart from the past practices and how.

Other more specific requirements for strengthening institutional arrangements for watershed development programs in India are listed in Chapter 5.

Table 3.5. Mandated functions of organizations across state, district, block and village level.

.Level	Organization type/ committee	Financing	Staffing	Provisioning	Implementation	Capacity building	Coordination of activities	Monitoring and evaluation	Conflict resolution & accountability	Information sharing and documentation
STATE										
KAWAD	KAWAD Society	✓	✓		✓		✓	✓		✓
	Secretariat	✓	✓		✓	✓	✓	✓	✓	✓
Hills-II	State level steering committee						✓			
	Watershed management directorate	✓	✓		✓			✓		✓
Govt. WS programs	SWDC						✓	✓		
	Nodal department				✓			✓		
DISTRICT										
KAWAD	Steering committee						✓	✓	✓	
	PIA	✓			✓	✓	✓	✓		✓
Hills-II	District coordination committee							✓	✓	
	District project implementing office			✓	✓	✓				
Govt. WS programs	District WS development committee				✓	✓	✓		✓	
	ZPs/DRDA	✓			✓			✓		✓
BLOCK										
KAWAD	SW SFG						✓		✓	
	NGOs		✓		✓	✓		✓		
Hills-II	Multi disciplinary facilitating group				✓	✓	✓		✓	✓
Govt. WS programs	PIA		✓	✓	✓	✓		✓	✓	
	Watershed assn.		✓					✓	✓	
VILLAGE										
KAWAD	gram sabha								✓	
	grama panchayat								✓	
	MWSDC		✓	✓	✓			✓	✓	✓
	SHGs			✓	✓					
Hills-II	VDC (GAREMA)			✓	✓		✓	✓	✓	
	SHGs/UGs			✓						
Govt. WS programs	GP							✓	✓	
	WS committee			✓	✓		✓		✓	✓
	SHGs			✓	✓				✓	
	UGs			✓	✓				✓	

Source: The secondary source review

4. Monitoring and Evaluation of Watershed Development Programs

4.1 Monitoring

4.1.1 The Concept

Monitoring is a recognized management tool not only for effective and efficient project implementation but also as a process of learning. It is an integral part of the project's regular operations rather than an on and off event conducted at periodic intervals. It includes measuring, recording, collecting, processing and communicating information. It continuously tracks performance and provides information on whether adequate progress is being made towards achieving the results. Monitoring also looks at the processes and changes in the conditions of the target groups, institutions and natural resources in addition to impact assessment.

A quick review of different programs implemented in India during the last two decades indicates certain key changes in the policies and programs relating to rain-fed agriculture in general and watershed development in particular:

Changes in	From	To
Approach	Soil conservation	Integrated watershed development
Strategy	Soil and water conservation	Supporting livelihood systems
Planning	Top down, department oriented	Participatory, involving key stakeholders
Implementation	The line departments of the government	Community-based organizations (CBOs)

These changes distinctly brought in a shift towards participatory watershed development practices. Multi-agency partnerships between government agencies, NGOs and CBOs came to be recognized as important constituents for strengthening institutional arrangements for participatory management of community resources. While collective action is acknowledged as an important institutional requirement for strengthening the management of land and water resources, an equally important institutional determinant is the implementing and monitoring mechanism in the resource management process.

4.1.2 Components to Monitor

To start with, in the context of a watershed development program (WSDP), any approach to monitor will have to be necessarily guided by the terms governing its implementation. For instance, the objectives and the methodology of implementation for the world bank-aided watershed projects in some states of India are quite different from those of the National Watershed Development Program for Rain-fed Agriculture (NWDPR). The key elements under the World Bank approach included:

- (a) application of technologies generated at the state agricultural university centres to the farmer's field for better conservation and optimum use of resources;
- (b) provision of infrastructural facilities to eliminate possible implementation constraints;
- (c) putting in place an integrated organizational structure with a strong horizontal inter-disciplinary cooperation and a vertical administrative integration; and
- (d) ensuring sustainability and the replicability of this approach.

On the other hand, conservation of land and water resources by adopting soil and water conservation measures got the highest priority under NWDPR, which was followed by augmentation of food availability, fodder production, fuel wood supply and horticulture through a proper land use system.

The next important aspect was to promote better livelihood options by providing additional income to the local farmers through crop diversification and to the landless labor through additional gainful employment. Finally, the project also consciously sought to enlist participation of beneficiaries through specific institutions created for the purpose.

The Sujala Watershed Project implemented in the State of Karnataka (which has the second largest area of dry land in the country after Rajasthan), again with the assistance of the World Bank had its own priorities. Their vision was “to develop, promote and implement through participatory approaches, a decentralized, cost effective/productive, transparent and sustainable watershed treatment package:

- to meet rural livelihood needs
- to enhance employment and income opportunities for the poor,
- to improve the productive potential of natural resource base,
- to reduce poverty and natural resource degradation.

As already stated, the objectives of the GoI sponsored WSDP were clearly spelt out for the first time, through the Revised Guidelines of 2001. Developing the waste/degraded lands, promoting overall development, restoring ecological balance, improving the socio-economic conditions of the resource poor and encouraging village community for sustained community action were mentioned as the objectives under the 2001 guidelines. Hariyali Guidelines added harvesting of rainwater for irrigation and drinking water purpose, creating regular source of income for *panchayats*, employment generation and poverty alleviation, promoting use of simple and affordable technological solutions and institutional arrangements, to this list.

A close look at these WSDPs, whether they are locally funded or externally assisted, reveals that these programs have several key elements in common. But, they do differ in their approaches and priorities, for example, Andhra Pradesh Rural Livelihood Programs (APRLP) in Andhra Pradesh. Monitoring a WSDP taken up under a specific program will therefore have to take into consideration the objectives sought to be achieved by that program and try to capture the implementation aspects as well as their impact in the field.

Keeping in view the common elements in the different approaches adopted in the WSDPs under implementation in India, an ideal monitoring system should include:

- (a) input-output monitoring, which is indispensable in any project monitoring;
- (b) process monitoring, as almost all the WSDPs equally emphasize the processes as against the outcomes; and
- (c) impact monitoring to assess the success and impact of the program vis-a-vis its stated objectives.

While (a) and (b) will have to be concurrent and go hand-in-hand with the project implementation, (c) can be periodical, the periodicity being determined by the projected time span of the outcomes.

4.1.3 Lessons from the Past Studies

Past studies already carried out on watershed development in India have no doubt brought out several issues pertaining to program implementation and monitoring. However, several of these studies have often adopted narrow and poorly defined notions of what constitutes development, restricting their scope to a given project or program framework. In most of the studies, controls and benchmark baseline data are missing. Many studies cover a shorter term whereas the real impact in a watershed development program is visible only much later. Some of the micro level assessments miss out on the downstream effects. In some studies, bio-physical changes do not get linked to their socio-economic impact. In the

absence of participatory monitoring approaches and with increasing reliance on limited but hi-tech monitoring, some of these studies on monitoring display a general lack of understanding of the socio-cultural aspects that need to be looked into. An excessive focus on valuing outcomes has sometimes led to limited understanding of the socio-ecological processes through which resources get regenerated, technologies are adopted and modified, conflicts are negotiated and social norms are developed.

The entire monitoring process will therefore have to be preceded by a benchmark survey to collect data and information on the pre-project status of the community and its natural resources. This information helps to monitor the progress, assess the changes and measure impacts. A combination of conventional and remote sensing approaches can be utilized to generate the benchmark data. Since any WSDP covers a substantial area which makes any detailed survey time-consuming, the survey has to be based on multi-stage sampling for data collection and monitoring. For instance, the sub-watersheds can be randomly chosen based on their agro-climatic zone, general land use and soil. Within each sub-watershed, a few micro-watersheds can be selected at random, representing ridge, middle and valley portions. Thereafter households can be selected and sampled based on land holding i.e. marginal, small, big and landless using 'probability proportion to size' criteria. Suitable sampling intensity can be worked out for data collection and analysis to achieve acceptable accuracies or estimates keeping in view the project objectives. For monitoring impact benchmark watersheds in target ecoregion can be monitored for parameters such as runoff, soil loss, nutrient loss, ground cover biodiversity and carbon sequestration etc. other sample parameters can be monitored in all the watersheds by adopting participatory approaches.

4.1.4 Input-Output Monitoring

The input-output monitoring is captured essentially through monitoring of physical and financial progress. Normally, a project specific management information system (MIS) is designed and developed by the monitoring unit of the project. Deployed across the project watersheds, the MIS helps to create systematic database, allows users to query and analyze periodic field data and generate reports at different levels. Information is usually generated on specific project components at state/district/block/sub-watershed/micro-watershed levels on a weekly/monthly basis. For effective monitoring, the generated information has to be put on a comprehensive readable format as has been done in the case of the Sujala Watershed Project (Sukriya–Sujala Kriya Yojane, a bilingual software package developed for this project enables quicker, uniform and systematic beneficiary-wise database creation and also provides for generating varieties of reports for effective input-output analysis. One such data sheet may be seen at Annexure-VIII). This is an exemplary monitoring system using new science tools such as IT, remote sensing, GIS coupled with participatory monitoring, involving independent monitoring agency (Sreedevi et al. 2008).

4.1.5 Process Monitoring

Process monitoring has to be designed to capture near real-time information on the key processes involved in the project. It has to be carried out throughout the project and reflect the constraints and successes for decision making. The key processes which need to be looked at in a normal WSDP are:

- (a) baseline survey (socioeconomic, natural resource status, institutions etc.);
- (b) entry point activity;
- (c) formation of CBOs;
- (d) capacity building;
- (e) awareness and sensitization;
- (f) participatory rural appraisal and constraint identification;

- (g) action plan preparation;
- (h) identifying income generating activities;
- (i) identifying productivity enhancement initiatives;
- (j) environment and social screening;
- (k) action plan implementation;
- (l) operation and maintenance of the assets created; and
- (m) benefit sharing mechanisms for common property resources.

Observations on each one of these processes are to be provided on a fortnightly basis at the relevant point of time to the project implementing authorities for effective project implementation and corrective action. As a part of process monitoring, evaluation of the functioning and performance of the CBOs and the NGOs involved in the project must also be carried out along with specific thematic evaluations like women empowerment, equity, investment pattern, etc.

4.1.6 Monitoring Indicators

The following monitoring indicators have to be kept in mind during input-output monitoring as well as process monitoring phases:

- (a) effectiveness of the capacity building programs undertaken to enhance the capabilities of the watershed development teams (WDT);
- (b) social orientation of the WDT—particularly their sensitivity towards equity especially with regard to women, landless and weaker sections among the beneficiaries;
- (c) capacity building of the village watershed committee (VWC) members particularly on social and gender related issues;
- (d) on the spot verification of the action plans in the presence of the WDT and VWC members;
- (e) appropriateness of the action plans prepared and their cost effectiveness;
- (f) conformity to the action plan during the implementation stage;
- (g) the quality of the work done in terms of each of the technical and equity aspects, particularly the payment of minimum wages and protecting the interests of women and weaker sections during the implementation of the program;
- (h) effective record keeping such as measurement books, receipt books, payment register, etc;
- (i) the forward and backward linkages established for enhancing economic viability of livelihood options;
- (j) community participation not only in the preparation and implementation of the action plan but also in the maintenance of assets;
- (k) functioning of the village level institutions (such as regularity of meetings, participation of members, sense of ownership, etc.); and
- (l) the exit protocols to ensure sustainability of project benefits even after project completion.

4.2 Impact Monitoring

Comparing with input-output monitoring and the process monitoring, impact monitoring is more difficult. Assessing the impact of an Area Development Program in general and WSDPs in particular is not an easy task. For several reasons, the usual tools of project analysis based on costs and benefits may not be adequate and even mislead the assessment of WSDPs at times. Firstly, WSDPs are location specific and therefore their cost and benefit flows depend on local conditions. These flows are usually

not linear and are susceptible to several factors. While the costs depend on factors like the level of degradation, climatic changes and other local parameters, the benefits are usually in terms of externalities such as rejuvenation of the soil, better recharge of groundwater, longer period of moisture availability, development of pasture, etc., which are not amenable to pricing. Secondly, the time profile of the costs as well as the benefits of watershed development projects will vary across regions. A highly degraded land will take a longer time to recoup the soil health and one has to wait for a longer time to see the intended results as compared to a land with better soil profile. Thirdly, the quantification of the impact parameters in a watershed development program can be extremely difficult. For instance, soil erosion due to runoff or the changes in the moisture retention capacity of the soil are difficult to judge and cannot be generalized even for a micro-watershed in a short-time span of the project. Fourthly, watershed development is not an isolated event, but is usually a component of a larger system treatment at the field level. In a larger river basin, the treatment of watersheds in the upper reaches may not yield tangible benefits but can always help in arresting the silt flow or enhancing the water availability in the lower reaches. Thus, the benefits will be in aggregate terms over a larger area and will not necessarily be in the location of the treatment. A comprehensive model will therefore have to be designed to assess the impact of watershed development in a given region.

Recognizing these intrinsic difficulties, impact analysis of a watershed development program can be undertaken in two ways. The first is to identify the technological components of the program and then list the impact of each one of those components. The performance under a particular parameter when compared with the situation obtaining prior to the implementation of the program gives the incremental benefit but these increments in the parameters may also include changes due to technologies available outside the project as well and hence the benefits attributed to the project could be exaggerated. The second method is to compare the project parameters within the project area with a matching control region outside the project area. This method allows correction for the impact of technology in the absence of the project. However, identifying a matching control in the case of any watershed impact study is a challenge in itself. Since the matching parameters must include slope, soil texture, depth, fertility, levels of degradation, forest cover, land holdings and distribution, moisture availability and drainage, people's participation and awareness, etc., it will be very difficult to identify a matching control region in practice. Even then, it is possible to compare the impact of the program under specific parameters between the beneficiaries and non-beneficiaries in the project area and the control area, respectively. Hence, the matching control system of assessment is usually preferred for impact measurement as against the comparison of pre and post-project situations. It is important to decide what parameters are to be monitored at how many locations, at what intervals and with which method?

4.2.1 Components of Impact Analysis

The impact analysis will, however, have to encompass certain essential components. First is to identify the pre-project situation, as that would decide the direction and the quantum of the impact. The level of impact would depend on the level of degradation at the commencement of the project. If the degradation of the soil and the water resources is severe, the time taken to revitalize the system is longer and hence fixing a pre-determined definite time span for realizing the benefits would be difficult. Therefore, the pre-project situation remains an important determining factor for deciding the duration of the treatment. The second component is the availability of location specific technologies. In a watershed development program, the treatment mix has to be different for different watersheds and even within a watershed for the sub-watersheds depending on natural resource endowments, to facilitate adequate impact. In the absence of location specific

technologies, transferring such technologies to the project region may become difficult. Third comes the cropping pattern, as the crop combinations greatly influence the nature of the impact. A predominant silvi-pastoral component may result in economic activities leading to livestock development whereas predominance of cash crops may lead to a close market interaction and a possible diversification towards non-farm investments. Fourthly, the replicability and sustenance parameters of different components will decide the long term impact of the watershed technology. It is possible that a particular technology may show substantial gains in the short run but the continuation of such gains may not be sustainable. The short run and the long run impacts of the technologies, though difficult to be segregated at times, will determine the sustainability of the technology. Fifthly, the treatments on the watersheds involve participation of the stakeholders. In an active area development program, the sustainability would depend upon the continued active participation of the communities involved. Finally, the flow of direct benefits in terms of supply of inputs, machineries, tools, etc., does not represent the core of the impact in any watershed project. The actual impact has a wider significance and spread in the area of operation of the program. Even the fields to which inputs have not been directly supplied, may stand to gain in terms of moisture availability, soil capability, green manure, etc. Therefore, in a watershed development program the entire area needs to be included in the spread of benefits.

4.2.2 Impact System Model

Several authors have therefore concluded that the impact analysis in a watershed project should be attempted under a structure impact system model. The model suggested by Deshpande and Narayana Murthy (2000), as shown in Fig. 4.1, lays down a fairly elaborate and comprehensive methodology for the impact analysis of a watershed development program.

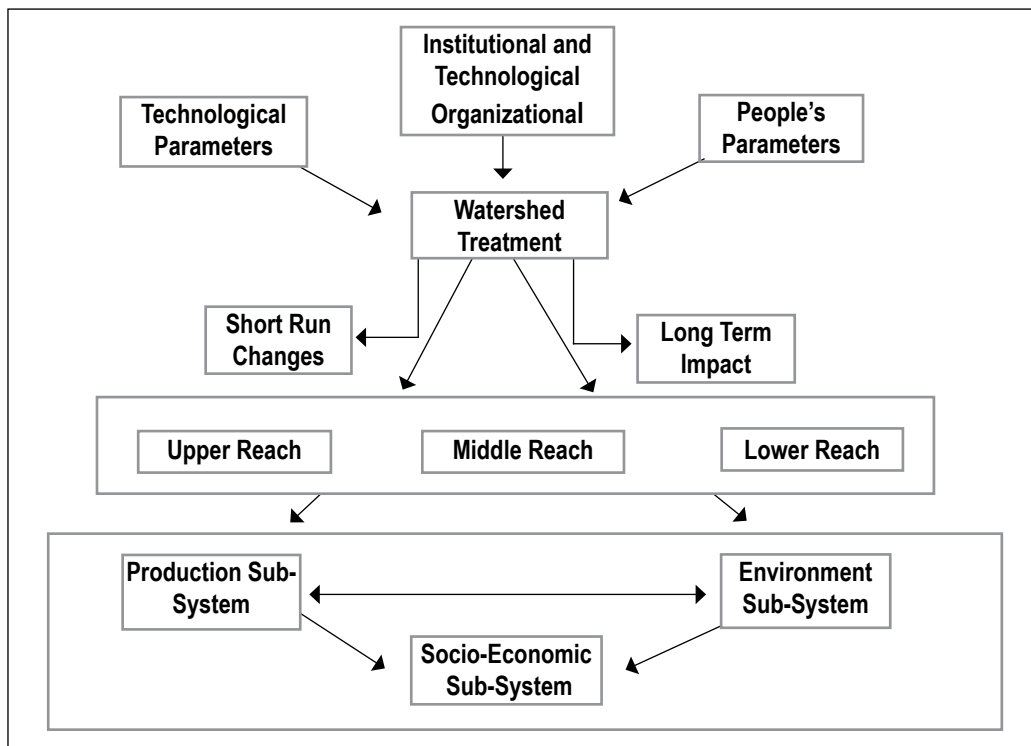


Fig. 4.1: Watershed impact system model.

Source: Deshpande and Narayanamurthy 2000

As rightly indicated in this model, in field conditions, organizational and institutional structure along with technological parameters and the response of the participating beneficiaries usually decide the line of treatment. Watershed treatment results in changes which are both in the short run and in the long term. The treatment is a continuum of processes and may not have a completion as such. The changes are guided by the position of the treatment in terms of reach according to the slope, bio-geological factors and agro-climatic parameters. Among the major sub-systems for impact assessment, we need to concentrate on the production, socio-economic and environmental sub-systems.

4.2.3 Impact on Productivity

Impact on production and productivity of the crops determines the sustainability of the technology. Changes that have taken place in the land use pattern due to project activities will have to be carefully identified. The changes will be visible in two ways—one, through an increase in the area brought under cultivation by bringing the marginal lands under plough and second, by change in the cropping pattern on the marginal lands from low density, low-value crops to high-value horticulture or other cash crops (Shiferaw et al. 2006; Wani et al. 2003b, 2006; and Sreedevi et al. 2006). The differences will be noticeable particularly in the lower reaches. Another change that can be visualized in the land-use pattern is the intensity of use. The key factor to be assessed is how the changes move towards achieving a sustainable land use system than before. Since the structure of the cost of cultivation will also undergo a change due to project implementation, the changes in the cost of cultivation which are directly related to the type of technology, the change in the crop pattern and the structure of resources for cultivation have to be delineated (Sreedevi et al. 2006; and Wani et al. 2003a). Availability of credit and the role of SHGs in obtaining loans for timely provision of inputs are usually the critical factors which may impinge on the enhancement in production and productivity.

4.2.4 Impact on Socio-economic Conditions

Impact on the socio-economic subsystem has to be studied mainly through creation of assets, income, employment, consumption, better provision of primary health and education, female work participation and wage rates. The incremental income has to be computed by comparing the income of beneficiaries with that of non-beneficiaries. Impact of the watershed project on landless labor and the women members of the households is an important component to study the changes in the socio-economic sub-system. The incremental income generated through the program will certainly bring a change in the consumption pattern. The differences in the level of consumption of the beneficiaries as compared to non-beneficiaries will indicate, to a large extent, the impact of the project on the socio-economic subsystem. A comparison of the enhancement in the income of different groups of beneficiaries will show whether there is any decline in inequality among the groups of beneficiaries. On the assets side, it is possible that the project may not have induced substantial changes in the farm assets but the non-farm assets of the beneficiaries may change significantly. The differences between beneficiaries and non-beneficiaries can explain such a change better than a comparison between the pre and post project situations (the changes are expected to be substantial among the farmers in the lower reaches). In many cases, increase in live-stock holding will also be significant.

4.2.5 Impact on Environment

The impact on the environmental sub-system can be analyzed through several components. The reduction in the runoff is the first component of the environmental impact. The second is halting the process of losses in the top soil and sustaining the soil texture. Thirdly, the reduction in soil loss and runoff should lead to reduced nutrient losses and enhancement in the fertility level, however it

takes longer time. This aspect of improvement in the soil characteristics can easily be identified by the farmers. Fourthly, the reduction in the runoff must enhance the moisture availability. Increase in moisture availability period can be felt in all the three reaches. The level of groundwater as well as the density of wells should show a significant increase. The next component is the density of the horticultural crops which should have increased substantially. Finally, the survival rates of the trees on the common lands will be a clear indicator of the sustainability of the treatment on the non-arable lands. In addition parameters such as green cover, C sequestration and groundwater quality also need to be monitored in the watersheds (Wani et al. 2004).

4.2.6 Periodicity of Analysis

While the periodicity for impact analysis will have to depend on the time span of the project, evaluation studies will have to be carried out necessarily over a long period of time. For instance, crop areas and yields are highly variable across seasons and years. The same applied to water levels in wells. Hence, a simple comparison of changes in crop output or water levels between two points of time can give highly misleading results. If the pre-project year had below normal rainfall and the post-project year had higher than average rainfall, a part of the increase in output must be attributed to seasonal conditions. A proper comparison, therefore, calls for data on average output for at least 3 years before initiation and 3 years after completion of the project. Even this would be inadequate to assess its long period impact, as it would fail to take into account variations in the pattern of rainfall (Wani et al. 2003a and 2004). As Vaidyanathan (2001) says: "Improvements in soil moisture, stream flow and groundwater regimes—all of which affect land productivity—may not fully manifest immediately after the project works are completed and may take a much longer time to unravel. Because of these factors, it is difficult to provide credible and validated information on the magnitude of benefits which watershed development can bring to their communities". It follows that the impact evaluation studies of watershed projects must have a considerably broader scope and carried over much longer period of time for reliable results to emerge. For further details on impact indicators and periodicity for measurement refer Wani et al. 2005.

4.2.7 Impact Indicators

In brief, the following indicators have been proposed for the study of impact of a WSDP.

- (a) changes in the cropping pattern and intensity
- (b) changes in agricultural productivity
- (c) changes in fodder and fuel wood availability
- (d) changes in the size and character of live stock holdings
- (e) changes in the population of wild animals and migrating birds
- (f) productivity of non-arable lands
- (g) changes in wages and employment during the project
- (h) changes in incomes for each household category
- (i) changes in seasonal migration
- (j) number of SHGs, their coverage and savings
- (k) the livelihood options generated along with their economic viability
- (l) water level fluctuations, by taking well readings in selected wells for irrigation as well as drinking at least during three times in a year i.e. pre-monsoon, post-monsoon and post-rabi
- (m) water quality
- (n) carbon-sequestration
- (o) changes in soil loss and runoff loss

- (p) changes in greenery cover
- (q) changes in soil quality (biological, physical and chemical)
- (r) changes in collective action, leadership and skills of villagers
- (s) changes in institutions in the village (formal and informal)

However, all these indicators need not be monitored in all the watersheds. Common and easy to monitor indicators can be monitored in all the watersheds and those need technical inputs can be monitored at selected benchmark watersheds in a target ecoregion using new science tools.

Table 4.1 summarises the impact indicators that need to be evaluated at the watershed level, the State level and the National level.

Table 4.1. Impact indicators at farm, state and national level.

Farm level indicators	State level indicators	National level indicators
• Area under irrigation	• Agricultural production	• Production
• Crop intensity	• Food security	• Price levels
• Productivity (food, fodder & fuels)	• Poverty reduction	• Employment generation
• Employment	• Employment potentials/inter-sectoral linkages	• Poverty reduction
• Household food security	• Gender and equity issues	• Sustainability of natural resources
• Risk management	• Social capital development	
• Profit/cost reduction	• Increased groundwater availability	
• Seasonal migration	• Reduced soil loss and runoff loss	
• Conservation of natural resources	• Increased greenery	

4.3 Agency for Monitoring

Finally, the question as to who should monitor the WSDPs and how, needs to be discussed. As of now, monitoring in most of the WSDPs tends to focus on basic physical and financial criteria as against data on implementation quality and impact. In addition, while information tends to move upward to central agencies, it is not usually returned to implementing agencies on a regular basis in the form of analytical reports that can help in improving project planning and implementation. Providing adequate data on the quality of implementation as well as its impact to the implementing agencies needs no emphasis.

Program monitoring by government agencies tends to be top down and reinforces the social differences that already exist. One of the key factors that hinder attitudinal reforms in government program implementation is that the monitoring process goes solely by financial progress and does not look at processes of change on the ground. Accountability of budgetary expenditure is doubtlessly important. But rarely, if at all, does the government machinery attempt to measure a baseline of existing problems and fix objectives with the precision that will help monitor material changes that should happen on the ground. For instance, government monitoring ignores if participatory projects are actually making rural income increase or at least reduce indebtedness; whether the watersheds regenerate soil and groundwater conditions resulting in increased productivity, etc. The focus for the line departments has been on percentages of budgets spent and this is a very remote manner of ensuring the implementation of a program. If official accountability were measurable on the basis of non-financial targets, a lot more difference in project implementation can be seen and there could be far greater incentive to actually produce results in the field, or even stimulate true participation. It is therefore obvious that we should go beyond the government agencies to get the WSDPs monitored.

Remote sensing technology is a scientific tool that could be coupled with monitoring, to help identifying sites with greater potential for externalities in watershed development as well as aiding in project planning and design. A number of donor funded WSDPs are already using this technology as an integral part of their monitoring systems. This technology has a great potential to help locate watershed projects in areas where there is better chance of success in terms of bio-physical and hydrological characteristics. Remote sensing is particularly powerful for monitoring through measurement of the extent of vegetative growth in the dry season and hence needs to be integrated with the monitoring process.

That still leaves us with the question, as to which agency is best suited to monitor a WSDP. There are two ways in which WSDPs can be monitored on the ground. First, by collecting monthly/quarterly physical and financial reports from the project implementing authorities containing basic information such as the number of structures constructed along with their dimensions, area of plantations, survival percentage of plants, actual expenditure incurred, etc. The analysis in this case will be done in-house, mostly by the implementing agencies themselves, or at best by the Department of Watershed Development or the donors. The second method is the concurrent evaluation to be undertaken by trained and evaluators from the recognized institutions who will also provide a comprehensive analysis for monitoring.

As a policy, the agency that implements the program should not be entrusted with the monitoring process as well, at least to ensure objectivity. Some donor funded projects such as the World Bank supported in Sujala Watershed Development Projects have invested heavily in establishing comprehensive monitoring systems to be undertaken by independent evaluators (Sreedevi et al. 2008). Time series photographs of watershed development also would be effective for M&E. This has ensured an unbiased and objective analysis of implementation, a multi-disciplinary integrated approach as well as an independent and need based assessment. Moreover, an independent evaluator is less open to external influences and has a greater acceptability at the field level. The only problem which some of the independent evaluators may face, is the lack of easy access to data/information as the project implementing agencies may not be willing to part with the information in their possession easily.

4.4 Evaluation

While monitoring is intended to continuously track performance and processes, evaluation is undertaken to essentially to assess the results obtained through such monitoring and validate them. Table 4.2 below summarizes the key features of a monitoring and evaluation in a comparative perspective.

The NWDPRAGuidelines envisage the Ministry of Agriculture and the state governments to appoint internal as well as external agencies to carry out concurrent as well as post-project evaluations of the watershed program. The impact criteria laid down in the program guidelines will be the basis for such evaluations. At the same time, independent consultants may also be asked to undertake action research projects to document the actual process of project implementation in a representative sample of watersheds. The result of these evaluations and process documentations may be submitted to the state and central level implementation and review committees with suggestions on policy issues as well as improvement of working procedures.

In practise, the thin line of divide between monitoring and evaluation in the WSDPs appears to be blurred. The project implementing officers in some cases undertake evaluation of monitoring results within their own offices. In the World Bank supported Karnataka Project, the external agency engaged to monitor the progress also provides some kind of evaluation, which is mostly an interpretation of the results obtained through monitoring. A well-defined system of external evaluation of the WSDPs is still to be put in place.

Table 4.2. Key features of monitoring and evaluation.

	Monitoring	Evaluation
Objective	To track changes from baseline conditions to the expected outcome and to identify impediments	To validate what results were achieved, how and why they were achieved or not achieved
Focus	On the outputs, programs, partnerships and their contributions to the outcome	To compare planned outcomes with the achievement, to find out how and why the strategies adopted have (or have not) contributed to the achievement and to answer questions on relevance, effectiveness and sustainability of the impact
Methodology	Tracks and assesses performance and progress towards outcome through comparison of indicators over time and discussions with partners and stakeholders	Evaluate achievement of outcome by comparing indicators before and after the intervention; relies on monitoring data and information from external sources
Conduct	Continuous and systematic by project staff and key partners	Time-bound, periodic and in-depth by external evaluators and partners
Use	Alerts project managers to problems in progress and delivery of outputs, provides options for corrective actions	Provides strategy and policy options; demonstrates accountability.

4.5 Scope and Purpose

In effect, evaluation follows monitoring and will necessarily have to depend on good monitoring. Evaluation usually yields substantial information on project implementation arrangements, administrative structures and the achievements of immediate outputs. While preliminary evaluation of monitoring results can be undertaken by the project staff, it will be desirable to engage external evaluators to undertake detailed evaluation of outcomes, at periodic intervals. Monitoring of a WSDP will be continuous and concurrent, whereas evaluation can be periodic within a specific time frame. Table 4.3 indicates the scope and purpose of a WSDP evaluation and the aspects to be evaluated.

While concurrent evaluation of the project may in some cases be desirable, as a policy, at least mid-term and final evaluations of a WSDP covering the aspects stated above, by an external evaluator must be provided for. While the first evaluation will help in undertaking mid-course corrections, the latter can also lead to improvements in designing future projects.

Table 4.3. Scope, purpose and aspects of evaluation.

Scope	Very specific, limited to project objectives, inputs, outputs, processes and activities
Purpose	To improve implementation of the project and to redirect future projects in a similar area
Effectiveness	Have the project objectives been achieved or are they expected to be achieved? How effective are the processes adopted?
Efficiency	To what extent do the project outputs derive from efficient use of resources – both financial and human?
Degree of change	What are the positive/negative, intended/unintended changes brought about by the project?
Sustainability	Will the benefits/activities continue during and beyond the project?

4.6 Role of Local Communities

Even when external evaluators are engaged for effective participatory monitoring evaluation, there still exists a wide scope for improving monitoring mechanisms particularly through the use

of local communities to gather relevant information on an ongoing basis. Specific case studies of the beneficiary farmers including women and the landless labor and focus group discussions with the general public in the watershed will also enhance the quality of monitoring. Collecting high quality information making use of the available technologies across the geographic coverage of a WSDP through independent evaluators would facilitate comparison of results, analysis across agro-climatic regions and in general, better implementation of the program.

5. Design and Implementation Options

5.1 History

History has played a key role in determining the designs and implementation of watershed management programs in India. Shortly after independence, India relied heavily on multi-purpose reservoirs only, for providing irrigation and generating hydro-electricity. To stabilize the catchments of these reservoirs and to control silting, a centrally sponsored scheme of "Soil Conservation Work in the Catchments of River Valley Projects" was launched in 1962-63. After almost two decades, the Ministry of Agriculture started a scheme of integrated watershed management in the catchments of flood prone rivers in 1980-81. These schemes were implemented by the line departments of the government, for want of better options. During the 80s, a few successful experiments of fully treated watersheds like 'Sukhomajri' in Haryana and 'Ralegaon Siddhi' in Western Maharashtra with active involvement of research organizations and NGOs came to be reported. The Ministry of Agriculture then launched a program for propagation of water harvesting/conservation technology in rain-fed areas in 19 identified locations in 1982-83. In October 1984, the Ministry of Rural Development adopted this approach in 22 other locations in rain-fed areas. In these 41 model watersheds, the Indian Council of Agricultural Research provided the required research and technology support. The underlying purpose of these operation research projects was to develop model watersheds in different agro-climatic zones of the country. The implementation of these projects still remained with government departments and the concept of involving community participation and developing a model for sustainable development were not at all articulated.

The first major initiative to include people's participation in watershed development programs took off in the State of Karnataka in the mid 80s following their conscious policy to involve the PRIs in development programs. The first watershed development program (WSDP) in which PRIs were formally involved was under the Rural Landless Employment Guarantee Program (RLEGP). People's participation then was seen mainly through the involvement of the PRIs. When the Dry-land Development Boards (DLDBs) were later constituted in Karnataka to implement the WSDPs, they were also situated in the context of *panchayati raj*, but only at the district level. Not much thought was given to people's institutions at the *gram panchayat* level or at the watershed level.

The WSDPs managed by the DLDBs were actually implemented through officials drawn from the line departments. While the objective of integrating various sectors like agriculture, forestry, soil and water conservation, horticulture and animal husbandry was partially achieved by bringing all the technical staff of these sectors under the DLDB, their attitude and the systems they subscribed to remained firmly entrenched in their respective departments. This, therefore, did not promote adequate people's participation at the watershed level or foster the process and institutions required to promote people's effective participation in identifying, planning, budgeting, implementing and managing watersheds.

Around 1984, MYRADA, a well-known NGO in Karnataka began exploring the strategy of micro-watershed management for the first time, in collaboration with the Swiss Development Corporation and the Karnataka Government. In this tripartite arrangement, MYRADA's role was to foster a process and intervene where required in that process, through which families in a micro-watershed could plan, implement and sustain a program, which supported the regeneration of the entire micro-watershed. The program was carefully designed, in consultation with the people, to increase agricultural productivity and provide adequate biomass to meet the needs of all the people, with priority to the poor. In terms of people's institutions required to manage the watershed, the basis was the self-help affinity group which is small, homogeneous and voluntary and which begins by managing credit. There were several such groups in one micro-watershed. These in turn, appointed or elected representatives to form a watershed implementation and management committee, which emerged as the key people's institution with which all outside interveners (whether government or NGO) have to interact.

For the first time since the mid-60s, the 1990s witnessed a rate of growth of food grain production in India that was lower than the rate of growth of population. It was also recognized that irrigated agriculture had hit a plateau while dryland farming had suffered neglect. Realizing the need to concentrate on dry-land development, the concept of integrated watershed development finally got institutionalized at the national level with the launching of the National Watershed Development Program for Rain-fed Areas (NWDPA) in 1990, covering 99 districts in 16 states.

In 1994, a technical committee under the chairmanship of Prof. Hanumantha Rao which was appointed to appraise the impact of the conservation works done under the Drought Prone Area Program (DPAP)/Desert Development Program (DDP), identified certain weaknesses in these programs and suggested specific improvements. The committee felt that "the programs have been implemented in a fragmented manner by different departments through rigid guidelines without any well-designed plans prepared on watershed basis by involving the inhabitants. Except in a few places, in most of the program areas, the achievements have been dismal. Ecological degradation has been proceeding unabated in these areas with reduced forest cover, reducing water table and a shortage of drinking water, fuel and fodder." The committee therefore recommended that the sanctioning of works should be on the basis of the action plans prepared on watershed basis. It called for introduction of participatory modes of implementation, through involvement of beneficiaries of the programs and NGOs. Around this time, the Constitution of India was amended bringing in the PRIs as local governments to manage natural resources in rural India. Thereafter, in 2003, the Hariyali Guidelines issued by the Department of Land Resources (of the Ministry of Rural Development), Government of India, placed the PRIs at the centre of the watershed program and bestowed a far greater role on the line departments working with the PRIs, in implementing WSDPs with the help of the user groups. In 2007 Government of India formed National Rain-fed Area Authority (NRAA) and new common guidelines for watershed development published (GoI 2008).

5.2 Public-Private Partnerships

Public-private partnership in WSDPs has been an un-explored phenomenon in India, in so far as it relates to the involvement of private enterprises. The technical committee on WSDPs in India constituted in 2006 by the Ministry of Rural Development, Government of India, has however, put forward some suggestions in this regard to the Government of India for their consideration. These include encouraging corporate sector to contribute generously to the national/state funds and to the watershed development funds at the micro-watershed level by providing 100 % tax

exemption to such donations and involving the corporate sector in technical assistance, capacity building and training besides implementation of benchmark initiatives in collaboration with science and technology institutions. In the committee's perception, the strength of the corporate sector would lie in developing marketing systems, providing agricultural extension and other value added services through IT-enabled activities, energy resource development and management and some commercial initiatives in terms of developing agricultural plantations which would also return some benefits to the agricultural community in terms of buy back guarantees, information enriched services, etc. The committee, however, hastens to add that all corporate interventions must adhere to the principles of people's participation, equity and sustainability.

5.3 Rajasthan Model

The Government of Rajasthan has recently organised a state level forum for community-business alliance for water. The role of the forum is to promote private sector involvement in water sector projects. This consultative process has resulted in development of the partnership between ITC group and the Government of Rajasthan, who have joined hands for the implementation of integrated watershed management project in Bhilwara district of Rajasthan. The partnership makes use of the public investment program namely Integrated Wasteland Development Program (IWDP) of the Ministry of Rural Development for watershed management and adds on the resources from ITC, both in terms of funds and professional skills to implement watershed based livelihoods project and build community capacity.

Both the parties will make equal investments in this project involving multi-stakeholders such as government, PRIs, NGOs, community and the private investor. The government has linked the project to IWDP and is following the institutional arrangements prescribed under IWDP. It is further strengthened through the inputs of the private sector specifically for capacity building and project management. The MOU has been signed by ITC and the block *panchayat* under supervision and monitoring of the Watershed Directorate. The MOU clearly defines institutional arrangements, process and the roles of all stakeholders.

The driving forces of this initiative are the interests of the private partner and the objectives of the government. ITC has a positive interest in ensuring better implementation leading to effective management of natural resources and increased economic level of the community, as that would lead to enhancement of their business besides achieving the performance indicators for social development. The State Government is interested in increasing coverage through additional funds and enhancing the effectiveness by using professional skills of ITC.

5.4 Capacity Building

The involvement of private sector in public WSD programs under PPP approach can improve their effectiveness in:

- augmentation of public resources through private investment in WSD projects;
- enhancing economic returns on the public investment through establishing backward and forward market linkages in the watershed areas; and
- offering need based and quality services for capacity building.

The initiative in Rajasthan has demonstrated that a conscious effort to match the interests and creating enabling environment are necessary to promote PPP. As already stated, lack of capacity at the state level for promotion of PPP remains a challenge and the Rajasthan model can provide

excellent insights into the role of the private sector in capacity building. For capacity building in Andhra Pradesh, APRLP institutionalized a consortium approach for capacity building by bringing together several organizations together through signing MoAs. The capacity building consortium provides services to Government of Andhra Pradesh at state and cluster levels.

5.5 Implementation Options

The Indian experience has thus thrown up the following implementation options for a WSDP:

- through the line departments of the government;
- through non-government initiatives, with community participation at different levels;
- through *panchayats*, watershed development teams and user groups;
- through any of the above PIAs adopting consortium approach (including PPPs).

5.6 Lessons from the Past Studies

Most of the studies carried out in the country on the implementation of watershed development programs accept participatory resource management as the most desirable approach. Studies show that program implementation has been mainly approached from a community perspective by looking at the conditions that determine collective action for implementing the program. Some acknowledge that the desirability of collective action in the management of land and water resources used as community resources lies in providing ecological sustainability and that such efforts would be more effective in the resource scarce regions (Wade 1988). At the same time, it is also acknowledged that the adoption of 'technology' for the conservation of the resource might not be a feasible proposition in extreme scarcity conditions as poor households cannot afford to adopt conservation practices that have a bearing on their livelihoods (Sing 1994). Thus, physical condition of the resource can motivate or de-motivate the users to adopt collective action practices aimed at conserving and using the resource. For instance, drawing on a total sample of 49 villages with various degrees of collective action for managing village tanks used mainly for irrigation, a study in Karnataka stressed that the defunct status and reduced utility of the tanks are the principal de-motivating factors for community participation (Raju et al. 2003). At the same time, studies acknowledge that there is a relationship between the spread of the resource used as a community resource (the extent of the resource in terms of its area/coverage) and the pattern of usage among the users (Raju et al. 2003). This can influence the implementation of the program in terms of the community's willingness to and participate in the strategies to develop and manage the watershed.

Studies also stress that communities capacity for collective action in implementing watershed development programs will be strengthened according to the density of social networks and inter-personal interactions, as well as the organizing practices existing within them (Reddy 2000; Raju et al. 2003) the local level leadership's capacity for responsive interactions both within and outside the community and the educational achievement of the community (Krishna 2001; and Meinzen-Dick et al. 2002). Collective action by the watershed community largely depends on the tangible economic benefits reaching to the large proportion of small and marginal farmers (Wani et al. 2003a) and not on the subsidy-based entry point activities and interventions. One of the important drivers of success in the watershed program is pre-disposition of the community to collective action and good local leadership, highlighting the need for development of social capital (Sreedevi et al. 2004) enhanced through consultative and collegiate mode of participation which can be enhanced through knowledge sharing, use of science and ensuring equitable and tangible benefits. These three conditions are significantly associated with higher performance by way of transforming the stock of social capital to a flow of benefits. Enhancing the levels of all the three

factors is, therefore, more likely to ensure better performance in the implementation of programs in the watershed management sector. Looking at the institutional processes involved, studies highlight that if the poor are unable to maintain or enhance their livelihoods through access to the benefit streams, there will be a tendency for the program implementation strategy to breakdown (Farrington et al. 1999). Studies relating to experiences from watershed development projects across the country reiterate that direct and indirect impacts of participatory institutions on incomes of the people are likely to influence their acceptability of and participation in, and thus strengthen the implementation of the soil and water conservation measures (Sing 1994; and Shah 1998).

Detailed studies on impacts of watershed programs in India undertaken by ICRISAT highlighted that although much emphasis is given on processes and mechanisms of implementation not much emphasis is given for enhancing agricultural productivity. All programs concentrated on augmentation of water resources through ex-situ rainwater harvesting. However, efficient conservation and use of rainwater in fields was overlooked and it resulted in skewed benefits in favour of well to do farmers who could extract groundwater (Wani et al. 2002, 2003b).

ICRISAT's approach emphasizing on convergence and consortium for technical backstopping to improve productivity and incomes of small and marginal farmers by adopting holistic system approach paid off reach dividends in terms of doubling the productivity and incomes through enhanced collective action (Wani et al. 2003a; and Sreedevi et al. 2004). Meta analysis of 311 watersheds case studies in India showed that lack of coordination between state and Central governments and also between development agencies and research organizations along with lack of community participation were important factors responsible for less impacts of these programs (Joshi et al. 2005).

Insufficient focus on inter-agency cooperation, coordination, and integration important to facilitate program implementation and monitoring, is often the root of most environmental management problems in the country including difficulties with compliance and enforcement (GoI 2005; and World Bank, 2006). In other words, there is need for cross-sectoral coordination in implementation, enforcement, and monitoring of watershed development programs. Available literature also identifies a few other factors that are required to be in place for effective inter-agency integration, such as:

- (i) aligning with on-going institutional processes such as the decentralization processes set in motion in the country by the 73rd and 74th Constitutional Amendment Acts. There is a need for strengthening the integration of local government institutions in program design and implementation of watershed programs to obtain location specific responses and benefits;
- (ii) the need to correlate with other measures of development performance at the local level (Krishna and Uphoff 1999) as revealed by the facts that: (a) villages that have done well in terms of common land development have also been successful in initiating and implementing a substantially higher proportion of community development projects; (b) residents of these villages more often act collectively to seek political or administrative redressal of their commonly felt grievances; and (c) they achieve more satisfactory levels of services from local-level government agencies;
- (iii) building multi-level organization as it would combine the advantages of solidarity with scale. (Esman and Uphoff 1984). Besides, since interventions in particular watershed often impact on neighboring and downstream communities, there is a need for a broader perspective through planning in different tiers, from micro through macro watersheds through to basins, to

cover externalities that cannot be handled at the micro-watershed level (Vaidyanathan 2001). The potential benefits of solidarity and scale deriving from a multi-level/tier structure may not be realized if such an organizational structure is not encouraged and this needs to be taken care of while designing watershed program implementation.

5.7 Participatory Processes

As stated already, watershed models initially designed until the mid 80s concentrated on scientific principles with little input from user communities. These projects were generally characterized by their implementation through the “line departments approach”, in which the components of the program were administratively controlled by the respective line departments. This approach suffered from several shortcomings, such as lack of coordination among the implementing line departments, resolution of problems in an isolated manner without taking into consideration the impact of such solutions on the project components of the other departments, lack of flexibility, lack of innovative ideas and negligible participation of the beneficiaries thereby, making the program unsustainable in the long run.

The subsequent initiatives including the Hanumatha Rao Committee Report have uniformly emphasized participatory processes. Ideally, participation should be a two-way process of intense dialogue between the stakeholders and the project-implementing agency, helping the local community in the implementation of the project. Attempts must be made to demystify the technical processes of watershed development and the implementation should be on the basis of popular understanding of the different components of the project by the stakeholders. The principles of transparency and equity must extend to conflict resolution, beneficiary selection, benefit sharing, etc. Special provisions must be made for participation by the landless and the weaker sections of the society. Adequate attention must be paid to developing common lands and ensuring that the landless and the weaker sections have access to them. Livelihood support initiatives should be simultaneously encouraged to take care of the interests of the landless. Substantial representation for women should be ensured in the village watershed committees, which should become vehicles for mobilizing women to articulate and protect their interests in the watershed programs.

5.8 Institutionalizing the Process

While the need to promote people’s participation in the process of watershed management has been well established, how to institutionalize this participation has not been satisfactorily resolved. The major reason for the push towards people’s participation in watershed management is that water cannot be managed effectively and efficiently without people’s active cooperation. People’s participation in planning, implementing, budgeting and maintaining the structures and supportive systems through their own institutions will definitely increase the level of ownership by the people. This in turn would result in a higher degree of effectiveness, efficiency and transparency in the process of watershed management. It will also ensure sustainability of the interventions. This is the justification for the constitution of village watershed committees, micro-watershed associations (area groups) and watershed committees at the macro level.

Whether the leadership for organizing peoples’ institution should be in the hands of competent NGOs or should it be left to the elected government/PRI has been a matter of intense debate. The strengths and weaknesses of the government/PRI and the NGOs as project implementing agencies is summarized in (Table 5.1).

Table 5.1. Strengths and weaknesses of government and NGO project implementing agencies

NGOs	Government/PRI
<ul style="list-style-type: none">• Strong in social mobilization• Conceptually stronger with participatory approaches• Closer and more equal relationship with people• Flexible and adaptive to local situations• Weak in technical competence-non-availability of technical staff in the open market• Poor quality and high turnover of technical staff due to poor salary and working condition, and temporary nature of employment	<ul style="list-style-type: none">• Strong in technical competence (but not in adaptive research)• Have official standing with the community• Clear lines of accountability• Conceptually oriented to top-down approach• Lack flexibility• Emphasise physical and financial targets• Overloaded with numerous programs• Lack process orientation• Watershed development team members live far away in district headquarters and towns• High rates of transfers• Watershed development team members often not full time• Unable to apply technical knowledge to local circumstances and build on indigenous practices

Source : Turton et al. (1998a)

In accordance with the Constitution of India, the PRIs have to play a role in watershed management as they are the statutory bodies responsible for natural resource management. Common lands within the watershed also vest in the *panchayats*. On the other hand, participatory institutions like the SHGs and watershed institutions must also be necessarily promoted, as they are the grassroots level organizations specially meant for protecting the interests of the stakeholders. The SHGs are required to lobby for the rights of the poor, to provide credit for their livelihood and to ensure that the landless benefit from the investment in natural resources. The watershed associations are required to ensure that there is an appropriate institution to manage a micro-catchment in which all the members have a stake since they cultivate lands in the area or use its resources.

The system of UGs managing watershed development independent of the *panchayats* suffers from two distinct shortcomings. Firstly, they address the concerns of only the settled agrarian families wherein the boundaries of the village, community and users are neatly defined. Such rigid norms of program implementation preclude the landless, livestock holders and other poor communities who use common resources either directly or indirectly. Secondly, the user groups are not legal entities and have no status outside the program. They cannot have their own long term plans beyond the domain and tenure of the project, even though the larger political and social environment of which they are a part, also impinges on common resource use. They have no way even to represent their own points of view to the recognized institutions of governance. More over, the UGs generally do not meet and not found effective for looking after the particular structures. The AGs in Sujala program in Karnataka were found more sustainable than the UGs as the membership of AG was voluntary, had a role in decision making process in the watersheds and the functioning could be improved by adopting good practices of SHGs like thrift and saving and regular meetings (Sreedevi et al. 2008).

If political representation and control are assumed to be pre-requisites for weaving the concerns of watershed development into the political main stream, PRIs seem to be eminently suited for the same. *Panchayats* are sustainable institutions that have statutory rights and mandate to plan local development. Secondly, they are in a position to integrate watershed development with wider development strategies because they are already responsible under the Constitution for other development programs as well. Thirdly, they also have a constitutional commitment to represent the marginalized sections of the community through reservation of seats and positions for women, the backward classes as well as SCs and STs. Fourthly, provision of additional financial resources for watershed development as well as the maintenance of the assets created becomes easier if a link is established between PRIs and the user groups/area groups. The central question therefore is: “what kind of an institutional collaboration is possible between the PRIs and the user groups so that they can function in a complementary fashion and ensure watershed development, duly protecting the interests of all the stakeholders?” Let us now explore the available options to find a solution to this critical question.

5.9 Existing Models

As of now, two distinct models exist in the field of people’s participation in WSDPs in India. The first is the Karnataka Watershed Development Society model in Bellary district of Karnataka which has the *zilla panchayat* (ZP) as the implementing agency. However, the ZP has appointed a steering committee specifically for the program and the chairman of this committee is the chief executive officer of the ZP with the joint director of Agriculture in the district as its member-secretary. PRI members in the committee include the elected representatives of the *taluk panchayat* (TP) and the ZP who represent the area in which the watershed program is implemented and the president of the concerned *gram panchayat*. In addition to the officials responsible for the implementation of different programs within the watershed, there are also NGO representatives one from each watershed in this committee. The funds flow directly from the CEO of the ZP to the watershed association formed at the level of the 500 hectare watershed. This is a good example of involving the ZP while at the same time avoiding the weaknesses that could creep in due to pressures and influences that may originate from the members of the steering committee. The weakness in this strategy, however, is that there is no place for the watershed associations (AGs) at the micro-watershed level of 100 hectares. As a result, the watershed association at the 500 ha level transfers funds directly to individual beneficiaries for private land treatment and livelihood enterprises. The committee also directly implements works on common lands.

The second model is Sujala, the WSDP supported by the World Bank, which provides a place to the micro-watershed associations at the 100 ha level also. These AGs are recognized as the middle tier in the three tier institutional structure supporting the watershed program in the field consisting of (a) the SHGs (of the poor including landless), (b) the AGs (of all the families cultivating or using resources in the micro-watershed of about 100 ha) and (c) the watershed committee comprising elected or selected representatives from the SHGs, AGs and other stakeholders at the 500 ha level. The AGs are contracted by the watershed committees to manage the watershed program in their area. Funds are transferred to these area groups for work on common lands from the watershed committees. Thus, this program recognizes the key role the AGs play in watershed development.

Recent study by ICRISAT (Sreedevi et al. 2008) on institutional arrangements in major watersheds programs viz., DPAP-Hariyali, Andhra Pradesh Rural Livelihoods Program (APRLP), supported by DFID, Sujala Watershed program with World Bank funding and Indo-German watershed program (IGWP) in Maharashtra has provided following in-sights:

Watershed implementing agency as in case of Sujala and Hariyali programs need to be independent and WDT need to play a supportive role.

There is a need to reach a proper balance between men and women members of the WIA for ensuring participation of all stakeholders like in Sujala program. Men farmers were not adequately represented in APRLP where women played major role and in Hariyali program women's participation was not ensured. However, in all the programs landless members were not represented in the decision making of WIA. It is proposed to have 50-50% membership for women and men and all groups (AGs, SHGs, labor groups) should have representation in the decision-making body.

- In order to promote active collaboration between PRI and WIA there is need to establish structural and functional linkages through guidelines.
- Farmers are better organized into AGs as in Sujala program than the UGs in other watershed programs as the AGs are actively involved in implementation of program. The AGs can adopt best practices of the SHGs for post-project sustainability.
- SHGs are well integrated into WIA of the APRLP, Sujala and IGWDP and in Hariyali watersheds the SHGs are neglected. However, for enabling SHGs to participate effectively before project implementation phase capacity building phase is must to stabilize the CBOs. In the Hariyali program CBOs are weak due to insufficient social organizational support to them.
- The institutional structure of an independent monitoring agency created in Sujala program is found effective and all stakeholders are supportive of an independent structure to strengthen social auditing and transparency.
- The CBOs need to be supported by qualified field staff and WDTs as is the case in Sujala, APRLP and IGWDP where the WDTs should not get in centralized position to support particular WSs as it defeats the whole purpose of MDT's support to all the WSs.

5.10 A Desirable Model

An examination of the two models and comparative study of institutions in different watershed programs indicates that the first model from Bellary of involving the ZP could be replicated along with the Sujala Watershed model of including the watershed associations (AGs) at the micro-watershed level. These two institutions together with the SHGs can form an institutional framework that appears most appropriate for implementation and management of the watershed programs. Perhaps, the committee at the watershed level with representation from the GP/TP would be the appropriate institution at that level to support the program. Effectively linking the UGs with the PRIs at the appropriate level, as noted earlier, is the key to ensure people's participation in watershed program as well as its sustainability.

At the watershed level, there is a need to ensure transparency and accountability of management to the stakeholders. Proper accountability would require greater involvement of watershed associations, SHGs and UGs in planning, execution and financial management of the project. The *gram panchayat* should be concerned mainly with facilitating convergence, project review, monitoring and conflict resolution among these bodies who should always remain accountable to the *gram sabha*. To ensure this, it may be necessary to prescribe that the action plan for each micro watershed must be presented for approval at the *gram sabha* meeting, the summary of the approved plan must be put up for display in a public place, all labor payments must be made in public and regular public hearings must be periodically held, where detailed accounts are presented to the stakeholders. Wherever possible, information technology should be used to record and manage data as well as to generate information on the indicators to be monitored. Independent monitoring agency using new science tools coupled

with social auditing (as attempted in the Sujala model) could prove to be effective in enhancing transparency, improving quality and ensuring equity for various interventions. A consortium approach as found effective by ICRISAT for technical backstopping of watersheds and to converge various activities in watersheds is recommended (Wani et al. 2002, 2003a; and Sreedevi et al. 2004)

There is an urgent need to have social/legal mechanisms and policies for sustainable use of augmented water resources in the watersheds (Sreedevi et al. 2006). Through digging more bore wells and increasing hours of pumping from the wells, the water balance can tilt towards negative. Water users associations and the PRIs must be encouraged to charge and collect water and electricity rates from the farmers on the basis of the volume of actual consumption where metering is possible or on the basis of the quantities of water received or electricity consumed as estimated by the farmers' associations in as transparent a manner as possible.

5.11 The Way Forward

To sum up, for effective implementation of watershed projects we need to consciously promote partnerships. They can be public-private-community or public-*panchayat*-community. In some cases it may be possible to promote partnerships between the private sector, *panchayats* and the communities also wherever the private sector finds it desirable to work with the communities through the *panchayats*. As already tried in Rajasthan, the PPP between ITC and Govt. of Rajasthan could be a way to move to strengthen the partnerships. While involving the beneficiary communities in these partnerships is a must, inclusion of PRIs may not always be possible, as these institutions have not taken strong roots in some states of India. Involving private sector will bring in improved professionalism and possibly better designs and timely execution. The type of involvement can be decided on a case to case basis depending upon the needs of the area and the capabilities of the partners. However, all such interventions must adhere to the principles of peoples' participation, equity and sustainability. Involving the *panchayats* will enable not only better participation of the communities but also in long term maintenance of the assets created and the sustainability of the program in general.

The success and sustainability of any WSD program, whether it is implemented by the government, NGOs or the PRIs, will thus depend on the partnerships designed for its implementation. Government agencies bring technical expertise and resources for broad coverage, whereas the NGOs and UGs, AGs have the expertise in need assessment and promoting and supporting joint action. The pre-conditions for successful partnership must include:

- (a) commitment to multi-agency partnership at the highest level, but shared among the middle and junior government staff (who have the power and opportunities to undermine such efforts if they remain unconvinced);
- (b) capacity building is very critical for all the stakeholders and at all the levels starting from CBOs at village level to policy makers at national level. All aspects of WSDPs need to be covered including for MTEs and impact assessment well trained and certified personnel are needed and strong emphasis on capacity building is needed;
- (c) greater flexibility in government procedures for co-funding with NGOs/UGs/AGs;
- (d) incorporation by each side of some elements of the skills of the other (stake holder analysis, needs assessment, management of the project cycle, negotiating capacity, conflict resolution, etc.), if they are to communicate adequately about objectives, implementation and outcomes;
- (e) a forum to facilitate communication and collaboration, joint monitoring of progress and mid-course correction, if necessary.

6. A Way Forward

In this chapter, we appraise the watershed development program guidelines put up by the government, NGOs and donor agencies. As part of this exercise, we identify broad differences between government guidelines and NGO/donor agency guidelines, keeping in view the critical comments of the academics on the subject, to present some suggestions for future use.

6.1 Village Selection

Two of the criteria for selection of village according to the guidelines were the levels of rainfall and irrigated area. During the pre 1995 mode under DPAP, the norm insisted upon villages with over 1125 mm average rainfall with less than 10 per cent irrigated area. Alternatively, if the rainfall was less than 750 mm, the irrigated area to go with it was not more than 20 per cent of the area. However, under NWDPPRA the irrigated area could go upto 30 per cent with no limit on rainfall. Considering the fact that a large proportion of the villagers had access to irrigation of a higher magnitude, the project benefitted the well-endowed farmers.

It has also been found that population density and presence of shepherds had impacted on soil erosion i.e. higher proportion of shepherd population adversely impacted on soil erosion sheep and goat extensively grazed the plants on land, causing soil erosion. However, higher population resulting in lowering of land to population ratio and causing scarcity of land forced people to manage land in a better manner and thereby to take measures for preventing land erosion.

It therefore appears that the future guidelines for selection of villages should keep in mind the following concerns: that as far as possible, villages in rain-fed regions (arid, semi-arid and sub-humid tropics) with low proportion of irrigation should be selected for watershed development keeping in view the equity concern; secondly, areas with more poverty or low GDP as well as where natural resources are threatened should receive priority. Villages/watersheds should be selected in clusters to achieve higher impact and most importantly where community demands the program rather than supply driven. Watershed approach works in all the rain-fed areas and watershed development could be prioritized based in clusters of villages on the poverty, low GDP, extent of land degradation, water scarcity, higher dryland areas, low productivity and cost, importantly based on the demand by the community.

6.2 Community Participation

The success and sustainability of the watershed development are acknowledged to be very much dependent on participation of community organizations. While NGOs, as part of the community organizations, have been taking a major role but it should not come as a replacement to SHGs and other community organizations. Therefore, the future guidelines ought to be very clear by stating that wherever SHGs are present, they should take-up the task of mobilising people and where such organizations are not present or weak (when they are present) NGOs can initiate SHGs.

6.3 Planning Process

Details about the planning process have been discussed in section 2.3.5. It is sufficient here to state that the planning process for watershed development has been *Adhoc* and not participatory, and is largely influenced by the ideology of the PIAs. The PIAs should therefore be given sufficient time to submit their proposal such that they have time to go through the consultation process with the community and use available scientific data from remote sensing. Training for PIAs (NGO or otherwise) should also to be made mandatory.

6.4 Funds Disbursement

Likewise, the issue of fund disbursement has also been dealt in detail under section 2.3.8. The review suggests that fund disbursement *per se* is affected by multiple problems such as delay in sanction of funds and its use, which in turn result in delays in the processes followed for implementing the projects. The future guidelines should therefore have to be very clear about the need for prompt sanction and release of funds, and also with needed flexibility to move around funds from one head to another. Most importantly, the allocation of funds per ha of land needs upward changes and we propose Rs. 20,000/ha for holistic watershed development encompassing productivity enhancement and livelihood activities in addition to soil and water conservation activities. Secondly, to improve timely releases of funds, it is recommended direct release of funds from national level to district watershed coordination committee.

6.5 Sustainability of the Project

Once the project is completed, its sustainability will depend on how readily the stakeholders take over and manage the assets. In this connection, the problem, as explained in section 2.3.9, particularly pertains to the construction of rainwater harvesting structures in the catchment areas of tanks that could lead to some trade offs arising from reduced inflow of water into irrigation tanks, thus affecting groundwater availability. Once these adverse developments occur, people may lose faith in the watershed development program. Thus, the future guidelines should take care of the trade offs and downstream impacts of watershed development. The guideline should be: as far as possible, the PIA should avoid constructing rainwater-harvesting structures in the catchments through coordinated planning of water resources in watersheds.

6.6 Implementation Process

There is a need to develop an independent cadre for watershed development project. Nevertheless, that is not a realistic position to take. For one thing, the projects are not something permanent to warrant a separate cadre. Secondly, it is difficult to imagine that all the personnel required for the project can be recruited afresh. There would be a need for drawing upon the line department expertise in so far as they bring valuable experience from their background. However, it is essential that some kind of a balance needs to be maintained between the line department personnel and the watershed department personnel such that neither department suffers because of such arrangement. In addition, considering the fact that there is some amount of reluctance on the part of the line department personnel to interact with people there is need to arrange for some training to them before they are actually put on the project work, village youth cadres and lead farmers need to be trained as paraworkers to work in watershed development areas.

6.7 Equity Question

Regarding the question of equity, the concern is primarily about the design of the projects, which was biased towards irrigation, because of which beneficiary selection tended to benefit the well endowed farmers (details in section 2.3.7). Accepting that the NGO implemented projects were more successful in rejuvenating the commons and that these projects tended to be more equity oriented, appropriate guidelines need to be developed on this point that encouraged, as far as, possible NGO participation as, because of their organizational abilities, they can ensure equity. Again, this is not consistent with reality because the state's role cannot be ignored in the planning and implementation of such an important project. The future guidelines should, therefore, also emphasise on constructing low-

cost rainwater harvesting structures throughout the toposequence, *in-situ* rainwater conservation measures, productivity enhancement or small land holders and imparting skills of social organization to the government staff and orienting them to interacting with the people.

6.8 Institutions and Watershed Development Program

While this issue has been examined in detail in chapter 3, it is suffice to reiterate here that all plans for watershed development should be such that its area coincides with that of the panchayat concerned by taking cluster approach and ensuring representation of panchayat institution members in WCs. Secondly, the state departments of Rural Development and Panchayati raj (RDPR) ought to play a pro-active role by enthusing *gram sabhas* to regularly meet and to contract watershed development business. Besides, regarding the changes in, and revisions to, the watershed development guidelines by government, there is still a need to maintain continuity and link between the past and future in regard to guidelines; clear indication about which aspects of the previous guidelines are to be ignored and which are to be retained and followed; and clarification to what extent the implementing institution can depart from the past practices and how?

6.9 Capacity Building

The watershed treatment technologies and community organization as well as project management techniques at the PIA level need to be developed, including capacity building of the watershed management team. The skills of the community level institutional arrangements to organise and undertake conservation and resource management measures, to share benefits and take-up other equity and sustainability related activities for WDM need to be upgraded. They also need training on administration, finance and accounting. There is an urgent need to address capacity building issues for all the stakeholders as it is the weakest link in WSDM programs. The concept of quality service providers for capacity building for all the stakeholders in the area of WSDM needs to be institutionalized and should become a norm.

6.10 Monitoring and Implementation Options

The issues relating to monitoring and implementation are dealt in detail in chapters 4 and 5. Here it needs to be stressed that for an effective implementation of watershed projects we need to consciously promote partnerships. They can be public-private-community or public-panchayat-community. The pre-conditions for successful partnership is capacity building for all the stakeholders and at all the levels starting from the village level to policy makers at national level. A forum to facilitate communication and collaboration, joint monitoring of progress and mid-course correction, is also necessary. Trained cadre should undertake M&E and simple and limited indicators need to be monitored in all the watersheds and detailed monitoring for parameters that need technical inputs could be monitored at benchmark watersheds in a target ecoregion. New science tools along with M&E by an independent qualified agency involving participatory monitoring is recommended.

6.11 Watershed Development Program Objectives and Its Guidelines

We conclude this chapter by examining the extent to which the guidelines are consistent with the objectives of the watershed development program. It may be noted that the program was launched with the objective of conserving soil, rainwater and vegetation. To achieve this objective, as it were, efforts were made to harvest the surplus water which otherwise would have gone waste by means of runoff, to create water bodies and to recharge groundwater. Such an effort

was supposed to promote sustainable farming, utilize the non-arable land through afforestation, horticulture and pasture development and restore ecological balance.

This limited in scope objective used an engineering approach for primarily construction of check dams, percolation structures and so on. Accordingly, the guidelines had focused largely on how to go about selecting the watershed, building structures, duration of project implementation, funding pattern, asset maintenance for sustaining the life of the project and so on.

Subsequently, when the series of the committees set up by the authorities emphasized on the socio-economic concerns with regard to the watershed development projects, some new objectives got added to the program. Since watershed development was supposed to promote a holistic development of the watershed areas, it was insisted that there should be convergence of all other non-land based programs of the Government of India such as SGSY, IAY, Total Sanitation Campaign, Rural Drinking Water Supply Program and the programs implemented by the Ministries of Health and Family Welfare, Education and Social Justice. Firstly, the Achilles heel of the system is the absence of adequate and appropriate guidelines as to how such a convergence can be achieved at the ground level. Neither the state machinery nor the NGO-donor agencies have ever attempted this exercise. This is a major gap in the guidelines evolved so far. Hence, the authorities concerned should in future bestow some attention on this issue. Considering the holistic objectives and CB requirement the project duration also need to be extended for seven to eight years.

Secondly, one more issue that deserves attention is, what would happen to the project when the PIA exits from the watershed area. For the sustainability of the project thereafter two conditions need to be met: one, a locally acceptable mechanism of watershed development fund for project maintenance ought to be evolved; and two, the manner of ensuring equity and sustainability of the benefits of the assets created ought to be spelt out. The NGO-donor agencies do talk about such mechanisms in their exit protocol. The state-sponsored guidelines appear to be silent on this. It is our contention that the state ought to recognize the importance of the post-exit problems and evolve appropriate guidelines in this regard. Thirdly, the exit protocol shall clearly mention not only the institutional arrangement but also the capacities of that structure to discharge its role as manager of natural resources in a sustainable manner.

Lastly, the Working Group on Natural Resource Management during the 11th Five Year Plan added new objectives by insisting on the program to deal additionally with drinking water, development of livelihoods, enhancement of productivity, proper management of developed natural resources, equity for resource poor families, empowerment of women and ensuring of project sustainability.

Many of above stated objectives have already been taken care of by the guidelines evolved. But the point made by the working group is that in the guidelines there should be more emphasis on these objectives in the years to come. That amounts to saying that it is time to draw up a new set of guidelines incorporating the concerns recorded by the working group. In response to several evaluation studies and realizing the importance of rain-fed agriculture in India, Government has established NRAA to achieve sustainable development of rain-fed areas. The NRAA has issued common guidelines for watershed development which have addressed some concerns raised by the current CA (GoI, 2008). However, in order that the new set of common guidelines become more comprehensive, the concerns and gaps identified by us in this chapter also need to be incorporated.

Table: 6.1. ICRISAT-ISEC Summary Report on Watershed Guidelines for Planning and Implementation

Sl.No.	Focus Areas in the Review	Key Issues Identified	Suggested Options for Improvement
1.	Village selection	Norms for selection	<ul style="list-style-type: none">• Villages in rain-fed regions (arid, semi-arid and sub humid tropics)• Villages with water scarcity, low proportion of irrigated area, low production• Areas with high incidence of poverty as also threat to natural resources.• Villages (micro watersheds) in with clusters to be developed rather than isolated villages.• Demand rather than supply driven projects
2.	Community participation	Sustainability of the project	<ul style="list-style-type: none">• Participation of community organizations to be encouraged.• Wherever SHGs are present they should mobilize people and where they are not present or weak NGOs can initiate formation of SHGs.• Promote community participation by ensuring tangible economic benefits to large number of small and marginal farmers, landless and women members• Knowledge based entry point activity rather than cash-based EPA to build rapport with the community
3.	Planning process	Strengthening the planning process	<ul style="list-style-type: none">• Make planning participatory and regular/not ad hoc• The PIAs be given sufficient time to submit their proposal so that they complete the consultation process before the proposal is submitted
4.	Funds disbursement	Problem of sanction and disbursement of funds	<ul style="list-style-type: none">• Increase funding norms for watershed development to Rs. 20,000 ha⁻¹ and implementation period to seven to eight years• Need for prompt sanction and disbursement of money directly to districts• Ensure prompt release of funds without any delay
5.	Sustainability of the project	Problems created by rainwater harvesting structures in the catchment areas	<ul style="list-style-type: none">• Avoid adverse impact of constructing rainwater harvesting structures in the catchments of tanks by adopting coordinated planning of water resource in watersheds.• Ensure benefits to large number of farmers, women and landless stakeholders• Empower the stakeholders and build watershed development fund from the public contributions.• Take care of the adverse impact of constructing rainwater harvesting structures in the catchments of the tanks.
6.	Implementation process	Development of cadre for watershed project	<ul style="list-style-type: none">• Develop independent cadre.• Wherever fresh recruitment for the project is not advisable, draw from the line department expertise• A balance needs to be maintained between the line department personnel and the watershed department personnel where both are required• To overcome reluctance of the line department personnel to interact with people there is a need to train them to be people friendly
7.	Equity question	How to ensure equity?	<ul style="list-style-type: none">• Design of the project should ensure benefit to the less-endowed farmers.• Construct low-cost rainwater harvesting structures throughout the toposequence.• Construct low-cost rainwater harvesting structures throughout the toposequence.• Target activities to benefit women and vulnerable community members.• NGO participation should be encouraged as NGOs have inbuilt capacity to ensure equity.• Impart skills of social organization to the government staff so that they are oriented to interacting with people
8.	Institutions and watershed development program	Nature of the role to the institutions	<ul style="list-style-type: none">• Watershed development plans should coincide with that of <i>gram panchayat</i> concerned.• Area groups (AGs) or user groups (UGs) based on drainage line or common interest instead of individual structure based UG to enhance community involvement in decision making processes.• State departments of rural development and <i>panchayati raj</i> ought to play a proactive role by enthusing <i>gram panchayats</i> to regularly meet with a view to contracting watershed development business.• To what extent the project implementing institution can depart from the past practices and how?

Continued

Continued.

Sl.No.	Focus areas in the review	Key issues identified	Suggested options for improvement
9.	Capacity building	Capacity building for whom and in which area	<ul style="list-style-type: none"> • Capacity building is necessary for the watershed management team, and also for all other stakeholders. • The team also requires training on productivity enhancement, micro-enterprises, collective action, conflict resolution in addition to administration, finance and accounting. • Make capacity building mandatory and certified capacity building service providers.
10.	Monitoring and implementation	By whom to be done	<ul style="list-style-type: none"> • Baseline data collection to be made mandatory and a precondition for releasing development of funds. • For effective implementation of watershed projects there is need to consciously promote partnerships, and adopt participatory M&E to enhance transparency. • These partnerships could be public-private-community partnerships or public-<i>panchayat</i>-community partnerships. • Need for capacity building of these stakeholders and limited critical parameters to be monitored. • Need to establish a forum to facilitate communication and collaboration, joint monitoring of progress and mid course correction. • At district or agroecoregional level benchmark watershed to be monitored for detailed parameters such as runoff, soil loss, nutrient loss, carbon sequestration, etc. • Use new science tools such as remote sensing, GIS and simulation modeling for M&E with good SHGs practices.
11.	Watershed development program objectives and guidelines	Effective approach	<ul style="list-style-type: none"> • The engineering approach to implementation in the nature of construction activities should be given less priority. • As of now, since socio-economic concerns are emphasized there is need for adopting a holistic development approach to the project area. • As a follow-up, there should be convergence of all other land based programs of the government such as SGSY, IAY, Total Sanitation Campaign, Rural Water Supply Program and programs implemented by the Ministries of Health and Family Welfare, Education and Social Justice. • In view of the above, there is need for evolving appropriate guidelines as to how such convergence can be achieved at the ground level. Best convergence could be achieved at district level.
12.	Exit protocol	Withdrawal mechanism	<ul style="list-style-type: none"> • Evolve a locally acceptable mechanism of watershed development fund (WDF) for project maintenance. • Empower the WC to continue the activities and interactions by adopting watersheds as a business model rather than mere soil and water conservation activity. • Need to spell out the manner of ensuring equity and sustainability of the benefits of the assets created. • The exit protocol should clearly mention not only the institutional arrangements but also the capacities of their structure to discharge the role assigned. • As the Working Group on Natural Resource Management under the 11th Five Year Plan has suggested new objectives to be added on to the watershed development program to deal with drinking water, livelihood development, productivity enhancement, management of developed natural resources, equity for resource poor families, empowerment of women and so on. • Build WDF through ensuring monetary collection of contributions for the activities benefiting individuals.

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ANNEXURE I

MoRD GUIDELINES OF 1995

Based on the recommendations of the C.H. Hanumantha Rao, technical committee on DPAP and DDP under the Ministry of Rural Development issued guidelines to take effect from April 1995, which were meant to guide the new projects under the above schemes. However, projects that have been sanctioned in the previous years and still on-going are to continue with the relevant guidelines issued previously.

Each *gram panchayat* may apply for selection of specific villages under its jurisdictions with a mandatory assurance about public contributions and taking over the operation and maintenance of assets. The GPs can apply directly to the ZP through any PIA and the latter should apply giving all the relevant information satisfying conditions laid down in the selection criteria. On receipt of these applications from GPs and PIAs the ZP will get DWAC to scrutinise the applications and to advise the ZP. Once the project is approved the PIA will appoint a WDT. Soon thereafter the watershed development project is deemed to have been started.

All the members of WDT will be sent for a one-month training program with four modules. The first module will be on the watershed treatment technologies and alternative land uses; the second will be on participatory rural appraisal methods and community organisation techniques; the third will be on project management tools and techniques such as activity analysis PERT, CPM, coordination, time management, etc.; and the fourth module will be on administration of various rural development programs, ZP administrative and accounting procedures, etc. These programs can be organised either on the SIRD campus or assigned to other training institutions and NGOs. The guidelines also emphasised on the training of trainers for taking over the training programs in due course.

On return from training the DWT members will conduct participatory rural appraisal exercises in the selected villages and collect all details about the village community, the watershed, the problems relating to soils, ground water levels, surface run-offs, drainage lines, vegetative resources and so on. It is emphasised that the members should interact with the village community in small groups to understand their perspectives, perceptions and priorities. The PRA exercise should be followed by an action on community organisation and refinements of the action plans. The community organisation programs should consist of conducting awareness camps on social and economic issues, and at the same time the WDT members should organise SHGs and UGs. The WDT should also identify community leaders, opinion makers, village youth who can be involved in organizing these groups. The youth clubs, *mahila mandals* can also be involved in community organization with the intention of grooming their members to take-up the responsibilities of volunteers and watershed secretary.

Simultaneously the WDT should start a systematic exploration of the problems and opportunities of the watershed area and locate those problems on the map of the area. Having done this exercise it should prepare a plan of action to carry out various activities. For each work or activity the WDT should identify groups of people who may be affected or benefited from the project and initiate mutual confidence building activities such as exposure visits to successful project sites where they can see the impact of cooperative actions such as social fencing, equitable water sharing, innovative technologies and sharing of usufructary rights on common properties. This will enable the WDT to constitute SHGs and UGs. The members of these groups should be given basic training on the technical and organizational aspects of running SHGs and UGs.

Once the SHGs and UGs are organized, the WDT will call for a general body meeting of all the members of SHGs, UGs and *grama sabha*. This meeting will thereafter be called the watershed association, which is formally registered as a society. WA will meet as frequently as possible but not less than twice a year to discharge its functions. In its very first general body meeting the WA will nominate four representatives from the SHGs and five from UGs as members of the WC. The GP and the WDT will nominate one each of their members as a representative in the WC. The first meeting of the WC shall elect its own chairman and thereafter it shall perform all the functions that are entrusted to it in the program guidelines. The WC soon after its constitution will appoint a watershed secretary and three watershed volunteers by interviewing the applicants to these posts.

The WC will then open a bank account in its name in the local branch of any nationalized bank or cooperative bank which will be operated jointly by the chairman of WC, one member of the WDT and the watershed secretary. The latter will maintain the records of income and expenditure from this account. The WC will also open another account with the bank concerned as watershed development fund into which donations, contributions, recoveries of fines or fees for services will be remitted. The fund will be used for post completion operation and maintenance of community works.

Each of the UGs will prepare an action plan with time and cost estimates, design and execution procedures in consultation with the WDT and WC. These work plans will be submitted to the WC which will prepare an integrated watershed development plan in consultation with WDT and submit the same to the WA. The plan should specifically outline the problems and the approach to tackle the problems relating to common property resources, infrastructure investment and treatment plans and work activities. The plan should actually include measurable physical works, coverage of services, improvement of plots of land by soil conservative measures, size of the fodder and fuel pool built-up, size of grain bank, allocations to women groups for the production of land based products, generation of local employment and also identify the mechanisms to be used by WDC and PIA to monitor and review the progress of the plan.

The plan will be submitted to the ZP for sanction and release of funds. Twenty-five per cent of the project outlay shall be released in the first year, 40 per cent in the second year, 25 per cent in the third year and the remaining 10 per cent in the fourth year. Every year the funds shall be released in two installments—the release is subject to 50 per cent utilization of the funds released earlier. The WDT and the WC shall ensure that accounts of their activities and expenditures are maintained in accordance with the format prescribed by the ZP.

Even after the project period is completed, the WA and WC shall continue to function for the operation and maintenance of the assets created. The watershed development fund is available for this purpose.

The PIA shall be responsible for submitting the progress reports on each of the projects once in every quarter to the ZP; similarly each of the watershed committees shall submit a quarterly report to the ZP which is scrutinized and approved by the WDT. The quarterly progress reports indicate the physical and financial progress. However, it is insisted that there shall be monthly review meetings of the WDT and the ZP including a state level review meeting once a quarter both of which are meant to discuss and analyze the performance of the project. The MORD and the state governments may appoint independent institutions to carryout concurrent and post facto evaluation of the watershed development projects based on the success criteria laid down in the program guidelines for evaluation. At the same time independent consultants may be commissioned to undertake action research to document the actual project implementation process and to analyze such process to arrive at a broader evaluation.

ANNEXURE II

GUIDELINES FOR WATERSHED DEVELOPMENT (REVISED-2001)

These guidelines are applicable to IWDP, DPAP and DDP and any other program notified by the Government of India. The objectives of the watershed development projects are:

- developing wastelands/degraded lands, drought-prone and desert areas on watershed basis;
- promoting the overall economic development and improving the socio-economic condition of the resource poor of these areas;
- mitigating the adverse effects of extreme climatic conditions such as drought etc;
- restoring ecological balance by harnessing, conserving and developing natural resources;
- encouraging village community for sustained community action for developing natural resources and maintaining assets created there from;
- encouraging technological solutions and institutional arrangements for developing and maintaining these resources.

These programs will be implemented mainly through the *zilla panchayats*/district rural development agencies. The projects will be sanctioned by the Government of India subject to the condition that the DOLR may amend the procedure from time to time.

The criteria to be used in the selection of watersheds are:

- watershed area may be about 500 ha. In case a watershed falls in two villages it should be divided into two sub-watershed areas confined to the designated villages;
- watershed which has acute shortage of drinking water, a large population of scheduled caste scheduled tribes dependent on it, a preponderance of non-forest wastelands and degraded lands, a preponderance of common lands, watershed which is contiguous to another watershed that has already been developed and watersheds where actual wages are lower and where people's participation is assured through contribution of cash and kind.

Where watershed encompasses forestland along with land under private ownership, the concerned divisional forest officer should give technical sanction of the watershed plans. The program should be implemented by village forest committees which should be treated at par with watershed committee. The watershed development plan for the forest areas should be in conformity with the forest conservation act. The forest department at the district level should be encouraged to take up the work of development as PIA and forest officials should be included as members of the WDT.

To ensure coordination among various government departments/institutions and voluntary agencies, a state watershed development committee shall be constituted under the chairmanship of additional chief secretary or equivalent officer of the State. The committee may meet twice a year to monitor, review and evaluate the progress. The ZP/DRDA will be the competent authority to decide on the suitability of the project implementation agency.

To ensure coordination at district level, a district watershed development committee (DWDC) be constituted under the chairman of ZP/DRDA which should have its own officers and district level officers as members. The DWDC will advise and assist the ZP on matters regarding selection of PIAs, members of watershed development schemes, training, community organisation, etc.

The ZP and other PRIs shall have important role to play in watershed development programs. At the village level, the *gram panchayat* shall be fully involved in the implementation of the program.

It may use its authority and resources, support and encourage the formation of SHGs/UGs, maintain assets created by the project, ensure that funds from other programs of MORD are used to supplement the watershed development program. The *gram panchayat* should review and discuss the progress of the program. The watershed action plan should have the approval of *grama sabha*.

The projects at the field level shall be implemented by the watershed committees under the overall supervision and guidance of PIAs which may be assigned ten to twelve watershed projects covering an area ranging from 5000 to 6000 ha. An NGO is eligible for selection as PIA only if it has been active in the field of watershed development. However, any one NGO can take-up two or more cluster of projects if it has the requisite capacity but in normal course no single NGO may be given more than 12000 ha. of area to develop in a district and 25000 ha. in the state.

Each PIA shall carry out its duties through a multi-disciplinary team designated as the WDT each of which may handle 10 to 12 watershed development projects and may have four members-one each from different disciplines. The PIA shall constitute (SHGs), in the watershed area with the help of WDT consisting of homogenous groups of people such as agricultural laborers, landless persons, women and so on who are dependent on the watershed area. It may also constitute user groups in the watershed area with the help of WDT which shall be homogenous groups having land holding within the watershed areas.

Where a watershed is co-terminus with a village *panchayat*, the *gram sabha* of the *panchayat* concerned be designated as the watershed association (WA) which should be registered as a society under the Registration of Societies Act, 1860. The WA will meet at least twice a year to evolve/improve the watershed development plan, monitor and review its progress, approve the statement of accounts, formation of UGs and SHGs, resolve differences of disputes between different UGs and SHGs or among their members, approve the arrangements for collection of donations and contributions from the public, lay-down procedures for the operation and maintenance of assets created, nominate members of the watershed committee (WC) from among the UGs and SHGs and so on. The WA will elect its own president who shall be the chairman of watershed committee.

Subject to the overall supervision and control of the watershed associations, the WC will carry out the day-to-day activities of the watershed development project. The committee may consist of 10 to 12 members nominated by the WA from among the UGs, SHGs, *grama panchayat* and WDT. While doing so, it is expected to ensure that the committee has at least one-third representation of women and adequate representation of members from SCs and STs.

Each watershed development project shall have a watershed secretary engaged by the WA who should be a matriculate from the same village and is responsible for convening meetings of WA/WC, maintaining all project records and proceedings of the meetings including accounts.

Participatory rural appraisal is one of the most important exercises in watershed development projects before action plan is finalized. Secondly, capacity building is also an important pre-requisite for the successful implementation of these programs. As such the ZP/DRDA is expected to ensure that relevant training programs are organized for all the functionaries involved in the planning and implementation of the program. Similarly, community mobilization is also a pre-requisite before initiating development work.

Activities for watershed development consist of the following: WDT shall call a meeting of the WA for preparation of watershed development plan on the basis of the information generated from the

benchmark survey and PRA exercise. After general discussion, the WA will prepare an integrated watershed development plan under the guidance of WDT and submit it to PIA. The latter will then formulate the plan for the area assigned in association with WC/WA and submit it to the ZP/DRDA for approval. The focus of the plan should be on low cost, locally available technology for operating and maintaining the works. The main items that can be included in the plan are the following:

- land development including soil and moisture conservation measures like contour and graded bunds.
- afforestation including plantations, agro-forestry and horticultural development.
- drainage line treatment with vegetative and engineering structures.
- development of small harvesting structures such as low cost farm ponds, nalla bunds, check dams and so on.
- renovation and augmentation of water resources, desiltation of tanks etc.
- pasture development.
- repair, restoration and upgradation of existing common property assets.
- crop demonstrations for popularizing new crops and innovative management practices.
- promotion and propagation of non-conventional energy saving devices.

After the project based on the plan is sanctioned a detailed action plan should be prepared by the WDT in consultation with the watershed community. The action plan should specify clearly pre set deliverable output, elaborate road map, time frame for each activity, technological interventions, success criteria and a clear exit protocol. After the action plan is approved by ZP/DRDA, the PIA should get the same implemented through the WCs with the involvement of WDT members.

Since the watershed development program aims at holistic development of natural resources and people, there shall be a convergence of all other programs of the MORD such as JGSY, SGSY, CRST (Central Rural Sanitation Program), rural drinking water supply and also the other ministries programs such as health and family welfare, education, social justice and agriculture.

In the watershed development program it is the responsibility of the PIA to emphasize not only short term benefits that enthuse local people but it should also emphasize the long-term benefits of the program which will encourage them to make it a movement for local development. The guidelines also emphasize on the need for transparency which can be promoted by preparing the plans in consultation with the community, WC, SGs and UGs etc., getting the approval of the plan in the open meetings of WA, display of the approved plan on notice boards of the offices of WA and *panchayats*, reviewing physical and financial progress of the work during the implementation phase through periodical meetings of WA and payment of wages to laborers directly through cheques.

On the cost norms of watershed development projects it is prescribed that the cost estimate should be worked out as per the standard schedule of rates approved by the state governments. The spending of the funds should be on the scale presented in the following for each of the project components:

- | | |
|------------------------------------|-------------|
| • Watershed development activities | 80 per cent |
| • Watershed community organization | 5 per cent |
| • Training | 5 per cent |
| • Administrative overheads | 10 per cent |

Apart from the funds sanctioned by the government the PIA/ZP should explore and encourage availing credit facility from banks by WA, SHGs, UGs and *panchayats* for further developmental

activities in watershed areas. The PIAs should set-up a revolving fund of Rs.1 lakh for watershed to be given a seed money for vocational development by the SHGs for undertaking income generating activities which is to be repaid in six installments.

Funds for the project will be released from DOLR as per the existing procedure to ZPs which while retaining their share of administrative cost will release the funds to WCs on recommendation of PIAs. The latter opens a bank account in its name and operates the funds and maintains accounts. The guidelines emphasize that there shall be contributions to WDF from the people at least at 10 per cent of the cost of works done on individual lands and 5 per cent of the works on community lands subject to the provision that in respect of the SC and ST beneficiaries who are below the poverty line the contribution is 5 per cent.

The PIA should submit progress reports periodically on each of the watershed development projects to the ZP. The WC should send its periodical report to PIA. The MORDC may also appoint independent institutions and individuals to carry out post project evaluations.

Under the watershed development program, the watershed project is taken-up for a period of five years which includes an initial phase of 9 to 12 months for establishing the necessary institutional mechanism for execution of the project. It is stated that the project may be put on probation for a period of one year during which if it could not be implemented for certain reasons, the ZP/DRDA shall recommend for its foreclosure to the state government.

The ZP/DRDA will evolve a proper exit protocol for the projects. It will try to motivate *panchayats* to take over the assets created by the project for operation and maintenance. The WA/WC under the overall supervision of gram panchayats shall manage the assets of the project. Before the PIA exits from the area, it is expected to specify a locally acceptable mechanism for utilization of WDF for project maintenance and also spell-out the manner of ensuring equity and sustainability of the benefits of the assets created.

ANNEXURE III

GUIDELINES FOR HARIYALI (2003): EXTRACTS

In order to further simplify the procedures and involve the *panchayati raj* institutions (PRIs) more meaningfully in planning, implementation and management of economic development activities in rural areas, new guidelines called Hariyali Guidelines were issued. These guidelines are applicable to new projects under area development programs with effect from April 1, 2003. Projects sanctioned prior to this day shall continue to be implemented as per the guidelines of 2001.

The objectives of the projects under Hariyali will be: harvesting every drop of rainwater for purpose of irrigation, plantations, pastures and fisheries and for drinking water supplies; ensuring overall development of rural areas through GPs and creating a regular sources of income for panchayats from rain water harvesting and management; employment generation, poverty alleviation, community empowerment and development of human and other resources; mitigating the adverse effects of extreme climatic conditions; restoring ecological balance; encouraging village community towards sustained action for operation and maintenance of assets created; promoting use of simple and affordable technological solutions and institutional arrangements.

The projects will be sanctioned by the DOLR as per the procedure in vogue. The criteria for selection of watersheds are: where people's participation is assured, watershed areas have acute shortage of drinking water, watersheds having large population of SCs and STs dependent on it; watersheds having preponderance of waste and degraded lands, common resources where actual wages are significantly lower, watersheds which are contiguous to other watersheds that have been developed and the watershed area to be an average size of 500 ha; where the watershed covers two or more villages it should be divided into sub-watersheds and assigned to the designated villages.

Where watersheds encompass forest land also the proposed watershed program should have the technical sanction from the concerned DFO, implemented by VFCs in coordination with village *panchayats*, the plan should conform to the forest conservation act, the forest department at the district level should take-up the work as PIA and a forest official should be included as a member of the WDT.

The projects under Hariyali Guidelines will be implemented mainly through the ZPs/DRDAs. At the district level these institutions will be the implementation authorities under the supervision of state and central government. These institutions approve the selection of watersheds, appointment of PIAs, approval of the action plan of the projects and have the authority to recover funds if the project is not properly implemented.

At the field level, GPs will implement the projects under the supervision of PIAs. An intermediate *panchayat* may be the PIA but if such *panchayats* are not adequately empowered then the ZP can act as PIA itself or appoint a line department or even a reputed NGO in the district which has considerable experience and expertise in the implementation of watershed projects. Such an NGO will be assigned 10 to 12 watershed projects covering an area of 5000 to 6000 hectares. In exceptional cases this number may go upto 12000 hectares in a district and a maximum of 25000 hectares in the state.

The PIA will provide necessary technical guidance to the GPs for preparation of development plan for the watershed through PRA exercise, undertake community organization and training for the village communities, supervise watershed development activities, inspect project accounts,

encourage adoption of low cost technologies, monitor and review project implementation and set-up institutional arrangements for post project operation and maintenance.

The PIA will carryout its duties through multi-disciplinary team designated as WDT which will have four members one each from different disciplines including one women member. The WDT should be located at PIA headquarters.

GPs will execute the works under the guidance of the *grama sabha*. The GP will coordinate its activities at the WDT and with the ZPs/DRDA it will maintain a separate account for the watershed project to which all receipts are credited. This account is jointly operated by the GP secretary and the GP chairman. The *grama sabha* will meet at least twice a year to approve the watershed development plan, monitor and review its progress, approve the statement of accounts, form SHGs/UGs, resolve differences, if any, between different SHGs/UGs or among members of these groups, approve arrangements for the collection of donations and contributions and lay-down procedure for the operation and maintenance of assets created. To take care of plantations of the community or *panchayats* the *grama panchayat* may engage a local unemployed youth from BPL families as *vanarakshak* on honorarium. Prior sensitization and orientation training on watershed project management should be imparted to all concerned functionaries and elected representatives at the district, block and village levels before they assume their responsibilities.

The preparation of the watershed development plan/action plan shall be done in the *grama sabha* meetings on the basis of the bench mark survey of the watershed areas using PRA exercises following which the GP will prepare the detailed action plan and the watershed plan under the guidance of WDT. This plan is to be submitted to PIA which in-turn after scrutiny will submit the action plan for approval of ZP which will be the basis for release of funds. The items to be included in the action plan are: development of small water harvesting structures; renovation of water sources and desiltation of village tanks; fisheries development in village ponds; afforestation; pasture development and land development including soil and moisture conservation measures, drainage line treatment, repair and upgradation of existing common property assets, crop demonstration on popularising new crops and promotion and propagation of non-conventional energy saving devices. While preparing the watershed development plan the GPs should give emphasis to rain water harvesting activities and undertake massive plantation works on community and private lands. Also the WDT should provide at this stage inputs regarding the technical requirements and feasibility of appropriate bio-physical measures. The action plan should specify the physical targets to be achieved, the road map for achieving the targets, a time frame for each activity, technological interventions for the proposed activities, specific success criteria for each activity and a clear exit protocol. Once the action plan is approved by ZP, the PIA should implement it through the GP with active support of WDT members.

While preparing the action plan, the GP should evolve proper exit protocol which should specify a mechanism for maintenance of assets created, levy and collection of user charges, utilization of WDF and mechanism for equitable distribution and sustainability of benefits accrued under the project.

There shall be transparency in planning and implementation of the projects which can be ensured by: preparing the plans by the GP in consultation with the SHGs/UGs, approval of the plan in the open meetings of the *gram sabha*, display of the approved action plan on notice boards, review of physical and financial progress through periodical meetings of *gram sabha* and payment to laborers directly and through cheques.

As for the funding pattern, the present cost norm is Rs.6000 per hectare which will be divided among the project components like 85 per cent for watershed development activities, 5 per cent for community mobilization training and 10 per cent towards administrative overheads. Purchase of vehicles, office equipment, furniture, etc., construction of buildings and payment of salaries to government staff will not be permitted under the administrative costs. As before, cost estimates for project activities, etc., should be worked out as per the standard schedule of rates approved by the state governments.

Central Government share of funds will be released to ZPs/DRDAs in five installments over a period of five years. The state government will also release corresponding share to ZPs/DRDAs. While the first installment of central funds shall be released along with the project sanction, further installments shall be released when the unutilized balance is not more than 50 per cent of the previous installment. As usual the ZPs should submit to the DOLR through the state government quarterly progress reports, audited statement of accounts of the previous year and so on. After receipt of 45 per cent of project funds in two installments, the state government should commission a mid term evaluation of the project through independent evaluators which is essential for the release of the third installment. The state government will also have to commission a final evaluation of the project on its completion and submit the same to the DOLR with the completion report.

The *gram panchayat* should maintain the watershed development fund separately into which peoples contribution at the rate of 10 per cent of the cost of the works executed on individual lands (5 per cent in the case of SC and STs and persons below the poverty line) should be remitted into this account. The GP should remit the user charges collected from user groups for use of common utilities like water for irrigation from village tanks, grazing-cum-community pastures, etc. While one-half of the user charges collected may be credited to the WDF for maintenance of assets of the projects, the remaining one-half may be utilized by the GP for any other purpose. The fund should be operated by the secretary and the chairman of the GP. The grama panchayat also will set-up a revolving fund not exceeding Rs.1 lakh to be given as seed money to the SHGs at 10,000 per head which must be recovered in maximum of six installments on monthly basis. It is also necessary on the part of ZPs/DRDA to explore and encourage availing of credit facilities by the SHGs/UGs and *panchayats* for further developmental activities in the watershed areas.

The GP should submit a quarterly progress report to the PIA after it is scrutinized and approved by the WDT which in-turn will submit the progress report to ZP for further transmission to the DOLR through the state government. At the district level, ZP shall monitor the implementation of the projects and it is the secretary of the department who does this at the state level. The DOLR may also appoint independent institutions/individuals to carry out concurrent and post project evaluation studies of the project. The district and state level vigilance and monitoring committees may also review the progress of the watershed projects.

As the watershed development programs aim at holistic development of watershed areas, the ZP is expected to take measures to ensure convergence of other programs of the MORD such as SGRY, SGSY, IAY, Total Sanitation Campaign (TSC) and Rural Drinking Water Supply program in the villages chosen for implementation of the watershed development projects. In addition convergence of programs of similar nature of other ministries like health and family welfare, education, agriculture and social justice should be attempted.

ANNEXURE IV

NEERANCHAL REPORT FOR WATERSHED DEVELOPMENT (2006): EXTRACTS

The Parthasarathy Committee suggested establishment of National Authority for Sustainable Development Of Rain-fed Areas (NASDORA), as an autonomous authority under the Society's Registration Act of 1860 to manage the Central Government funded watershed projects. It also suggested that there shall be an apex Rain-fed Areas State Holders Council to be chaired by the Prime Minister with the objective of providing policy support and guidance to the apex board. The objectives of the projects are: harvesting rainwater, employment generation and poverty alleviation, mitigating the adverse effects of extreme climatic conditions, restoring ecological balance, encouraging village community GPs and *grama sabhas* to develop local institutional mechanisms and promoting simple and affordable technological solutions and institutional arrangements.

There shall be a district watershed development agency which will be a branch of NASDORA working at the district level to oversee the implementation of the programs in the districts concerned. The DWDA will prepare action plans which will be approved by the ZP. These institutions are headed by a full time CEO who will sign a five year MOU with the ZP. The CEO will constitute a district watershed management team (DWMT) comprising professionals from various disciplines for overseeing the implementation of the projects in the district, which are milli watersheds (MW). DWMT will select a project manager (PM) for each milli watershed who will provide technical assistance, capacity building, monitoring and evaluation services.

The MWs are identified from the untreated MWs in the district by the DWMT which range from 4000 ha. to 10000 ha. The selection of the implementation area must be according to the *gram panchayat* boundaries because ultimately it is the *grama panchayats* which implement these programs. The criteria for selection of villages/watersheds are: acute drinking water scarcity, low gross irrigated area, high incidence of poverty, low wages, large population of SCs and STs, willingness of village community to make voluntary contributions, positive history of women and community actions, preponderance of degraded lands and of common lands, and watershed which is contiguous to another watershed which has already been developed.

There will be a milli watershed council (MWC) consisting of nominated members, including women and SC and ST representatives, who will be selected from each of VWC within the Milli Watershed. These numbers will have a fixed tenure of 2 years and will change by rotation. The MWC will also have other members such as local MLA, one representative each from WDT, block panchayat, forest departments and the CEO of block panchayat and the *gram panchayat* president. This council is an advisory body which gives overall directions to the program, resolves conflicts that may arise and monitors the progress of the program.

The PMs constitute a WDT at the mini watershed level with at least 4 members from different disciplines including one woman. He will also be expected to constitute an all women WDT. The WDT will guide the VWC in the formulation of the watershed action plan and perform functions such as conducting participatory baseline survey, help VWC to identify sites and activities, mobilize women's watershed council, help VWC in identifying beneficiaries for the program, form UGs and SHGs, undertake community organization and training, encourage adoption of low cost technologies, develop a sustainable surface water and ground water management plan, workout sustainable livelihood options, present watershed action plan to the *grama sabha* meetings, supervise watershed development activities, facilitate

conflict resolution, prepare progress reports, arrange for social audit, set-up institutional arrangements for post project operation and maintenance.

Each milli watershed will have a VWC for each village coming under its jurisdictions for implementing the watershed project with the technical support of WDT. The VWC will be a committee of the GP that will be elected in the grama sabha meeting with the mandate that 50 per cent of the members are women and at least 33 per cent of SC & ST community representatives as members. There will be a secretary of VWC who is to be a paid official to be appointed by WDT and approved by the *grama sabha* meeting.

The VWC will carryout day-to-day activities of the project such that its functions are: participate in the baseline survey, identify sites and activities to be taken-up under the plan, ensure that the women's concerns are reflected in the watershed action plan, identify beneficiaries of the programs, form UGs and SHGs, encourage voluntary contributions, thrash out resource use agreements, regulate tube wells, facilitate concrete resolutions, supervise watershed development activities, transparent payment to laborers, inspect project accounts and arrange for social audit of the work undertaken.

To facilitate real participation of women, a separate women's watershed council (WWC) should be formed within each village with a view to giving appropriate weight to women's perceptions and priorities.

The *grama sabha* shall have a critical role to play and will perform functions such as electing the VWC members, identifying beneficiaries of the program, encouraging voluntary contributions, guiding development of resource use agreement, facilitating conflict resolution, giving final approval to the action plan, conducting annual social audit, laying down procedures for the operation and maintenance of assets created and so on.

The program will have eight years duration divided into three phases. The first phase with two years of duration is the preparatory phase of the program which will include such activities as socio-economic and engineering participatory baseline surveys, hydro-geological survey of the watershed, impact assessment protocols, capacity building, preparation of watershed action plan, ensuring the interests of women and dalits, working out resource-use agreements, protocols for voluntary contributions, evaluation of the action plan of the work done in Phase I by an external agency.

Phase II which has four years duration actually is a resource augmentation and institutional building phase where the work done in this phase is evaluated at the end of every year to facilitate release of installments. Phase III which has a duration of two years is the sustainable livelihoods and productivity enhancement phase. Here income-generating activities will be taken-up, detailed land-use planning is attempted and so on.

The components of watershed action plan would be basic information on watershed, typology of watershed, description of proposed interventions, institutional mechanisms and agreements for implementing the plan and expected benefits.

The WDT must ensure that regular monitoring of the project is carried out at each stage and six monthly progress report is submitted to DWDA for being transmitted to NASDORA. The monitoring indicators to be borne in mind are: capacity building of WDT and VWC, appropriateness of the action plan and cost effectiveness, conformity to the action plan, especially to ensure that the plan is proceeding in conformity with the original plan as also to the quality of the work agreed upon. Record keeping is also assessed under this activity.

Impact assessment is also the responsibility of the DWT. The assessment indicators are water level fluctuations, drinking water security, changes in cropping pattern and intensity, agriculture

productivity, fodder and fuel availability, size of livestock holdings; status of grazing lands, employment and income generated, freedom from debt, a reduction in out-migration and drought vulnerability, number of SHGs that have come-up, learning and process documentation. That apart, the assessment should cover the status of livelihood options, where one has to assess the economic viability of the options proposed, forward and backward links developed, extent of natural resource base built, ensuring of equity and sustainability and the involvement of SHGs in the plan. It is also expected to assess to what extent the village level institutions have matured as seen in terms of their functioning and handling the project.

The guidelines also emphasize on transparency and accountability as before and to the usual procedure of managing forest lands, with space for the forest department officials to participate in planning and implementation process.

On the funding pattern the cost norm is Rs.12,000 per ha. which will be apportioned to 80 per cent for watershed development works, 4 per cent for training, 4 per cent for institution building, 2 per cent for impact assessment, monitoring and research and 10 per cent for administrative overheads. The funds flow is as follows: The DWDA will move funds to the bank accounts of the DWC and the MWC. The DWC secretary and a member of the WDT will jointly operate the VWC account; the DWDA can recover funds from any MWC/VWC in case the project is not properly implemented; Release of funds to the VWC will take place before year one, at the end of year one, two, four and six before release of each installment; installments shall be released only when the unutilized balance is not more than 50 per cent of the previous installment released; as before, watershed development fund will be constituted into which a minimum of 10 per cent of the cost of works executed on individual lands (5 per cent in the case of persons identified under BPL and SC and STs) will be collected and remitted; also user charges will be imposed by VWC through GP on the user groups for use of common utilities like water for irrigation from village tanks, grazing from community pastures, etc. One-half of the user charges will be credited to the WDF and the remaining half will be utilized by the *panchayat*.

Since the watershed development program aims at holistic development of watershed areas, it is insisted that there shall be convergence of all other non-land based programs of the Government of India such as SGSY, IAY, Total sanitation campaign, rural drinking water supply program and programs implemented by the Ministries of Health and Family Welfare, Education and Social Justice.

ANNEXURE V

EXTRACTS FROM THE DRAFT REPORT OF WORKING GROUP ON NATURAL RESOURCE MANAGEMENT DURING 11TH FIVE YEAR PLAN

Finding that provision for user rights received only a rudimentary mention in the various guidelines, the working group suggests that a clear national policy should be evolved to create a set of identified rights in favour of local community on CPRs. The user rights may be categorized into ownership right over the assets created through participatory approach, management right over the CPRs to be given to the UGs concerned and usufruct rights over CPR to be given to actual UGs who contribute to its development. The working group made a reference to the sharing of benefits under Sujala Watershed in Karnataka—that being 20 per cent share of income from CPR for GPs, 40 per cent for UGs towards repair, maintenance, etc. and the remaining 40 per cent to be shared among the UG members. The working group specified that while allocating the usufruct rights due consideration should be given to identifying those user groups which belong to resource poor families and the women SHGs.

Recognizing the fact that the gains from recharging ground water table may be nullified if indiscriminate digging of borewells is allowed after the completion of the project, the working group recommended social regulation against over exploitation of ground water. The regulatory mechanism spelt out was: advance commitment from the community about social regulations, social regulation on digging of new borewells, ban on pumping of surface water collected at the water harvesting structures, discouraging conversion of traditional irrigation tanks into percolation tanks and improving the efficiency of water use by moving from high water requiring crops to rain-fed crops. The group suggested that the ground water may be treated as a common property resource and that to avoid the crisis of over-exploitation by some at the cost of others, water reform measures on the pattern of the land reforms have to be undertaken.

With regard to financial reforms, it is stated that since the norm of Rs.6000 per hectare was evolved more than five years ago, the working group recommended that this norm may be enhanced to Rs.12000 per hectare. It also proposed that the allocation of funds for different components to be: 15 per cent for administrative component and the remaining 85 per cent for development-cum-management components of which 10 per cent towards integrated capacity building, 50 per cent towards development of natural resources, 20 per cent towards development of livelihoods and 5 per cent for monitoring and evaluation.

The working group recommended improvement in the mechanism for release of funds at various levels such as funds released from center or state level to district level against annual allocation, from district level to WC against approved annual action plan and from WC to user groups against completion of works; reduction in the number of installments, allocation of fund as per phase specific requirement, development of natural resource through higher rate of contributions, development of land based and non-land based livelihoods through revolving fund to be handled by the federation of SHGs at the village level and so on.

In order to ensure GPs access to funds it is suggested that the NREG funds be converged with inter-related schemes.

The working group felt that under the changing scenario, the program is expected to deal additionally with drinking water, development of livelihoods, enhancement of productivity, proper management of developed natural resources, equity for resource poor families and empowerment of women. By way of ensuring project sustainability it emphasized on the need for greater professionalism in the management of the program, greater focus on participatory, monitoring and evaluation, redesigning of community organisations such as SHGs UGs WA and WC to meet the emerging needs, main streaming of women SHGs and their federations, formulation of a new scheme for organization of

SHGs as an advance activity in potential villagers for watershed program, further decentralization in governance as well as execution of works (responsibility for governance of developmental funds may be decentralized in favour of GPs and responsibility related to execution of works may be decentralized in favour of UGs and SHGs), integral involvement of PRIs in the watershed programs and reforms in delivery mechanisms at other levels such as creation of an autonomous watershed development authority at the national level and an autonomous watershed mission at state level for providing administrative support, and creation of an autonomous watershed development agency at the district level for management of different types of watershed projects in the district.

The other measures suggested by the working group for better management of natural resources during the 11th Plan are considering village as a management unit under watershed program, outsourcing of certain components on turn-key basis, enhancement of project duration from 5 to 7 years with the following phases such as institutional building phase of 2 years, main implementation of phase of three years, consolidation/withdrawal phase of two years. Refinement in strategy for development of natural resources is another recommendation of the working group which emphasised on development of bio-mass in common land, construction of community oriented water harvesting structures, construction of gully control structures and the like. It also suggested a strategy for sustainable development of livelihoods—land based livelihoods like agriculture, horticulture, livestock, sericulture and fisheries and non-land based livelihoods like micro enterprises. The working group further emphasized, on the need for improving the productivity of existing land based livelihoods by insisting on refinement in the methodology of action plan preparation—methodology with respect to technological design, institutional framework and financial system. A shift towards greater use of indigenous inputs and community managed support system was emphasized which included community managed artificial insemination center, seed bank etc. Strategy for development of agriculture, horticulture, livestock, fisheries etc. was spelt out in detail by the working group including collective marketing of produce by the CBOs as a strategy of sustaining production by the UGs and SHGs. On the question of ensuring equity for resource poor families, the strategy suggested identification of resource poor families, allocation of exclusive budget for such families, execution of works through labor without using machinery, organizing the poor into SHGs, preferential allocation of bidding right over CPR in favour of the women SHGs, development of private land to be allocated to resource poor families and so on.

The working group suggested a new role for NGOs and NABARD. The NGOs are expected to involve themselves at different levels in separate capacities such as partner at the state level to design participatory processes as lead NGO at the district level to build capacity of PIAs and as facilitating NGO at the project level to institutionalize processes at the CBO level. As far the NABARD is concerned, it is called upon to upscale its interventions through soft loan to SHGs in different parts of the country.

The working group felt that there was need for preparing state's specific process guidelines within the overall framework of national guidelines which should focus on detailed operational modalities for carrying out various tasks on the basis of field experiences, appropriate strategy for development of community based organisations, institutional reforms and concurrent policy support.

Since a certain proportion of forest department land is likely to be present in the watershed area, such land should be considered as an integral part of watershed program and in such cases there shall be convergence of the departments involved.

Finally, at the field level since a number of legal issues are likely to surface in the ongoing watershed program which will not promote sustainability of the outcome, appropriate legal provisions should be formulated on such aspects as formal allocation of user rights over CPRs, de-encroachment of common land, social regulation against over exploitation of common property resources, addressing the issue of ceiled tenancy in private land, modification in existing market laws to facilitate collective marketing by producers and CBOs and adoption of community forest management approach in place of joint forest management approach in the forest areas which come under the boundary of demarcated watershed.

ANNEXURE VI

IDA/IBRD-FUNDED INTEGRATED WASTELAND DEVELOPMENT PROJECT (IWDP) GUIDELINES

Objectives	The primary objective-to reverse the process of degradation of the natural resource base and improve the productive potential of natural resources and incomes of the rural households in the project area. The secondary objective - to support policy and institutional development to harmonize watershed development projects and policies across the State in accordance with best practices.
Selection of watershed projects in KAWAD projects	Selection of the area is depend on various criteria of poverty and drought occurrence, have a high percentage of women headed households, a high percentage of landless laborers, and a high percentage of small and marginal farmers. The three watersheds selected are similar in size, have a high reliance on agriculture for income and wages, pressure on ground water, fodder shortage, low incomes and food security among the landless.
Planning for the KAWAD projects	Primary stake holders- who are involved and directly affected by the project interventions, existing stakeholders, women, landless, rural artisans and the marginalized groups, marginal farmers, small farmers and large farmers, new institutions created by the project namely Micro Watershed Sanghas (MWS) and the Micro Watershed Development Committee (MWSDC), secondary stakeholders-groups which are not community or MWS based (external Institutions). In all there are 19 stakeholders under this category. These consist of internal institutions which are created for the purpose of project implementation and management i.e., the sub watershed facilitating group, project implementing agency, watershed steering committee, the state level society) and the society secretariat.
Supporting Institutions	Supporting Institutions are those which will support the primary stakeholders and the internal institutions enabling them to achieve project objectives. Falling in this category are the following groups, i.e., GOI, GOK, ODA, <i>zilla panchayat</i> (ZP), <i>taluk panchayat</i> (TP), <i>village panchayat</i> (VP), <i>grama sabha</i> (GS), training institutions, research institutions, financing institutions, and NGO external institutions are those which are external to the project, not directly involved, and yet exercise some influence on the project. These consist of politicians, other donors and other institutions involved in RNR management
Institutional arrangements	One of the key innovative design aspects of the KAWAD projects is its organizational set-up and the various institutional linkages:state level: Registered KAWAD Society; district level: Implementing AgencySub-Watershed Level, NGOs; micro-watershed level: micro watershed development committee; village/ hamlet level: self-help groups (<i>sanghas</i>)
Implementation Process	Preparatory process; planning process; implementation process; withdrawal from the MWS
Planning	Institutional strengthening; watershed development and management; enhancing mountain livelihoods project coordination
Implementation	Information, education & communication; local-level capacity building; human resource development; knowledge management; harmonization of watershed approaches
Institutional Setup	State level-HPNRMS Local and district level: Ward-level micro plans and GPWDPs, joint watershed committee, sub-watershed level, and multi-sectoral teams. District level watershed development committees, Project level chief project director · <ul style="list-style-type: none"> ● Planning, monitoring evaluation & information management ● Institutional and livelihoods ● Administration unit, HRD, and safeguards ● Communication and documentation ● Rural infrastructure
Planning for the projects	<ul style="list-style-type: none"> ● Baseline study ● Progress monitoring ● Performance monitoring ● Institutional performance monitoring ● Internal learning ● Impact evaluation.
Fund Flow	Through the Forestry Department to the Department of Finance. The drawing and disbursement officers of the project, at the state, regional, and district levels will be authorized to issue checks (issued by the state treasury). The WDOs will periodically transfer funds to the GPs, CIGs, and project works based on approved GPWDPs. The GPs, assisted by the WDC, will handle the project funds through a dedicated project bank account, payments to user groups, CIGs, <i>mahila mandals</i> , etc

ANNEXURE VII

SALIENT FEATURES OF COMMON GUIDELINES FOR WATERSHED DEVELOPMENT PROJECTS (1ST APRIL 2008)

1. For the first time in the history of watershed projects the guidelines are jointly released by both the Ministries (Agricultural & Rural Development).
2. It empowered a National level Institution, the NRAA to interpret and modify these guidelines where and whenever necessary.
3. The emphasis is on “inclusive growth” and develop rain-fed areas to improve rural livelihoods through participatory watershed development.
4. Salient features are: -
 - (a) delegation of powers to states
 - (b) dedicated institutions for implementation with multi disciplinary professional teams
 - (c) financial Assistance to provide institutional support at the district/state/national level.
 - (d) duration increased from 5 to 7 years and unit cost enhanced from Rs. 6000 to Rs. 12000 per hectare
 - (e) holistic livelihood orientation
 - (f) development of micro-watersheds (1000-5000 ha) in a holistic manner
 - (g) need for technical support in the watershed program
 - (h) need for capacity building recognized
 - (i) multi tier approach to pre-employment conflicts between institutions nurtured by various ministries ie., JFMs followed by wasteland development, institutions and watershed management institutions.
5. Guiding principles:
 - (a) equity and gender sensitivity
 - (b) decentralization
 - (c) role for agencies for community mobilization
 - (d) re affirmed the centrality of communities in the watershed program and participatory approach
 - (e) monitoring evaluation and learning system with focus on impact and users.
 - (f) organizational restructuring for professional support.
6. Technology Inputs
 - (a) use of RS/GIS and IT for selection/planning
 - (b) creation of a national portal for hosting data generated for all watershed projects in the entire
7. Institutional arrangement at National, state and district levels
 - (a) roles for various institutions from national down to watershed level defined and clarified
 - (b) roles clarified for PRIs and implementing agencies
8. Criteria for selection of watershed projects defined in alignment with the objective of the program

9. Project management cycle revisited

- (a) time frame for preparatory phase development phase and consolidation phase clarified
- (b) withdrawal prior to completion or foreclosure provided to reestablish the need for demand driven programs

10. (a) release of installments/funds flow simplified

- (b) budgetary allocation upto 23% to include activities for women and landless
- (c) guidelines for use of WDF given
- (d) scope for convergence provided

11. Consortium approach for capacity building recognized

12. More clarity on evaluation of the programs

ANNEXURE VIII

SUJALA WATERSHED PROGRAM, KARNATAKA

District: Chitradurga, Taluk: Challakere, Subwatershed: Bhoganahalli
Land Treatment Summary Report

April 1, 2002 - January 31,2007									
SI no	Activity category	Cum. Fin. target	Monthly Fin. target	Achievement for the selectd period		Cumulative achievement		% Ach for the selected period	Cumulative % achievement
				Fin	Contribution	Fin	Contribution		
I	Private Land								
	1. Soil & Water Conservation								
	2. Drainage Line Treatment								
	3. Horticulture								
	4. Forestry								
	5. Others								
	6. Livestock								
	7. Demonstrations								
	Total								
II	Common Land								
	1. Soil & Water Conservation								
	2. Drainage Line Treatment								
	3. Horticulture								
	4. Forestry								
	5. Others								
	6. Livestock								
	7. Demonstrations								
	Total								
III	Private Land + Common Land								
	1. Soil & Water Conservation								
	2. Drainage Line Treatment								
	3. Horticulture								
	4. Forestry								
	5. Others								
	6. Livestock								
	7. Demonstrations								
	Total								

Report generated from Sujala Mahithi Management Information System
for
Sujala Watershed Project

About ICRISAT



The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that does innovative agricultural research and capacity building for sustainable development with a wide array of partners across the globe. ICRISAT's mission is to help empower 600 million poor people to overcome hunger, poverty and a degraded environment in the dry tropics through better agriculture. ICRISAT belongs to the Alliance of Centers of the Consultative Group on International Agricultural Research (CGIAR).

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