Post Project Sustainability of watershed programme — A continuing challenge

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Introduction

The watershed approach has conventionally aimed at treating degraded lands with the held of low cost and locally accessed technologies through a participatory approach that seeks to secure the close involvement of the user-communities. Watersheds exist naturally and due to human intervention for agricultural purposes the changed ecology and management practices affect the well-equilibrated ecologies. If watersheds are not managed properly then the natural resources are degraded rapidly and in due course cannot be used for betterment of humans. Soil, water, air, and vegetation are the most important natural resources for the survival of human beings and animals.

Efficient management of these resources is possible through a suitable unit of management so that these resources are managed and handled effectively, collectively, and simultaneously. In a watershed, people and animals are the integral parts of the watershed community. Humans and animals depend on the watershed for their survival and in turn are responsible for the good or bad use of the resource. Therefore, participation of people is essential for the success of watershed programs. Participatory watershed management is a process, which aims to create a self-supporting system, which is essential for sustainability. The concept of participatory watershed management emphasizes a multi-disciplinary and multi-institutional approach. The process begins with the management of soil and water, which eventually leads to the development of other resources. Human resource development and large scale participation is essential since finally it is the people who have to manage their resources. People or farmers' participation is the key to the success of any participatory watershed development programme. [1]

A large number of projects are being implemented through governmental and non-governmental organizations. Over the years, the approach and operational mechanisms have been revised and revisited to attain the laid down goals and objectives. After the mid-1990s,

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there has been a major shift towards a participatory approach. Participatory approach in watershed programme is gradually getting institutionalized due to large-scale adoption of new guidelines developed by the Ministry of Rural development (MoRD – during 1995 which was subsequently revised during 2003 as Hariyali guidelines) and by the Ministry of Agriculture (MoA – during 2001) and common guidelines in 2008. These guidelines are expected to bring the whole programme on the right track leading to the desired level of sustainability. A number of useful mechanisms and instruments are now available in project guidelines for facilitation of the proposed participatory approach. These include organization of the community into a new institutional setup: direct funding to the community; contributory approach; demand driven planning; implementation of projects without contractors; investment on indigenous technologies; creation of a corpus fund for repair of physical structures; and provision of revolving fund for livelihood development. Case studies of initial watersheds, which were completed, have however shown that post-project sustainability continues to be a challenge.

The participation of people has not yet been upscaled to the expected level. Secondly, the maintenance and sustainability of physical structures remain elusive despite the fact that this was one of the main goals of the revised approach based on participatory mode. In other words, in spite of the availability of various operational mechanisms and institutionalization of participation the various structures for nature resource management continue to remain one of the main concerns. Another issue of equal importance was that of sustainability of social structures namely various community-based organizations like SHGs, UGs and WA/WCs. These apart, the modalities of mechanisms provided for taking care of these concerns such as revolving fund, development fund etc. have not be adequately operationalised. It is against this background the importance of appropriate strategies for post-project sustainability assumes significance. MANAGE experience in its action research project in Manchal has highlighted this reality. Studies elsewhere and reflections and impressions of the practitioners in different parts of the country corroborated the missing element in watershed management i.e. post-project sustainability.

In recognition of the importance of post project sustainability, the revised common guidelines have made provision for the component although in a broad way. It was felt that an exploratory study on how aspects of sustainability can be attempted, so that the operational mechanisms can be derived. While there are a number of such mechanisms for other phases of the projects, similar exercise is wanting for withdrawal phase. There is a need for a study on

attempts made towards post-project sustainability, analysis of the various strategies and initiatives undertaken in respect of some of the successful and sustainable projects would go a long way in operationalizing the withdrawal strategy thus contributing to the ultimate goal of sustainable development through sustainable institutions and processes. The present study is in this direction.

1.3. Methodology

The study has been carried out in selected projects in the states of Karnataka and Maharashtra. Under these projects a number of initiatives have been taken up for the sustainability of different watershed components and mechanisms. These initiatives were considered by and large as successful attempts towards sustainability and it was felt that an analysis of the same would be useful in deriving lessons for replication. Accordingly, Karnataka Watershed Development Society (KAWAD), Karnataka Watershed Development Project (KWDP) in Karnataka and Indo-German watershed development Programme implemented by Water Organization Trust (WOTR), Drought Prone Area Programme implemented by Dilasa Janavikas Prathisthan, Adarsh Gaon Yojana or Ideal Village project in Maharashtra were taken up for the study.

The study has dealt with assessment of sustainability of major interventions under each component for which project fund have been used. This assessment has been carried out with the help of 'a cluster of process related indicators' identified separately for each intervention. The above assessment has been carried out by adopting PRA tools and an open-ended schedule. Assessing the sustainability of each intervention through qualitative scoring of 'the cluster of indicators' on a three point scale i.e. Green (high level of sustainability); Yellow (average level of sustainability; and Red (low level of sustainability). Final triangulation of above assessment was done through focused group discussion with experienced persons associated with the project from the initial stage.

In addition to this assessment of status of sustainability, an attempt has been made to explore the working of operational aspects of various interventions and related problems and constraints. For this purpose the functionaries of the projects and also the office bearers of community-based organizations were interviewed through structured schedule. Their views

were gathered on the extent of performance, and suggestions/proposals for improvement of the operational mechanisms. The total number of respondents from each state was seventy-five.

The major interventions studied can largely be grouped under the following four components namely: (i) organization of community; (ii) development of natural resource; (iii) development of livelihoods; and (iv) management of common fund. Details about strong and weak processes associated with major interventions under each component and proposed strategies and processes for improvement are discussed below.

1. Study findings:

1.1. Organization of community and Para workers

Sustainability of Community based organizations and Para workers

Sl. No.	Type of CBOs and Para workers	Ranking for sustainability	
		Karnataka	Maharastra
1.	Self Help Groups		
	- Women	G	G
	- Mixed	-	-
	- Men	Y(+)	Y(+)
2.	User groups associated with		
	- Biomass in common land	R	R
	- Water harvesting structures		
3.	Management bodies		
	- Village watershed development committee	G	G**
	- Village level federation of SHGs	-	Y
	- Cattle breeders association (cluster level)	Y(+)	Y(+)
4.	Para workers		
	- Book writers	G	G
	- Livestock para workers	G	G
	- Horticulture para workers	R	R

The study revealed that by and large sustainability has been consistently high in two interventions namely women SHGs and book writers. In case of six interventions (namely organization of men SHGs, organization of Village Level Federation, watershed level federations, cattle breeders associations, Para workers (for livestock as well as horticulture), the sustainability has been fluctuating from watershed to watershed. The sustainability of user groups has however been consistently low across watersheds. Based upon the analysis of different variables, the following specific sets of processes are identified which may help in achieving high sustainability of various community based organizations as well as Para-workers.

(a) Self Help Groups (SHGs):

The SHGs of women have shown consistently high sustainability due to intensive efforts regarding institutional building by adopting credit and thrift as one of the critical agenda. This has been done with the help of locally available book writers. Besides this adequate attention has been paid towards adoption of income generation activities through revolving fund */* bank loan; monitoring of SHGs regarding maturity on a regular basis, follow up nurturing of groups through Village Level Federation, etc. The experience has further shown that consistency in sustainability of men SHGs could also be enhanced wherever above (women SHG) cluster of processes has been followed.

(b) **User groups (UGs):**

The user groups have shown consistently low level of sustainability across watersheds. Most of processes associated with UGs have received inadequate attention. This particularly refers to low attention towards four critical processes namely (i) capacity building for carrying out UG/ Watershed associations specific functions; (ii) structural aspect; (iii) financial sustainability, (iv) allocation of user rights and (v) follow-up on nurturing of UGs.

Based upon limited success in the projects as well as elsewhere, the following specific suggestions are made for improving sustainability of UGs: (i) improving the structure of UGs by either organizing them as SHGs or encouraging their members to join different SHGs; (ii)

improving the financial sustainability of UGs by either collecting user charges on regular basis or generating income through alternate source; (iii) providing follow-up support through federation of UGs at village level; (iv) improving the functioning through adequate investment on capacity building with regard to specific functions to be performed by UGs; (v) Establishing norms for management and sustainability of UGs; (iv) developing memorandum of understanding between Panchayath/ village level federations / Watershed Association and UGs.

(c) Village Level Federations (VLF):

High consistency in sustainability of VLF was observed in situations where the following three critical processes were adopted. Adequate investment on capacity building of VLF to perform its critical functions namely planning and implementation of developmental works, management of fund; review and monitoring of progress, etc. Improving the structural aspect of VLF at least towards end of the project period which could be done by having membership in its executive committee from only mature SHGs (of women as well as men), providing space to women as key office bearers of the committee on rotation basis; federation of VLFs at cluster level, etc. Improving its financial sustainability through proper management of common fund; linkage with bank; adoption of community oriented income generation activity, etc.

(d) **Cattle Breeders Association (CBA)**

Sustainability of above association has been fluctuating from watershed to watershed. Best results have however been obtained where the following processes were adopted.

- Improving the financial sustainability through (i) gradual enhancement in rate of artificial insemination per animal and also increasing the total number of animals through enhancement in its area of jurisdiction; (ii) utilization of its common fund as revolving loan as well as linkage with bank on service charge basis. Reforming the structure of its executive committee (by restricting membership to representatives from mature SHGs and providing space to women representatives as office bearers) on rotation basis
- Enlarging the scope of CBA to carry out not only breed improvement activity but also management of diseases and ailments, provision of feed through bulk procurement, etc. This may be done not only for cattle but also for livestock by converting the CBA into

LDA (livestock development association)

- Capacity building of its executive committee on job specific aspects i.e. management of artificial insemination center, health care through Para workers, linkage with developmental departments, management of office records, etc.
- Decentralization of institutional set-up by organizing either a separate village level CBA or by constituting a sub-committee (for livestock) within the framework of existing VLF.

(e) **Para workers**

Among the various Para workers, book writers (who are meant for organizing community into groups / management bodies) have been found to be consistently sustainable. The sustainability of other Para workers (for livestock as well as horticulture) has been varying across watersheds. Best results for above Para workers were obtained where preference was given to nominate those persons who are willing to take it as a part-time work at village level, have a right attitude towards this aspect as reflected by their earlier interest in this aspect, etc., rather than nominating people purely on the basis of academic qualification. Also sustainability of Para workers was further enhanced where follow up nurturing was done by involving them during project period for providing specific services (on charge basis to be paid by the community in a tapering manner).

1.2. Management of common fund

Sustainability of management of Common fund with CBOs

Sl. No.	**Type of CBO**	*Status of sustainability of common fund (R/Y/G) ★*	
		Karnataka	**Maharastra**
1.	Village development committee/ VLF	G **	G **
2.	Cattle breeders association	G	G
	Self Help Groups		
3.	• Women	G	G
4.	• Men	R	R
5.	User Groups*	R	R

Sustainability of common fund was consistently high in situations where it was given to Village Level Federations as a grant, which in turn has utilized it as a revolving loan to mature SHGs. This has not only helped in proper recovery of amount but also in enhancing the financial sustainability of VLF. Besides this, it has become an incentive for leftover members of the community to get organized in SHGs so that in future they would also have an access to the above fund. Likewise it has also helped the immature groups to become mature due to the expectation of above incentive.

On the other hand, low level of sustainability was observed in situations where the common fund was received as a grant by VLF, which in turn has utilized it as a loan to individual members (outside the SHGs). Likewise its sustainability was low where it was given as one time grant (even on contributory basis) to unorganized members of the community.

1.3. Development of natural resources in common land

Sl. No	**Major Component / Sub Component**	Status of sustainability of common fund (R/Y/G) ★	
		Karnataka	**Maharastra**
1	Water harvesting structures		Y
2	Plantation in common land		G
3	Natural regeneration		Y
4	Pasture development		
5	Physical infrastructure/ assets		
6	Training center		
7	Nursery		

Three interventions have shown high fluctuations in sustainability across watersheds namely (i) construction of community oriented water harvesting structures, (ii) construction of community hall and (iii) development of composite nursery in government land. The remaining three interventions namely (i) seeding of improved grasses; (ii) plantation of forestry species and (iii) adoption of gully control measures have shown consistently low sustainability.

(a) **Water Harvesting Structure**

By and large community oriented water harvesting structures have been functioning properly in majority of watersheds under the project. This has happened essentially due to good quality of design and construction of structures. Other strong processes associated with WHSs are as follows.

- Adoption of participatory planning process with decision making regarding initiation of proposal; choice of technological options as well as location of structures
- Payment of genuine contribution by actual users associated with the structure
- Due emphasis on a wide range of WHSs based on indigenous as well as exogenous technical knowledge

(b) Biomass development

As indicated above, consistently sustainable results have been obtained with regard to natural regeneration of biomass. This has happened essentially due to adoption of social fencing approach by the entire community. Likewise plantation of high value horticultural crop has also shown sustainable results. This has happened essential in high rainfall areas and also because there was an informal understanding about usufruct allocation to each member of the user group. By and large these users were informally associated with the common land in the past; hence resistance from other community members towards assumption of above right by the user group members was not observed.

1.4. Development of natural resources in private land

Sustainability of Natural resource development in private land

Sl. No.	Type of intervention	Ranking for sustainability		
		Karnataka		Maharastra
1.	Soil conservation measure and gully control structures			
	- Field bund with waste weir (Rmt)	G		G
	- Open drain (Rmt)	G		G
2.	Water harvesting structure			
	- Farm pond (No.)	G		G
3.	Horticulture plantation			
	- Block plantation (ha)	Y		Y
	- Backyard plantation (No.)	Y		Y
	- Supply of seedling for bund plantation (No.)	Y		R
	-			
4.	Forestry plantation ★			
	- Block plantation (ha)	R		R
	- Supply of seedling for bund plantation (No.)	R		R
	- Forestry plantation	R		R

Of the major interventions made regarding development of natural resource in private land, two have shown consistently sustainable results namely (i) construction of earthen / stone bunds and (ii) Farm ponds. Two interventions have shown fluctuation in sustainability namely (i) gully control measures and (ii) plantation of horticulture under rain fed condition.

High sustainability of earthen bund / stone bund was essentially due to adoption of indigenous system of bunds which are located on field boundaries across the major slope. Other processes, which led to sustainability, were (I) adoption of demand-driven planning; (ii)

payment of genuine contribution by actual users; (iii) flexibility in ridge to valley approach; and (iv) better quality of design and construction

Construction of low cost water harvesting structure has also been found to be highly sustainable. Main processes, which led to sustainability were (i) due emphasis on a wide range of WHSs based upon indigenous as well as exogenous technical knowledge; (ii) timely repair and maintenance by concerned farmers; and (iii) due emphasis on meeting multiple needs of the community namely irrigation for crops, drinking water for human beings as well as for livestock, etc.

1.5. Development of land based livelihoods

Sl. No	**Type of livelihoods**	*Status of sustainability (R/Y/G)*	
		Karnataka	**Maharastra**
1	Demonstration on full package of improved technologies		
	• Agricultural crops	Y(+)	Y(+)
	• Vegetable crops	Y(+)	Y(+)
	• Fodder crops	Y(+)	G
2	Componenet Wise demonstration		
	• Vermicompost		
	• IPM	-	Y(+)
	• Organic farming	-	Y(+)
		-	G

Under this component three types of major practices selected (i) production of vermi-compost at village level; (ii) integrated pest management; and (iii) use of micronutrients have shown high sustainability. Production of vermi-compost at village level has shown fluctuation in sustainability across watersheds. The rest of the interventions have shown either higher sustainability or at least tendency towards high sustainability in a consistent manner.

1.6. Development of livestock based livelihoods

Sustainability of livestock based livelihoods

Sl. No.	Type of livelihoods / interventions	Ranking for sustainability	
		Karnataka	**Maharastra**
A.	**Breed improvement**		
	• A.I. centre for buffaloes & cows	Y	Y(+)
	• Supply of improved ram	-	-
	• Supply of improved buck	R	R
B.	**Nutrient management**		
	• Feeds and concentrates	Y	Y(+)
	• Fodder development	Y	Y(+)
C.	**Health care**		
	• Animal health camps	Y	Y
	• Vaccination	G	G

Under this component, four critical interventions were made for improving the production of livestock. Two out of the four interventions have shown high degree of sustainability namely (a) breed improvement through artificial insemination in cows and buffaloes and (ii) Heath care in livestock through health camps and follow-up support by Para workers (on charge basis). Besides this two interventions have shown fluctuation in sustainability namely (i) breed improvement in small ruminants through community managed natural insemination in small ruminants particularly goats and (ii) improved management of poultry in small units.

The sustainability of healthcare has been achieved essentially by the follow-up support of Para worker (livestock) on charge basis. Other processes, which are helpful in improving sustainability in milch animals, were as follows.

- Organization of cattle breeder association (at cluster of village level) to provide institutional set-up for the above purpose. The above CBA later was refined into livestock development association. Its executive committee was also refined by having representatives from only SHGs. This CBA is further decentralized in such a way that a separate livestock development association needs to be organized in each village or a sub-committee (livestock) can be constituted as a part of the existing Village Level Federation.
- Improved financial sustainability of above CBA through enhancing the contribution by farmers on insemination per animal and also enlarging the jurisdiction to serve more number of animals per center.

1.7. Development of non-land based livelihoods

Sustainability of non-land based livelihoods (micro-enterprises

Sl. No	Type of livelihoods	*Status of sustainability (R/Y/G)*	
		Karnataka	**Maharastra**
1	• Community oriented enterprises through Self Help Groups	Y	Y
2	• Individual oriented enterprises through Self Help Groups	G**	G**
3	• Individual oriented enterprises	G	G

Two types of interventions have been made under this component namely (i) individual oriented livelihoods and (ii) community oriented livelihoods. Individual oriented livelihoods have been implemented in two different ways: (i) providing project fund to those individuals who were organized in SHGs and (ii) providing project fund to those individuals who were not yet organized in the SHGs. Individual oriented enterprises through SHGs like goat rearing and sheep rearing have shown highly sustainable results. Similarly, individual oriented enterprises on individual basis have also been found to be very successful. The systems of providing revolving fund to SHGs as loan through VDCs on rotation basis have shown highly sustainable

results.

2. Conclusions

The above analysis clearly shows that while the programme guidelines make provision for withdrawal strategies for sustainability of watersheds, there are some critical deficiencies in both in conceptual and operational aspects. This invariably results in less than satisfactory sustainability processes of the PIAs and the taking over by the community at the end of the projects. Only maintaining created assets cannot ensure project sustainability. It also requires the envisioning of the community at large and the various village level institutions formed in their specific areas of present and potential functions to be able to address new and emerging concerns of development in the post project scenario. New roles need to be accepted, new capacities development for planning, implementation and monitoring. And what is critically important is that the VLIs and the community have to additionally accept not only the role of project managers but also resource mobilizer and roles that they have to perform during post-project period.

It is, suggested that a project consolidation period be specially built into the programme design during which time the concerns and issues of withdrawal would be addressed for sustainability of watersheds. The consolidation period should focus on the following activities:

i) Facilitate envisioning of the community and the village level institutions to prepare them for their new role in planning, mobilizing resources and managing projects / interventions that would address the new and emerging concerns of development in the villages in the post project scenario

ii) Institutional strengthening and capacity building of the various village level institutions and the development of a Community Based Management System

(iii) Facilitate the transfer of assets and entitlement rights to beneficiary groups over project assets established on common lands and of community assets established on private lands

2.1 Integration of Social Resources management with natural resource management:

Under the watershed programmes, heavy emphasis is laid on both social resource development and natural resource development. However, both of these components are developed independently of one another. Towards the end of the project, they remain “stand alone” outputs without any significant bearing on each other. This is one of the reasons why sustainability of natural resource development is low in spite of adequate investment on social resource development. Integration of both these components shall lead to demand —driven planning, implementation of works without contractors and genuine contribution form the community. It will also facilitate self-monitoring of the programme, which is a crucial requirement for proper empowerment of community-based organizations (CBO), finally this leads to the management of farm resources through available social resources.

2.2 Convergence of Activities of Different Departments / Agencies:

Field experience has shown that such a convergence can be achieved effectively if there were mature SHG, UG and there was a management body of these groups (WA) to provide a platform for convergence of schemes / activities of different development departments. Hence the above groups under the watershed programme may be utilized for convergence of individual oriented as well as community-oriented schemes available with the departments. Regular inter-face of extension functionaries of line departments with the watershed community during implementation phase will ensure convergence and permanent linkages.

2.3 Linkages with credit institutions:

During the project lifetime the PIA and WDT will work to develop linkages with the credit institutions such as the Regional Rural Banks, cooperative Banks, service area banks, etc. The credit requirements of the watershed should get reflected in the District credit plan. Linkage with credit institutions should be facilitated during the initial years of the project, soon after the SHG/UG has started operating their own credit and thrift activities successfully.

2.4 Capacity building of different stakeholders:

Considerable focus need to be given on to build the capacity of village level institutions particularly SHGs, UGs, watershed committee, etc., on group development, management process, watershed planning, implementation, conflict resolution, monitoring, evaluation, Post-project sustainability, withdrawal strategy etc., starting from the beginning of the project, to develop their own vision about the watershed project.

2.5 Develop exit strategy from the beginning of the project:

While preparing the detailed Action Plan / Treatment Plan, the Gram Sabha / Gram Panchayat, under the technical guidance of WDT, shall evolve proper Exit Protocol for the watershed development project. The Exit Protocol shall specify a mechanism for maintenance of assets created, augmentation including levy and collection of user charges, utilization of the Watershed Development Fund etc. Mechanism for equitable distribution and sustainability of benefits accrued under the watershed development project should also be clearly spelt out in the Exit Protocol. While approving the Action Plan for the watershed, the ZP/District Watershed Development Agency should ensure that the detailed mechanism for such Exit Protocol forms part of the Action Plan/ Treatment Plan.

The ZP/ District Watershed Development Agency in consultation with the State Government will evolve proper exit protocol for the watershed development projects. It will endeavor to motivate Panchayats to take over the assets created in the completed watershed development projects for the purpose of operation and maintenance, The watershed projects should generally be managed by the respective Watershed Associations / Watershed Committees under the overall supervisions of the Gram Panchayat after the project period is over and after the external supporting agencies have withdrawn. Mechanism of such Exit Protocol should explicitly form part of the watershed development Plan. The District Watershed Development Agency /ZP should ensure to include the details of the exit protocol in the watershed development plan. A locally acceptable, proper mechanism for utilization of watershed development funds for post project maintenance & its regular augmentation should be specified. Equity and sustainability of the benefits of the assets created under the watershed development plan should be clearly spelt out by the PIA before it exits from the area.

2.6 Withdrawal Strategy:

Withdrawal is not a separate strategy, but the drawing together of a range of crosscutting issues. The withdrawal strategy will focus heavily on Institutional sustainability, convergence and related capacity building activities and on the most vulnerable people in the watersheds, which should focus on reaching marginalized groups. Finally, it needs some institutional arrangements for the maintenance and future management of natural resources. Some withdrawal strategies to be followed for sustainability of watershed programme are:

- *Adoption of role transfers strategy from early stages of the project by having a proper balance between 'hand holding' and 'hand leaving' approach on a continuous basis.*
- *Focusing on sustainable development of CBOs so that feasibility of withdrawal could be enhanced*
- *Systematic monitoring of sustainability of interventions as well as project management processes from early stages of the project.*
- *Separation of consolidation phase from main implementation phase. This may help in avoiding abrupt discontinuation of support services from P/As; and also giving due attention to address issues related to sustainability of interventions and building the capacity of community based organizations for carrying out new roles during post project period, etc.*

2.7 Proper management of withdrawal strategy:

Under the participatory approach, people are supposed to take over the entire project management responsibility (namely, planning, implementation, monitoring, etc.). The role of outsiders is facilitating body. Although the intention is genuine, in reality the community is not able to assume the required responsibility, especially in the initial stages. Hence outsider should initially work like a PIA through active collaboration with the CBO, but make conscious efforts to gradually change the role in such a way that it bec6mes a Project Facilitating Agency (PFA). In fact, it would be appropriate. If gradual change in role from PIA to PFA were regularly monitored as one of the items by the project management agency so that dependency syndrome is reduced. The withdrawal strategy would require not only conscious efforts towards gradual change in role but also building the capacity of the CBO to maintain community-oriented assets and also to perform other activities that require continuation beyond the project period.

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