

**The Watershed Development Programme in Andhra Pradesh  
Reflections for Reforms**

**A Paper by**

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## **Watershed Development Programme in Andhra Pradesh Reflections for Reforms**

This paper reflects on the experiences of implementing the watershed development programme in Andhra Pradesh. Key issues that emerge from this analysis form the basis for “reforming” the watershed development program in terms of policy framework and interventions needed to strengthen the programme. The first three chapters present the analysis, reflections and thus a rationale for “reforms”, while the remaining three chapters propose a refined or redefined framework for watershed development program in terms of programme components, thrust areas, policy options and agenda for generating new knowledge to enhance the performance of program.

### **1. Chapter 1:**

#### **1.1. Evolution of policies and changes in the Watershed Framework (1970-2001):**

Drought proofing in ecologically sensitive areas of India has been one of the priorities of the state. Central government conceptualized programmes like the Drought Prone Areas Programme (DPAP) and the Desert Development Programme (DDP) in 1971 to support drought proofing in selected parts of the country. From time to time, expert committees were constituted to suggest improvements in the contents and strategies of these programmes.

Task Force Committee under the leadership of Dr B S Minhas (1973) and another Task Force Committee under the leadership of Dr M S Swaminathan reviewed ongoing programmes and recommended that integrated and sharpened approaches would be essential for sustainable development of ecology and environment in drought prone areas. However, these committees could not bring in the relevant strategies and contents into these programmes and they continued to support the creation of irrelevant infrastructure in a dispersed manner without the necessary area focus. The Central Sanctioning Committee (1987) recommended that soil and water conservation activities should be the focus of DPAP and DDP. Latter, the National Committee on DPAP and DDP (1988) under the chairmanship of Dr L C Jain recommend the involvement of community participation and involvement of voluntary organizations in the programmes. Though these two committees made some improvements in the design of programme, they could not clearly conceptualize the necessary operational strategies and content.

Meanwhile, the Central Government initiated Integrated Waste Land Development Programme (IWDP) since 1989. In spite of all these committees and their recommendations, the problems of these programmes, namely dispersed nature of interventions, lack clear strategies and relevant contents continued. (Refer Table 1 for summery of committees on drought related programs)

**Box 1**  
Influence of Experiences of NGOs  
in Policies of Watershed  
Development

Many Voluntary Organizations like MYRADA, AKRPS(I), Relegan Siddhi, Pani Panchyat, BAIF have adopted watershed approach in various parts of the country and demonstrated that community based watershed approach would not only mitigate the negative impact of drought, but also strengthen the village economy. The Technical Committee headed by Dr Ch Hanumantha Rao studied some of these experiences and converted the key lessons from them into recommendations.

The Technical Committee headed by Dr Ch Hanumatha Rao (1993) brought in a real shift in the programme. This committee made the following important recommendations.

- A. Micro watershed area should be the basis for interventions, not the administrative block.
- B. Communities living the watershed should be involved in the entire project cycle.
- C. Voluntary Organizations should be given responsibilities in the Programme.
- D. Funds from various schemes/ Programmes should be pooled together and channeled to watershed Programme.
- E. Appropriate institutional arrangements at all levels should be created.
- F. Identification criteria for selection of districts for DPAP/ DDP/ IWDP should be developed.
- G. Support to training of various stakeholders should be supplied.
- H. Ministry of Rural Development should take up the responsibility of the programme at national level.

Based on these recommendations, the Ministry of Rural Development, Government of India issued Guidelines for Watershed Development (1994). These Guidelines have achieved the difficult task of integrating drought-proofing agenda with community participation, appropriate technical interventions, capacity building support and participatory processes. The discussions in this paper largely relate to the experiences of implementing the watershed programme in the framework of these Guidelines in the state of Andhra Pradesh, where the highest number of watershed projects are being implemented.

**Table No 1: Committees on drought related programmes and their main recommendations.**

Year	Programme/ Committee	Focus
1962-63	River Valley Project	Prevention of silt in reservoirs of large multi purpose dams
1970-71	Employment Assurance Scheme	Creating employment opportunities in drought prone areas. Asset creation that could mitigate severity of drought.
1972	Drought Prone Areas Programme	Local perspectives and initiatives in programme planning
1973	Tasks force under leadership of Dr B S Minhas	Priority to integrated approach, assured employment opportunities for weaker sections, Focus on income generating activities
1977-78	Desert Development Programme	Controlling desertification process
1982	Task force on DPAP and DDP in the leadership of Dr MS Swaminathan	Encouragement to income generation activities; Exclusion of Basic Infrastructure (Eg: Chilling centers); Priority to land based basic services, watershed based planning; Focus on individual beneficiaries, instead of area perspectives; Subsidies to all categories of farmers.
1987	Central Sanctioning Committee	Conservation of land and water; Development of land, afforestation; Waste land development; Departmental approaches; Efforts to decentralize.
1988	National Committee on DPAP and DDP under the chairmanship of Dr L C Jain	Involvement of community and voluntary organizations in the programmes.
1994	Technical Committee on DPAP, DDP under the chairman of Dr Ch Hanumantha Rao	Integrated community based watershed development program.

(This table is adopted from Ravindra (2001), Combating Drought and Land Degradation in India, Rio, Johannesburg and Beyond)

## 2. Chapter 2:

### 2.1. Analysis of Experiences in Andhra Pradesh:

Since 1995, nearly 9326 watershed projects are being implemented in the state (Refer Box 3). The state government made appropriate administrative arrangements. Creation of separate project directorates at district level (Office of the District Water Management Agency) and introducing Multi Disciplinary Teams (MDTs) are some of these features. A large number of voluntary organizations were involved in the programme, apart from different government departments. The state has rich experience in steering the programme and the impacts of the programme are reported to be impressive. This section analyses these experiences looking at the following aspects.

- A. Perspective Plan and Achievements.
- B. Understanding Processes & Institutions of Primary Stakeholders
- C. Technology
- D. Coverage of Poor and Livelihoods
- E. Micro Watersheds and Dalit Watersheds – Options and Opportunities.
- F. Operating Systems within Facilitating Organizations

### 2.2. Perspective Plan and Achievements:

Unlike many states, the Government of Andhra Pradesh has formulated a perspective plan for watershed development Programme in the state. This plan intends to provide a direction to the watershed program in the state in terms of priorities, area to be covered and potential sources of funds. Within this broad framework, each district is expected to prepare a similar perspective plans for the district.

This Perspective Plan states that the watershed development program intends to treat 49 lakh hectares of wastelands, 44 lakh hectares of degraded dry lands, 6 lakh hectares of degraded forest in the state in 10 years time frame (1997-2007). Each district has to prepare a yearly plan to cover an area of 1/10<sup>th</sup> of its total degraded area under the watershed Programme. The perspective plan envisages provision of adequate funds for this purpose through increased allocations under relevant programmes/ schemes and vigorous mobilization of externally funded projects.

It may be noted that the about 30% of the set target was completed by 2002 in a time

<b>Box 2</b>	
Highlights of 10-Year Perspective Plan for Development, Department of Rural Development Government of Andhra Pradesh (1997).	
Total Area to be treated in 10 years	100 lakh hectares
Time Frame	1997 - 2007
Total Funds Required/ 10 Years (At 1997 estimates)	3718 Crores
Potential Sources of Funds	Agriculture, Rural Development (JFM, DPAP, EAS, IWDP), Horticulture, Externally Aided Projects, World Bank.
Area to be treated each year	10 Lakh Ha
Number of Projects required per year	2000 @ 500 Ha each
Area treated up to 2002 (Approximate)	30 Lakh Ha

period of five years. The remaining 70% of the area is to be treated in the coming five years. The government is making serious efforts to mobilize resources, mainly from central government and from bilateral sources. In spite of its special position in the development agenda, the state government did not allocate any separate/special budget to the watershed development programme from its own sources, apart from mandatory share from the state government in certain centrally sponsored schemes. Similarly, there are no significant contributions from any departments/ Programmes of the state government. However, supplementary funds are being mobilized from the food for the work scheme (a central government supported scheme) and loans from the National Bank for Agriculture and Rural Development (NABARD) under the Rural Infrastructure Development Fund (RIDF).

<b>Box No 3</b>				
Number of Watersheds implemented as on Oct 2002 in Andhra Pradesh				
S. N O	Scheme	No of Watershed projects	Area under treatment (lakh Hect)	Central and State Assistance
1	DPAP (Drought Prone Areas Programme)	2966	14.93	75:25
2	Desert Development Project	552	2.76	75:25
3	IWDP Integrated Waste Land Development Project e	758	4.36	91.66:8.33
4	EAS Employment Assurance Scheme	1884	9.52	75:25
5	APHM AP Hazard Mitigation Project	100	0.50	World Bank assisted
6	RIDF VI Rural Infrastructure Development Fund	1244	2.63	Loan from NABARD
7	RIDF VIII	1807	0.00	Loan from NABARD
8	WDF Watershed Development Fund	15	0.15	NABARD and DPAP
9	TOTAL	9326	34.85	

Source: Background note for the State Watershed Development Committee meeting on 2<sup>nd</sup> Dec 2002, Commissioner Rural Development, Government of Andhra Pradesh

### 2.3. Issues, Gaps and Concerns:

- A. To implement Perspective Plan, the state needs necessary implementation mechanism (organizations and management systems), which could complete the targets in the given time frame. At present, majority of the projects (X%) are being implemented by government line departments (which are mostly non participatory), while (Y%) of projects are being implemented by voluntary organizations. In limited number of districts (Eg: Chittoor, Nalgonda, Ranga Reddy) experienced voluntary organizations operate majority of the projects. Studies conducted by CESS indicate that the level of community participation is higher when voluntary organizations facilitate the program as Project Implementation Agencies. Since the central theme of the watershed development program is community participation, the implementation mechanism should be able to support and facilitate the participatory processes of the program. It is important to develop a strong base of such "capable" Project Implementation Agencies (from different categories – government

departments, voluntary organizations, community based organizations, Panchayat Raj Institutions, academic institutions and others) to realize the perspective plan. However, The state level perspective plan did not specify a clear strategy for involving different organizations as Project Implementation Agencies. This could prove to be an important bottleneck in achieving the set targets.

- B. With frequent changes in the project directors, serious efforts are not made to develop district perspective plans that are in tune with the state perspective plan. Over a period of time, these plans were forgotten and the new incumbents are not even aware that such plans (however incomplete they are) exist for the district and they are expected to work in the light of these plans.
- C. The training strategies mentioned in the perspective plan are not operationalized. In the absence of adequate number of capable implementing agencies, it is very difficult to operationalise the perspective plan. But increasingly the budgets for capacity building purpose were centralized at state and district levels and diverted to other purposes. As a result, the implementing machinery (at different levels) is still not equipped to face the challenge of facilitating participatory watershed development program.

#### **2.4. Understanding Processes and Institutions of Primary Stakeholders:**

The Guidelines have a very clear emphasis on participatory processes. However, the actual practices on the ground have been found to be different. The studies conducted by WASSAN “Understanding Processes in Watershed programme, Nalgonda district”, (2000) and other studies for Ranga Reddy and Mahaboobnager districts to understand the nature of these processes indicate that there are many gaps between the envisaged processes and actual practices on the ground. Though the watershed programme is successfully expanded, replicated and implemented on a large scale with occasional positive experiences, the quality of the Programme suffered. The main observations from these studies are presented here. These can be classified into two categories.

##### **A. Most Common Observations (observed in about 70% to 80% of watersheds).**

- Though the awareness Programmes are organized, they are not consistent with the stage of the program (some times thrust areas of the program) and regular. The importance of physical works (like water harvesting structures, tree plantation, etc) got highlighted in these awareness programmes, instead of role of community in the Programme.
- Institutions created for the programme were weak. The Programme became “Committee Centered” instead of “Community Centered”.
- User groups are almost absent.
- Watershed Committee consists of powerful village leaders. They do not necessarily represent user groups or self help groups.
- Centralization of power at the community level in the hands of few (president/ secretary) is not a rare feature.
- The action planning process is driven by the district administration. The primary stakeholders did not find space in the process of planning.
- The menu of watershed interventions is a short one, with a limited number of standard interventions. Bunding, check dams, gully checks, plantation, and contour trenches were the most common interventions.
- Space for peoples’ knowledge in the Programme is fairly limited. Sometimes the options demanded by farmers were not allowed in the Programme.
- Women did not receive any importance in the Programme.

- Users were not motivated to contribute to improve their sense of ownership and stake in the program. Majority of the contribution is cut from the wage laborers, from their daily wages.
- B. Special Practices (observed in about 10 to 20% of watersheds):*
- The net planning<sup>1</sup> exercises helped to create user groups and develop user group based action plans.
  - Multiple interventions were taken up by the watershed committee in water conservation related activities.
  - Consistent communication Programmes were organized to spread the message of the watershed Programme. Project Implementation Agencies organized training Programmes to committees/ user groups.
  - Contribution was mobilized genuinely from users as a necessary condition.
  - SHGs were given responsibility of watershed works.
  - Women members of SHGs formed the watershed committee.

## **2.5. Concerns Issues and Gaps:**

- A. Providing space and time for promoting participatory planning and implementation processes is a critical bottleneck in realizing the objectives of the watershed development program.
- B. Facilitating teams do not have the necessary skills, orientation and capacities to develop the institutional base for the Programme.
- C. Centralization of financial resources and decision-making opportunities does not promote transparent and democratic systems.

## **2.6. Technology:**

Though there are standard watershed technologies developed by national level research organizations and government departments, Project Implementation Agencies are not really familiar with these technologies. Technology related to irrigation engineering dominated watershed programme for a considerable time period. This is evident from the fact that there is no standard schedule of rates (SSR) developed specially for watershed programme. The SSR is adopted from various government departments. The perspectives on watershed technologies are fairly limited to civil engineering sector, but do not include technologies related to agriculture productivity (like non-pesticidal management practices, soil fertility improvement, water efficiency), changes in cropping pattern and animal husbandry.

- A. However, Andhra Pradesh has effectively mainstreamed some of the standard technologies in the watershed programme. These technologies include the construction of earthen bunds, check dams, gully checks and contour trenches. The technical norms are highly standardized and generally not site specific. Process Studies conducted by WASSAN indicate the following pattern in technical aspects of the Programme.
- B. Physical boundaries of watersheds are not delineated scientifically.
- C. The area of the village is generally higher than the micro watershed area (500 ha). As a result of this, the investments were spread to the entire village. But the technology is not adopted/ fine-tuned to this change.
- D. Investments on public lands are generally given low priority. The investments on public lands ranged from 3% to 25%. Water harvesting structures are important interventions in public lands.

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<sup>1</sup> Net Planning is a method of planning for each field of each farmer in a sub watershed, with the active involvement of farmers of that sub watershed.

- E. The most common interventions are construction of earthen bunds, check dams and gully checks. These works are on private lands.
- F. Repairs of existing structures were not allowed.
- G. Machines were used to construct continuous contour trenches.
- H. Local traditional technical practices were not identified and mainstreamed in the watershed programme.

Recently, a technical committee headed by Shri T Hanumanta Rao recommended guidelines on technical aspects of the watershed Programme (2001). These guidelines have a significant emphasis on cost effective technologies to harness rainwater in the ridge area of the watersheds. It is expected that these guidelines will broaden the watershed interventions in water conservation. However, there is a need for a careful look at watershed technologies to encompass all aspects of the watershed programme like engineering and production technologies. Enhancing space for biomass related technologies and traditional technical practices is a critical need.

### 2.7. Issues, Gaps and Concerns:

- A. Most of the technologies are limited to conservation of natural resources.
- B. Social boundaries and technical boundaries tend to differ. Appropriate technical norms/ procedures need to be developed to make technology relevant to social boundaries.
- C. Watershed technologies need to be broad-based to include production technologies.
- D. Space for indigenous technical knowledge needs to be created and mainstreamed.
- E. Process of Inclusion and Exclusion of the Poor in the watershed programme and implications for their livelihoods:
- F. Equity considerations in the watershed programme are always a dilemma for the facilitators. Many actors (particularly bureaucracy, NGOs and even village level leadership) tend to that the watershed programme is meant for landed communities and there is nothing that poor landless can get from the Programme. WASSAN conducted a study on “Processes of Inclusion and Exclusion of Poor in ongoing watershed Programme in Andhra Pradesh” (2002) to understand the space given to and benefits accrued to the poor in watershed programme. Case study approach was adopted to understand the key processes that include and exclude poor in watershed programme. One of the key indicators is the budget that reached the poor. Table No 2 presents the findings of the study with reference to this indicator.

**Table No: 2 – Watershed budgets that reached the poor:**

S.No	Factor	Details
1	Sample Size	9 Completed watersheds in 8 districts
2	Total Number of Families in 9 watersheds	1947 (100%)
3	Number of Poor Families in 9 watersheds	872 (45%)
<b>Asset Base of Poor Families</b>		
4	Number of Poor families having animals (Average number of animals/ Poor Family: 5)	90 (5% of total families) (10% of poor families)
5	Number of Poor families having land (Average land/ Poor Family: 1.13 Acres)	476 (24% of total families) (55% of poor families)
<b>Benefits that reached poor families</b>		
6	Number of poor families that got benefits	803

	of watershed Programme*	(41% of total families) (92% of poor families)
7	Total expenditure that reached poor (out of 144 Lakhs)	Rs.25 lakh (17.41% of works components)
8	Average Budget that reached per poor family	Rs. 3122
9	Highest share of benefits	From wages (5.83% of works budgets for 25% of poor families) Earthen bunds (4.17% of works budget for 32% of poor families)

\* Some times, the same family got more than one benefit.

Though this study is not exhaustive, the findings of the study can be classified into the following aspects. The factors that influence the process of inclusion and exclusion of the poor are presented in the Table No 3.

### 2.8. General Impressions:

- A. The study indicates that about 17% of total project investments are made on poor families in the selected watersheds.
- B. Total number of poor families that got benefits/ investments (803) seems to be almost equal to total number of poor families (872). But, most of these benefits are concentrated within landed poor families (about 55% of poor families). Some of the landed poor families received multiple investments (more than one intervention) also.

### 2.9. Poor Families and Investments on their land:

- A. The technology that is implemented by most poor families is earthen bunds. About 32% of poor families have constructed earthen bunds, with an average investment of 2166 Rs/ Family.
- B. About 5% of poor families constructed gully checks on their lands with an average investment of 4306 Rs/ Family.

### 2.10. Poor Families and Investments on Common Property Resources (CPRs):

- A. Though the practices and investments on CPRs differ from district to district, most common investments on CPRs (land) are tree plantation, soil and moisture conservation, water harvesting structures, etc. Sometimes investment on drainage line treatment (mainly construction of water harvesting structures like check dams) is also considered as investments on CPRs.
- B. Majority of plantation and seedlings did not survive, for want of budgetary/ programmatic support on management of CPR lands (watering of plants/ watch and ward, etc). This expenditure only created wage opportunities, but did not create usable assets in the watersheds.
- C. In certain districts, the investment on CPRs (land) is less than 3% of the total investment on works. (Eg: Ranga Reddy District).
- D. Mostly investments on water harvesting structures (which are common to a group of farmers) are considered to be investment on CPRs. (Nalgonda, Khammam). In such cases, the investments on CPR (water) are about 25% of total budgets.

### 2.11. Poor Families and Water Harvesting Structures:

- A. A total of 40 poor families (about 3% of poor families) have benefited from water harvesting structures.

- B. Average investment per family is highest (Rs21572/-), compared to any other type of investment in watershed program.
- C. Check dams and percolation tanks were the only interventions.

**2.12. Poor Families and Their Institutional Space:**

- A. User Groups and SHGs are considered to be the building blocks of the watershed Programme. As explained earlier, the group building process is fairly weak. Committees are constituted without forming user groups/ SHGs. The space for the poor in these groups in the sample villages (total 9 villages) is found to be like this.
- B. In one village only, all poor families (100%) were organized into SHGs.
- C. In two villages, there were hardly any efforts to organize community (both poor and non-poor)
- D. In seven villages, groups were organized on paper. These groups collapsed immediately after the programme is completed. In these villages, it is found that 5 to 20% of members in existing groups of women belong to poor families.
- E. When women and poor persons were in key positions, they could ensure that poor families got priority in the wage opportunities in the watershed programme.
- F. In watershed committees, representatives of poor families/ poor are present as a norm. The PRA exercises conducted during field study indicate that except in two villages, the women and poor are generally in the periphery of the programme and decision making processes.

**2.13. Poor Families and Wage Opportunities in Watershed Programme:**

- A. Data on employment generation (if available) is not dependable, as payments are made based on “quantity of work”. However, the data generated from the field exercises highlights the following aspects.
- B. Only 25% of poor families got wage opportunities.
- C. Earning wages is considered to be one of the important and direct benefits that landless families and poor could from watershed program. However, the study indicates that it is not always right to assume that this particular benefit (earning wages) would automatically reach poor. The total earnings of poor from wage are in the range of Rs. 24,000/- to Rs. 2,30,000/- in different villages. The study also brings out an inventory practices/ factors that work “in favor of” and “against” poor, even in case of wage opportunities to poor (Refer Table No. One cannot and should not take it for granted that it would automatically flow to poor in the village.
- D. Machines (hydraulic excavators) were used in 50% of the sample villages. Each village spent about Rs.80, 000 to Rs.1, 00,000/- on machines. This fund is expected to be spent on manual labor.
- E. When women were in key positions (in two villages), they opposed the use of machines and decided to give employment opportunities to the local poor.

**2.14. Poor Families and Capacity Building Inputs to Them:**

- A. Poor persons were not specially targeted during training Programmes.
- B. Only president/ chairman/ secretary participated in training programmes. Most of the time, these training programmes are review meetings. They are not organized like training/ orientation Programmes, with the necessary preparations.
- C. Most of the Watershed Development Teams also did not get adequate inputs/ orientation on issues like equity, gender and planning for these concerns.

**Table No 3: Influencing factors of inclusion and exclusion of the poor:**

<b>Positively Influencing Factors</b>	<b>Negatively Influencing Factors</b>
Flexibility: Whenever the facilitating teams adopted flexibility <i>in administrative/ technical norms</i> , poor benefited.	Assets as a base: Interventions in the watershed programme are reaching people with assets. <i>Asset less families are ignored.</i> Establishing access to assets to asset less families is beyond the current watershed framework.
Solidarity of Groups: If a strong base of groups of poor created in the initial stages of programme, these groups ensured <i>flow of benefits to the poor.</i>	Ignoring existing asset base: Land and animals constitute an important asset base for the poor. Treatment of their land requires <i>higher investments</i> , which are <i>not possible</i> with available budgets in the watershed programme. Activities related to <i>animal husbandry</i> are still <i>not part</i> of watershed interventions.
Experience and Philosophy of Facilitators NGOs with long experience of facilitating developmental programmes ensured that <i>equity and gender</i> issues got mainstreamed in the watershed programme.	At perception level: Facilitators think that this programme is <i>“only for farmers”</i> and there is no space for landless families. This is a major block in the program.
Convergence District administration and NGOs <i>creatively facilitated</i> convergence of different programmes with watershed programme. Poor benefited from such activities.	At operational level: <i>No conscious efforts</i> were made by facilitators to create space for the poor in the programme during planning, institution development and implementation phases.
Capacity Building Inputs Skill development of the poor helped to <i>earn more</i> and opened up their opportunities.	Selection of villages: <i>No special efforts</i> / criteria were developed to ensure that <i>villages with a large concentration of poor are selected.</i> Limiting the scope of watershed programme Poor families need additional investments for activities that are not part of conventional watershed treatment. The current choice of interventions and budgetary norms limits opportunities for the poor.

**2.15. Issues, Gaps and Concerns:**

- A. The study indicates that there is ample scope for enhancing the space for poor in watershed programme and it is a process intensive approach.
- B. The framework of watershed programme should be sensitive to this agenda.
- C. Necessary capacities need be built within the facilitating/ implementing organizations to operationalise these processes.

**2.16. Micro Watersheds and Dalit Watersheds – Options and Opportunities:**

- A. Apart from the mainstream watershed development Programme, some voluntary organizations in Andhra Pradesh have demonstrated innovative and alternative models of implementing watershed programmes. Experiences of Rayalaseema Watershed Development Programme (a group of voluntary organizations supported by a consortium of donor organizations) and Deccan Development Society (DDS)

are prominent among them. To highlight the concerns for equity in a watershed context, DDS named this programme “Dalit Watersheds”. These experiences have demonstrated that gender and equity concerns can be integrated with watershed development very effectively. Some of the major differences between mainstream watersheds and these alternative models are briefly summarized in Table No 4.

**Table 4: Comparing Mainstream Watersheds with Dalit Watersheds**

S.No	Parameter	Mainstream Watersheds	Dalit Watersheds
1	Size of the watershed	500 Ha. Entire village and land belonging to all caste groups. Supposed to be contiguous.	Between 20 Ha to 200 Ha. Land belonging to Dalits. Not necessarily contiguous.
2	Funding Organizations	Government	International Donors
3	Main Participants	Entire village. No specific target groups. Rarely poor/ women are in key positions.	Dalits. Representatives of Women groups have occupied key positions.
4	Facilitating Organizations	Government and Non Government Organizations	Non Government Organizations
5	Thrust Areas	Drought Proofing. Resource Conservation. Economic Development	Empowerment of poor/ Dalits. Food security. Resource Conservation and productivity Enhancement. Economic Development.
6	Facilitation	Low. Ad hoc.	High. Intense.
7	Capacity Building Support	Almost absent	Continuous, need based and systematic.
8	Processes	Low priority. Rigid administrative norms.	High priority. Flexible operating norms.
9	Institutions	Could not follow guidelines. Weak institutions.	Central to the Programme. Strong institutions.
10	Technology	Conservation oriented. Rigid norms. Does not allow space for local needs/ practices. Limited options. Ridge to valley.	Production oriented. Flexible. Built on local traditional practices. Site specific. Many options. Scattered/ clusters of plots of Individuals.
11	Investments	Dispersed/ scattered in the entire watershed. Follows standard schedule of rates. Usually grants from government.	Focused on the individual lands to complete the production cycle. Follows local rates. Some interventions are loan based.
12	Contribution	No genuine contribution from users. Deducted from wages of laborers.	Genuine contribution from farmers in the form of labor, material and cash. Loans for some components/ treatments.
13	Impact	Large scale. Wider.	Small scale. Limited to the groups.
14	Facilitation	Relatively low.	High.

	Costs		
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Dalit watersheds have broken many myths related to watershed technologies. Poor communities were able to plan and implement the watershed programme in a convincing way to enhance food security. Wage employment that was generated was one of the major attractions of the Programme, apart from local decision-making opportunities. Apart from conservation of land and water, the interventions also focused on dry land agriculture and ground water management within a strong institutional framework. These models also gave deeper insights into operational strategies for land-based livelihoods options for poor.

One of the important features of Dalit Watersheds is to facilitate the process of accessing land through long term lease (About 2000 hectares land in five years). Members of groups (who do not have land) take land on lease as a group. Since the lease term is relatively long (some times even seven years), members benefit from the investment they made on land improvement activities. Two agreements are entered into, a) between the group and landowner and b) between group and voluntary organization. This land is improved with the support of investments from Dalit Watershed Programme and collectively cultivated. Through this process, many landless women got the direct experiences of farming (which is different from working as a labourer) and ensured food security. Thus Dalit Watersheds have broadened the scope of watershed programme in drought prone areas by integrating features like accessing land, improving soil conditions through flexible technical interventions, cultivating rain-fed food crops and producing food. Collective action, supportive financial arrangements and convergence of different components are central to ensure gender and equity considerations. In contrast to this, the mainstream watershed programme helped in standardization of limited practices across a large number of villages.

**2.17. Issues, Gaps and Concerns:**

- A. Environmental concerns need to be integrated with gender and equity concerns, for long term sustainability.
- B. State can design such innovative programs to reach out to the poor and Dalits.
- C. Flexibility in technical and operating norms helps in designing of locally relevant practices. Technologies of watershed development should have bearing on the objectives of the program (production enhancement, food security, drought proofing, equity and gender considerations).
- D. Experiences generated from alternative models by NGOs need to be integrated in mainstream watershed program and such innovations be facilitated in large-scale mainstream watersheds also.
- E. The framework of the watershed programme can be expanded to include concerns related to productivity of resources and natural resource based livelihoods.
- F. Size of watershed could be flexible and
- G. Certain components of watershed treatment/ private land development can be loan based.

**2.18. Operating Systems within Facilitating Organizations:**

Processes at grass root level are influenced by the management systems and strategies within facilitating organizations. The participatory nature of the watershed programme demands new orientation, skills and attitudes from facilitating organizations. All organizations involved with this programme need to reorient themselves to the needs of the watershed programme. If they fail to do so, the programme suffers. Process Studies conducted by WASSAN observed that certain important organizational issues influence the quality of the watershed programme. Sometimes, these are creating critical

bottlenecks in implementing the programme. An understanding of these aspects would help to create a favorable and enabling environment for the watershed programme.

In the context of the watershed programme, many organizations were involved having different roles. Government of Andhra Pradesh has created a special separate project directorate District Water Management Agency (DWMA) office and Multi Disciplinary Teams for steering the this programme at district level. Large number of voluntary organizations are involved in the programme. This section discusses to these two sets of organizations. Table No 4 presents the summery of practices at government departments and voluntary organizations and their implications. The discussion mainly relates to situations at district level.

**Table No: 4 Management Systems – DWMA and Voluntary Organization as Project Implementation Agency**

<b>Parameter 1: Selection Process of Staff/ Organizations</b>	
DWMA	Voluntary Organizations
Centrally made at Commissionerate level. No specific criteria for selection of eligible candidates.	Selection criteria/ process for selecting voluntary organizations is not clear and ad hoc.
<i>Implications</i>	
Unable to facilitate/ support a participatory programme like the watershed programme in majority of cases. Centralization of power.	Inexperienced voluntary organizations with poor commitment are given the responsibility of facilitating watershed programme.
<b>Parameter 2: Orientation of Staff</b>	
DWMA	Voluntary Organizations
Some times ad hoc arrangements. No plan or mechanism.	No plan or mechanism
<i>Implications</i>	
Staff could not understand what is expected from them.	Staff could not understand what is expected from them.
<b>Parameter 3: Internal Planning Systems</b>	
DWMA	Voluntary Organizations
Ad hoc. Not based on need at field level. Driven from top.	Driven by DWMA. Not based on needs of watersheds
<i>Implications</i>	
Top down approach. Target orientation	Top down approach. Target orientation
<b>Parameter 4: Implementation of their action plans</b>	
DWMA	Voluntary Organizations
Take up multiple functions that are mutually inconsistent. (Eg: Monitoring and supervision).	Does not take up keen interest in the Programme. There are no incentives and “autonomy” for voluntary organizations.
<i>Implications</i>	
Poor role clarity.	Does not provide necessary inputs at grass root level.
<b>Parameter 5: Monitoring and Review</b>	
DWMA	Voluntary Organizations
Excessive & redundant data collection and over-reporting. Sometimes the data is undependable. Monitoring is confused with evaluations and decision-making.	Spend considerable time to generate data.

<i>Implications</i>	
Centralization of power.	Tired of reporting and lost interest in monitoring.
<b>Parameter 6: Financial Systems</b>	
DWMA	Voluntary Organizations
Funds for training, community organization and administration are centralized. Systems are not transparent. Fund flows do not relate to action plans.	Very ad hoc systems. Many organizations do not follow standard accounting procedures. Occasionally mismanagement of funds is observed.
<i>Implications</i>	
Poor and inadequate inputs on training and community organization. Implementing agencies are not motivated.	Image of voluntary organizations is at stake.

Leaving occasional exceptionally sound management practices at DWMA and implementing agencies level, one can conclude that the above observations would represent an average picture of management systems/ operating practices within these organizations. These observations indicate that the management systems within facilitating organizations could have a bearing on the quality of participatory processes at grass root level. (Eg: Centralization of funds at DWMA level could lead to creating of weak institutions of the community).

**2.19. Issues, Gaps and Concerns:**

- A. Large-scale participatory natural resource management programmes need to specially concentrate on “organization development” issues to increase the effectiveness of these organizations in facilitating the participatory processes at grass root level.
- B. DWMA and implementing agencies need support in operationalizing the watershed programme.

### 3. Chapter 3

#### 3.1. What after Watershed interventions?

Watershed projects initiated in 1995 are completed. No systematic studies have been conducted in Andhra Pradesh to assess the impact of the programme and understand the status of institutions created. The data base/ information available at the Commissionerate, Rural Development has certain limitations<sup>2</sup> and cannot be used for drawing any reliable conclusions. Studies conducted by Anil C Shah, Development Support Centre, Ahmedabad (2001 and 2002) indicate that watershed Programme immensely contributed in mitigating the impact of drought for two consecutive drought years. The villages in which watershed programme was implemented had better drinking water, agriculture, productivity and wage opportunities compared to those villages where watershed programme is not implemented.

#### 3.2. Most Common Observations:

Informal studies by WASSAN and author indicate that typically the following changes are most commonly visible, after the completion of watershed programme in a village.

- .A. Improved groundwater position.
- .B. Improved availability of drinking water.
- .C. Increased intensity of agriculture.
- .D. Increased private investments on irrigation infrastructure (mainly bore wells)
- .E. Increased area under irrigated agriculture.

#### 3.3. Concerns:

Though these changes are positive, the management of these changes is critical. Some of the concerns after the watershed programme is completed are mentioned below.

#### 3.4. Precarious Water Resources:

With the augmented groundwater resources, private investments also increased considerably (Informal studies conducted by author indicate that the investments from individual farmers are more than the total investment from watershed development programme). The competitive exploitation of augmented groundwater by individual farmers is not only leading to faster depletion of groundwater but also pushing the farmers into debt trap (as a result of heavy investments on bore wells and crop failures). Absence of institutional arrangements for groundwater management is a critical issue here.

#### 3.5. Dry Land Agriculture:

The watershed development Programme is facilitating a shift in agricultural practices that are commercial and water intensive. Market forces and a sense of pride attached to irrigated crops also facilitate this shift. Early indications warn that this shift may not be sustainable. Natural resource conservation related interventions would have to be necessarily followed up with interventions related to strengthening of dry land agriculture. Examples of such interventions are the following.

- Developing locally generated, controlled and managed systems for seeds, fertilizers, pest management, processing etc.

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<sup>2</sup> The author has interacted with DWMA on a number of occasions to understand the data base related to watershed impact and found that there are certain conceptual limitations with the available data – choice of parameters, methodology of collecting data, aggregation/ interpretation of the data, etc.

- Marketing Support -pricing and procurement for public distribution systems of dry land crops.
- Diversification into horticulture/ animal husbandry that is suitable to dry lands.
- Field relevant action research on technologies, institutional and financial arrangements.
- The interventions for strengthening dry land agriculture range from field level facilitation to creating policy support.

### **3.6. Weak Institutional Base**

Near collapse of watershed-based institutions (user groups and committees) once the Programme is completed has been observed, as the inputs they received were too inadequate to sustain the institutional base. Similarly Self Help Groups are not properly integrated into the watershed programme and these groups do not have any agenda of natural resource management. The nature of the institutional base would influence the sustainability of the natural resources (as explained earlier in case of groundwater management), ability of the communities to diversify and access support from different programmes/ institutions.

### **3.7. Unattended Agenda**

Inclusion of reserve forestlands into watershed development plans and creation of entitlements over the forest produce is not yet part of watershed development programme. Though the Guidelines (1994 and Revised 2001) indicate that the joint forest management committees can be considered as watershed committees/ user groups, in reality this integration is not taking place. Absence of an agreement between forest department and rural development department on operational aspects of this policy support (in Guidelines) is a critical bottleneck. It is important for both these departments to recognize the autonomy of user groups/ watershed committee in terms of fund utilization and rights over forest produce, while framing such operational aspects.

Similarly, the tanks in dry land regions (under the control of Panchati Raj Department and Irrigation Department) need special attention. The watershed programme (investments and technical interventions) largely helps the farmers in the catchment areas of these tanks. The riparian rights of farmers at micro/ macro watershed level are of critical concern particularly in drought years. Similarly, institutions for groundwater management need to be created to utilize augmented groundwater in a sustainable manner.

### **3.8. Convergence of Other Institutions:**

Special efforts need to be made to facilitate the convergence between watershed groups and institutions like Panchayat Raj Institutions, Forest Committees, Water Users Associations and other institutions. In drought prone areas, the watershed association can act like a platform for convergence of other Programmes. The mechanisms, processes and rationale for such convergence need be developed in a systematic manner.

## 4. Chapter 4:

### 4.1. Water Policy and Watershed Programme

Water remains to be central issue both in watershed and water resource development (though water is every essential, watershed development program is expected to address/ take up soil conservation, improve biomass, etc in an integrated manner). Interestingly state and the central government issued acts/ laws and policy document on water in the same year. It may be noted that the National Water Policy (2002) has a specific focus on water resources of the country providing a broad framework for water resource planning, use and sustainability. The Andhra Pradesh Water, Land, and Trees Act (2002) is more regulatory in nature. The guidelines of watershed development programme (1994 and 2001) provide a comprehensive operational mechanism and project outline at micro watershed level. However, it is important to see whether these documents are consistent with each other. This chapter tries to see the relationship between watershed development Programme (its Guidelines) and the policy documents at central and state level on selected parameters From Table No 5 to 13). Each table is followed up by brief analysis.

**Table No 5: Whose property?**

The numbers in brackets refers to the relevant sections of the policy document.

Parameter 1: Whose property?		
A	National Water Policy 2002	Water is national asset. Water resource development should have national perspective. (Para 1.1)
B	AP Water, Land and Trees Act (2002)	The designated Authority, subject to any general or special directions issued in this behalf by the Government, shall regulate all ground water resources in the State. (Chapter 3) Authority has the power to notify the water bodies as heritage bodies and conservation areas to prevent conversion of their intended use. (Chapter 4 – 23.1)
C	Guidelines of Watershed Development Programme 1994 and revised 2001	Assets that harvest rainwater resources belong to user groups. User groups/ PRIs/ watershed association have the responsibility of maintenance of these assets. Local perspectives (needs and aspirations of dependent communities) to play critical role in resource development.

**Analysis:** At local/ micro level, the Guidelines envisaged community ownership/ PRIs' role over water resources. The National Water Policy has a different perspective. The national and local perspectives might differ in many cases (due to scale of operations, priorities, etc). It is the role of the regulatory authority/ mechanisms to detail out the process of striking a balance between local and national perspectives (How to prioritize, who should be involved in decision making process, what are the conditions? etc). Unfortunately, the AP Land, Water and Trees Act does not mention these details.

**Table No 6: Priority**

The numbers in brackets refers to the relevant sections of the policy document.

2 Parameter: Priority		
A	National Water Policy 2002	1) Drinking water, 2) Irrigation, 3) Hydropower, 4)Ecology, 5) Agro industries and non-agricultural industries, 6) Navigation and other uses. (Para 5)
B	AP Water, Land and Trees Act (2002)	Drinking water has first priority (though

		explicitly not stated). Appropriate use of land, water and trees.
C	Guidelines of Watershed Development Programme 1994 and revised 2001	Villages with drinking water scarcity to be selected for project on priority basis. Priority to be given to activities that help groundwater recharge and irrigation.

**Analysis:** There is remarkable consistency in setting priorities in all three documents, though this priority statement is not so explicit in the AP Land, Water and Trees Act and Watershed Guidelines. In selection of villages for watershed development programme, problem villages (drinking water scarcity villages) were given priority. Similarly the regulatory mechanisms under the AP Land, Water and Trees Act ensured that drinking water sources received due attention and protection.

### Table No 7: Scale of Interventions/ Operations

The numbers in brackets refers to the relevant sections of the policy document.

<b>3</b>	<b>Parameter: Scale of Interventions/ Operations</b>	
A	National Water Policy 2002	Large scale projects – with water at the core. Macro level (1.6)
B	AP Water, Land and Trees Act (2002)	Not Applicable. Covers urban and rural areas.
C	Guidelines of Watershed Development Programme 1994 and revised 2001	Small scale projects – with land and water at the core. Micro level

**Analysis:** The National Water Policy seems to have a strong positive bias towards large-scale irrigation/ water resources projects and there is cursory mention of the watershed approach. Decentralized and micro level interventions by communities as a major strategy does not find adequate importance and emphasis in the National Water policy, while the Guidelines of Watershed Development Programme are entirely based on this philosophy. Many experts observed that the formulation of water policy did not benefit from the Guidelines of Watershed Programme 1994. (Ramaswamy R Iyer (2002)),

### Table No 8: Focus

The numbers in brackets refers to the relevant sections of the policy document.

<b>4</b>	<b>Parameter: Focus</b>	
A	National Water Policy 2002	Water Resource Development Management of Flood and Droughts (1.5)
B	AP Water, Land and Trees Act (2002)	Regulation of resource use (land, water and trees) Regulatory mechanisms (incentives, disincentives, norms for depth, distance were prescribed) (Chapter 3)
C	Guidelines of Watershed Development Programme 1994 and revised 2001	Drought proofing at micro level. Ecological restoration, economic development and equitable distribution of benefits

**Analysis:** There is a high level of convergence in the focus of the National Water Policy and Guidelines of Watershed Development Programme, mainly in the drought proofing related agenda. Obviously National Water Policy should also have flood management as a thrust area

**Table No 9: Water Resource Planning**

The numbers in brackets refers to the relevant sections of the policy document.

<b>5</b>	<b>Parameter: Water Resource Planning</b>	
A	National Water Policy 2002	Macro watershed/ River basin approach – soil and water conservation, traditional and modern technologies to harvest water. (Para 3.1 to 3.4) State as the main actor in planning and involvement and participation of “beneficiaries” should be “encouraged”. (Para 6.8) Multi dimensions approach – Economic, ecological and environmental, catchment and command area development, rehabilitation and resettlement (Para 6.2)
B	AP Water, Land and Trees Act (2002)	Need for guidelines to conserve rainwater, groundwater management and tree plantation is recognized. (Chapter 3 – 11.4 and 17.1, Chapter 5 -6)
C	Guidelines of Watershed Development Programme 1994 and revised 2001	Micro watershed approach – soil and water conservation, traditional and modern technologies to harvest water. User group based plans and implementation. Rehabilitation and resettlement issues are not very relevant.

**Analysis:** In the National Water Policy, the state assumes a major role in water resource planning and scale of projects seems to be large. There is no clear mention of small-scale community managed water resource projects. In both the National Water Policy and the Guidelines of Watershed Development Programme, the watershed approach is recommended (though the scale differs). The AP Land, Water and Trees Act recognizes the need for Guidelines, but does not recognize the existing Guidelines explicitly (This Act refers to Watershed Association, Water User Association, which are components of institutions in ongoing watershed and irrigation management programmes in the State).

**Table No 10: Water Use/ Sharing**

The numbers in brackets refers to the relevant sections of the policy document.

<b>6</b>	<b>Parameter: Water Use/ Sharing</b>	
A	National Water Policy 2002	Transfer of water from water surplus zones to water deficit zones. (Para 3.5) Need for reviewing of Inter State Water Disputes Act of 1956 and guidelines for sharing of water between states is recognized. But is silent on exact norms for sharing of water. (21.1 and 21.2)
B	AP Water, Land and Trees Act (2002)	Norms/ rules related to wells/ hand pumps for drinking water purpose can be relaxed (distance and depth) (Chapter 3 –10.1) Authority may declare a particular groundwater basin as over exploited for a period of not more than six months. Digging of wells is prohibited in this zone. (Chapter 3 – 11.1 to 11.5). Reuse/ recycling is encouraged for industrial/ commercial uses. (Chapter 3 – 18).
C	Guidelines of Watershed Development Programme 1994 and revised 2001	For local use. Only surplus run off would go downstream or local tank. The watershed association is expected to resolve the conflicts related to water sharing between farmers within the watershed area.

**Analysis:** Guidelines of Watershed Development Programme envisages that water resources at local level and its uses are mainly in the control of local communities. However, the National Water Policy and AP Land, Water and Trees Act mention the control of state over water resources. As mentioned earlier, the process of regulating water use and the role of local institutions and state are not clearly defined in any of the two documents. In this context, there is a disagreement between the Guidelines of Watershed Development Programme and other documents

**Table No 11: Institutional Arrangements**

The numbers in brackets refers to the relevant sections of the policy document.

<b>7</b>	<b>Parameter: Institutional Arrangements</b>	
A	National Water Policy 2002	Need to reorganize/ reorient and create appropriate institutions. River basin as a basis for institution design. The scope and powers of the institutions to be defined by basin states. (Para 4.1 and 4.2)
B	AP Water, Land and Trees Act (2002)	It is proposed to create an authority at state level consisting of ministers, representatives from legislative assembly, government, academic institutions and non-official members. The Government may in consultation with the State Authority, constitute by notification, authorities at District and Mandal levels with such composition and to perform such functions in such manner as may be prescribed. (Chapter 2) Recognizes the watershed committees/ Water Users Associations and their role in appropriate land and water use at local/ watershed level. (Chapter 4 – 21.1, 22) Committee to be formed for protection of trees (outside the forest areas) (Chapter 5 – 30. 4)
C	Guidelines of Watershed Development Programme 1994 and revised 2001	User groups and SHGs are building blocks of the watershed association. Persons dependent on watershed directly or indirectly become the members of the institution. Project Implementation Agencies (government and non government organizations) and District and state level project authorities.

**Analysis:** The institutional arrangements as envisaged in the Guidelines of the Watershed Development Programme are clearly evolved and there are sufficient experiences on the functioning of these institutions. However, it is not the same case with other two documents. Operational aspects of these institutions – role, responsibilities, functions, etc need to be clearly spelt out in the light of the mandate of these institutions. The National Water Policy leaves this vaguely to the basin states and does not spell the process of evolving these institutions (negotiations between states, institutions of users, relationships between local and regional level institutions, scale of operations, etc). This vagueness could be a major limitation in operationalizing the National Water Policy.

**Table No 12: Private Sector Participation**

The numbers in brackets refers to the relevant sections of the policy document.

<b>8</b>	<b>Parameter: Private Sector Participation</b>	
A	National Water Policy 2002	Private sector participation can be encouraged. Options are open (investments, building, operation, maintenance, etc). Sees certain advantages Innovations, efficiency, etc) (Para 13)
B	AP Water, Land and	Regulatory norms are neutral to public/ private/ state.

	Trees Act (2002)	
C	Guidelines of Watershed Development Programme 1994 and revised 2001	All works and activities are to be planned, implemented and maintained by local groups of users.

**Analysis:** The National Water Policy is positive about private sector participation and sees certain advantages. While the Guidelines for Watershed Development Programme envisage that communities control the processes. This issue has a close relationship with the scale of operations. Implication of private sector participation at local level water resources is a major concern expressed by many activists. The National Water Policy does not mention any safe guards.

**Table No 13: Sustainability of assets created and maintenance**

The numbers in brackets refers to the relevant sections of the policy document.

<b>9</b>	<b>Parameter: Sustainability of assets created and maintenance</b>	
A	National Water Policy 2002	Water charges for all uses to cover O & M costs and part of capital costs. Subsidies to be well-targeted to reach the poor. (Para 11) Water users association and local bodies to take the responsibility of management of infrastructure (Para 12) Annual provisions to be made for maintenance.
B	AP Water, Land and Trees Act (2002)	The designated Authority has the power to recover the investments made on watershed, in case of non-compliance with the provisions of the Memorandum of Understanding. (Chapter 4-- 21.2) Responsibility of maintenance, protection of water bodies/assets can be delegated to local bodies. (Chapter 4 - 25, 26)
C	Guidelines of Watershed Development Programme 1994 and revised 2001	Institutions of users are expected to address this issue. Users contribute to capital costs of assets created and this forms the Watershed Development Fund. (WDF) WDF can be used for maintenance of the assets.

**Analysis:** The pricing policy of water in National Water Policy covers all uses and envisages that subsidies for the poor would be well targeted. This arrangement is expected to develop financial and physical sustainability. While the Guidelines of Watershed Development Programme envisages institutional base for ensuring sustainability. AP Land, Water and Trees Act “delegates” the responsibility of maintenance and protection to local bodies, which is consistent with the Guidelines of the Watershed Development Programme. The power to recover grants from watershed communities lies with the designated Authority. However, this Authority is expected to facilitate the development of a Memorandum of Understanding (MOU) between Watershed Association and Project Authorities (DWMA in case of Andhra Pradesh) on conditions and commitments from user community in resource conservation and sustainable uses. It is envisaged that this process of developing an MOU and signing would be the responsibility of the designated Authority.

**4.2. Issues, Gaps and Concerns:**

- A. On the whole, the efforts by the central and state governments are appreciable in bringing out these policy documents.
- B. The main limitations of the National Water Policy (2002) and AP Land, Water and Tress Act (2002) seems to in linking up with the experiences, concerns, priorities of

communities at micro level (as envisaged in Guidelines of Watershed Development Programme) with issues at macro level.

- C. Institutional Arrangements and operational mechanism to bridge the gap between micro and macro issues are vague and near absent.
- D. To benefit from the goals of each of these policy documents (National Water Policy and Guidelines for Watershed Development Programme and other micro level natural resource management Programmes like participatory irrigation), the concerned actors (policy makers, bureaucracy and political groups) should give priority is to smoothen the friction between these documents. The above analysis can be used as a first step in this direction.

## 5. Chapter 5

### 5.1. Reforming and Redefining Watershed Framework

The analysis in earlier chapters (particularly issues, gaps and concerns) forms the basis for conceptualizing the future options and opportunities that exist for watershed programme. Some of the key elements that have the potential to reform and redefine the framework of watershed programs are the mentioned in this chapter.

### 5.2. Major Shifts

Though the guidelines of watershed programme have a clear emphasis on participation, equity and ecological restoration, these concerns were not really transformed into reality. This means that the implementation of Guidelines was not adequately in tune with the philosophy of the Guidelines. Other experiences also indicate that there is a wide scope to incorporate innovative elements in the watershed program. The key facilitating organizations need to consider major shifts at conceptual (thinking) level and at operational (doing) level. The above lessons indicate the following shifts.

**Table 14: Shifts needed to reform and redefine watershed framework**

Shifts are needed	
From	To
That the watershed Programme is only for farmers or landed communities.	Families with poor quality resources, resource poor (landless) families and women have a legitimate stake in the watershed Programme, along with farmers.
Centralization of resources and decision-making processes.	Decentralization of resources and decision-making processes.
Vagueness in social and technical boundaries of watershed.	Clear policy to merge social and technical aspects of watershed boundary.
From not providing space and time for promoting participatory planning and implementation processes	Adopt systematic project management approach to give due importance to each phase of project.
Standard and limited technical options	Space for Indigenous technical knowledge and expert's knowledge. Creative scientific enquiry that enhances local knowledge base.
Grants based financial support	Grants and loan based financial supports
Perception of NGOs as mere implementing agencies in the minds of government.	Role of NGOs as facilitators, forerunners and resource organizations.

It is clear that the Guidelines alone are not adequate to change the mindsets of facilitating organizations. The Government of Andhra Pradesh has to conceptualize necessary operational processes and provide necessary support mechanisms to ensure that these shifts actually take place.

### 5.3. Elements that are within Reformed and Redefined Framework of Watershed:

The above analysis, an attempt is made to redefine the framework of the watershed programme. It is interesting to note that current thinking of policy makers and planners in the state is also modeled around these key elements.

- A. Integrating of Participation, Equity and Gender Concerns
- B. Institution Development
- C. Strong Capacity Building Support to facilitating organizations and institutions of communities on technical and social aspects.

- D. Project Management Cycle consistent with objectives and activities of the programme
- E. The progression of interventions forms the basis.
  - Conservation of Natural Resource
  - Enhancement of Agriculture Productivity
  - Promotion of Livelihoods

To realize the goals of the reformed watershed program, necessary support systems and processes should be operationalized at two levels.

#### **5.4. At project management level:**

As observed earlier, most of the concerns expressed earlier can be realized only if the facilitating organizations have the necessary skills and orientation. Capacity building support to suit to the needs of the programme need to be organized in a systematic manner. It should be recognized that it is high time that action should go beyond mere lip service to this agenda.

Large-scale participatory natural resource management Programmes need to specially concentrate on “organization development” issues to increase the effectiveness of these organizations in facilitating the participatory processes at grass root level. DWMA and implementing agencies need special attention and support in organization development related aspects (vision and goal setting, systems for planning/ implementation and monitoring of the Programme, financial and human resources planning). This process would make the DWMA a responsive and responsible institution to the needs of the programme. Some of the necessary interventions are

- A. Developing district specific perspective plans in tune with the state level plans
- B. Identification and strengthening of necessary Project Implementation Agencies
- C. Front ending capacity building support and initiatives to project authorities, implementing agencies and communities, developing collaborative arrangements with resource organizations.
- D. Developing necessary management support systems (for planning, implementing, monitoring and resource deployment) that are sensitive to thrust areas of reformed framework of the watershed program.
- E. Synchronizing capacity building strategies with over all project management
- F. Facilitating the process of decentralization and institutionalization of decision-making, resources, roles and responsibilities.

#### **5.5. At the watershed level:**

The centrality of participation, equity and gender brings in significant changes in the framework of the watershed programme. This makes the framework sensitive to the needs of the poor and women. When assets of the poor specially targeted in the watershed programme, it is not just sufficient to conserve the soil or water, as the quality of these assets need continuous investments till they reach production stage. Since poor do not have adequate resources (unlike rich farmers), they cannot make these additional investments on these assets. Poor families need additional investments for activities that are not part of conventional watershed treatment. The redefined framework integrates the needs of the poor and women in a watershed context and to facilitate the following activities/ interventions.

**5.6. Support to resource poor families from the Natural Resource Management Component:**

- A. Creating clear entitlements to resource poor families in terms of access, control and usufruct rights over benefits from CPR management.
- B. Priority should be given to conservation, development and management of CPR on which resource poor families depend.
- C. Reclaiming fallow lands owned by the poor by fully financing from the project without limitation of unit cost.

**5.7. Support to resource poor families from the Production Enhancement Component:**

- A. A complete cycle of investments on assets of resource poor families should be made (convergence of budgets for resource conservation, productivity enhancement, marketing, etc with resource poor families) to see that the investments would contribute to over all quality enhancements of their assets.
- B. Investments for enhancing productivity of land and animals like inputs to agriculture, horticulture and animal husbandry.
- C. Developing systems for linkages – seed, feed, fertilizer, marketing, processing, etc.

**5.8. Support to resource poor families for Livelihoods Support Activities:**

- A. This category of interventions should address the critical gaps in the above two interventions. To facilitate this process, flexibility is very essential at the group level. These budgets may be utilized for supporting direct poverty reduction interventions. The following are the key interventions suggested. Preference should be given to those interventions, which have strong linkages with natural resource base of the watershed.
- B. Seed capital assistance for groups (In the form of revolving funds among groups).
- C. Supporting Community Investment Initiatives of groups for creating necessary infrastructure or any other activity.
- D. Income generating activities with NRM focus.
- E. Developing locally managed alternative food and social security systems

Watershed programmes supported by the Ministry of Agriculture and the Andhra Pradesh Rural Livelihoods Project have recognized these elements, though these programmes are in the initial stages.

**5.9. Elements that are beyond Reformed and Redefined Framework of Watershed:**

The elements mentioned below have significant bearing on the watershed development in dry lands, though they have a different set of activities and strategies. At this point of time, one can consider them as key elements that are still beyond watershed framework.

- A. Land redistribution and reforms / Ownership of land by poor landless families
- B. Policies that strengthen dry land agriculture -- Pricing and Marketing Support
- C. Enhancing the pride of dry land agriculture
- D. Convergence of Other Programmes

**5.10. Land Reforms:**

Owning asset (particularly land) is a key factor that influences the process of inclusion of poor in watershed programme. However, this can be achieved only through land reforms. Land reforms need political will and commitment from government machinery. In all operational terms, this agenda is beyond watershed framework. Another approach is to develop social pressure through people's movements and convert it into a political

agenda. Based on such an agenda, state is forced to take up this mandate. However, presently the people's movements on land reforms seem to have subsided. In the absence of such political process, encouraging land lease by groups of landless persons is one of the options to enhance the access to land by poor, in due course of time (land lease programme by Deccan Development Society).

**5.11. Pride and Prices of Dry Land Agricultural Produce:**

Though some models/ experiments exist in creating/ reviving traditional dry land crops and markets for them (Alternative Public Distribution System – Deccan Development Society), this issue needs special efforts and political will from government and cultural shifts/ revival in the society. People's movements that highlight the cultural, biodiversity, self reliance aspects related to dry land crops could be ultimately converted into a political agenda and a mandate to the government. However, covering risk of dry land agriculture (crop failure due to pest attack and dry spells) could be one of the strategies to encourage dry land farming (Deccan Development Society). Some of these options can be integrated creatively with watershed development programme, with additional efforts by the facilitating agencies. Benefits depend on the scale of operations and commitment of the facilitating organizations.

**5.12. Convergence of Programmes, Policies and Institutions:**

A greater level of convergence is possible if all the policies of different organizations/ programmes have similar guidelines and processes. The Ministry of Rural Development has explicitly stated in its watershed guidelines that other departments need to develop similar policy documents and allocate funds towards this agenda. However, currently there is no dialogue between various departments/ organizations involved with natural resources. Initiating and facilitating this process need to be carefully thought out.

## **6. Chapter 6:**

### **6.1. Need for Generating New Knowledge:**

Previous chapters raised different issues related to watershed development – technologies, processes, organizational aspects and policies. This analysis can also be used to explore the issues for generating new knowledge and strengthen watershed and water resource management. This chapter develops an inventory of themes, for action research.

### **6.2. Themes Related to Technology:**

As already mentioned in earlier chapters, the watershed technologies have a fairly limited scope. The technology research is devoid of social aspects and practicality, as a result of which the applicability of research findings is low. To overcome this limitation, a set of themes is proposed below on which a strong action research could be taken up. In this process, Project Implementation Agencies and research institutions should work together on the agenda set by communities.

### **6.3. Broad basing conservation technologies**

- A. What kind of conservation technologies can be included in different parts of the state?
- B. What are the necessary specifications?
- C. How to modify these specifications, when social boundaries (eg: village boundary) do not match with technically delineated boundary of watershed areas?
- D. What kinds of procedures are necessary to make technology relevant to social boundaries?
- E. Watershed technologies need to be broad based to include production technologies.
- F. How can be production of land, trees, and animals be improved?
- G. What combinations of interventions are best suited to different watersheds?
- H. Process of identifying indigenous technical knowledge/ practices and mainstreaming them in the watershed development programme.
- I. What is the process of understanding, documenting, improving and mainstreaming local technical practices?
- J. What are the institutional and economic arrangements are necessary to integrate traditional and new technologies?
- K. How to sensitize functionaries in mainstream watershed on the role and technical efficacy of indigenous technical practices?
- L. How to develop/ generate systems for seeds, fertilizers, pest management, processing that are locally controlled and internalized in the local institutions?
- M. What processes are appropriate/ necessary to facilitate technology choice and application that is necessary and in tune with objectives of the program?
- N. What kind of process and necessary conditions are necessary and appropriate while diversifying into horticulture/ animal husbandry that is suitable to dry lands?

### **6.4. Themes Related to Institution Development**

- A. Natural resource management in the framework of the watershed requires institutions of very high caliber and sensitive to the needs of the poor and women. At the same time, they should be able to ensure the management and regulation of resources use (groundwater, common lands, etc). In this process, there are numerous approaches, models and issues that could be explored, experimented and learned from. Some of these themes are proposed here.

- B. Designing and creating institutions that are sensitive to the needs of the poor (women, Dalits and other disadvantageous)
- C. What kind of project design, components, and financial arrangements are necessary and appropriate to ensure gender and equity considerations?
- D. How to facilitate systems and options for management of watershed resources – land, water (ground and surface), trees and animals, with a specific focus on CPRs and what the roles of different institutions at watershed level?
- E. Innovative financial arrangements
- F. Developing a clear agenda for SHGs in resource management in the watershed context.
- G. Institutional convergence between different institutions engaged in natural resource management and PRI/ Other institutions – rationale, scope, potential conflicts, synergies, and benefits to members.

#### **6.5. Themes Related to Policies:**

With changes in policies and guidelines, there are different implications on watershed community and influence the choices they make. On going action research on different themes are proposed here. It is important to develop feed back systems that feed the lessons learned to policy makers and facilitating organizations.

- A. Analysis of policies and their implications for design of institutions; technologies; conflicts and convergence of institutions.
- B. What kind of policy support is necessary to establish flexible framework for watershed development to include gender and equity concerns, allowing progression of interventions – conservation, production enhancement and livelihoods?
- C. What kind of flexibility related to the size and technology of a watershed is necessary?
- D. How to develop marketing support, pricing and procurement for public distribution systems of dry land crops so that dry lands prosper with region specific agricultural practices?
- E. What kind of policies and practices are necessary to enhance the access, ownership and control of resources by the poor and its implications within the watershed context?

#### **6.6. Themes Related to Project Management**

Administration and project authorities spend considerable energies and time in the absence of appropriate management systems. There is no systematic need based research to improve these systems. More importantly, stakeholders (at central/ state/ district/ project levels) are not involved in the process of research of management systems.

- A. How to design rational data base and information systems for project management?
- B. What processes are necessary for facilitating district level perspective planning?
- C. How can the role and functioning of the Networks (of voluntary organizations and resource organizations) enhanced so that the project management is strengthened? .
- D. How to synchronize project management cycle with capacity building inputs?

### **6.7. Themes Related to Organization Development:**

The organizations that are involved in the program rarely functioned as “organizations”. Clarity of roles and responsibilities of different actors in the program is a major challenge in the program. There is a strong need for relevant research on organization development related issues within the public systems involved with large scale participatory natural resource development programs. Some of the themes that explain the dimensions of issue are mentioned below.

- A. Organization Development and Design that can facilitate large scale participatory decentralized natural resource development – Government/ Voluntary Organizations/ Community Based Organizations.
- B. Developing Partnerships between different organizations.
- C. Sensitizing and capacity building process of organizations on gender, equity and participation related themes.

## 7. Conclusions:

The paper traces the evolution of watershed programme in objectives, programme content, operational processes and policy framework, from (1970 – 2001). From a very compartmentalized approach to integrated resource conservation approach, the watershed program approach has traveled a long way. The Guidelines of watershed development program (1994) have brought in necessary focus in the program design, components and necessary support systems (budgets & institutional arrangements).

The experience of Andhra Pradesh in mainstream watershed programme and alternative models by voluntary organizations was analyzed and lessons learned from this analysis formed the basis for refining and redefining the watershed framework. The mainstream watershed program could achieve the task of popularizing the watershed concept and related technologies. It was also found that there are certain limitations in implementation of these projects, mainly in the form of weak institutions, limited technical interventions, centralization of power, resources and limited scope of the program. It was also observed that the facilitating organizations (DWMA and Project Implementation Agencies) lack necessary orientation and capacities to address the needs of large-scale participatory programme like watershed development program. The analysis of inclusion and exclusion process of the poor families in mainstream watershed programme indicates that necessary policy support and process orientation to facilitating organizations are necessary to ensure equity considerations in watershed programme. While the alternative models and experience from voluntary organizations have demonstrated that strong institutions of community could ensure that gender and equity concerns in the program. Apart from conservation of resources, other components like productivity enhancement, accessing land and creating markets for dry land produces were main highlights of these experiences.

When these two experiences are juxtaposed together, a total picture emerged. These reflections provide a way to reform the watershed policy and redefine the framework of watershed programme. To strengthen the analysis, a comparative analysis of policies Guidelines of Watershed Development Programme (1994), National Water Policy (2001) and Andhra Pradesh Land, Water and Trees Act (2002) was conducted. There are gaps between water policy and guidelines of watershed program in terms of ownership, control and role of communities in the management of water/ natural resources. Though the Andhra Pradesh Land, Water and Trees Act (2002) focused on regulation of water use, it could not resolve some the conflicts that exist between water policy and guidelines of watershed program.

In the light of current trends of over exploitation of groundwater and absence of regulatory mechanisms, the need for community role in resource regulation (as highlighted in the Andhra Pradesh Land, Water and Trees Act (2002)) is recognized. This process of analysis helped to expand the scope of watershed programme to be more sensitive to the needs of poor, women and dalits and recommend the inclusion of conservation, productivity enhancement, livelihoods promotion activities and regulation of resource use/ management. However, the analysis also brings out some of the key elements that are relevant, but still beyond watershed framework, at this point of time.(Eg: land reforms, pricing for produce from dry land agriculture, etc).

To strengthen the programme, need for generating new knowledge is recognized. Based on the analysis and reflections, an inventory of themes is developed which need further probing and action research.

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