Andhra Pradesh Community Based Tank Management Project - Institutional and Financial Assessment

Thinksoft Consultants
Hyderabad
December 2006

ACKNOWLEDGEMENTS

We have attempted to set down the key institutional issues that arise in a project with far reaching scope like the APCBTMI. The perceptions of the various informants have been as significant as the facts and details we observed across the different regions of the state. The research team could meet the challenge of integrating the field data and the various impressions and views, largely due to the support we have received from many quarters.

The tank visits were crucial for our work and the WUA members and officials welcomed us and shared their understanding with us at all the locations. We are grateful for their time, consideration and warmth.

Mr. J Harinarayan, IAS, the Chief Secretary gave us a thought provoking analysis of the national and regional scenario on tank revival and the scope of the national policy for tanks. Mr. SP Tucker, IAS, the Principal Secretary provided us with policy perspectives governing state level initiatives and the emerging picture of coordinated water use and IWRM in AP. Mr. Sanjay Gupta, IFS, Commissioner CADA offered his insights and helped us refine our recommendations. Ms Madhuri Newale, Consultant, continuously encouraged us with various documents, feedback. We thank all of them for their support.

Ms Lakshmi Raman offered us valuable insight from her experience with the JSYS in Karnataka. We are thankful for her timely support.

Studying the complexities of the institutional arrangements at the different levels has indeed been a learning experience for us on the study team. It has been a privilege to offer our understanding of the issues involved and we hope to have contributed to refining and sharpening the project plans

Hyderbad *The ThinkSoft Team*
30th Novemeber 2006

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LIST OF ACRONYMS

AE	Assistant Engineer
AEE	Assistant Executive Engineer
AIBP	Accelerated Irrigation Benefits Programme
AP	Andhra Pradesh
APERP	Andhra Pradesh Economic Restructuring Programme
APFMIS Act	Andhra Pradesh Farmers' Management of Irrigation Systems Act
APREGS	Andhra Pradesh Rural Employment Guarantee Scheme
APRLP	Andhra Pradesh Rural Livelihoods Program
CA	chartered accountant
CADA	Command Area Development Authority
CBO	Community-Based Organisation
CE	Chief Engineer
CFT	Cluster Facilitation Team
CLRC	Cluster-Level Resource Centre
CSO	Civil Society Organisation
DCBC	District Capacity-Building Centre
DEE	Deputy Executive Engineer
DLIC	District-Level Implementation Committee
DLRC	District-Level Resource Centre
DoA	Department of Agriculture
DoI	Department of Irrigation
DoWR	Department of Water Resources
DPAP	Drought-Prone Areas Programme
DPIP	District Poverty Initiatives Programme
DPR	Detailed Project Report
DPU	District Project Unit
DRDA	District Rural Development Agency
DWMA	District Watershed Management Agency
EAS	Employment Assurance Scheme
EE	Executive Engineer
GIS	Geographical Information Systems
GO	Government Order
GoAP	Government of Andhra Pradesh
GoI	Government of India
GoK	Government of Karnataka
GoO	Government of Orissa
GP	*Gram Panchayat*
GPSC	*Gram Panchayat* Sub-Committee
I&CAD	Irrigation and Command Area Development
ID	Institutional Development
ID Crop	Irrigated dry crop

IGA	income-generation activity
ITDP	Integrated Tank Development Plan
IWRM	Integrated Water Resources Management
JRY	*Jawahar Rozgar Yojana*
JSYS	*Jala Samvardhane Yojana Sangha*
KCBTMP	Karnataka Community-Based Tank Management Project
KVK	*Krishi Vigyan Kendra*
LG	Local Government
LOC	Letter of Credit
M&L	monitoring and learning
MC	Managing Committee
MDT	Multi-disciplinary Development Team
MD	Managing Director
MI	Minor Irrigation
MIS	Management Information Systems
MLA	Member of Legislative Assembly
MoRD	Ministry of Rural Development
MoU	Memorandum of Understanding
MoWR	Ministry of Water Resources
MP	Member of Parliament
NGO	Non-Governmental Organisation
NREGA	National Rural Employment Guarantee Act
NRM	Natural Resource Management
O&M	operation and maintenance
OBC	Other Backward Castes
OD	Organisational Development
PC/PD	Project Coordinator/Project Director
PIA	Project Implementation Agency
PIM	Participatory Irrigation Management
PP	*Pani Panchayat*
PRA	Participatory Rural Appraisal
PRI	*Panchayat Raj* Institution
RIDF	Rural Infractural Development Fund
RMG	*Rythu Mitra* Group
SC	Scheduled Caste
SHG	Self-Help Group
SO	Support Organisation
SRI	System of Rice Intensification
SSR	Schedule of Standard Rates
ST	Scheduled Tribe
SWOT Analysis	Strength-Weakness-Opportunity-Threat Analysis
TC	Territorial Constituency
TCA	Tank Cascade Association

TF	Tank Federation
TFA	Tank Farmers' Association
TN	Tamil Nadu
ToR	Terms of Reference
TOT	Training of Trainers
TUG	Tank User Group
VA	Voluntary Agency
VO	Village Organisation
VSS	*Vana Samrakshana Samithi*
WA	Watershed Association
WALAMTARI	Water and Land Management Training and Research Institute
WC	Watershed Committee
WDT	Watershed Development Team
WUA	Water Users' Association
WUE	Water-Use Efficiency
ZP	*Zilla Parishad*

Institutional and Financial Assessment
Executive Summary

Part I: Introduction

The Importance Of Tank Irrigation

The irrigation sector merits high priority in an agrarian tail-end state like Andhra Pradesh. Emphasis on tanks as a source of irrigation arises from the fact that the state has the largest number of tanks and the largest area under tank irrigation in the country. Further, tank based irrigation systems are the foundation for traditional agro-based livelihoods and directly impact the lives of marginal farmers and wage earners in rain fed areas. During its first phase, the proposed Andhra Pradesh Community-Based Tank Management Project (APCBTMP) aims to rehabilitate around 3,000 tank systems in eleven districts of the state. With its focus on participatory irrigation management (PIM), the project will work to strengthen community-based institutions involved in tank management, and improve tank-based livelihoods.

In recent years, Government and NGOs alike, in the states of Karnataka, Orissa, Maharashtra, Tamil Nadu, and Andhra Pradesh, have undertaken water resource management projects in a big way. These include projects on tank restoration, watershed development, and groundwater management.

These experiences indicate that the following critical institutional issues require particular attention during the course of the proposed project:

- Generation and maintenance of community participation through the collaboration of all stakeholders in the tank.
- Sufficient integration of expertise from various sources on such aspects as social development and livelihoods development.
- Timely availability of resources – financial, physical, and others, as required.
- Alignment of support from other institutions, such as the line departments, NGOs, and CBOs.
- Transformation of the mindset of key project personnel in favour of community participation and sustainable livelihood development.

These aspects have informed our suggestions in this report.

Special Challenges in Tank Irrigation Management

The management of tank system-based water resources entails the balancing of some crucial aspects:

- The technical aspects of engineering and design.
- The operational aspects of day-to-day water distribution management.
- Improving/optimizing the returns from tank-based irrigation to improve WUE.
- The socio-political aspects determining equitable access and control over a vital resource.

The integration of all these features related to tank irrigation by the Irrigation Department, will determine the quality of its outreach. The Department has to build in the additional capabilities required to maximize the available potential. The APCBTMP affords an opportunity to incorporate the various aspects and make a difference in the lives of people whose livelihood are based on, or around, tanks. The suggestions and pointers arising from the study of institutional arrangements are consolidated in terms of structures systems and processes in this summary.

Part II: Structure

Creation of SPV

The debate about the appropriate structure has been resolved with the decision to create a project unit within the **I&CAD** Department to function as a Special Purpose Vehicle (SPV). While the establishment of a separate society may have offered greater flexibility in carrying out the project, the advantages in this case will be the relatively easy procedures for staffing the project management teams and better integration with the other wings of the Irrigation Department and the line departments.

The structures proposed under the scheme are as follows:

- The Project Steering Committee, chaired by the Chief Secretary, will be convened by the Principal Secretary (I&CADD) as the Project Coordinator. This will review the project at State Level, to ensure the convergence of inputs from various line departments.

- The Commissioner CADA and the Principal Secretary I&CAD Department, will be the Project Coordinator and the Competent Authority for hiring consultancy services. She will approve annual action plans and monitor the implementation.

- The Project Management Unit (PMU) will be headed by the State Project Director of the rank of Commissioner from the IAS. The PMU will be staffed with technical, institution-building, business development and information management experts, in addition to that of project monitoring, finance, and administration personnel.

- The District Project Unit (DPU), headed by a District Project Director, of the rank of an Executive engineer, will be in charge of the execution of the tasks in the field, with proper regard to people's participation and sustainable livelihood promotion. It will combine the range of expertise needed for the implementation. A dedicated technical unit is envisaged for the project in each district.

- The District Level Implementation Committee (DLIC), headed by the District Collector will play the convergence role at the district level. The District Project Coordinator will be the Member Secretary.

With the necessary systems and processes in place, these arrangements will prove adequate in meeting the requirements of the project. The challenges in this set-up will be the integration of

development perspectives, the enhancement of people's participation, and dealing with issues relating to governance and conflict-resolution. The bottlenecks in the financial arrangements could slow down the flow of money for project implementation. The recommended structures to better deal with these aspects are described below.

Governance Issues

An important concern for this project pertains to project governance and choices about allocations, the direction for which usually emerges from the political elite. There is a danger that the interests of the less powerful or marginal users will go unrepresented. Key issues include:

- The factors that are used to select or deselect *mandals*/tanks for the project from the locations satisfying the techno-hydrological criteria.
- Decisions about the awarding of work contracts.
- Proper application of project funds and quality concerns.
- Rights of water users, particularly 'tail-end' and marginalized user groups.
- Autonomy and role of the WUA in procurement.
- Quality monitoring mechanism at the state-level – on-site quality check during the construction

Ombudsman and Advisory Groups for Good Governance

Our examination indicates that it would be difficult for the present system to deal with the informal pressures that are often brought to bear on these allocation choices. There would also be a need to resolve conflicts that may arise from time to time. We therefore suggest the appointment of a Project Ombudsman at the state-level and of a Project Advisory Group (PAG) at the district-level.

At the state-level, the Project Ombudsman could be an eminent public figure with technical competence about water issues and tank irrigation in the state, besides the law relating to usufruct rights over common property resources. She will be provided with a Secretariat and would be available for public consultations and hearing on a continuous basis. The Project Steering Committee would be apprised of the nature of referrals and action points every quarter. The Ombudsman will be guided by the principles of Alternate Dispute Resolution (ADR) mechanisms.

At the district-level, the Project Advisory Group (PAG) will be convened with a membership that would consist of two WUA Presidents, two ZP members, two NGO leaders of the district (all these not already on the DLIC or from support organizations for the project), the SE, and an institutional development expert. The body could meet every quarter to review governance issues and other disputes. Emergency meetings could be convened when any member has a concern about the governance aspects or inordinate delays. The group will keep the Project Ombudsman and DLIC informed about their deliberations and offer guidance for action on any issues that may arise. A specific arrangement for this purpose brings focus on such concerns, which often get lost in the details of routine activities.

These independent advisory bodies will ensure that governance questions are handled effectively even though the project is housed within the Department. The views of the Project Ombudsman

and of the PAG should be respected and acted as and when the committee deliberates on specific topics. This arrangement could continue beyond the project period also.

Mandal-Level Structure
The project proposes to address the revival of the tanks in a *mandal* (or sub-basin). A structure at the *mandal* level could be useful in supporting coordination and convergence. The project AEEs would have approximately ten to fifteen project tanks in their area. They would have to pay special attention to three or four such selected tanks at any given point of time. We would suggest a committee headed by the DEE, with AEEs, SOs, WUA presidents of selected tanks, and the APREGS Programme Officers as members, to meet every fortnight. This forum can feed in issues for district-level support or intervention as and when they arise. Such a structure can be continued beyond the project life also.

WUA Structure
Panchayat members are not yet co-opted into the WUAs and this should be ensured in the future. A WUA member can similarly be invited to join the NRM subcommittee of the Panchayat as observer or special invitee. These steps would pave the way for convergence and integration with the local governance systems. There are close political linkages between WUAs and Panchayats, which are not openly recognized. Creating formal links would legitimise the linkages and add credibility for closer convergence on the ground.

The Water Users' Associations were created through specific legislation (Andhra Pradesh Farmers' Management of Irrigation Systems Act, 1997) and enjoys special status in Andhra Pradesh. However, *de facto* and *de jure* differences in the functioning of the WUA persist, since the tank-WUAs largely remain inactive across the state. The tank systems have been maintained and monitored by the Irrigation Department on an ad hoc basis.

At present the sub-committees envisaged in the WUA are neither activated nor adequately oriented to meet their responsibilities. This should be addressed across the state, including at those tanks not taken up under the project. There are relatively fewer large tanks (Type III and Type IV) and there is a good case for enlarging the size of the corresponding WUA at these tanks up to twelve members.

The Conflict-Resolution Sub-Committee in the WUA should be activated to resolve disputes either within the WUA or with other users like fishermen or dairy farmers.

Part III: Systems

Financial Systems
The project impact is closely dependent on the institutional capacity for financial management. Tank rehabilitation work has to be completed in the short interval from December to May when the dry season sets in. Thus the timely availability of funds for the engineering works is vital. Further, sound monitoring and audit systems should be in place to ensure quality, and enduring project benefits. Social mobilization and livelihood promotion services from support organizations will have to be paid for in advance to ensure that these aspects are not neglected.

The accounting and financial procedures have to be handled in such a way, that timely support and appropriate checks are available in the project.

The financial systems envisaged for the project are based on the experience of the RRR project in Mahabubnagar and Anantapur Districts, fulfilling the guidelines of the national policy and meeting World Bank requirements.

An Overview of the Proposed Financial Arrangements

Project Component	Approximate % Of Project Cost	To be drawn by	Type of billing	Comments
I-Strengthening Community Based Institutions	10-15%	State/district units as per location	AC bills	PMU can draw Rs 10 lakhs and the District unit Rs 3 lakhs and render accounts before next withdrawal
II-Tank System Improvement	60-65%	District units	Works bills (under LOC with PAO)	Scope for 40% advance when WUAs are executing the work
III-Agriculture Productivity Enhancement Services	15-20%	State/district units as per location	AC bills	
IV-Project Management	5%	State/district units as per location	AC bills	

Some additional measures to ensure timely and smooth flow of funds are required in the system and the following measures are suggested.

Project Capital Expenditure

All payments for works will have to go through the PAO's office, which is known to be a bottle neck, considering the volume of payments handled at the PAO offices and the relatively small sums involved in the minor irrigation bills. The proposed system is prone to much delay and the project can ill afford this, because the work will have to be completed within the time frame imposed by the seasons.

To ensure timely availability, an **Imprest** Fund System can be introduced to work on the following lines:

On sanction of the TIMP, the PAO will transfer 40% of the budget to a savings bank for the project, to be operated by the SE and the Finance Officer. They will disburse funds from this account based on the recommendations of the DEE. The remaining 60% will be released to this account by the PAO on receiving confirmation of the disbursement of the first instalment and

receipt of an inspection report certifying adequate progress in the work. This is suggested because the contractors taking up tank revival would invariable be small local contractors without the capital base to first invest and then recover the money. This approach is approved for those situations where the contracts are taken up by the WUAs themselves. In our view it should be extended to the contractors also.

The Framework for Financial Delegation

One of the core principles driving this project is the effort to decentralize the management of tank-based irrigation systems. Financial delegation becomes a prerequisite that will enable such a shift. A study of the typical financial decision-making pattern has to be taken up by the state-level PMU and the discretionary powers fixed at the three levels, namely tank, district and state. It is suggested that routine financial decisions are made at the tank and that most other decisions are taken at the district-level. The resource generation for capital expenditure, monitoring, and audit functions should be managed from the state-level.

The financial responsibilities to be vested in the different agencies collaborating for tank revival are suggested below.

- At the tank level, the WUA will be responsible for all the financial decisions within the approved budget. It will have a discretionary limit (to be defined by the state/district project management) to go beyond the budget in urgent situations.
- The DPU will co-ordinate, monitor and control the financial aspects at the WUA-level.
- The PMU at the state-level will be responsible for the overall financial management of the project.

The control mechanism will be the reports of external auditors as well as the monitoring system within the project.

Local Resource Mobilization

The WUAs and Support Organizations have indicated a need for greater consistency and transparency in the accounting and financial systems. With the SPV now coming under the Department, a point of concern could be that there may be a lack of motivation on the part of farmers to pay water charges that go straight to the government. It will become easier to mobilize local resources when the general body of the WUA develops confidence that

- Any money collected is indeed used for tank maintenance.
- The local share of the taxes collected is given first and the balance remitted into the treasury.
- Costs recovered are carefully managed and accounted for.
- The system devised is easily managed with locally available skill-sets.

It is therefore recommended that local collections of water charges and contributions for specific expenditures should be taken up by the para-worker identified by the WUA, under the supervision of the Finance Sub-Committee of the WUA. The amount collected should first be deposited into the savings bank account of the WUA. The proportion due to the *Panchayat* should then be transferred to the Revenue Department. The summary of the transactions should be shared in the WUA general body meeting every six months. A detailed financial manual to record these transactions should be prepared even before the project cycle begins.

Procurement Systems

The procurement arrangements for civil engineering contracts are well understood in the system and they are in consonance with the National and World Bank Guidelines. The project also requires the services of Support Organizations and other specialist services. Our suggestions in this regard are presented below.

Identifying Project Support Organizations

The DPU should identify CSOs and NGOs, or other local institutions, in order to facilitate collaboration for tank revival. Our consultations with NGOs indicated the following:

- There are potential collaborators who can be identified for the project.
- The role they will play would be facilitative, rather than managerial.
- As the project implementation progresses, they will enable the collaboration in the field to move forward to the next stage.

The discussions with NGOs with prior experience in this area led to the following criteria being suggested for the selection of Support Organizations:

- Five years' experience as an active organization with a good track record, at least three of which are spent working on water-related projects.
- The organization must have worked on at least five water-related projects as well as at least three in other fields.
- The area of operation of the organization should be at least two to three *mandals* in the district.

The guidelines for the selection of support organizations (integrating these criteria) and the MOU terms can be finalized by the PMU and circulated to the DPUs.

Identifying Training and Capacity-Building Resource Persons and Institutions

The project envisages capacity-building efforts at many levels. Each district has the physical infrastructure to house the training programmes that will be needed for the field teams, the WUAs, para-workers, and other resource providers.

District-level resource persons, too, are available. For example, the recent recruits for APREGS have been trained and mentored by the local resource persons. Such external faculty can be engaged to conduct the required field-level training programmes, after they have gone through the required TOTs. The DPUs will have to finalize arrangements with the *Kisan Vikas Kendras* and other local institutions for their regular support. The PMU will have to stipulate the norms and create the MOU in this regard.

Information Systems

Project implementation will hinge on the availability of timely information on the stae of tanks, the institutional readiness to collaborate for tank revival and accurate reporting of progress on the ground . experiments to improve effectiveness and impact will have to be captured as they are happening to provide the knowledge for rapid and successful implementation of the scheme. Our assessment of the information flows needed in the project is described below.

Assessing the Status and Potential of Water Bodies
The district team will have to make a rapid assessment of the asset base it is supposed to manage. At present, there is incomplete information on the tanks, and many tanks are in a *no-man's-land* between *Panchayats* and the Irrigation Department.

The first priority is a complete listing of the water bodies and assessment of their hydrological potential. This can be seen as part of a larger statewide task of GIS-based assessment of water availability from various sources. The district team will have to draw what it needs from such information bases under preparation. This process would lead to the identification and prioritization of *mandals* for early intervention.

Currently, information on several crucial aspects of the tank system is unavailable. We recommend that

- The current tank memoir format should be revised to include three types of information: technical details, *ayacut* actually being irrigated in the current cropping season with rough estimates of the cropping pattern, and services provided to other users.
- The new memoir should be compiled by the AEE, through the use of PRA techniques, and it should be presented to the WUA every six months.
- This can then become the basis for assessing revenue flows that are legitimately due to the tank, thereby addressing issues of tax collection. This information will also be necessary to track project impact.

Assessing the Status of WUAs
Similarly, the district has to assess the availability and status of the WUAs. Very often the WUA is as active as the tank systems. In places where the tank is a vital resource for the livelihoods of the community, the WUA has become active in managing the distribution of water.

The tanks most in need of restoration, as well as those recently transferred to the Department from *Panchayats* may not have WUAs. The district will have to identify such cases and initiate procedures to constitute the WUAs. The district team will be able to map the WUA capacity-building agenda and identify the necessary resource support providers for this purpose.

The framework in use to assess WUA capacity is inadequate for the purpose of this Project. A format has been suggested for testing and eventual use.

IT Applications for Project Management
A suitable EPR platform can be identified for the project and installed. This could gradually be extended into the rest of the organization.

Human Resources Management Systems
The need for a strong HR function within the project cannot be overemphasized. The executive layer for the PMU will be drawn from the bureaucracy. The operational management would be with the engineers. It is now proposed to induct other functional specialists to support the changed agenda. The PMU can also recruit additional technical staff for the project where deemed necessary. HR systems should be developed to enable teamwork along with accountability.

The PMU should have a strong HR team to manage the task of selecting staff for the project and inducting them into their new roles. They have to develop systems for goal setting in terms of team outputs with credits for individual contributions. Accountability should be evenly balanced between contracted experts and the Department staff.
The HR team should also work on the training needs of staff and manage the capacity building of the internal teams. The programme designs should revolve around the roles, linkages and skills for performance of roles.

Suggestions for Staff-Selection
It is important to identify engineers with a good understanding of the issues of community-based tank management and with some grounding in development perspectives. Further, the officials identified should be retained in the position for at least three years to ensure that the changes are institutionalized. We suggest the following procedure:

- For each position, shortlist names of four times the number of candidates actually required from the pool available internally.
- Examine their service records and assess their competencies, relevant for development projects based on community mobilization.
- Have an open dialogue with the candidate sharing the expectations in the project
- Select only those actually interested in the process.
- Assure selected candidates at least a 3-year contract so that organizational memory is not lost with short-tenure candidates

Engineers who have been to recent induction programmes (which included inputs on development perspectives) should be preferred. Similarly, those who have demonstrated success in actually working with WUAs should be preferred.

This process is particularly important for the selection of the top leadership of the PMU – Project Coordinator, SEs, and key members of the state-level teams. Similarly, the norms for selecting the external experts have to be developed carefully and used. Recent experiences in the state (SERP, APARD, etc.) will be useful for guidance.

Suggestions for Training and Staff Development
Initial induction programmes should be made mandatory for all staff. Role-based programmes as well as cross-functional and multilevel programmes have to be designed and organized.

WALAMTARI is the training institution that meets the training and capacity-building needs of the Irrigation Department. It is clear that the capacity at WALAMTARI has to be enhanced in order to address the training needs arising for this project. The project proposal also acknowledges the need of having more than one resource agency to meet the challenges of capacity-building. Hence there is a need for the identification of more resource agencies/professionals for capacity-building and undertaking decentralized trainings on site.

A core team can be constituted at the PMU with a suitable mix of institution development, project management, and technical skills to assess training needs and develop a training strategy, especially for the tank project. The HR team can then work out the detailed training plan. The effectiveness of the training strategy can be reviewed periodically.

Part IV: Processes

In this section the recommendations about the key institutional processes are discussed and arrangements are suggested for holding these processes in place. Some of these key processes connect and bind the participating institutions while others work within each organization involved in the project.

Communication Processes

A project of this magnitude should have a clear strategy for external communication. This is important from the early stages. The strategy should cover the requirements at three levels.

At the tank level, the community should become fully aware of the project details and develop its ability to articulate its expectations and needs. In addition to government-sponsored community mobilization activities, a mass media campaign and branding effort should be considered; elements like *Kala Jathas* and roving trainers can also be integrated into this strategy.

At the district level, the project mission should become widely known. This would invite collaboration from different quarters and act as a check against any misuse of the opportunities created. The communication effort should influence policy discussions and contribute to informed public debate on various key issues related to tank irrigation. Dialogue and information sharing with people's representatives, press, and civil society leadership will be necessary. Such a process would be good insurance against the risk of rough weather in the political arena given the highly charged situation on water-related issues in the state.

There has to be a uniform image created through a coordinated set of media related activities across the eleven project districts. The coordination role at the state-level therefore becomes critical. It is suggested that an external resource agency can be retained to develop an appropriate communication strategy and material, with the project personnel oriented to this process. The SOs and other agencies closely involved in the project should also become part of this campaign. Special efforts should be made to communicate effectively about the project to the *Panchayats* and other stakeholders in the tank system.

Attitudinal Shifts among Staff Members

Integrated Water Resource Management (IWRM) involves changes in mind-sets towards tasks within the line departments and among interconnected departments. The structural changes have to be leveraged through behavioural changes both within the community and in the relevant departments. The way ahead is to push for deeper reform, in terms of improved equity and informed participation of the community in making key decisions. This requires a strategic initiative to manage the change in the long-established norms of interaction within, and among, the key stakeholder groups. The key principles guiding this reform process are:

- Decentralized community-based management.
- Efficiency and returns from performance.

Equity and respect for the rights of all users.

- Self-sustaining institutional arrangements at all levels.

Acting on these principles would be the major institution-building challenge confronting the PMU. The reviews of most of the other projects identify this as the major factor that affects impact.

The institution-building strategy should be developed through an OD/ID process, which involves all layers of project staff and the key stakeholders. It is necessary to adopt a highly participative process in order to integrate the layers and hierarchies. Further, this experience will also form the ground for enabling the officials to move towards a more facilitative mode of functioning in other settings.

This can be done with support from an external resource agency with specific expertise in process consulting, familiar with large bureaucracies and development issues. They should have the close support of a multi-dimensional in-house team. The resource-persons available within the system have to be identified and trained as internal change agents. They would in turn carry through interventions to develop local strategies, which will take the system towards its goals.

The process may take 18 to 24 months to actually be implemented. Main component of the tank project is to de-silt before the rains, which occur in months of June. Time frames for pre-project work must therefore be planned carefully such that some results are seen in the first year itself. This will provide the necessary impetus and motivation for up scaling the project. It would require sustained commitment from the top executives and the political leadership in the state. Such a programme will have a carry over impact into the other departments of the Irrigation Department also. Detailed suggestions on the steps in the OD programme are offered in the report.

Strengthening the WUAs

WUAs currently have a narrow understanding of their role, and with no memory of previous efforts. They are not eager to upgrade their capabilities, or maintain necessary records and books.

The challenge before the Irrigation Department is to facilitate a gradual transition, whereby the WUAs emerge as broad-based representative bodies, which address the needs of the less privileged and marginalized users in a water basin. Support organizations have a critical role to play in this regard. The capacity-building strategy should therefore include the following elements:

- An initial communication campaign to propagate the theme of tank revival.
- Orientation to possible potential for economic benefits that can be expected with various livelihoods and collective actions in management and marketing.
- Strengthening of farmers' involvement and participation in tank WUAs to make them truly representative bodies, sensitive to the needs of all categories of users.
- Development of the acceptance of the 'cost recovery' principle and work towards sustainable water resources management.
- Informing and educating WUA members and the community at large about the technical options available to them through extension services and enabling them to make informed choices about the efficient use of available water.
- Developing business models using the livelihoods corpus fund.

The plans should address the learning needs of the WUA as they evolve with the project stages. Each stage of the training should address the skills, the attitudes, and the overall knowledge levels of MC members and the farmers. Experiential methodologies, not much dependent on the written word, will have to be created. The SOs at the selected locations would be trained to deliver these programmes on the ground. Methods used for this purpose could include games, exposure visits (to tanks in Mahabubnagar, Anantapur, or Karnataka), and multi-level training sessions. The project staff should be closely involved in implementing the capacity-building activities in the initial stage at a project location. As the WUA builds itself, the project team can gracefully step back.

Collaborative Team Processes

The capabilities of the four core institutions at the tank-level, (the Department, the WUA, the Panchayat and the SO) have to be developed, keeping in mind the project management and social and environmental aspects that would need to be addressed by each institution. Performance parameters should be set, not just in terms of construction and functional efficiency, but with greater focus on maximizing potential returns.

Improved communication and collaboration within teams will be the key to building direct and strong relationships with other stakeholders. The focus should be on ways to

- Build an alignment around the overall goals.
- Develop clear task-role focus for each level.
- Communicate priorities and requirements.
- Develop clear indicators for performance appraisal and links to reward systems.
- Develop required technical, managerial, and tactical skills.

Processes to Build Project Sustainability

We recommend particular attention to the following aspects with a view to strengthen sustainability of the project benefits.

Supportive External Environment

The project period should be used to build external support for tank revival. This can happen when the framework for collaboration with other stakeholders is fully developed and in place.
With the aim to build wider networks around the tanks, the project should emphasize WUA collaboration at the tank-level with the following:

1. Panchayats
2. Rythu Mitra groups
3. Fishermen's cooperatives
4. Dairy cooperatives
5. Wage labour seekers and their groups, if any.

Within the district, the DPU should develop rapport with the Zilla and Mandal Parishads, their functionaries, and the NGO- and capacity-building systems. It is also possible to collaborate with APREGS and other development programmes in operation wherever the APCBTMP is implemented, especially for activities such as de-silting, weeding, etc. At the state-level, the PMU should continue to work on policy reform in favour of tank systems.

Enlargement of Local Resources
At the tank-level, the emphasis on finding and using local resources should be maintained. The economic benefits of tank revival should be calculated and made known in the local community to build consensus on cost-sharing and water-charge recovery. Market interventions and those to promote livelihoods should be managed effectively at the district-level to demonstrate possibilities and create support for the society.

Continuing Management Capacity
Efforts to build cohesive teams will help in preserving management continuity. This aspect requires close attention because staff turnover and difficulties in assimilating external expertise have been cited as one of the issues for concern in comparable projects elsewhere. An internal work-culture that provides a stimulating work environment will ensure enhanced managerial capacity.

Continuing Demand
The tank revival effort should be presented to the community as a (viable) measure to combat the alarming level of groundwater depletion noticed in the region. The package of productivity enhancement and livelihood-support interventions should also be highlighted so that the community recognizes the advantages of this approach. This project has to reverse the trend towards bore well use and the preference to see tanks as recharge mechanisms rather than common property resources for agriculture and other livelihoods.

Self-reliance and sustainability
For long term sustainability, measures to build in self reliance and financial support at WUA level in terms of a core fund, support for 1 para-worker at tank level even after project completion and reinforcement of training inputs need to be built in at this stage itself.

Chapter 1
Introduction

1.1 Significance of Minor Irrigation in the Indian Context

1.1.1 Geographical Factors

Large parts of India lie in the arid and semi-arid zones; especially the Deccan plateau in the south. In the absence of any major perennial river systems, these areas have been historically drought-prone and dependent on the vagaries of the monsoon. This context makes minor irrigation (MI) particularly important, especially in the situation where food-security and hunger have come up as major concerns and thousands of poor farmers in rural areas are trapped in a vicious cycle of debt and deprivation.

1.1.2 Brief History of Tanks

Tanks in India

The need for suitable MI structures was long realised, and a large number of tanks have been built throughout history by local rulers, temple authorities, and the wealthy elite. Tanks, as useful storage facilities, supported not just agriculture and various other livelihoods in the village, but also played a crucial role in the rural ecology by serving as water-harvesting structures. While the aristocracy undertook the construction and further extension work of the tanks, it was the community that always had a role in managing them irrespective of their size and *ayacut* (command area).

Gradual Decay of the Tank Systems

In the modern era, the local community got alienated from their tank systems with the centralization of tank administration. Private investments in these structures came to a gradual halt over the years, initiating a process of decay. The story of neglect continued for a long time even after independence, as both the Central and State Governments concentrated their energies in major and medium irrigation. Given the changes observed in technology and the socio-political structure, groundwater became a preferred option against the community-owned tanks, in spite of the ecological superiority of the latter over the former. Statistics show that within the last decade in Andhra Pradesh, there has been a steep rise in tube wells and a drastic fall in the area irrigated by tanks. Today most of these old, but important, structures are in decay and in need of urgent repair.

1.1.3 Irrigation Scenario at the National Level and Shift of Focus to MI

According to the Ministry of Water Resources (MoWR), the ultimate irrigation potential of the country is estimated at 140 million hectares, out of which 81.54 million hectares, i.e. 58.58%, comes under minor irrigation. The MI sector remained neglected with a severe decline in the number of tanks in the country. Tanks with a command area above 40 hectares form 5.7 % of the total number of current tanks in the country, and serve 60% of the total

Census of MI Schemes	No. of Tanks (in lakhs)
1986-1987	5
1993-1994	3
2001-2002	4.24

command. The majority of these tanks are under state ownership. Due attention to tanks is a must if targets of the plan are to be achieved with respect to agriculture. Towards this end, the Working Group on Minor Irrigation for the Formulation of the Tenth Five-Year Plan (2002-07) proposed the creation of the Minor Irrigation Development Organization (MIDO), with clear vision, foresight, and transparency, to implement minor irrigation programme proposed in the plan and to create better opportunities for participatory irrigation and gainful employment. With focus thus shifting to MI, both the central and state governments have initiated several tank revival projects and there are many more in the pipeline.

The RRR pilots in certain districts have been more technical in orientation. The livelihoods component has been somewhat neglected. Learning from this, the more recent projects ensure greater emphasis on livelihoods.

1.2 Minor Irrigation Schemes in the Last Decade

The GoI took several steps in the last decade to support the revival of MI studies. These include the creation of funds like RIDF and AIBP, and the implementation of projects like the RRR pilot scheme. Presented below is a tabulated summary of these schemes. These projects are detailed in table below.

Recent GOI Schemes fro Minor Irrigation

Scheme	Aim	Functioning	Financial Aspects	Scope
Funds				
Rural Infrastructure Development Fund (RIDF) **RIDF-I Launched in 1995-96**	To support state funding in agriculture	Finance Department acts as the Nodal Department. Loan processing is handled by Finance Department of the State Governments. Eligibility to borrow out of RIDF on project basis. The repayment period has been extended to 7 years including a grace period of 2 years since RIDF-VI. It has been decided to extend loans to PRIs and NGOs.	Initial corpus was Rs 2000 crores Allocations made in each budget	Ongoing Irrigation, Flood Protection, Watershed Management project financed under RIDF-I as a 'last mile approach' to facilitate completion. Financing of rural Road & Bridge projects started during RIDF-II. Subsequently, coverage of RIDF was broad-based. At present, all new "project concepts" received from various State Governments are placed before the PSC for approval before accepting detailed projects for financing.
Accelerated Irrigation Benefits Programme **(AIBP)**	Accelerating implementation of on-going Irrigation/ Multi-purpose projects on the	The Central Loan Assistance (CLA) to the States is given in the form of loan repayable in 20 equal installments. The Central Loan Assistance (CLA) under AIBP is released on year-to-	Rs.79.67 crores was released to AP for 6 projects as Central Loan Assistance (CLA) in 1996-97. 4 new projects were commissioned	Projects with investment clearance of the Planning Commission excluding those receiving assistance. Assistance to large projects for their phased completion. Benefits could start

Launched in 1996-97	verge of completion.	year basis for those on-going Irrigation Projects, which satisfy the AIBP criteria and are proposed by States subject to availability of funds and budget outlay made by the States for these projects in their Annual Plan.	during 2000-2001 and CLA worth Rs.95.02 crore released so far. Similar projects have been undertaken in Karnataka, Maharashtra and Orissa.	flowing early with comparatively smaller investments. Projects benefiting tribal belts and drought prone areas are given due preference. Priority is also given to Inter-State projects.
Projects				
National Project for Repair, Renovation and Restoration of Water Bodies directly linked to Agriculture **RRR** **Proposed in 2004-05**	Pilot scheme for Revival, Restoration and Rehabilitation (RRR) of water bodies to augment the storage capacities and to recover or extend irrigation potential.	Implemented through District-Level Implementation Committee (DLIC), with representation from NGOs in decision-making process. Monitoring an essential ingredient with a graded system at local-district-state level conceived to achieve the desired ends.	Working Committee of the Planning Commission recommended about Rs.7000 crores. The Pilot Scheme envisages a Plan Outlay of Rs.300 crore to be shared by Centre and State in the ratio of 3:1.	To cater to water bodies, with an irrigation potential of 40 ha and above up to 2000 ha., the scheme is for a short period of two balance years of the Tenth Five Year Plan, its scope is restricted to just two districts of Mahbubnagar and Ananthapur. Plans to link it with the newer programmes NREGA and the Bharat Nirman programme.

1.3 Recent Changes Investment Policies

1.3.1 World Bank: New Perspectives

Owing to concerns over agriculture and issues of poverty and food security, the irrigation sector has always been one of the top priorities of international public investment. The World Bank and other regional development banks have been major donors to irrigation projects. The recent decade has witnessed a major change in the World Banks' perspective on irrigation projects. In 1993, the Board of Directors of the Bank approved its Water Resources Management Policy, to encourage the adoption of institutional reforms, analytical frameworks for managing water resources, water conserving technology, decentralization of responsibilities to local governments, user participation, and environmental protection. This policy marked a turning point in irrigation-related works, as modernization came to be seen as more of an institutional change for improved service to users. Attention shifted mostly to MI projects national or regional in scope, i.e., projects covering the entire irrigated area of a certain state in a particular country, with special emphasis on issues like user participation or legal framework for water rights and water markets. The formulation of irrigation projects underwent changes over the years.

National Framework in India

At the national level, the Central Ministry of Water Resources has evolved a National framework that offers broad guidelines to both the central and state governments to help them in preparing detailed project reports (DPRs) that can be posed for World Bank assistance. An important suggestion of the framework is the creation of an enabling legal and institutional environment to implement the solutions emerging out of participatory and demand driven processes.

Institutional Set-up Suggested by the Framework

- Setting-up of a society or Special Purpose Vehicle (SPV) at the state-level that would function flexibly and plan and monitor various activities, coordinate functions with other agencies, and manage the interface with World Bank.
- Some standing arrangements at the state-level, preferably chaired by the Minister-in-Charge, or the Principal Secretary of the Department concerned, with members of other departments and experts.
- Employing facilitating agencies like NGOs to ensure community mobilization.
- Forming user groups with proper Memorandum of Understanding (MoU) to determine the roles and responsibilities of these groups with other actors and players.
- Empowering WUGs to levy, collect, and use the revenue from the water charges to increase livelihood options, like fisheries and so on.

Important Issues highlighted by the Framework

The issues of sustainability, capacity building, quality control and supervision, monitoring, and hydrology have to be borne in mind. All users should be given attention and community participation is to be ensured with a 10% towards contribution while signing the MoU.

Linkages have to be provided at different levels with the related government programmes for poverty reduction and improvement of livelihoods for better synergies. The role of *Panchayati Raj* Institutions (PRI), NREGA and *Bharat Nirman* Programme is also highlighted.

1.3.2 Government of India: Changing Role and Perspective

The role of the GoI has been changed gradually. It will assist the state governments in project preparation. To achieve this, a Mission Directorate will be created at the MoWR, with funded support. The MoWR will also monitor the project centrally and ensure experience sharing, learning, and dissemination. To help incorporate past learning into the project, it will also bring together various actors at regular intervals, at least once a year. With most state governments wishing to continue the assistance pattern of the on-going RRR pilot project, which is 75% centre and 25% States, GoI has a definite role to play in the next plan period.

Another positive development is that States can directly apply to external agencies for aid as long as their project is within the National Framework and grants are seen as part of the AIBP. These changes will support project viability and strengthen the internal rate of return and go a long way in ensuring successful completion of projects. They will together work to streamline flow of funds for the management of MI structures.

1.3.3 New Directions in Watershed Development in India

Livelihoods as the Basis for Planning a Major Intervention

According to the recent report on watershed development by the Parthasarathy Committee, watershed development is not merely a matter of harvesting rainwater; its success crucially depends on two factors – first, collective protocols of equitable and sustainable use of surface water and groundwater, and second, the co-operation between scientists and farmers to evolve a "dryland agriculture package" and a host of such livelihoods options. Detailed land-use planning at the micro-watershed level and the mobilization of rural communities in the direction of the disadvantaged is essential. There is a need to learn from examples set by NGOs. An interesting innovation in this regard is the Support Voluntary Organization (SVO) programme attempted by CAPART for capacity building and field-support. This programme requires each state to have one or more SVOs to help it develop Master Trainer Organisations (MTOs) at the district-level. MTOs would in turn take up the responsibility of training PIAs within the district.

National Authority for Sustainable Development of Rain-fed Areas (NASDORA)
The Committee has recommended setting up a quasi-independent authority at the national-level (NASDORA) to manage the entire central government-funded watershed programme A separate dedicated body will oversee the implementation of the watershed programme within each district. This body may be termed the District Watershed Development Agency (DWDA). At the level there will be a Watershed Council (MWC) that will consist of nominated members from each VWC. The prime task before NASDORA would be to create awareness regarding the challenges of rain-fed agriculture in the country.

1.4 Major Challenges before Upcoming Tank Revival Projects

1.4.1 Need for a Change in Thinking

According to Deep Joshi, it is important that we look upon water as a life-supporting natural resource catering to several livelihoods and not just like any other agricultural input. The dominant "watershed thinking" in the current public policy domain suffers from two major biases – the first is a preoccupation with the conventional soil conservation approach, and second, is a rainwater harvesting and conservation approach. These ideas of conservation and harvesting can serve as boundaries for policies and actions; they cannot be the objective of development. The objective needs to be maximization of benefits to most water users across generations, which calls for a change in the way water is perceived.

1.4.2 Tank-Based Livelihoods Development

The livelihoods component is an integral part of tank revival. Therefore, projects should give due attention to institutional aspects and mobilize the local communities – first, to participate in the planning and implementation process, and second, to develop a sense of joint ownership for tank maintenance and water distribution in the post implementation phase.

A key aspect of devising a program of stakeholder participation is to involve them at appropriate levels and times. Some technical aspects should be left with the expert team or its advisors, particularly in the early stages of strategy formulation.

Thus, the essential challenge before any project, to ensure investments do not fade away as mere engineering exercises, is to come up with a suitable solution and the right institutional set up that can support it from amongst the wide range of available alternate models.

1.5 Alternate Models

1.5.1 Integrated Water Resources Management (IWRM) and Participatory Irrigation Management (PIM)

IWRM is a clutch of direct demand management practices and policies with unique socio-economic and institutional pre-requisites. In recent years, with an ever-increasing pressure on water resources, IWRM and PIM have emerged as preferred solution to revive old MI structures.

PIM is an essential part of this institutional set up. The two broad approaches of PIM being propagated in India are the 'Big-Bang Approach' and the 'Cafeteria Approach'. The Big-Bang Approach, initially tried out in Mexico, has been adopted in states like Madhya Pradesh and Andhra Pradesh. This involves simultaneous and uniform adoption of PIM throughout one region or state based upon legislation or government orders. The second approach is a bottom-up, slow and steady, flexible "cafeteria" approach. In this, major decisions like the setting up of a WUA, its internal structure, functions, and responsibilities, are all, taken by the water users themselves.

1.5.2 Major Criticisms of IWRM

Criticisms of IWRM and PIM largely revolve around their institutional feasibility, given the socio-political structure of India. A study by Tushaar Shah and Barbara Van Koppen, based on cross-country evidence, shows that water poverty is hardly correlated to water scarcity. It is instead related to growth and maturity of a country's economy and thus cannot be solved by IWRM. An essential pre-requisite of the programme is the water service provider, an intermediary between users and natural sources of water. This is difficult to obtain in an informal water economy like ours, where the majority of users depend either on the self-

provision of water or on local informal institutions. According to them, a clear understanding of the functioning of India's water economy and its traditional informal institutional arrangements should shape the policy instruments to entice or compel private institutional arrangements to serve public policy goals.

1.5.3 Indigenous Examples

According to Rajendra Singh, secretary TBS (Tarun Bharat Sangh), an NGO whose watershed work in Rajasthan has received wide attention, it is necessary to strengthen mutual bonds that traditionally knit various caste groups into interdependent and cohesive village communities.

Two important indigenous solutions are the development models adopted in Ralegan Siddhi and Hazare Bazaar. At Ralegan Siddhi Anna Hazare's "moral authority approach" derives its strength from a common ground of moral values constituting its ideology. Anna, like Gandhiji, stands for public-spiritedness, honesty, simplicity, and self-sacrifice for the good of the community and holds absolute power and command. People following him consider it their natural duty to be guided by him.

At Hazare Bazaar, the example of Ralegan was adopted. Its five principles of the ban on tree felling, cattle grazing, alcoholism, and the compulsory adoption of family planning and *shramdan*, it endorsed a watershed plus policy. The negative impact of the ban on grazing, on poorer sections and women, was addressed. While the works were going on, grazing was undertaken in limited areas on a rotational basis. Once fodder became available one could pay a sum of Rs 100 per year and take a head load of grass per day. This sum was waived for poor households. In spite of this, other negative effects still remain.

The lessons of such indigenous approaches can be useful for state policy. The state has to continue to ensure good technology and address equity concern so that caste politics and local elite do not dominate the scene.

1.6 MI Projects in Andhra Pradesh and Neighbouring States

With the significance of tanks becoming clearer at both international and national level, there is a lot of effort at the state level to revive these tanks. Karnataka, Maharashtra, Orissa, and Andhra Pradesh are all undertaking large system reforms in Minor Irrigation with the help of national and international aids.

1.6.1 Karnataka

Karnataka has been one of the pioneering states in the region in this regard. The Karnataka Community Based Tank Management Project (KCBTMP) was started in July 2002, to rehabilitate 5,000 irrigation tanks out of its 36,672 tanks through community participation. The Government of Karnataka (GoK) constituted an autonomous body called the *Jala*

Samvardhane Yojana Sangha (JSYS) to oversee the entire task. The project has three components:

- Establishing an enabling environment for the sustainable, decentralized management of tank systems;
- Strengthening community-based institutions to assume responsibility for tank system development and management; and
- Undertaking tank system improvements.

The first phase of the program aimed at 2,000 tanks. In July 2006, of the total of 1,828 tanks taken up, it has 430 tanks in survey-preplanning stage, 108 in planning & design stage, 760 in implementation, 456 in post-implementation while 74 tanks have been handed over to the Tank User Associations. The project is to take up 177 more tanks for rehabilitation purpose. There are 57 Cluster Facilitation Teams (NGOs) working with the project. A significant number of women and traditionally marginalized communities are involved and represented in the project.

1.6.2 Maharashtra

The Maharashtra Government is undertaking a similar project called the Maharashtra Minor Irrigation Project. The project envisages improvements to MI tanks, weirs, diversion weirs, storage weirs (*bhandars*), and Lift Irrigation Schemes, with participation of farmers in management and operation. The disbursement is yet to start. The project components provide support for institutional reforms, and capacity building in water resources management, irrigation service delivery, and complementary investments in improving and modernizing physical assets. Maharashtra is to have *Pani Panchayats* in the post-implementation phase to ensure equitable water distribution among the farmers.

1.6.3 Orissa

The Orissa Water Resources Consolidation Project was implemented in Orissa with World Bank assistance of US$ 290.9 Million beginning in 1996. Its components included scheme completions, systems improvement and farmer participation, basin planning and environmental action plan, water resources research and agricultural intensification, institutional reorganization and strengthening, resettlement and rehabilitation and development plan of the indigenous people.

An area of 332.400 hectares has benefited with its completion. The project created an informal structure of *Pani Panchayats* to deal with tank-level issues like water distribution, conflict-resolutions, etc.

1.6.4 Andhra Pradesh

MI projects have so far been individual tank based under the Andhra Pradesh Economic Restructuring Project and the Andhra Pradesh Groundwater Irrigation Project (APWELL). A major initiative proposed is the Andhra Pradesh Community-Based Tank Project (APCBTP).

A detailed analysis of the MI projects being undertaken in these neighbouring states, their institutional structures, strengths and weaknesses and their comparison with the proposed Andhra Pradesh Community-Based Tank Project has been presented in Chapter III

1.7 Need for Tank Revival Projects in AP

1.7.1 Rationale for a Major Intervention in Tank Revival

In an agricultural state like AP, with highly varied agro-climatic zones, water resources are a serious concern, and irrigation a priority sector. Emphasis on tanks as a source of irrigation arises from the fact that the state has the largest number of tanks and the largest area irrigated under tanks in India. As a result of long neglect, most of the tanks in the state are performing below their capacity. The gap between the irrigation potential and the actual irrigated area under tanks vary between 40 to 60 per cent. This gap justifies the urgent need for a major government intervention as is being proposed by the project.

1.7.2 The Proposed Project

The proposed Andhra Pradesh Community-Based Tank Project envisages rehabilitating around 3,000 tank systems with an estimated command area of about 250,000 hectares. The ultimate development objective is to improve tank system-based livelihoods and strengthen community management of the selected tank systems.

The proposal document has detailed the significance of tanks and the potential available to positively impact the lives of rural poor. It clearly outlines the need for revival of these ancient systems through revitalised modern institutions on a top priority basis.

Main Components of the Project

- Strengthening community-based institutions to assume responsibility for tank system improvement and management
- Tank systems improvement
- Livelihoods support services for tank system users
- Project management

Scope of the Project

The entire rehabilitation work is to be undertaken in three batches of approximately 500, 1,000, and 1,500 tanks respectively, over a period of five years. Tanks are being selected for this purpose as per the National Framework Guidelines, using a two-stage selection criterion. In the first step, sub-basins/*mandals* are to be selected, giving first priority to those where tank irrigation is predominant (75%). This selection criterion also coincides with selection based on the incidence of poverty since the selected *mandals* have a cropping intensity lower than the state average. In the case of tank cascades, the entire cascade is to be taken up for rehabilitation. The project also plans to rehabilitate a few

individual tanks with favourable hydrology and active community support in the selected *mandals*. The project is to proceed following the broad guidelines as given in the Aide Memoire.

Approach to Tank Revival

The overall approach to tank is a holistic one, and the project will therefore finance some foreshore area treatment. For watershed investments beyond this, investments from numerous other ongoing projects, like APREGS, will be converged for watershed development in the basins selected for tank rehabilitation. Talks are also in progress about the convergence of projects under the Rural Development and Forest Departments with watershed-related works.

Proposed Institutional Set-up

As per the National Framework Guidelines, GoAP is setting up a nodal agency or Special Purpose Vehicle (SPV), at the state-level, under the Irrigation Department to plan and implement all tank rehabilitation work in the state irrespective of the source of funding.

Andhra Pradesh is the only state to have elected WUAs for most of the tank systems that have a command area greater than forty hectares. However, in spite of the existence of the legal framework, the WUAs have failed to live up to their expected role with respect to the tank systems due to a variety of reasons.

As part of the project preparation, the Department has already started taking several initiatives to empower the WUAs.

1.7.3 Rationale for the Emphasis on Institutions

The focus should be on water as an economic good, and the attempt should be to plan actions at all levels, to get optimum output, never losing sight of the poor and the vulnerable sections. This approach requires investments to bring the irrigation infrastructure to efficient use and provide access and control to people's institutions. Emphasis on institutional aspects is essential to ensure sustainability in the long run and to address several institutional deficiencies at CADA, like inadequate management structures and management capacity that come in the way of smooth implementation.

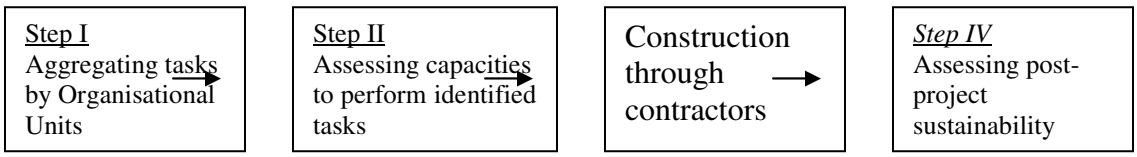
1.7.4 Institutional and Financial Assessment

To develop and detail the project proposal, I&CAD Department has initiated a study of various institutional and financial aspects related to tank system, to suggest suitable institutional structures and linkages for effective tank revival and support sustained project benefits in the long run. The present report is an outcome of such a study.

Chapter II
Methodology

2.1 Introduction

An institutional assessment can be described as the evaluation of an organization's capacity to deliver project outcomes. The institutional assessment has to be carried out in a systematic manner and the methodology adopted has four distinct steps, as shown in the figure below. The data for this analysis has been generated by way of a literature review, institutional mapping, and primary data collection from the field. The following paragraphs discuss the process of analysis and also the methods used to collect the data.



A feature of this study, that is simultaneously a strength/opportunity, as well as a problem (from the assessment point of view), is the fact that the organization that is to implement the project is not yet in existence. Methodologically this is an advantage because it gives the opportunity to design the organization from the necessities indicated by the log frame. The problem, however, is that we do not have such an organization in reality and have to assess its probable capability from the organizations that exist in the field.

2.2 Process of Analysis

2.2.1 Step I - Aggregating Tasks by Organisational Units

The Project Log Frame is the primary document referenced for this purpose. The Log Frame traces each of the development objectives down to the detailed task level but it does not specify the organizational homes for the tasks or the nature of co-ordination required to carry them out successfully. In addition, the Log Frame is organized from the point of view of the project components and objectives, rather than from the perspective of the organizational units involved.

Given the nature of government functioning for each component or sub-component, there must be a unit in the organization that bears managerial responsibility; and, for each task within this unit, there must be a (lower-level) entity that does the work. These units (at the State, District, Sub-district and tank levels) will have to be equipped with the capacity to accomplish the tasks allocated to them in the proposed project. Their managers (DEEs, EEs, and SEs) will have to be accountable for the accomplishment of these tasks. The successful implementation of a project component involves the broadest (where accountability and responsibility are vested) to the narrowest (where the work is to be done). The distinction is

important because this determines who needs to have the capacity to manage the work in question and who needs the capacity to do it.

The first step, therefore, is to locate the organizational homes for the tasks identified in the Log Frame. Once the responsibilities for all the functions and activities generated by the project are identified, the tasks are aggregated and consolidated into a Task Allocation Matrix. In concrete and practical terms, this matrix identifies various tasks and the units and organizations that require capacity-building to perform those tasks in order to implement the proposed project.

2.2.2 Step II - Assessing Capacities to Perform Identified Tasks

A cursory glance at the Task Allocation Matrix will reveal that under the existing dispensation, many of the functions associated with the project would be 'homeless' and that there are no existing mechanisms to perform these functions within the Irrigation Department. These are areas relating primarily to agricultural extension, social mobilization and capacity-building, revenue collection, co-ordination with other departments and stakeholders. It is largely for this reason that a nodal agency is being proposed with a mandate that is wider than the one enjoyed by the existing Minor Irrigation Department.

There are, however, areas in which the present functioning and capacities of the existing structures can be assessed in relation to the project. They are:

- Capacity of the WUAs to undertake the functions and tasks allocated to them by the project.
- Staffing pattern and work load within the Department at present.
- Availability of people with the requisite skills to implement the project, both within the Department, in NGOs, and with professionals available in the market.

2.2.3 Step III - Recommendations to Address Identified Gaps

Recommendations have been developed in consultation with the project managers after sharing the data and the analysis to identify gaps. There are typically three courses of action that can be followed by a project to address gaps identified by the institutional assessment. They are clustered around the following areas, usually in order of priority:

- *Improving the mix of inputs procured by financial resources*. For example, hiring of professional consultants to work along with engineers at a sub-district level; having a Support Unit to provide advice on water-use efficiency and agricultural productivity; or using the KVKs as district-level capacity-building support agencies.
- *Utilising additional resources*. For example, the rationalization of staff/engineer allocation based on the number of tanks under their jurisdiction rather than by administrative considerations; or the hiring of para-multipurpose extension agents at the village level to support the WUA members.
- *Reducing of capacity requirements*. For example, relieving the WUAs from the burden of bookkeeping and creating an accounting support service for them, instead of investing additional resources for their capacity building in this area.

2.2.4 Step IV - Assessing Post-Project Sustainability

The Society to be set up will continue to hold the responsibility for the effective management of the minor irrigation sector in the state even after the project period. It is expected that the project will enable it to stabilize itself so that it can continue to operate independently thereafter. We therefore assessed the sustainability of these arrangements in terms of the dimensions mentioned below[1], and our suggestions to improve post-project sustainability are based on this analysis.

- *Reproduction.* Beneficial project results are reproduced on a continuing basis by the implementing agency in the interest of the target population.
- *Output-focus.* The target population has an organizational structure in place that enables it to guarantee the continuation of benefits for itself and for others.
- *Systems-focus.* The project results improve the performance of all interrelated elements of the benefit continuation system.
- *Innovation-focus.* The implementing agency possesses the innovation potential to be able to respond flexibly and appropriately to changes in environmental conditions.

2.3 Data Collection

The data collection was done over a period of one month and consisted of three separate, but interrelated, activities:

- Literature Review
- Institutional Mapping
- Primary Data Collection from the Field

Each of the above is briefly discussed hereunder.

2.3.1 Literature Review

An extensive review of the existing literature on minor irrigation and participatory irrigation management (PIM) was undertaken, with considerable emphasis on examining the relevant aspects of minor irrigation projects implemented in the past, and of the existing government guidelines and legal framework. The aim of the literature review was to provide a background for this tank management project, highlighting not only the institutional arrangements and legal provisions that exist in the state and elsewhere, but also the main issues that currently concern tank management. The main projects comparable to the one being undertaken by Andhra Pradesh are: the Karnataka Community-Based Tank Management Project; the Orissa Water Resources Consolidation Project; and the Tank-fed Agricultural Development Project of the DHAN Foundation in Tamil Nadu. The institutional structures of watershed development programmes in Andhra Pradesh were also examined.

[1] Stockmann, R. Qtd. in. Mintz, Samuel, Rafael Aldrete, and Carl Mitchell. "Project Management Toolkit: Achieving Results that Endure in Transition Societies." South East Europe Regional Infrastructure Program (RIP) for Water and Transport. USAID: Washington, D.C. Jan. 2003.

The sources for this review include various publications of the central government and of the state governments of Andhra Pradesh, Karnataka, and Orissa; the World Bank; documents of projects undertaken in other states and by NGOs; newspaper reports; and scholarly articles from journals such as *Economic and Political Weekly*. A complete list of references is provided in Appendix 1 to this chapter.

2.3.2 Institutional Mapping

To gain an understanding of what the functions of the proposed minor irrigation society will be, an assessment of the existing institutional arrangements relating to tank irrigation was conducted. This was done by way of the literature review as well as through interviews with WUA members and with Department officials in both Hyderabad and in the various districts. Furthermore, a tool to examine the abilities and constraints of both the WUAs and the local Department officials was employed so as to determine the "Opportunity Space" available to improve existing conditions at the tank-level. In other words, based on the information collected from the field, the environment at each tank was assessed in terms of the legal, political, financial, and administrative arrangements (both *de facto* and *de jure*) to determine the scope of collaboration between these two institutions at the ground level. Specifically, emphasis was placed on distinguishing who has the capacity to carry out which tasks and who is to be held accountable. It is on this basis that the recommendations for the SPV have been made.

The framework for this tool is included in Appendix 2 to this chapter.

2.3.3 Primary Data Collection from the Field

With the aim of discerning the conditions prevalent at the tank-level, primary data was collected through interviews with WUA members, government officials, and NGOs through field visits to selected tanks across the state. The key informants from the Government included The Chief Secretary and officials of the Irrigation Department - the Principal Secretary; the Special Commissioner; the Chief Engineer, MI; Ms. Madhuri Newale and Mr. Rahul Sen, department consultants; and chief engineers dealing with major and medium irrigation. In addition to a workshop held with the NGOs involved with the project, interviews with Mr. Mohammad Hassan and Ms Reena Gupta from the World Bank were also conducted.

For our field visits, fifteen tanks of different Types in the various agro-climatic zones were chosen. Thirteen tanks out of these fifteen were studied. Extensive discussions were carried out with WUA members, focusing on tank details, village profiles, the internal structure of the WUA and its financial and procurement arrangements, and the members' relationship with other institutions such as fishermen's cooperatives and government departments. The tools used for this purpose included the following:

- A questionnaire to gather information from WUA members and members of other CBOs;
- The WUA ratings system developed by the Department; and
- A framework to determine the opportunity space at the tank, given the existing relationship between the WUAs and the local government institutions.

While it was part of our methodology to examine in detail the financial documents and meeting minutes of the WUAs, it has been found that record maintenance is extremely poor across the districts.

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Appendix 2.2: Tools used in the Collection of Primary Data

I. Questionnaire Used at the Tank – for WUA Members and other CBOs:

1. *MI Tank and Village Profile*
    a. Tank Name
    b. Location (Village/*Mandal*, District)
    c. Tank Type
    d. Agro-Climatic Zone
    e. Date of Visit
    f. History/Background of tank
    g. Concerned AEE/DEE; contact details

2. *Other Natural Resources in the Tank Area*
    a. Forest
    b. River access
    c. Type of land/soil
    d. Other

3. *Village Profile*
    a. No. of villages covered by tank
    b. Names of villages covered and *ayacut* under each
    c. Planned *ayacut*
    d. Actual *ayacut*
    e. Current level of usage (as estimated % of planned *ayacut*)
    f. Comments on:
        i. Catchments
        ii. Feeder channels
        iii. Water storage area
    g. Other water sources in ayacut (wells, bores, streams, canals, etc.) & their relationship with the MI tank
    h. Active CBOs and NGOs
    i. Other water users

4. *Institutions and Names of Contact Persons in the Area*
    a. Panchayats
    b. Fishermen's Cooperatives/Other cooperatives, like farmers or dairy
    c. Common livelihood groups
    d. Other CBO (such as Velugu VOs, Federations, etc.)
    e. NGOs/CSOs
    f. VSS
    g. Other

5. Government or Other Schemes Operating in the Area

a. Watershed development
b. Ground water replenishment
c. IKP and other livelihoods-related schemes
d. Marketing interventions

6. WUA Details

a. President
b. Vice-President
c. Members
d. How long they have been members? Have any been re-elected?
e. Was it unanimous or was there a contest?
f. How many TCs and TC members? Do they get re-elected?
g. Sub-committees – who are the members, if any?
h. Representation of GP in WUA
i. Women in WUA, if any
j. Any training received by WUAs?

7. Aspects of the WUA to be studied

7.1. Activities and Projects

a. Usual activities of the Managing Committee of WUA
b. Scheduling of tank-related activities; usual processes
c. Sustainability of O & M - how are maintenance costs being met by local resources
d. Proposals for new investments, if any
e. Problems usually faced; precautions taken
f. Relationship with Irrigation Department
g. Information collected regularly and its utilization

7.2 Internal Structure

a. Sub-committee composition and meetings (practice vs. norms)
b. Role played by *Panchayat* members and women members in WUA
c. Personnel
d. Work culture and member participation

7.3 Observations on Leadership

a. Leadership styles
b. Rotation of leadership
c. Accountability
d. Accessibility
e. Transparency

7.4 External Linkages

a. Stakeholder relationships (with other users like fishermen, PRIs, etc)
b. Collaboration with other governmental organisations, NGOs, CBOs, or CSOs
c. Collaboration with donors

d. Relationship with non-member water users

8. *Financial Arrangements of WUA*
    a. Study of books & records - how they are maintained and by whom
    b. Accounting procedures
    c. Budgeting procedures
    d. Procurement systems
    e. Auditing
    f. Financial reporting

9. *Copies of Documents to be collected from WUAs*
    a. Meeting minutes and reports (some examples)
    b. Financial documents (e.g. balance sheets, budgets, etc - at least three years)
    c. Documents related to policy and procedures

10. *Procurement and Financial Arrangements (Interviews with the Finance Sub-Committee or the DEE/AEE)*
    a. Description and value of any works handled by the WUA in the last 5 years:
    b. Date
    c. Details
    d. Total cost of work
    e. Local contribution
        i. In cash
        ii. In *shramdhan*
        iii. Other
    f. Funds received from the government
    g. Procured items
    h. Services of contractor for the work
    i. Materials used (specify)
    j. Services of engineer, surveyor and other technical expertise used
    k. Labour
    l. Other
    m. Procedure to identify suppliers
    n. How the rates were decided
    o. Any documentation with these providers of services/inputs

11. *Quality and Supervision of Work*
    a. Support received from DEE/AEE/EE, if any, during different stages:
        i. Planning
        ii. Construction
        iii. Maintenance

12. *Handling of Money Received from the Government*
    a. Amount received
    b. Source within government from which amount was received
    c. Details of bank account of WUA (who operates it etc)

d. Amount of cash kept separately by WUA, if any (how is this managed)

13. Local Contributions (Cess, etc)

a. Amount received by members
b. How was this amount fixed?
c. Did everybody pay?
d. Time of collection (before/after project, etc)
e. Who collected these amounts?
f. Contributions from other water users (not farmers)

14. Support from Other Government Departments

a. Gram Panchayat
b. Food for work
c. APREG
d. Help received from outside (NGOs etc), if any
e. Any training? Manual or rulebook? Who keeps these and in what condition?
f. Is financial information available with the general body? (Check randomly)

For other institutions involved (e.g., fisheries cooperatives, etc.)

- Type of organization
- Level of participation and transparency
- Regularity of meetings; attendance at meetings
- Involvement of members/user-groups in preparation of action plans, discussions on proposals
- Programme implementation
- Livelihoods intervention
- Collaboration for market access
- Collaboration for resource use/conservation
- Women's involvement
- Training

Framework for discussions with other stakeholders/groups

- Their major concerns/expectations from the tank; what they use it for
- Nature/quality and frequency of interactions with WUA and the Irrigation Department
- Major issues/concerns about the management of the tank
- What they would like to see in the future to improve the situation

II WUA Rating Tool

S.No	Items	Total marks	Criteria	Marks
I	**Water Distribution**	**35**		
	i. *Warabandi*	10	a) Advance water distribution schedule prepared with dates and adopted by WUA.	10
			b) *Warabandi* in practice either on insistence of the irrigation officials' or during water scarcity.	5
			c) No regulation on water.	0
	ii. Tail end area receiving water and Additional area brought under cultivation.	10	a) 90 % above tail end area receiving water and additional area brought under cultivation.	10
			b) 75 to 90 % tail end area receiving water.	7
			c) Tail end area problem persists.	
	iii Water user Efficiency (Ac/ Mcft)	10	a) 8 ac/mcft and above	0
			b) 5 to 8 ac/ mcft	5
			c) Below 5 mcft	0
	iv. Innovations in water management and cropping pattern	10	a) Proved incidents of extra tax collection by WUA for O&M.	10
			b) Change in cropping pattern (ID) with SRI	10
			c) Conjunctive use of water.	10
			b) Few farmers are adopting SRI	5
			d) Other	10
II	**OPERATION & MAINTENANCE AND TAX**	**35**		
	i. Inflows	5	a) Good inflows with proper maintained feeder channels.	5
			b) Dept-maintained, on availability of funds	3
			c) Poor inflows and no interventions on inflows.	0
	ii. Storage capacity	5	a) Original storage capacity is maintained.	5
			b) Reduced to 50 % storage capacity.	3
			c) Reduced to below 50 % storage capacity.	0
	iii. Status of distribution network	5	a) Distribution network is intact and farmers will maintain the network in their fields.	5
			b) Irrigation officials maintain the network on available of funds	3
			c) No maintenance for past 5 years	0
	iv. Assessment of tax	5	a) Both WUA and CA participation in Joint **ajomish** every crop season.	5
			b) Self-assessment by the Secretary.	3
			c) No assessment	0
	v. Tax collection	10	a) 90 % above tax collected	10
			b) 40 to 89 % tax collected	5
			c) Below 40 % tax collected	0

III	MANAGEMENT	30		
	i. Meetings	5	a) Regular meetings at fixed time and venue. The minutes are written.	5
			b) Meetings are held tentatively on need basis at no fixed venue.	3
			c) No meetings held so far	0
	ii. Attendance (Managing Committee)	5	a) Meetings with 85 % and above attendance.	5
			b) Meetings with 50 to 85 % attendance	3
			c) Attendance below 50%	0
	iii. Maintenance of Records and Audit of accounts	10	a) Necessary Records maintained, up-dated and book writer nominated.	10
			b) Necessary Records maintained on ad hoc basis.	6
			c) No records maintained.	0
	iv. Transparency	10	a) Reading of income and expenditure particulars in meetings and displayed at public places.	5
			b) Only TC members know about WUA activities and display boards are fixed not updated.	3
			c) President of WUA and few others know about the WUA matters	0

III. Assessing Opportunity Space: CBO-LG Collaboration

The steps involved in assessing the Opportunity Space for collaboration between a WUA and its Irrigation Department officials are:

- Step 1: Identifying the enabling and constraining factors
- Step 2: Characterizing the Opportunity Space (by dimension) for Department-WUA accountability and co-production arrangements
- Step 3: Identifying the operational implications of the Opportunity Space for improving local co-production and accountability via WUAs and Department.

Based on the criteria specified above in the framework for Steps 2 and 3[2], each tank was rated using the above matrix.

LG: MI Department			CBO: WUA		
Aspect	***De jure***	***de facto***	**Aspect**	***de jure***	***de facto***
LEGAL FRAMEWORK **The validation for the institutional form**	APFMIS ACT and amendments				
Responsibilities for service delivery	Joint responsibility of Department with the WUAs		**Direct service delivery responsibilities, co-producers(fish?),links to department**	Planning, distribution, management, maintenance, equity for water use	
POLITICAL FRAMEWORK					
Aspects where there are constraints to perform their functions	Revenue Department has major role in collection of tax		**Legal framework, process to create WUA**	APFMIS Act defines status and WUA formed by Revenue Department	

[2] Adapted from: International Bank for Reconstruction and Development. Exploring Partnerships between Communities and Local Governments in Community-Driven Development: A Framework. Report No. 32709-GLB. IBRD: Washington, D.C. May 2005.

Links with elected representatives	EE/AE not reporting to elected representatives at any level		**Accountability of WUA-process of exec selection**	WUA is an elected body-some links with *Panchayat*	
Participation of marginalised minority, etc.	Co-option of other users representatives		**Equity and participation -any formal role in governance?**	When WUA is in place, rep of PRI is included	
FISCAL FACTORS					
Irrigation Department exp vs. investments of other depts. in the village	Get overall budget situation		**WUA budget versus other kinds of local works-role in flow of funds**	Government releases -- times the cess collected	
Arrangements for funds	EE/AE will prepare and obtain adequate budget sanctions		**Other resources available to WUA**		
Discretion to change allocations, etc.	Will have to go by the plan sanctioned		**Ability to mobilize local and other resources**	WUA can collect money to cover some O&M costs from farmers	
ADMINISTRATIVE CAPACITY	Technical and admin role mainly			Systems for WUAs to administer funds/water distribution are available	

Specialization and professional support	Technical team -without other experts		**Specialization and professional support**	WUA can represent community interests but needs to bring in other expertise	
Flexibility to contract resources	Flexibility in contracts/procurements		**Flexibility to contract resources**	Can contract jobs up to a specific limit for O&M	
Organizational structure	Fixed organizational structure		**Organizational structure of WUA**	TCs and sub-committees for various functions	
Performance focus in Department	Focus more on construction and less on O&M		**Performance focus in WUAs**	Focus more on maintenance, water distribution and equity, and local resource mobilisation/sustainability	

Step 2: Map the "Opportunity Space" for LG-CBO Accountability and Co-Production Arrangements

Characterizing the Opportunity Space (by dimension)				
	A *LGs and CBOs Constrained*	*B* *LGs Constrained, CBOs Enabled*	*C* *LGs Enabled, CBOs Constrained*	*D* *LGs Enabled, CBOs Enabled*
Legal, Functional, Regulatory Context	LGs and CBOs have few significant functions and domains	LGs with few significant responsibilities. CBOs permitted can implement in many sectors.	LGs functions significant, well defined. CBOs can operate in few domains	LGs have significant, well defined functions. CBOs can act in many sectors
Political Dimension	LGs and CBOs lack popular legitimacy and credibility	LGs lack popular legitimacy& credibility; CBOs representative, credible and accountable	LGs credible and legitimate. CBOs lack popular legitimacy and credibility	LGs and CBOs credible, legitimate, independent.
Fiscal Dimension	LGs and CBOs with few and tightly constrained resources	LGs with few and tightly constrained resources; CBOs well resourced and with discretion to deploy them to local priorities	LG well resourced fiscally autonomous for local services; CBOs financially constrained	LG well resourced, fiscally autonomous; CBOs financially well resourced
Administrative Dimension	LGs lack staff (or skilled), weak organizational, implementation capacity; CBOs implementation experience small	LGs lack staff (or skilled), weak organizational, implementation capacity; CBOs skilled, experience w/ collective action.	LG adequately skilled and staffed; CBOs have little implementation and collective action experience	LG adequately skilled and staffed; CBOs skilled and experienced w/ collective action

Step 3: Identify Operational Implications of the "Opportunity Space" for Improving Local Accountability and Co-Production via CBOs and LGs

	Co-production Relationships (by dimension)			
	A Constrained LGs, Con-strained CBOs	B Constrained LGs, Enabled CBOs	C Enabled LGs, Constrained CBOs	D Enabled LGs, Enabled CBOs
1 Legal Framework Functional Regulatory	Limited opportunity for co-production of services by LGs and/or CBOs	LGs only authorized/able in a few sectors to effectively enter into service delivery partnerships even when CBOs take the initiative	LGs have significant responsibility but unlikely to engage CBOs partnerships for service provision	Both CBOs and LGs have authorized roles in service provision, defining complementary roles and appropriate linkages can produce effective partnerships
2 Political Dimension	Limited ability for CBOs and LGs to legitimately influence service mix and quality	CBOs can represent citizen interests and priorities but likely to focus their efforts on partnerships with local state bodies or NGOs that provide services, LGs have few incentives to respond to citizen/CBO initiatives	LGs able to legitimately aggregate citizen interests and priorities, CBOs are less representative and legitimate, service regime likely to be dominated by LG plans, budgets, and management	Both CBOs and LGs able to legitimately represent popular interests, mechanisms for coordination and negotiation of multiple CBO priorities at LG level may produce citizen responsive co-production
3 Fiscal Dimension	Limited opportunity for allocation of local resources (LG or CBO) to finance services	CBOs able to contribute to achievement of their priorities but LGs likely to be weak since they have few discretionary resources, both may need to rely on local state bodies to finance partnerships	LGs have discretionary resources for priority services but CBOs unable to contribute to services, thus LGs likely to act as suppliers and CBOs at best may represent service consumers (not co-producers)	Both CBOs and LGs have discretionary resources available for services, systems which integrate and account for their contributions can promote effective co-production
4 Administrative Dimension	Limited organizational basis and capacity for CBOs or LGs to enter into partnerships	CBOs can develop capacity to pursue their priorities but LG implementation capacity is often dependent on the central state, often capacity enhancement is supply driven and not matched to local needs	LGs may become capable of entering into partnerships to deliver services but CBOs rarely capable of effectively fulfilling their potential role in service co-production	Both CBOs and LGs have capacity to contribute to production of services, definition of roles and relationships can be based on comparative advantage of each

Accountability Relationships (by Dimension)				
	A Constrained LGs, Constrained CBOs	B Constrained LGs, Enabled CBOs	C Enabled LGs, Constrained CBOs	D Enabled LGs, Enabled CBOs
1 Legal Framework Functional Regulatory	Both CBOs and LGs likely to focus accountability upward, at best pressuring deconcentrated state service providers	LGs play a minor role in service provision, CBOs likely to focus their advocacy on pressuring deconcentrated state service providers rather than LGs	LGs can play a major role as service providers while CBOs play a limited role, thus CBOs may focus their efforts on pressuring LGs to improve services	Both CBOs and LGs can provide services (individually and jointly via co-production) thus each can provide a venue for citizen influence over service providers
2 Political Dimension	Limited ability for CBOs and LGs to legitimately represent citizen priorities and interests vis-à-vis service providers, likely to result in limited downward accountability	CBOs can legitimately represent citizen interests and priorities while LGs are often less legitimate and less responsive to community advocacy	Empowered and responsive LGs can provide a venue for aggregating citizen priorities but CBOs unlikely to provide a legitimate channel for transmitting citizen concerns	Both CBOs and LGs can legitimately reflect citizen priorities, electoral and other representative mechanisms at both CBO and LG levels may improve responsiveness
3 Fiscal Dimension	Both CBO and LG have few resources, at best they may advocate to state bodies re: budget allocations and monitor state expenditures at local level	LGs allocate or manage few resources and so are not likely to be the focus of accountability, CBOs can be held accountable by citizens for resources they allocate or manage	LGs allocate and manage significant resources, providing a principle venue for social accountability via participatory planning and budgeting, and expenditure monitoring; resource-poor CBOs probably marginal	Both CBOs and LGs can allocate and manage resources, so participatory planning and budgeting, and expenditure monitoring may increase the responsiveness and efficiency of resource use at both levels
4 Administrative Dimension	CBOs and LGs have limited capacity to collect, analyze or transmit information, result likely to be limited accountability of governance and service provision	LGs may have limited capacity to collect, analyze or transmit information to citizens, CBOs may play a significant role in informing citizens and transmitting their views to local state bodies	LGs may be capable of implementing local decisions and providing information to citizens regarding resource use and services delivered, thus likely to be a greater focus for accountability than generally weak CBOs	Both CBOs and LGs may be capable of implementing local decisions and providing information to citizens regarding resource use and services delivered, thus creating potential venues for accountability at both levels

	Step 2	*Step 3*	
Aspect	**Opportunity Space (OS)**	**Co-production Relationships (CPR)**	**Accountability Relationships (AR)**
	Dimension-wise level of constraint and ability	Operational implications of OS in improving CPR	Operational implications of OS in improving AR
Legal			
Political			
Fiscal			
Administrative			

Chapter III
Experiences of Other States and NGOs

3.1 Introduction

The proposed Andhra Pradesh Community-Based Tank Management Project (APCBTMP) is fortunate in the sense that it can draw from the experiences of other state governments and NGOs that have worked on similar projects of tank rehabilitation and management in the recent past. Building on these prior projects and applying them to suit the various conditions prevalent across the state will ensure greater opportunity for successful implementation and sustainability. Two projects implemented by the Governments of Karnataka and Orissa in collaboration with the World Bank have demonstrated considerable progress in managing tanks through active community participation; while the Orissa Water Resources Consolidation Project (OWRCP) has now been closed, the Karnataka Community-Based Tank Management Project (KCBTMP) is in various stages of implementation across nine districts of the state. DHAN Foundation, an NGO based in Tamil Nadu, has also successfully mobilized the communities it works with to make improvements to tank systems within its area of operation. Another related example, although not of tank rehabilitation, is that of the Drought-Prone Areas Program (DPAP) and the subsequent District Watershed Management Agency (DWMA), under the Government of Andhra Pradesh. Given the existing legal framework, detailed examination of the institutional arrangements of these four projects already carried out by the different agencies will aid the Government of Andhra Pradesh in formulating its own institutional provisions for the purpose of this project. In this chapter, we present the institutional arrangements made under each project, followed by an analysis of their strengths and weaknesses, opportunities and threats. This is in turn followed by a brief critique of the existing arrangements, as expressed over the years by several scholars, and the key lessons learned.

Various sources of information were used for the purpose of carrying out the analysis described in this chapter. With a view to undertake a more comprehensive analysis of the situation on the ground, in addition to published project documents, we had extensive interaction with key staff members. As some of the discussants are part of the government systems, they have requested confidentiality on our part. Our intent in our comments on the diverse features of the projects is to objectively draw lessons for the Andhra Pradesh Community-Based Tank Management Project. The list of references is included in the appendix to Chapter 2.

3.2 Institutional Arrangements under Other Tank Management Projects

3.2.1 Karnataka Community-Based Tank Management Project (KCBTMP)

The project-implementing agency is the Government of Karnataka (GoK), with funding received from the World Bank.

Institutional Structure:

- The institutional structure adopted under the project consists of a state-level society being set up to implement the project objectives, supporting the NGOs that are involved in facilitating community mobilization and participation, and the tank users' associations themselves. This state-level society, the *'Jala Samvardhane Yojana Sangha'* (JSYS), was created in 2002 and is registered under the Karnataka Societies Act. The aim of the JSYS is to initially take up 2,005 tanks under the KCBTMP and then gradually hand the operation and maintenance (O&M) to user associations; it is then proposed that it will extend its activities to a total of 36,000 tanks in the state.
- At the tank-level, villagers were initially given four models out of which they could adopt one when forming their water users' associations (WUAs), or tank users' groups (TUGs) as they are described by the JSYS. However, two of these, in which the TUA was a part of either the *Gram Sabha* or the *Gram Panchayat*, were discontinued due to lack of preference during the pilot phase. The remaining two were:
    1. The TUG is specifically created as a separate society under the Karnataka Societies Act.
    2. The TUG is a sub-committee of the *Gram Panchayat* (GPSC) and is formed under Section 61-A of the Karnataka *Panchayat Raj* Act.

  Till June 2006, 1,122 TUGs had been established in the state, with the reason for adoption cited as "more flexibility". On the other hand, 68 GPSCs had been formed and the advantage of this model has been long-term sustainability; at the same time, however, stakeholders do cite political interferences from the *Gram Panchayats* into their proceedings.
- The JSYS has delegated the tasks of mobilizing communities and empowering them to implement the project to Cluster Facilitation Teams (CFTs), which are responsible for clusters of tanks. There are currently 57 CFTs working with the project.

Legal Framework:

- GoK has made significant changes to the relevant legal framework in order to facilitate proper implementation of the project. The most important of these are: first, the Tank Maintenance Policy adopted by the GoK in 2001-02, which outlines the handing over of the O & M of tank systems to the TUGs, and second, the Karnataka Irrigation Act (1965), which was amended in 2002 to clearly describe the broader role of TUGs, including the collection of water charges, maintenance responsibilities, etc. Other legal provisions are highlighted in the Government Order No. MID/29/JSY/2002 and the Karnataka Irrigation (Levy of Water Rates) (Amendment) Rules 2002.

Mandate:

- *JSYS*: The aim of JSYS is to increase the capacity of all stakeholders involved in the tank system so that it can be handed over to the control of the TUG once the project is completed. It also has to ensure that adequate funds are available for the NGOs (CFTs) and TUGs from all possible sources.

- *TUG/GPSC*: By way of retaining 90% of the water charges levied, the users' association is in charge of O&M of the tank system. At the end of the project, it has to assume responsibility of the system.

Tasks Undertaken (including livestock, fisheries, & agriculture):

- Collection of water charges.
- Operation and maintenance of tanks.
- Development of fisheries in the tank is envisaged as a major income-generation activity (IGA), focusing especially on the poor and marginalized. However, so far, fisheries have been implemented in only 180 tanks under the project; another 120 are in the process of taking up fisheries over the year 2006-07. The main beneficiaries of this IGA are about 1,305 TUG members, of which 75% are landless and 25% are marginalized/small landholders and women constitute about 40% of these beneficiaries. 72% of these are SC/STs, while 28% belong to other vulnerable groups.

Financial Arrangements:

- The total cost of the project is Rs. 670.9 crores (including physical and price contingencies). While the World Bank is funding 79% of the project cost, the GoK is providing 17%; user contribution is expected to be 4% of the total cost.

Links with Other Institutions

- *Panchayat*: Stronger links with the Panchayat are needed, especially to aid in resolving conflicts that arise among the TUG members or between the TUG and other community members.
- *Fishermen's Cooperatives*: While fisheries do exist in some of the tanks taken up under the project, there is a need for strengthening ties with the fishermen's cooperatives.
- *NGOs*: There are 16 NGOs facilitating project implementation in the state. However, it has been observed that better incentives are needed for both the TUGs and the NGOs to be more active.
- *Line Departments*: More collaboration is needed between the TUGs, JSYS, Department of Minor Irrigation, and line departments such as the Department of Agriculture, Department of Fisheries, Department of Horticulture, etc.

Provisions to Address Social Issues

- *Gender*: Even though women constitute half of all tank users, only one-third take part in the TUGs; these women, however, are mostly passive participants in the associations. The number of tank works given to womens' Self-Help Groups (SHGs) has been declining steadily as well. Literacy services have been extended to women under the project, however, and till February 2005, 9,238 women, of a targeted 50,000, in 315 villages had taken part in the basic literacy program.
- *Caste*: At 1,090 tanks for which data is available, 27% of the members are SC/STs, but, again, it has been observed that their participation in planning and implementing the Integrated Tank Development Plans (ITDP) is passive. Some progress has been

made in involving SC/STs in fisheries but more work still needs to be done in this area.

- *Class*: The landless and marginalized have been benefited with the development of fisheries but, so far, this has only been on a small scale.
- GoK drafted legal framework outlining clear rights and responsibilities of the TUG, especially the retention of 90% of the water charges collected for O&M purposes.

3.2.2 Orissa Water Resources Consolidation Project (OWRCP)

During the period 1996 – 2004, the Government of Orissa (GoO) implemented the OWRCP with funding received from the World Bank.

Institutional Structure

- The most significant institutional development that came about during this project was the transformation of the Department of Irrigation (DoI) into the broader Department of Water Resources (DoWR). Engineers were made more aware and received training about agricultural and environmental concerns.
- A three-tier system has been adopted under this project, whereby two informal associations are established at the village-level and one at the minor/sub-minor basin-level, covering an *ayacut* of area 300-600 hectares.
- At the first level, all water users who are landholders constitute members of a *chak*, which is an area irrigated by one outlet. A *Pani Panchayat* (PP) is created, with several *chaks* (four or more) within a specified hydraulic boundary forming the general body of the PP. The functions of the PP are carried out by its Executive Committee, which consists of one elected member of each *Chak* Committee under the area of the PP. Members of a *Chak Committee* are elected representatives of the upper, middle, and lower reaches of the outlet (three in total), and thus water users at all levels in the area of a PP are represented in the *Pani Panchayat*.
- At the second level, the President, Secretary, & Treasurer of all the PPs within a medium or minor irrigation basin form the general body of a Distributary Committee. Its Executive Committee, along with the presidents of all the PPs, forms the general body of a Project Committee at the project level, which covers a designated area within a major irrigation command area.
- What is unique about the institutional arrangements in Orissa is that the GoO can nominate at least one officer to the above-mentioned bodies from the following departments: Water Resources, Agriculture, and Revenue. These members do not have voting rights but are there to facilitate and enhance the workings of these committees.

Legal Framework

- The Pani Panchayat Act of 2002 was formulated by the GoO under this project but has now been extended to apply to the whole state. The structure and role of the *Pani Panchayat* institutions are clearly outlined in this Act.
- The Operation Rules were devised in 2003.
- The PPs are registered under the Societies Registration Act (1860).

Mandate

- *Pani Panchayat*: The PP is largely in charge of the O&M of the irrigation system at the tank level, through the collection of water charges from the users. It also has to plan crop patterns for crop diversification, resolve conflicts between members and/or various users, and promote economical use of the water.
- *Distributary Committee*: The Distributary Committee must prepare & implement its operational plan, which should be consistent with the Project Committee's operational plan. In addition to aiding the PPs in its area, it must also undertake O&M of distributaries & field drains.
- *Project Committee*: The Project Committee has to prepare and implement its operational plan and assist the Distributary Committees as needed.

Tasks Undertaken (including livestock, fisheries, & agriculture)

- Collection of water charges.
- Operation and maintenance, including construction of small infrastructure.
- Considerable crop diversification has been undertaken by the PPs in Orissa.

Financial Arrangements

- The total amount borrowed from the World Bank was US$ 290.9 million. *Pani Panchayats* have to provide 10-20% of the costs incurred.

Links with Other Institutions

- *Panchayat*: N/A
- *Fishermen's Cooperatives*: N/A
- *NGOs*: NGOs were involved in the implementation of the project in nine schemes.
- *Line Departments*: While some progress has been made in collaborating with other departments, greater efforts are needed in this area.

Provisions to Address Social Issues

- *Gender*: Women's participation has been negligible.
- *Caste*: One of the components of the OWRCP was the Indigenous Peoples' Development Program (IPDP), aimed at improving the quality of living of the tribal people in areas covered by the project. It was applied in six schemes, and was successful in involving the tribal community in construction works for thirty-seven micro irrigation systems; correspondingly, thirty-seven PPs were also formed. Smaller infrastructure works were also completed in 270 villages and 650 SHGs were formed, successfully engaging in community activities.
- *Class*: N/A

3.2.3 Tank-fed Agriculture Development Programme, Development for Human Action (DHAN) Foundation, Tamil Nadu

The DHAN Foundation has been involved in the conservation and development of tank systems in Tamil Nadu since the early 1990s. It is different from the two models reviewed

above in that the tank rehabilitation program has been the initiative of an NGO, not a state government.

Institutional Structure

- DHAN has utilized the following three-tier structure for implementing its Tank Rehabilitation Program: at the village level, there exists a Tank Farmers' Association (TFA) comprising of the tank users of the village. At the district level, there is a Tank Federation (TF), whose members are representatives of all the TFAs in a district. In between these two bodies is a meso-level organization, the Tank Cascade Association (TCA), which is formed among the TFAs of a tank cascade or chain.

Legal Framework

- The Tank Federation of a district is registered under the Societies Registration Act (1860)

Mandate

- *TFA*: The TFA has to plan tank rehabilitation through mobilization of local contributions. It also has to maintain the tank systems.
- *TCA*: The TCA is responsible for the maintenance of common feeder channels.
- *TF*: The TF has to undertake tank rehabilitation, fund-management, and must follow-up with the works being conducted.

Tasks Undertaken (including livestock, fisheries, & agriculture)

- As prioritized by the water users themselves, the NGO has undertaken the following tasks:
    - Acquisition of water, which includes encroachment eviction, clearing of tank bed and de-silting of feeder channels to increase inflows.
    - System Restoration
    - Improvements to water-use efficiency
- In light of the fact that tank works are undertaken only for a certain period of time during the year (three to six months), DHAN has engaged the villagers it works with in microfinance activities with the aim of maintaining collective action throughout the year.
- Field demonstrations and training on seeds and crop diversification and cultivation are also given to the farmers.
- Farmers undertake operation and maintenance of the tanks.

Financial Arrangements

- DHAN receives endowments from the Sir Ratan Tata Trust, Mumbai and Novib, of the Netherlands.
- By way of community mobilization, it also raises an equal amount through local contributions.
- DHAN has plans to bring in more philanthropic organizations to support its tank rehabilitation activities.

Links with Other Institutions

- *Panchayat*: N/A
- *Fishermen's Cooperatives*: N/A
- *NGOs*: DHAN assess the potential of the TF and enables it to provide regular support to the TFAs and TCAs by way of making it capable of taking up tank rehabilitation, follow-up, and fund-management.
- *Line Departments*: N/A
- *Other*: During the program period, the farmers' associations and DHAN undertake the tanks works in conjunction with district administration.

Provisions to Address Social Issues

- *Gender*: Both men and women have been involved in the implementation of the program.
- *Caste*: N/A
- *Class*: DHAN has made provisions under its program to stabilize the incomes of the marginalized and landless.

3.2.4 Watershed Development Programme, through the Drought-Prone Area Programme (DPAP) and District Water Management Agency (DWMA), Andhra Pradesh

The Government of India launched the Drought-Prone Area Programme (DPAP) in 1973-74 with the aim to improve conditions in areas around the country affected by severe drought. The progress of DPAP in this field has not been as desired; and, observing the success made by the Andhra Pradesh Rural Livelihoods Programme (APRLP), best practices of it were applied in all districts of the state beginning in 2001, including areas where DPAP was in operation. Hence, since the last few years, it is the District Watershed Management Agencies (DWMAs) that oversees the watershed development programmes in the state.

Institutional Structure

- At the village/watershed level, a Watershed Committee (WC) is set up, which comes under the supervision and control of the Watershed Association (WA). The Gram Sabha fulfills the duties of this association where the watershed area comprises of just one village. Where the watershed area covers more than one village *Panchayat*, the WA members include those directly or indirectly dependent on the watershed; in such a case, the WA is a registered society under the Societies Registration Act. A Watershed Secretary, preferably a resident of the concerned watershed area, convenes meetings between the WC and WA, in addition to maintaining their records and accounts.
- After 2001, Village Organisations (VOs) have also come up, which aid in setting up Self-Help Groups (SHGs) of indirect dependents of the watershed resources. Separate SHGs for women, SC/STs, and other marginalized community members are encouraged.

- The WA comes under the supervision of the Watershed Development Team (WDT), which usually, exclusively, handles up to ten or twelve watershed development projects. It has at least four members, one each specializing in forest/plant sciences, animal sciences, civil/agricultural engineering, and social sciences.
- The role of the PIA is played now by the *Gram Panchayat*, while under the earlier Guidelines the PIA was either a Voluntary Agency (VA) or an NGO, or the *Zilla Parishad* (ZP)/ DRDA authorities when no other institution was present. The Multidisciplinary Development Teams (MDTs) work alongside the PIAs and provide technical support to the WDTs. They comprise of government officials from the following departments: Agriculture, Forestry, and Irrigation.
- While earlier the PIA came under the authority of a Watershed Development Advisory Committee and the ZP/DRDA itself, with the implementation of the new institutional framework, it is now under the supervision of the District Capacity-Building Centre (DCBC).
- The DCBC reports directly to the DWMA, which was created as a bifurcation of the DRDA in Andhra Pradesh in September 2001. It was initially a part of the APRLP being implemented in five districts of AP, but has now spread to all the districts, including those where DPAP was being implemented.
- Under the new framework, two other bodies were created, the District-Level and Cluster-Level Resource Centres (DLRC and CLRC), with the aim to address the existing capacity-building gap.

Legal Framework

- The Hanumantha Rao Committee made recommendations to the Ministry of Rural Development (MoRD) in 1994 after reviewing the DPAP and other watershed development programmes in the country, were implemented into the Guidelines for Watershed Development in April 1995. They outlined the Watershed Development Programme and the roles and functions of the various institutions that were to implement the project. Other MoRD projects like the *Jawahar Rozgar Yojana* (JRY) and the Employment Assurance Scheme (EAS) were to be integrated with DPAP wherever possible.
- These guidelines were revised in August 2001, placing greater emphasis on the inclusion of women, SC/STs, the landless and other marginalized communities in the implementation and follow-up process.
- The Guidelines for Hariyali was adopted in 2003.
- The Neeranchal Guidelines were recommended in 2006.

Mandate

- *WC*: The WC undertakes the day-to-day activities of the Watershed Development Project, in liaison with the *Gram Panchayat*, WDT, etc.
- *WA*: The WA enhances the watershed development plan, undertakes accounts maintenance, formation of user groups and SHGs, resolves conflicts among the various stakeholders, lays down the procedures for O&M, and makes arrangements for the collection of contributions and donations from the community.

- *VO:* The VO has to ensure that SHGs and other resource-poor community members receive the benefits accruing to them. Part of this entails being in charge of the revolving fund for SHGs.
- *WDT*: The WDT oversees the direct implementation of the watershed program and provides technical support to the people in the watershed area. It is also involved in the selection of watershed areas/villages for the program.
- *PIA/MDT*: The PIA has to encourage and support the PRIs and WDT in the implementation of the project through preparation of development plans, conduction of PRA exercises, etc. The MDT provides technical support to the WDTs, focusing on natural resource management, productivity enhancement, social mobilization, forestry, monitoring and evaluation, etc.
- *DCBC*: The DCBC has to develop a clear policy and action plan for the livelihoods efforts in the watershed areas, focusing on the following areas: capacity-building, social mobilization, gender, natural resource management, productivity enhancement, and monitoring & evaluation. It is to provide support to the DWMA in the implementation of the watershed programme.
- *DLRC/CLRC*: The DLRC and CLRC are to address the capacity-building issues prevalent at the district and cluster levels, respectively, ensuring the potential of all primary and stakeholders are realized. Each CLRC is to operate over 80-100 watersheds.
- *DWMA*: The DWMA exclusively looks after the development of natural and human resources with the aim of successfully implementing the watershed programme.

Tasks Undertaken (including livestock, fisheries, & agriculture)

- Collection of user contributions and mobilization of other community resources.
- Para-workers have been appointed and trained by the DWMA for each watershed area to aid the villagers in the areas of livestock and agriculture.

Financial Arrangements

- 90% of the funds are received from the central government while 10% from the state government. The cost norm under the *Hariyali* Guidelines is Rs. 6,000 per hectare.
- A separate Watershed Development Fund is maintained in every watershed, to which users contribute a minimum10% of costs of works undertaken on individual lands (users can also contribute in terms of labor or other materials). In the case that the users belong to SC/STs, they have to contribute a minimum of 5% of the costs. This fund keeps accruing and is to be used only after the project is completed.
- A revolving fund (of one lakh rupees or less) for SHGs is set up by the *Gram Panchayat* to encourage income-generation activities and is managed exclusively by the VO. The seed money, which is not to exceed Rs. 10,000 per SHG, must be repaid within six months but can then be reinvested in the same SHG or another one.

Transparency

- The Guidelines clearly lays out the procedures to be followed by the *Gram Panchayats* and other institutions, to ensure transparency.

Links with Other Institutions

- *Panchayat*: The *Gram Panchayat* is deemed the implementing agency under the Hariyali Guidelines, and is extensively involved in all project aspects at the village level.
- *Fishermen's Cooperatives*: N/A
- *NGOs*: While under the earlier Guidelines NGOs could play the role of PIAs, they are currently involved in several areas only as project facilitators or support organizations for capacity-building purposes.
- *Line Departments*: There is scope to build better links with line departments such as those of Agriculture, Animal Husbandry, Horticulture, Forestry, etc.

Provisions to Address Social Issues

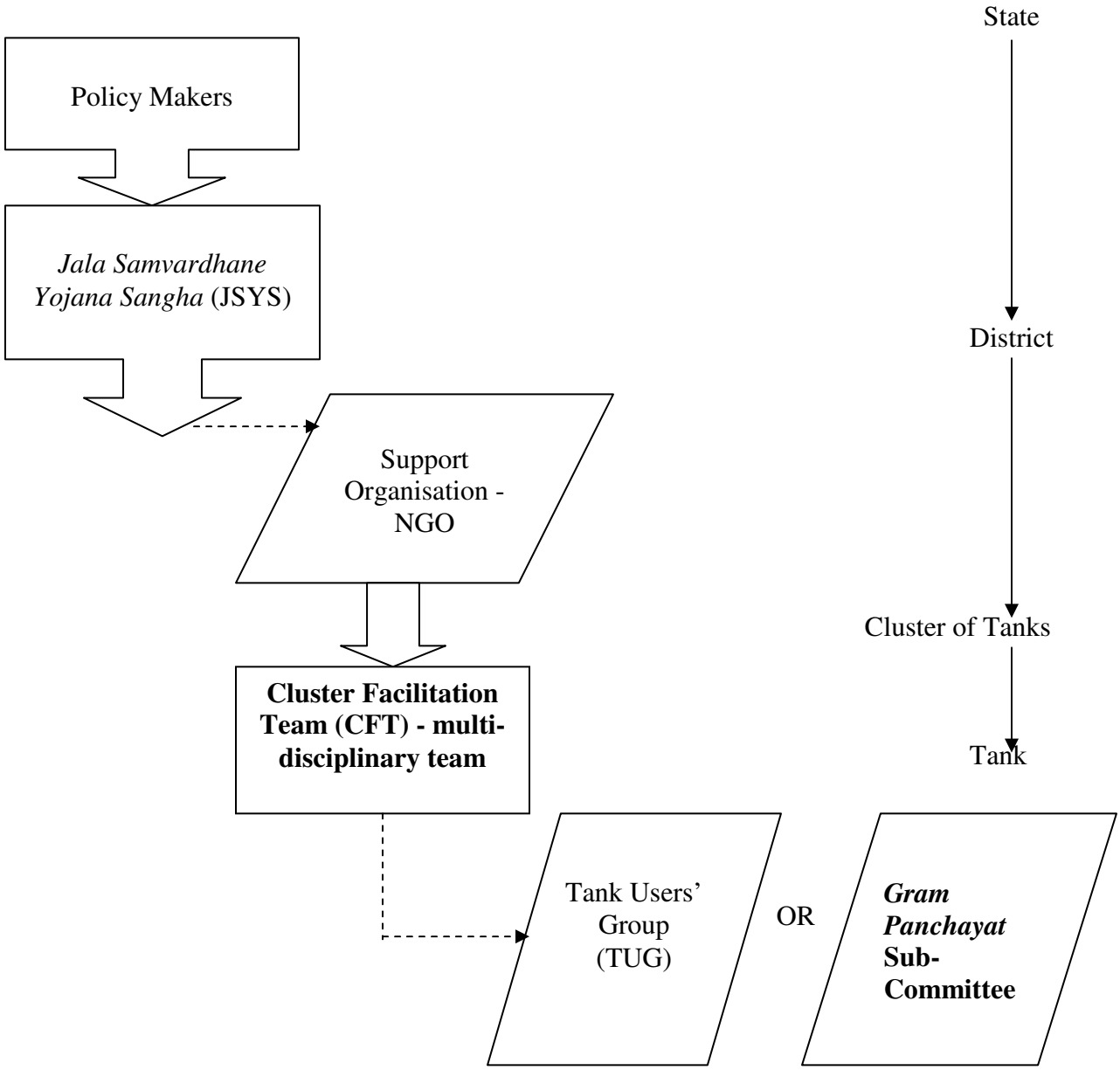
- *Gende*r: The Guidelines for Hariyali make greater provisions for the involvement of women in project implementation, but these have yet to be realized effectively on the ground.
- *Caste and Class*: By design, the watershed development programmes are meant to deal with the issues of caste and class, and operate in areas where the majority constitutes the poorest of the poor. While much progress has been observed, there is scope to do much more work.

In the next section, a SWOT (Strength-Weakness-Opportunity-Threat) Analysis of the above-mentioned models is undertaken.

3.3 SWOT Analysis of Previous Tank Management Projects

3.3.1 Karnataka Community-Based Tank Management Project

Level



Strengths

- GoK drafted legal framework outlining clear rights and responsibilities of the TUG, especially retention of 90% of water charges collected for O&M purposes.
- Procurement systems were uniform across the state due to hiring of contractors & equipment suppliers at unified rates => Actual project cost reduced by 5% of original estimate
- All stakeholders are a part of the TUG, not just farmers.
- CFTs are employed, with expertise in various disciplines.
- Villagers are given the option of choosing their own structure of the WUA – as TUG, a separate society, or a Gram Panchayat Sub-Committee => location-specific structure.
- One CA firm chosen in each dist. to support District Committee with financial/accounting aspects. Periodically goes around to each WUA in dist. to do accounts using standardized accounting package; then uploads them at dist. and state levels.

Weaknesses

- Maintaining motivation levels within both NGOs & Department is a challenge.
- High turnover of staff has been observed, affecting implementation of the project.
- Delays observed in project implementation (e.g. only 74 out of 1828 tanks handed over to TUGs)
- At tank level, numerous communities are not aware of project details or of benefits accruing to them.
- TUG overburdened with too many responsibilities, e.g. ensuring repayment of IGA loans
- M&E system needs strengthening to improve management of project.
- MIS design & implementation should be strengthened to generate decision support data.
- Maintenance of records at tank-level needs improvement.

Karnataka Community-Based Tank Management Project (KCBTMP)

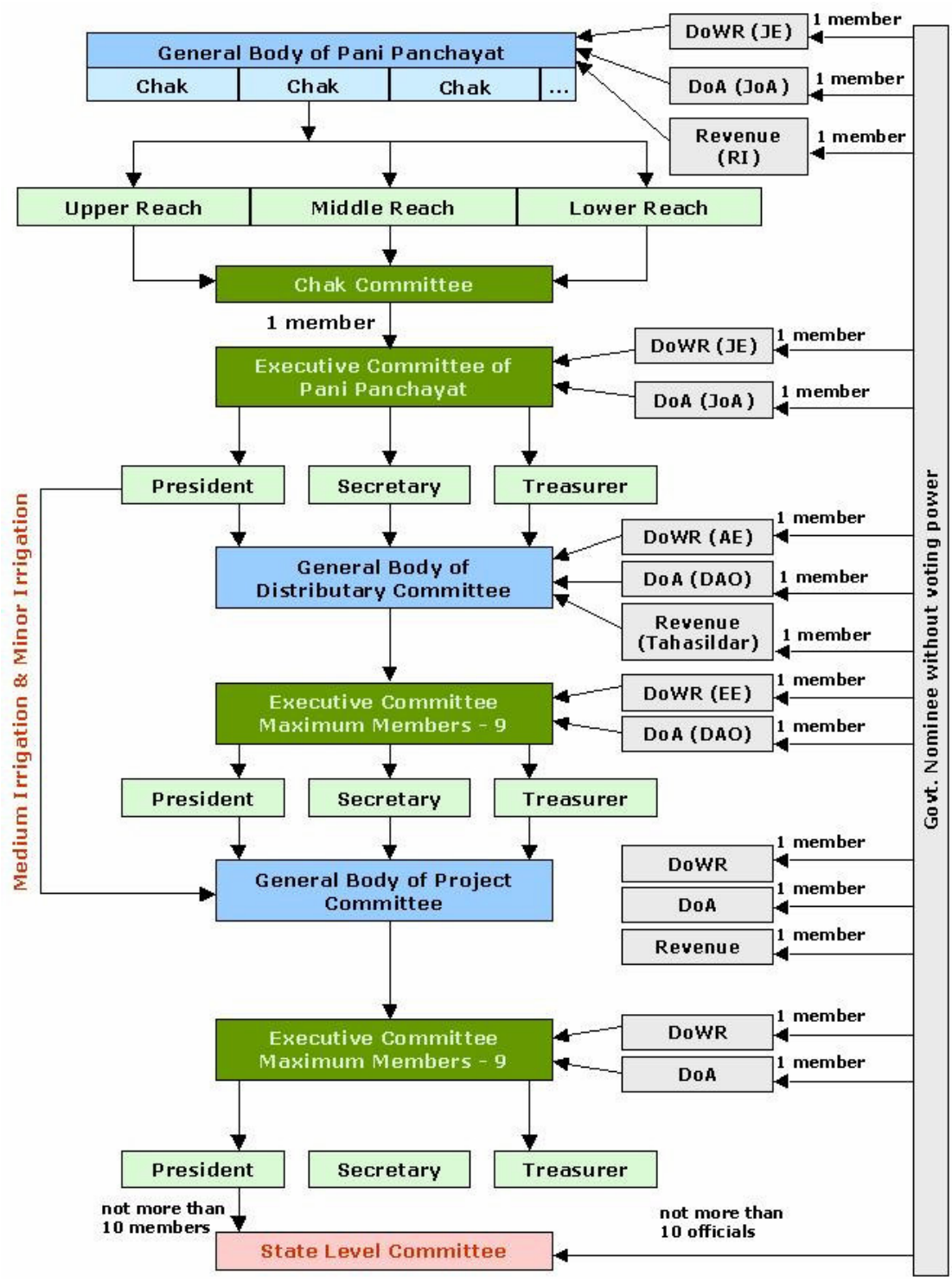
Threats

- PIAs-CFT partnerships could prove difficult to facilitate, necessitating close supervision by JSYS
- Political commitment at all levels to the project could waver
- Project could have difficulty in integrating external expertise. This could lead to adverse impacts on project results

Opportunities

- As a pioneer project, can be extended to tanks not currently under the project
- Can make use of external consultancies to support transitions due to exits of key staff
- Integrate with other rural development initiatives in the state (e.g. watershed development/groundwater development/ livelihoods, etc)
- Can offer consultancy services to other states/agencies
- Can develop its own independent capacity-building institute
- Can give input to policy aspects of tank revival

3.3.2 Orissa Water Resources Consolidation Project[3]



[3] Government of Orissa, Department of Water Resources. Orissa Water. Aug. 2006. <http://www.orissawater.com/PaniPanchayat/PaniOrganisation.htm>.

Strengths

- Department of Irrigation changed into Department of Water Resources as a direct result of the project.
- Training given to departmental staff to make them more informed about project & to build the institution's capacity.
- *Pani Panchayat* Act passed in 2002 by GoO, clearly laying down the rights & responisibilities of *Pani Panchayats* (PPs)
- Water users from all parts of designated command area under a PP are members of the PP. Issues and concerns arising in the upper, middle, and lower reaches can be voiced, especially with the *Chak* Committee.
- Officials from Departments of Agriculture, Reveneue and Water Resources can facilitate meetings of committees at all levels.
- PPs have proved quite effective & 10,344 other PPs formed have been formed outside project.
- Procurement through SHGs.

Weaknesses

- Lack of incentives of farmers, NGOs, and government staff to be motivated, especially during the initial stages of the project.
- High turnover of staff led to weaker management of the project.
- Tail-end farmers not receiving all the benefits accruing to them; greater emphasis on upper reaches.
- Equity issues not addressed properly – large farmers acquiring majority of benefits. Women's participation passive.

Orissa Water Resources Consolidation Project (OWRCP)

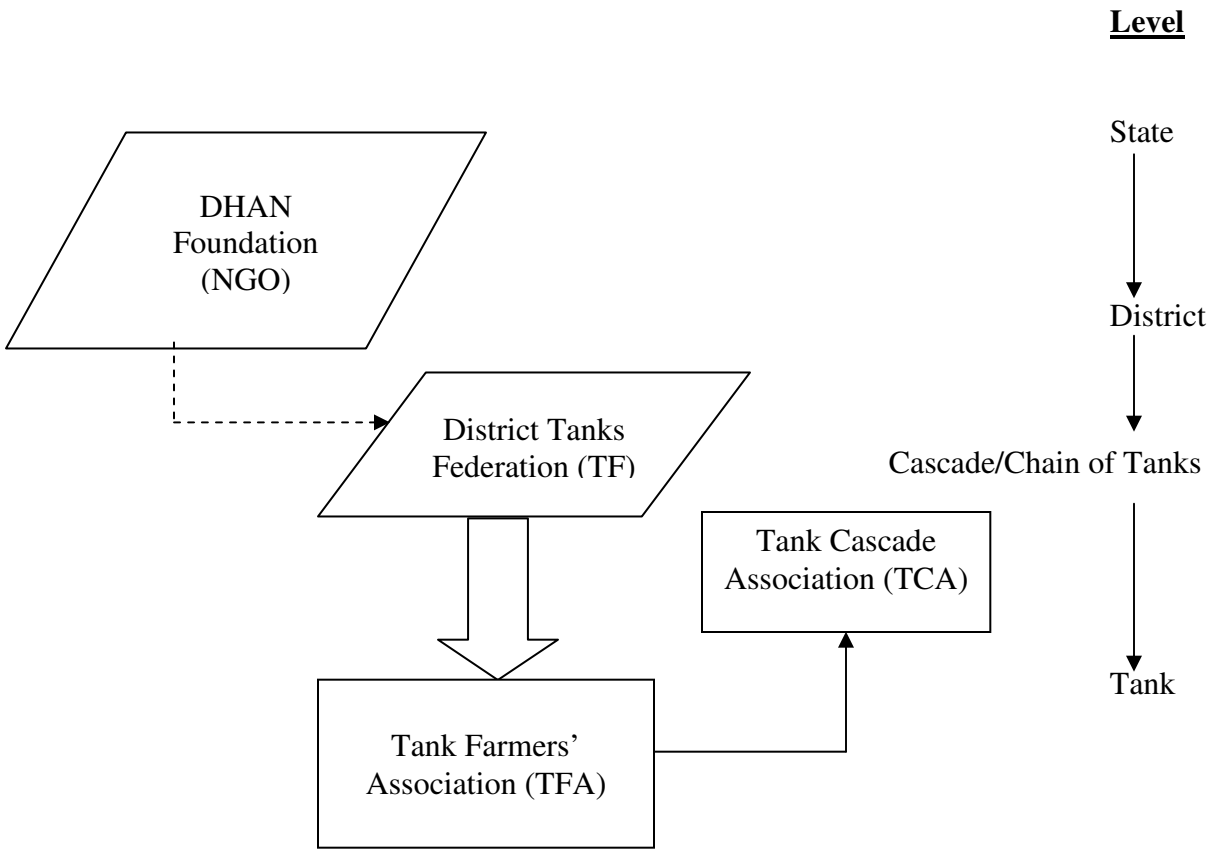
Threats

- Since department is now DoWR, possibility of attaching lower priority to certain tasks
- Post-project stability must be ensured
- Demands of other water users should be taken into account
- Project could have difficulty in integration of external experts => there could be adverse impacts on project results

Opportunities

- Possible to sustain project benefits through new activities.
- Can strengthen institutional development through NGO support.
- Should continue awareness campaigns and build capacity of all stakeholders.

3.3.3 Tank-fed Agriculture Development Programme, DHAN Foundation, Tamil Nadu



Strengths

- DHAN has been extremely successful at mobilizing the communities it work with => higher community participation rate.
- Resource mobilization through community members builds their stake in the structures/systems; gives them a sense of ownership.
- Cascade/chain of tanks is taken up, not just separate tanks by themselves.
- Programme is a part of a range of DHAN's interventions in the communities, e.g. microfinance.
- Scope for building user interest in the whole chain with the purpose of promoting livelihoods.

Weaknesses

- More provisions are needed to address social & equity issues.
- Much greater scope for collaboration with government departments and PRIs than is currently observed.

Tank-fed Agriculture Development Programme,

DHAN Foundation, TN

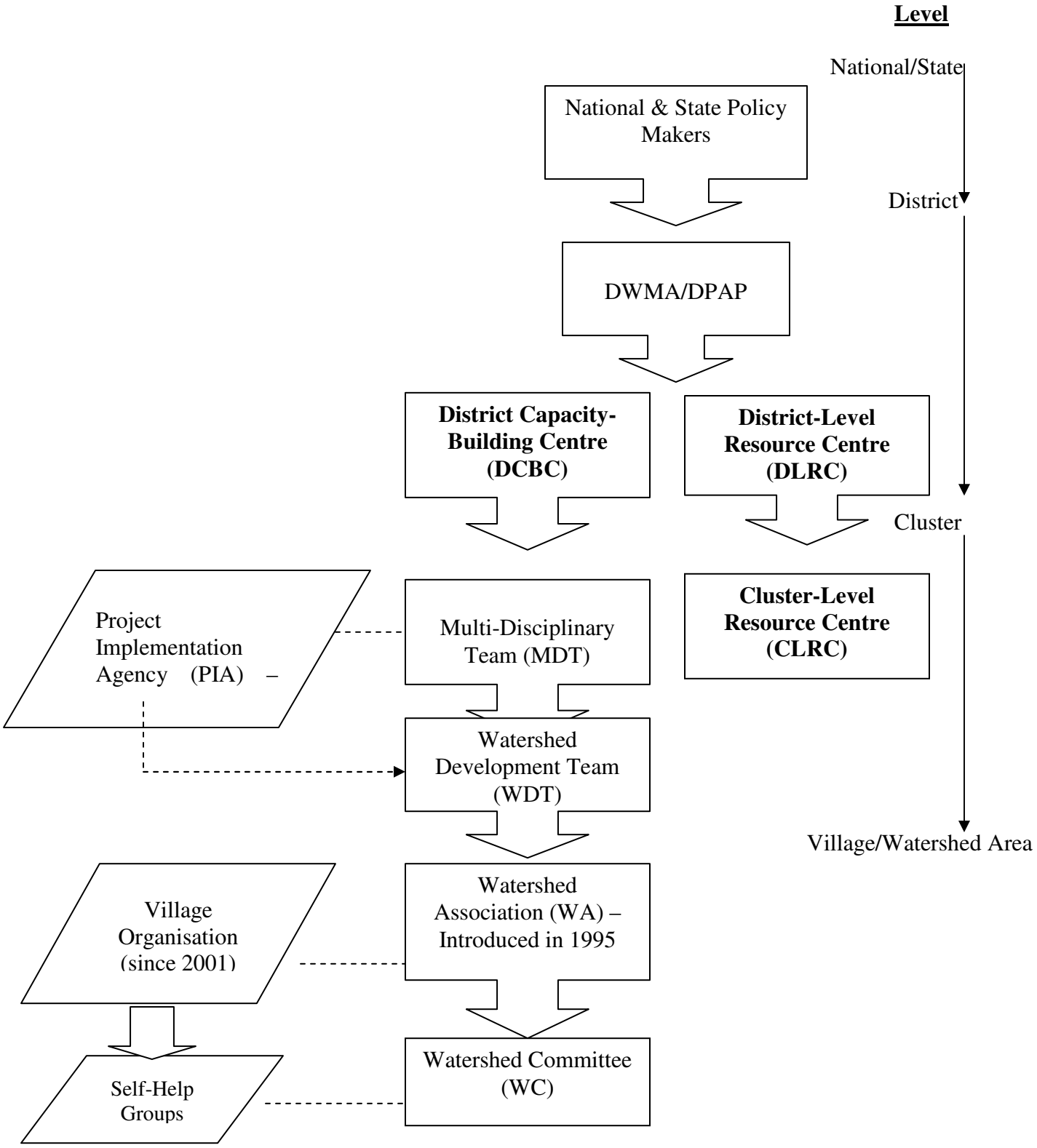
Threats

- Influence of more subsidized government projects could dishearten members.
- Question of how the CBOs will continue to function and remain stable once DHAN leaves the area
- Project could have difficulty in integration of external experts => there could be adverse impacts on project

Opportunities

- Can offer expertise for other major tank revival projects.
- Can contribute to policy, esp. those focusing on a cascade/basin approach.
- Has the capacity to take on similar work elsewhere.

3.3.4 Drought-Prone Areas Programme (DPAP)/ District Watershed Management Agency (DWMA), Andhra Pradesh



Strengths

- Resource-based livelihoods promotion.
- Good community organization and empowerment with formation of user groups, SHGs, and VOs
- Capacity-building institutions in place – DCBC/DLRC/CLRC.
- New staff/agencies employed for purpose of implementing project.

Weaknesses

- Watershed Development Fund (WDF) is grossly under-/unutilized. In fact, in several cases, user contributions are not collected at all & are just billed as part of project costs.
- Poor mobilization of resources from community members.
- PRIs that are in charge of overseeing project development at ground level are not able to do full justice to their duties given the fact that they are responsible for numerous other tasks at the same time.
- Poor sense of ownership of public assets; thus low level of maintenance by stakeholders.
- Traditional agricultural practices still used.

DPAP/DWMA in Andhra Pradesh

Threats

- Political interference, especially in the selection of watershed areas.
- Integration of external experts.
- Inadequate *Gram Panchayat* capacity.
- WC membership is not on a rotational-basis, thus all stakeholders will not get involved.

Opportunities

- Can offer expertise on rural livelihoods
- Can be integrated/coordinated with the APCBTMP
- Can influence policy on rural livelihoods.
- Scope for greater collaboration with line departments such as Horticulture.
- Scope to engage government lands in afforestation activities and build common resources.
- Scope to make greater use of existing infrastructure.
- Utilisation of low-cost structures in the future will reduce project costs.

3.4 Critiques of Reform Projects

In recent years, the principles of participatory irrigation management (PIM) have been substantially employed in a number of states across the country, including Karnataka, Orissa, Andhra Pradesh, and Maharashtra. The notion of involving the communities in the management of the tanks that serve them is a simple but seemingly effective concept to improve the quality of living of the people engaged in this process. Several state governments, especially the ones mentioned above, have enacted laws that provide the framework for the formation of water users' associations (WUAs), putting them in charge of tasks such as the day-to-day maintenance of the tank and collection of water charges. While the framework exists on paper and the idea of collaboration between WUAs at the tank-level with various tiers of the Irrigation Department sounds highly appealing, the reality is less attractive. As T. Hanumantha Rao states, "if the past five decades of experience on [irrigation] projects is any guide, the benefits as envisaged [in the Detailed Project Reports] have not actually been achieved for any project so far."[4] The reality seems to be that participation is rarely holistic, several members of the community are left out from the process; and there is a poor collaboration with *Panchayat Raj* Institutions (PRIs) and Department officials; and inadequate support to ensure project sustainability. Furthermore, going by the experience of watershed development programmes, there must be a shift in objectives to observe better results on the ground. In this section we present some of the criticisms that have been voiced by various experts about the existing institutional arrangements.

One of the most pressing issues that have been observed almost everywhere that PIM has been implemented is that of low rates of participation of certain members of the village community, especially women, the landless, and the scheduled castes/scheduled tribes. Our own observations from the field, as well as research conducted in Andhra Pradesh by others, such as V. Ratna Reddy and P. Prudhvikar Reddy, have shown that it is the large landholders and those belonging to upper-castes are WUAs, TCs and Presidents, even though marginalized members are well-represented in the general body of the association.[5] The authors describe this as "elite capture" and find that the big farmers view them as a stepping-stone to gain more power and political clout. Similar situations have been observed in Maharashtra as well. While legal norms exist to facilitate greater participation of women in local body elections, men from the elite community continue their hegemony.[6] With a few notable expectations, it has been found that "little effort [has been made] to build local institutions […] characterized by equity."[7]

Reddy and Jenkins find that while a cordial relationship exists between WUAs and the PRIs. They are not currently "working in tandem," largely due to "passive or indifferent attitudes of the PRIs."[8] The PRIs have a mandate over various aspects of water resources management[9]. It is

[4] Rao, T. Hanumantha. "Five major gaps in irrigation." *Indian Express*. 7 Jul. 2006.
[5] Reddy, V. Ratna, and P. Prudhvikar Reddy. "How Participatory is Participatory Irrigation Management? Waters Users' Associations in Andhra Pradesh." *Economics and Political Weekly*. Vol. XL No. 53. 2005. pp 5588.
[6] M. Rajshekhar. "Sponge Bath Nation." Counter Currents. 2 Mar. 2006. 8 Sep. 2006. <http://www.countercurrents.org/en-shekhar010306.htm>.
[7] Shah, Mihir. "Towards reforms." *Economics and Political Weekly*. Vol. XLI No. 27. Sameeksha Trust: Mumbai. 2006. pp. 2982.
[8] Reddy, V. Ratna and Jenkins. "Development of Politics or Politics of Development: A Study of Watershed Development in Andhra Pradesh." 2004. Qtd. in Reddy, V. Ratna and P. Prudhvikar Reddy. pp. 5590.

imperative that functional linkages are developed between WUAs and PRIs to make optimal use of resources.

Even with the establishment of WUAs "awareness, involvement, commitment, and contribution to the cause are lacking at the primary stakeholder level."[10] To increase efficiency at the ground level, the Irrigation Department must decentralize and devolve powers to the WUA. As Upadhyay states, "the single biggest reason behind the ineffectiveness of these WUAs has been that while they have been given responsibilities, they have not been given the requisite authority to back their efforts."[11] In addition, it has been observed that capacity-building trainings, when given to stakeholders, have been largely held in the upper reaches, thus leaving out those at the tail end. Moreover, it is not always ensured that the support organizations are themselves adequately prepared to facilitate such trainings or to implement the projects fully.

Recommendations made to overhaul existing watershed development programmes also have relevance to irrigation systems reform. Deep Joshi suggests that the successful development of watershed programmes entails the re-examination of existing programme objectives and the subsequent re-thinking of the strategies to be followed.[12] He emphasizes the need for unambiguous livelihoods, and states that if the overall aim is to improve the standards of living through a sustainable livelihoods approach, then it must first be ensured that not only are specific livelihoods, to be promoted, identified but that the beneficiaries themselves are also included in the planning process. Second, in areas where extensive work is being undertaken on water harvesting and groundwater-based irrigation, such as in southern Andhra Pradesh, care should be taken that the tank-based irrigation reforms work in conjunction with these projects. For example, it has been observed in southern Andhra Pradesh and in Karnataka that even though tank-based irrigation has declined over the past few decades, the extent of irrigated agriculture has in fact been almost exactly counterbalanced due to groundwater extraction and watershed development, albeit at a social and economic cost.[13] Therefore, there is scope to coordinate with such related programmes to attain overall development.

In conclusion, while the enactment of the APFMIS Act in 1997 and the subsequent amendments to it have been groundbreaking in the implementation of PIM, considerable efforts on the ground still need to be made to realize its provisions. Along with decentralization, committed officials are needed at all tiers of the Department to see that the WUA members become aware of their responsibilities and rights. Participation of all stakeholders should be encouraged from the pre-implementation phase itself, with the involvement of well-equipped and well-informed support organizations. Focusing on livelihoods promotion as the primary objective, and correspondingly

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[9] Upadhyay, Videh. "Universal appeal, unclear approach." India Together. Oct 2002. 8 Sep. 2006. <http://www.indiatogether.org/environment/opinions/videh1002.htm>.
[10] Reddy, V. Ratna and P. Prudhvikar Reddy. pp. 5594.
[11] Upadhyay, Videh.
[12] Joshi, Deep. "Broadening the Scope of Watershed Development." *Economics and Political Weekly*. Vol. XLI No. 27. Sameeksha Trust: Mumbai. pp. 2987.
[13] Batchelor, Charles, et al. "Mitigating the Potential Unintended Impacts of Water Harvesting." Paper presented at the IWRA International Regional Symposium 'Water for Human Survival.' 26-29 Nov. 2002. New Delhi, India. pp. 6-7.

developing strategies that are location- and stakeholder-specific, will lead to sustainable improvements in the tank irrigation systems.

3.5 Key Lessons Learned

On the basis of these assessments, we identify the following institutional issues as those meriting particular care and attention in the proposed project:

1. Generating and maintaining community participation through close collaboration at the tank-level.
2. Sufficiently integrating expertise from various sources on such aspects as social development and livelihoods promotion.
3. Ensuring timely availability of resources – financial, physical, and others, as required.
4. Aligning the support from other institutions such as line departments, NGOs, and CBOs.
5. Transforming the mind-set of key project personnel in favour of community participation and sustainable livelihoods development.
6. Some of the problems persisting across the various projects are the following:
   Motivation of staff
   Managing timely project implementation
   Retaining skilled staff and external experts on contract,
   Addressing equity issues and
   Bringing in the marginalized sections for accessing project benefits

CHAPTER IV

Institutional Arrangements at the Tank-Level

4.1 Introduction

At the tank-level, there are several local institutions with stakes in minor irrigation sources such as tanks. These are:

- The Irrigation Department (*lascars*/work inspectors reporting to the AEE, DEE, SE and CE – minor irrigation under CADA)
- The Water Users' Association (a representative body of farmers using water from the tank)
- The *Gram Panchayat*, which, under the Constitution, is seen as the 'owner' of all common property resources.

In some areas, there are others institutions like fishermen's cooperatives that represent the interests of other stakeholders using the tank. There are also service and input providers, like the Departments of Agriculture, Fisheries, Animal Husbandry, Forestry, in addition to the Department of Revenue, which has the task of collecting water charges. We have sought to understand the working of these institutions in order to recommend ways to enlarge the opportunity space available for institutional collaboration for the revival of tanks.

4.2 Review of the Present Situation

Our review of the present situation is based on a study of thirteen tanks selected in terms of the various parameters in consultation with CADA, the discussions with officials, experts, and review of literature.

Table I: Zone-Wise Distribution of Tanks Studied

Zone	Tank type	Tank visited	Villages covered by tank
North Telengana	Type I Type III Type IV	1 2 1	1 5/7 8
South Telengana	Type I	2	1
Southern	Type I Type II	1 2	2 2/0
Scanty rainfall	Type I Type IV	1 1	1 6
North coastal	Type IV	1	14
High altitude+tribal	Type I	1	3

The Krishna-Godavari Zone was not included because the tank system there is part of the larger delta canal system. These tanks are not being included in the current project.

Table II: Type-Wise Distribution of Tanks Studied

Tank Type	Command Area in Acres	No. of Tanks Visited
Type I	<500	6
Type II	501-1000	2
Type III	1001-2000	2
Type IV	2001-5000	3

Most tanks in the state have a command area of less than 500 acres and there are very few large tanks of Type IV, although there is greater complexity in the management of larger tanks.

We summarize here our findings about the functioning of the different institutions at the tank-level.

4.2.1 The Irrigation Department

The institution formally vested with the duty of proper maintenance of tanks is the Irrigation Department. At the tank level, 'the public face' of the institution is usually the *lascar*, who is responsible for operating the sluice gates to release water from the tank. The *lascar* normally acts on requirements indicated by the WUA members.

An AE or AEE supervises the working of the tank systems in a few *mandals*; thus, an AE may cover up to forty tanks. The AE reports to a DEE who takes care of a division.

Some of the common situations noticed on the ground are the following:

- Many vacant positions at the level of the AEEs – leading to overloads and therefore poor supervision.
- Thefts and damages to sluice gates etc.
- Poor condition of structures.
- Leakages and wastage of water in the distribution channels.
- Poor information about the area irrigated and cropping pattern, etc.
- Tanks recently transferred to the Irrigation Department from the *Panchayats* that have yet to get the required attention.

All these situations arise because of the acute shortage of Department staff on the ground. The issues arising from this situation are discussed below.

Identifying Tank Type

The first issue we had to face was the question of defining the tank size.

There are many parameters in the tank profiles, such as:

- Water-spread area
- Storage capacity (average/maximum or minimum)
- Planned *ayacut*
- Actual *ayacut* (average for the last few years)
- Number of villages covered

There are also many ratios to classify the reliability of tanks as irrigation sources, such as

- Number of fillings per annum
- Ratio of inflows and *ayacut*
- The water-spread/*ayacut* ratio
- Water-Yield available

We were given the classification of tanks according to the notified *ayacut*. Sometimes the figure used was the *ayacut* size expected with project completion; this had its problems: the notified *ayacut* and the actual *ayacut* differed widely in most of the places we visited.
To understand the extent of irrigation under a tank, we have to consider the following:

- Notified and irrigated for the last few years – (three or five)
- Notified but not irrigated for the last few years
- Irrigated for the last few years but not notified - no proposal to notify.

Such data is simply not available.

At the tanks we visited, we found there was much ambiguity within the Irrigation Department about the extent of actual irrigation under a tank.

Table III: Estimates of Command Area of the Tanks Visited

In acres

	Name of Tank	**No. of Villages**	***Ayacut* (CADA)**	***Aaycut* in Use** - AE's estimates	**Difference**
1	Balamkunta-RR dt	1	40	Nil	-40
2	Govindayapalli	1	100	50	-50
3	Pedda cheruvu Hasanparthy	1	803	238	-561
4	Nagaram Hasanaprthy	5	1242	Much more than this	+?
5	Parkal-anicut	7	385	Approx 1200	+815
6	Ahobilam	5	4000	1700	-2300
7	Uppalapadu	1	101	115	Almost equal
8	Jagadevpata	5	1800	1750	Almost equal
9	Vinjamur	1(?)	1000	Nil	-1000
10	Pakala	2	408	600	+208
11	Nunjerla	8	700	0	-700
12	Hiramandalam	3	186	280	+94
13	Narsipatnam	14	2668	2500	-168

There were also issues of several villages in some tanks' *ayacut* coming under different districts/*mandals*, leading to further ambiguity. These tanks are from the shortlist of the fifty tanks identified for the first phase of project implementation, and some basic data has been put together as part of this identification process. We may, therefore, infer that the database now available is of uneven quality and is a poor guide to decision-making.

Safety of Equipment

In many instances the Department is facing security problems - sluice gates/ handles shutters are often pilfered and the stored water, too, is drawn without the permission of the Department. In one case, the sluice gate was cemented up to prevent another village from accessing the water. Often these actions have the blessings of local leaders and the WUA members are in a helpless situation; the *lascar* is not expected to perform guard duties.

Initiating Projects for Revival

All the tanks that we visited have been identified for repair/renewal projects and in some cases detailed project reports have been prepared. The responsibility for this rests entirely with the Department and the WUA is not consulted or included in the designing stage. In some places we found the WUA completely opposed to the plans and actually obstructing the work. The MLA usually takes a good deal of interest in getting the projects sanctioned.

4.2.2 The Water Users' Association

There are tanks that do not yet have a WUA because they are still under transition from the *Panchayat*. This is probably a fairly significant number. These tanks are likely to be small ones operating across a single village. It is in such locations that the WUAs are able to function well. The process of notifying the WUA can begin only when the irrigation system is in place and in good shape to be handed over to a WUA.

For the tanks already with the MI Department, there is a rating list of WUAs in tanks, which is a poor guide to the actual availability or functioning of a WUA on the ground. Seven out of the fifteen tanks originally listed for the study, had WUAs rated on this list, but had to be dropped because there were no WUAs in reality. This indicates the need for more careful scrutiny of the potential of the WUA before identifying a tank for revival under this project.

In the locations where WUA management committees have been elected, they have yet to meet or examine their roles. The Association is dormant because of a narrow understanding of the WUA's role that has taken root in the tank setting. When there is no project of revival or restoration, or, in other words, no contracts for construction or repair, there is some degree of disillusionment and the WUA sees no reason to meet, maintain books or organizing local resources for repairs.

Assessment of WUA-functioning

Water distribution:

The water availability was such that WUAs did not perceive a need to plan or regulate water distribution in six (i.e. 50%) of the locations we studied. Some form of *warabandi* was practiced when there was a water shortage, usually at the insistence of the Department staff. Tail-end issues are serious in five locations (40%), while they are handled well in three other locations. In most locations, farmers supplement tank water with private borewell water.

Operations and maintenance:
Feeder systems are intact where they are inaccessible - in reserve forest or on hillocks. The Department initiates work on feeder channels only when there are funds from some project. In most locations, the storage capacity is reduced by half or is worse because the task of de-silting has been neglected. The distribution network is well maintained in the smaller tanks, especially where the *neeraganti* system is in practice and is supervised by the WUA.

Water charges collection:
Water charges, assessed by the secretary of the *Gram Panchayat,* and the collections are said to be good in three locations. The collections are very poor in four other locations, especially in cases where the tail-end problems are not addressed and the distribution system is in poor shape.

WUA meetings
During our field visits, we observed that general body and MC meetings are not held in ten of the twelve tanks; of the two remaining, only one WUA has regular meetings, while the other holds meetings when needed. Books of accounts are not kept and in most instances even the TC members do not know the receipts and expenses of the WUA. It is estimated that 40-90% of the tax is collected in most cases. The accurate figures are not available for scrutiny in any of the WUAs we visited.

Another important parameter that could not be studied is Water-Use Efficiency (WUE). The data required for this is not available in the locations we visited.

We may infer that though the WUAs have the potential capability to play a relevant role in water distribution and maintenance, they have not owned the task of collecting water charges, and the institutions are not yet functioning in a participative or transparent manner.

Table IV: Rating Of WUAs - A Summary

Water Distribution			
i. *Warabandi*	a) Proper Water distribution by WUA	b) *Warabandi* during water scarcity.	c) No regulation on water.
	0	6	6
ii. Tail-end area receiving water and Additional area brought under cultivation.	a) 90 % above tail-end area irrigated and more ayacut added.	b) 75 to 90 % tail-end area receiving water.	c) Tail-end area problem persists.
	3	4	5
iii. Innovative water management and cropping	a) Incidence of extra collection by WUA for O&M.	b) Change in cropping pattern (ID) with SRI	c) Conjunctive use of bore wells
	0	0	9

Tax and Operation & maintenance			
I. Inflows	a) Good inflows with proper maintained feeder channels	b) Maintained if funds are available	c) Poor inflows, no repairs
	6	3	3
ii. Storage capacity	a) Original storage capacity is maintained.	b)Storage Reduced to 50 %	c) Storage reduced to below 50 %
	1	9	2
iii. Status of distribution network	a) Distribution network intact and farmer maintained	b) Maintained on available funds	c) No maintenance for past 5 years
	7	2	3
iv. Assessment of tax	a) WUA,Dept participation in Joint *ajomish* .	b) Secretary assesses	c) No assessment
	0	9	3
v. Tax collection	a) 90 % above tax collected	b) 40 to 89 % tax collected	c) Below 40 % tax collected
	3	3	5
Management			
i. Meetings	a) Regular meetings at fixed time and venue. The minutes are written.	b) Meetings on need- basis at no fixed venue.	c) No meetings held so far
	1	4	7
ii. Attendance (Managing Committee)	a) Meetings with 85 % and above attendance.	b) Meetings with 50 to 85 % attendance	c) Not applicable
	2	3	7
iii. Maintenance of Records and Audit of Accounts	a) Necessary records maintained, updated and book writer nominated.	b) Records maintained adhoc	c) No records maintained.
	0	6	6
iv. Transparency	a) Income and expenditure particulars read in meetings and displayed at public.	b)TC members know about WUA funds	c) President and few others know of WUA funds
	1	6	5

*The numbers in the table indicate the number of WUA responses for each category.
**Only twelve tank WUAs were included in this analysis as in Balamamakunts , no WUA exists.

Role in the management of water distribution

WUAs are playing a limited role in managing the distribution of water available in the tank. Where there are traditional arrangements still at work, the WUA is able to support the working of *neeraghantis* and thereby keep up the condition of the distribution channels.
The distribution channels are maintained in this manner at most tanks. In one large tank, the WUA maintains additional *neeraghantis* by paying them money collected from farmers.
In seven of the tanks we studied, tail-end farmers face problems with receiving water. *Warabandi* is practiced only in one tank. There is usually no problem when water is available.
WUAs are yet to take up issues relating to feeder cannels, and tank capacities reduced by 50% due to siltation, thereby affecting storage and distribution.
We did not come across any sub-committees within the WUA to the take care of different aspects even though this is envisaged in the current rules.

Contribution to urgent repairs

In some villages, the WUAs have raised local contributions to meet urgent repairs to the tank – especially when there is a threat to the safety of the village; these are usually in the form of *shramdhan*. We found that in two tanks, repairs and maintenance were carried out in the form of *shramdhan* and at one tank, in the form of cash contributions. In addition, in one case, repairs were carried out by the WUA President (as a contractor), and then a claim was raised for the expenses when the Revenue Department issued a letter of credit. These transactions are not discussed openly, leaving room for many doubts and mistrust.

Issues in single-village and multi-village tanks

The single-village tanks we saw are well managed; the WUAs rely on earlier social traditions and the field channels are maintained well.
The larger tanks - covering four or more villages – currently irrigate more than the 'official' *ayacut* where the WUA or the villages have sound practices to maintain the field channels. The Department has only a small role in such maintenance activity.

In places where the field channels have been allowed to deteriorate, the irrigated acreage is far less than the potential. This could indicate conflicts within the village, or within the WUA. It could also mean the decline of the traditional system. The *neeraghantis* are missing in the Ahobilam tank area, whereas fourteen additional *neeraghantis* have been appointed and are supervised by the WUA in Nagaram.

The non-availability of water was not the reason for the 'gap' in the *ayacut* in any of the places we visited except in Vinjamur, in Nellore, where an old breach has not been repaired for a long while.

A six-member TC adequately meets the needs of single-village or two-village tanks. Where there are more than four villages and one village has a substantial acreage, this village has more members in the WUA. When a TC member represents a whole village, the tail-end

issues in that village are ignored. This is particularly visible where the distribution system has been neglected and there is no pressure to push for maintenance.

Gender and Equity Issues at the Tank-Level

There were no instances of *Panchayat* members being co-opted into the WUA.

There is a woman member in the WUA at one tank, Pakala, Chittoor. The villagers there are very sure that women should be included in the WUA. The WUA members value her capacity to speak on their behalf as she has built her leadership capacity through participation in her SHG.

Farmers who are dependant on tank irrigation are invariably poor and individual holdings are relatively small. Thus interventions in tanks systems are bound to pass on benefits to the poorer farmers. They would also benefit wage earners and landless labourers because of the increased availability of work on farms and perhaps other related activities as well.
The only tank we visited in a tribal area is under the threat of submergence and there have been no investments in the system over the last five years. The submergence is unlikely within the next five years and the WUA is disappointed that they are losing out in many ways. Even though the tank is in a tribal area, it is farmers from other castes that own the land irrigated by it.

Relationships with Other Users like Fishermen

A village of about 1,000 households might have a community of about forty households dependent on fishing. The rights to fishing are being handled in different ways at different tanks. The WUAs do not seem to have mechanisms to resolve conflicts arising between farmers and other tank users or balance the interests of the various users. Some of the situations we came across are described below.

The fisher-folk in Upplapadu have a traditional right to fish in the tank in exchange for their services to the local temple; this is still upheld. The *Panchayat* has no right over fishing. The fishermen find that only the traditional varieties of fish are thriving in their tank while other varieties do not get established so readily. There is no real conflict between the farmers and fishermen.

In Pedda Cheruvu, Hasanparthy, the conflicts between farmers and fishermen over fishing rights has brought fishing in the tank to a halt. We found cooperatives of fisherman in two large tanks in Warangal district and in one large tank in Karimangar district. The societies are assigned fishing rights by the Department of Fisheries. Where the societies are active, the Department collects tax from the members of the society and remits 75% to the *Panchayat* and 25% directly to the WUAs' accounts.
In one tank the relationships were collaborative. In another there were disputes within the cooperative, i.e. among the fishermen. In this society, conflict arose between members who are traditional fisher-folk and those from other communities. The *besthas* do not want to let others – usually SCs – take up fishing. In the third location, the society was registered in a

smaller village near the tank. Fishermen from the village where the cooperative was registered felt they had a stronger claim to the tank than the fishermen from other villages around the tank. Thus fishermen from the main village where the tank is located did not get access to fish.

In tanks where the fishermen have not formed a cooperative, they act on behalf of contractors elsewhere. Caste and political divisions often get played out as fights for different rights.

Environmental Concerns

There were specific causes for concern in one or two tanks. In Nagaram, sewage water comes in from three neighbouring municipalities and the WUA is concerned about it. However, there are no institutional channels currently available to address the question.

In some tanks, the quality of water was highly valued by the users; for example, Ahobilam tank users were able to reduce their fertilizer usage because of the good quality of water. They claimed that it added to the taste and quality of their produce as well. Silt from the tank was also much prized. The quality of the water was also similarly valued in Uppalpadu, and the special quality of their fish was commented upon. It is important to maintain quality by ensuring that the catchment area is not polluting the tank in any way.
The Department does not document or monitor such quality aspects and the WUAs, too, are yet to make it a part of their agenda.

In many places the groundwater levels are maintained by the water storage in the tank. Farmers, particularly at the tail-end, value this and use borewell irrigation to supplement the tank flows. An extreme situation illustrating this aspect is the story of Yadamarri (Chittoor District), where a sluice gate has been cemented up by the villagers to prevent the drawing of water.

4.2.3 The Gram Panchayat

The *Gram Panchayat* is seen as the owner of all common property resources under the Constitution. In 2005, the APFMIS Act was amended to co-opt two *Panchayat* members, one a woman, without voting rights into the WUA. We found that this change has not yet taken place in any of the WUAs we visited. The engineers, too, are not familiar with this change. Thus the formal process to bring the WUA and the *Panchayat* closer is available but not used.
The WUA and the *Panchayat* have very close informal links. In almost all the places visited so far, the TC members have been active as candidates and campaigners in the recent *Panchayat* elections. This indicates that the WUA is seen as a stepping-stone to a political career. Party alignments are clearly visible as well, even though the WUA members claim that they put aside party politics when it comes to issues of village well-being.
At the moment the WUA is seen as fairly 'powerless' because there is no money coming into the village through this body; however, this will change the moment a tank is identified for revival. The WUA has to be able to maintain cordial relationship with the *Panchayat* for at least the following reasons:

- The *de jure* owner of the tank is the *Panchayat*, with the WUA acting as manager of the irrigation system.
- The *Panchayat* has influence on all the other elements of the tank system - catchment area, feeder channels, tank bed, and the use of water for domestic, industrial, and fishing purposes.
- The *Panchayat* administers NREGA implementation, and repairs to earthwork and de-silting are to taken up through this.

The revival proposal often originates, and in every case is strongly backed, by the local MLA. This relationship, too, needs to be considered and some norms devised to build access and support for WUAs where needed.

Revenue Collection Issues

An important aspect connecting the WUA and the *Panchayat* is revenue collection.
The farmers are willing to pay water charges when

- The tank is their most reliable water source;
- The tank is small and the users know one another well; and
- The distribution is well managed (often through traditional methods).

Water charges are assessed through a joint *ajmoish* (assessment). The *Panchayat* Secretary collects the water tax and remits it into the treasury. Thereafter the treasury releases an LOC against which WUAs can claim expenditures incurred for maintenance.

At the WUA level, there is inadequate knowledge and understanding of this procedure; members are generally not aware of the intricacies involved. Where the distribution system is not working well, the opacity about the money collected builds more resistance against the tax. There is little confidence in contributing to cost recovery also.

On the other hand, some WUAs have been able to mobilize adequate contributions for various works at their own level without recourse to the Department or to revenues collected by the Secretary.

Other CBOs and CSOs

We found very little common ground between WUAs and other CBOs like SHGs, RMGs, and similar institutions promoted either by the Government or by NGO programmes. This could be for a variety of reasons. The SHG members were usually from households with non-farm livelihood activities. NGOs too focus on micro finance and income generation activities. Tank revival strategies have to focus on enlarging the contribution of the tank system to all livelihoods in the village.

4.3 Opportunities Available for Institutional Collaboration

The two institutions mandated to collaborate for restoring tank-based irrigation systems are the Irrigation Department and the WUA. The field data was analyzed in terms of the opportunity space available for collaboration among the two to intervene in local economies through the revival of tank irrigation structures. Although the mandate is uniform across AP, the specific contexts we observed indicate that the opportunity space can vary in each setting.

Despite the legal mandate enjoyed by the WUAs for water management and O&M, the responsibility for these tasks seems to rest more with the Department than with the WUA in practice as of now. This means that the Department holds more of the responsibility and accountability for effective functioning of the system.

The political picture is less simple. The Department has apparently the political power to carryout its mandate for larger construction works and developing WUAs' institutional capacities. In practice, however, the WUAs have to be willing to accept the greater responsibility and cooperate with the Department. The WUA accountability in this regard is acknowledged neither by the WUA membership nor by the community at large.

Both the Department and the WUA have constraints in financial aspects. However, the WUA enjoys greater flexibility in being able to generate funds for production purposes and it is also able to handle the accountability for such resource mobilization.
Administratively, also, both institutions are constrained, but they do manage to collaborate for production purposes. The WUA is able to contribute more effectively to this end although the Department is seen as responsible.

This is the overall picture that points to specific ways for intervention in different situations.

When the tank serves a relatively small *ayacut* in one village, the problems are often sorted out at the WUA-level, in one way or another, with political support and financial support from the community. The situation varies from tank to tank.
When the tank covers several villages, the critical factor becomes the availability of water. It was observed that farmers collaborate with the Department and with each other when they have some assurance that there will be water available in the system for their needs. When there are doubts about water availability, collaboration is hard to maintain.

Table V: Analysis of Opportunity Space for Department – WUA Collaboration
(Number represents frequency)

Aspect	Opportunity Space	Co-production Relationships	Accountability
	Dimension-wise level of constraint and ability	Operational local implications	Accountability relationships
Legal			
Both constrained	1	1	3
WUA enabled	2	2	0
Department enabled	7	7	6
Both enabled	3	3	4
Political			
Both constrained	2	3	1
WUA enabled	4	4	6
Department enabled	7	3	0
Both enabled	0	3	6
Fiscal			
Both constrained	6	6	8
WUA enabled	2	4	4
Department enabled	4	3	1
Both enabled	1	0	0
Administrative			
Both constrained	4	1	4
WUA enabled	5	4	7
Department enabled	2	2	1
Both enabled	2	6	1

The experience in the field points to a progression as both the administration and the WUA learn to work more effectively together.

At one end of the spectrum is a tank like Balammakunta, Rudraram, which has just recently been taken up by the administration and where a CBO (i.e., a WUA) is not yet in place. The opportunity here is to build the community even before the official formation so that the tank users have a say at the project formulation stage itself. At the other end is a tank like Govindayyapalli, which has been identified for revival under the RRR project in Mahbubnagar district. The opportunity here is to develop the capacity of the WUA to collaborate with the Department for water-use efficiency and livelihoods promotion. The other tanks we saw would fit in somewhere between these two. The range is depicted in the following table. When seen in this framework, the Department becomes a facilitator, enabling the transition up this ladder at all the locations it is responsible for.

Table VI: Stages in Collaboration for Tank Revival - Village Level

Stages at the Tank-Level	CBO Status	MI-Administration Status
I Project Preparation	No WUA	Recent transition from *Gram Panchayat* - no plans for restoration, etc.
II Pre-Planning	No WUA	Recent transition from *Gram Panchayat* - plans for restoration by the MI-administration (e.g. Balammakunta of Rudraram)
III Planning	WUA inactive	MI-administration and WUA have no plans yet for restoration (many tanks not on our list)
IV Implementation	WUA capable	MI-administration and WUA working for a comprehensive agenda -some conflicts (e.g. Nagaram)
V Post-Implementation	WUA active	WUA and MI-administration actively seek improvements (e.g. Govindayapalli)

4.4 Tank-Level Activities Proposed in the Project Log Frame

The project Log Frame was studied to identify the tasks envisaged at the tank-level under the major components of the log frame. The activities are as follows:

4.4.1 Institutional reform and capacity development – empowering WUA members

- Training and exposure visits for WUA members
- Training of RMG members
- Training of women WUA members, starting with women GP members
- Orienting the secondary stakeholders, NGOs and WUAs on five-stage program planning and implementation methodology
- Orientation of WUA members on equitable water distribution
- Facilitation for setting up of water distribution from upper to lower reaches through awareness and handholding in order to achieve equity within tank areas
- Encouraging WUA members to participate in tax collection with Revenue Department officials

4.4.2 Optimizing irrigation potential

- Prioritization of tanks based on poverty criteria
- Fieldwork implementation based on approved plan
- Work initiation through testing of community willingness by way of entry point activities such as feeder channel repairs, tax collection drives, etc
- Construction of tanks

- Introduction of community-based monitoring system of work implementation

4.4.3 Water use efficiency – improved water management, livelihoods, groundwater

- Study of tank-based livelihoods with a focus on women's role
- Study on role of tanks in the village economy in Year 1
- Introduction of sub-committee formation on gender and livelihoods to focus on multiple water uses beyond agriculture and implementation of need based activities detailed below:
    - Address needs of women title holders and WUA members as well as of women farm labourers in tank areas
    - Develop and protect use of and access to irrigation water for alternate purposes such as home gardens, livestock, washing and other domestic uses
    - Undertake livelihoods activities using tank water
- Promotion of crop planning based on water availability through water audits (twice a year - one before monsoon, one for *rabi*) through NGO

It is clear from the findings reported earlier that the current state of institutional arrangements will not be able to support these tasks. We therefore recommend that the two key institutions, making use of the availability of a Support Organisation or an NGO as envisaged in the project, should gradually strengthen their own capacities and their joint capabilities to move across the different phases of project implementation identified earlier

4.5 Observations and Specific Suggestions

The project implementation teams would have to change their mode of involvement in the tank revival projects as the arrangements and institutional collaborations gradually develop. They have to offer differing levels of support in different places. A profile of the institutional arrangements required on the ground at each stage is presented in the following matrix.

Table VII: The Stage-Wise Institutional Arrangements Profile

Aspects for Collaboration	**I-Project Preparation**	**II- Pre-planning**	**III-Planning**	**IV-Implementation**	**V-Post-Implementation**
Mandate of DPU at Tank	Create community awareness	Strengthen community awareness	Constitute WUA	Build WUA capacity	Actively collaborate with WUA
Mandate of WUA	Get engaged	Develop a broad agenda	Join WUA and build skills	Build skills-strengthen water distribution systems	Execute various plans
Task for Collaboration	No task identified	Identifying options to improve situation	Planning for revival	Project implementation and financial	Management and local area/economy

				management	development
Financial Arrangements	No fund from dept or tax collection	Mobilizing informal local inputs for small tasks	Start bank account and establish revenue sharing links	Audited accounts, transparency- general body aware of details	Generate surplus from tank and source other funds if possible.
Procurement Arrangements	Not required	*Shramdhan* and local collections	Developing contacts with engineers, contractors and technical experts	Independently executing projects up to RS 5 lakhs – managing larger contracts.	Well-established links for various inputs and links to markets etc
Links with Institutions:					
Panchayat	Transfer of details etc	Support related works – for catchment , feeder channel	Support project formulation and bring in concerns of all users	Support implementation, tax collection etc	Collaborate with a fully empowered WUA
Fisher Coops	no real interactions/some conflicts	no real interactions/some conflicts	building an understanding	support tank development	support tank development
NGOs	sensitize community	build informal CBO	educate on rights and responsibilities	develop WUA skills to plan implement etc	Facilitate collaboration
APREGS- where applicable	Identify tasks needed for tank revival	Complete preparatory tasks	generate local employment	Work with landless poor for use of tank	Work with landless poor for use of tank

The Tank Rehabilitation Cycle

The five-stage project cycle at the tank-level has been defined in the project. It envisages close collaboration between three institutions - the District Project Unit, the WUA, and an identified support organization (NGO or professional body). They will be jointly responsible for the successful transition of the stakeholders in the tank system across the five stages. The recommended institutional homes for the different steps among the collaborators at the field-level are shown in the following table.

Table VIII: Responsibilities for Transition in the Field

Stage	**Role of DPU-**technical and resource support	**Role of WUA-**project ownership	**Role of SO-** facilitate social mobilization for implementation
Project Preparation	Hydro-assessment, list encroachments, select	Develop understanding of the project and its	Become familiar with the project and

	tank, SO, convene WUA	role.	SO role.
Pre-planning	Involve other line dept functionaries, assess WUA readiness, plan encroachment rehab.	Learn about the project Complete MoU with DPU,maintain books, documents etc	create awareness, social mapping, consult stakeholders
Planning	Technical aspects Training to WUAs Ratify TIMP-take it to DLIC, Plan to procure materials etc, tender issue.	Form subcommittees Prepare TIMP and ratify with GB. Seek *Panchayat* support as needed, maintain books documents etc.	Data collection using PRA Facilitating TIMP development, Strengthening WUA capacity
Implementation	Supervision of civil works, project progress and quality. Work completion report, linkages with line department banks etc	Wall writing TIMP implementation, Maintenance of books documents etc	Training support Agri business plans Participatory monitoring at village level.
Post Implementation	Semi-annual monitoring	O&M plan and fund Maintenance of books documents	Refresher trainings, seasonal O&M strategies

Our Suggestions

To achieve the desired levels of alignment and coordination during the project and sustainability thereafter, we recommend particular attention to the following processes at the tank level.

Information generation

At present there is no information on several crucial aspects about the tank anywhere in the system. These gaps have already been highlighted earlier.

We recommend that

1. The tank memoir format should be revised to include three types of information- technical details, *ayacut* actually being irrigated in the current cropping season and rough estimates of the cropping pattern, and services provided to other users.
2. This format should be compiled by the AEE, with use of PRA techniques, and be presented to the WUA once in six months.
3. This can then become the basis for assessing revenue flows that are legitimately due to the tank and thereby the tax collection issue can be addressed.

Such a system will prompt people to pay their user charges and will work only if it is seen to be fair, reliable, and open to scrutiny by any member of the WUA.

Such updated information will enable the administration to track impact as the project is being implemented.

Strengthening the WUAs

The WUAs have a very narrow understanding of their role and no memory of earlier efforts to help upgrade their capabilities or to maintain the necessary books and records. The APFMIS Act spells out the objectives of the WUA in the following terms:

- To promote and secure the distribution of water among its users
- To undertake Adequate maintenance of the irrigation system
- To ensure economic and efficient usage of water
- To modernise agriculture for optimum production
- To protect the environment and ensure ecological balance
- To inculcate a sense of ownership through water budget and operational plan
- To mobilize resources for operation and maintenance

The support organization should aid the WUA in developing a holistic view of their role. The WUA rating tool should be developed further to integrate all these elements. In addition, self-rating, for improvement should also be encouraged.

Capacity-building

The capacity building effort should be aimed at the three main institutions as well as their collaboration. The field-level project staff should be oriented to the social and environmental aspects (such as water quality and groundwater management) and project management. Training is also needed on defining performance parameters, not just in terms of construction and functional efficiency, but also with more focus on the returns generated as per the envisaged potential. The TIMP process should focus on estimating the potential of returns.

The support organization should be briefed clearly about their task and familiarized with tools techniques and about the facilitative role they have to play. The WUA has to get engaged with the project and take on the responsibility for their water source.

In addition to these individual elements, it is essential to organize team-building workshops for all three entities together at the start of the project-planning and at major transition points thereafter.

Financial management

The financial systems should be redesigned to ensure the following:

- Offer farmers assurance that any money collected is indeed used for tank maintenance
- The local share of the taxes collected is given first and the balance remitted into the treasury
- Costs recovered are carefully managed and accounted for.
- The system devised is easily managed with locally available skill-sets.

A detailed financial manual should be prepared and brought into use.

Procurement systems

Work contracts below Rs. 5 lakhs should be handled at the WUA-level itself because the experience in the RRR project and in other similar initiatives has shown that this works well. Further, it would be more efficient to delegate financial powers to manage routine O&M tasks to the WUAs and Rs. 5 lakhs is considered adequate for such works. The participation and capabilities of the WUAs also gets enhanced through this process. At present, this is the major interest that the WUA Committee has in the project. Effort should be made to bring in SHGs and other local livelihoods groups to take up these contracts so that the investment in the tank becomes a resource to the entire community. The details of this should be specified in the procurement policies for the project.

In the case of larger contracts, the works should be identified and two quotations generated independently - one according to the Schedule of Standard Rates (SSR) and another by the WUA itself (people's estimate). The lower estimate should be used to finalize the project. Considerations about safety and quality will be taken care of by the technical staff, particularly for larger and more complex structures.

The input costs and quality should be jointly supervised by the Department and the WUA.

Sustainability issues

The major key to post-project sustainability would be the building of the WUA-*Gram Panchayat* relationship. The cooption of two *Panchayat* members would be the first place to start. Another important aspect of sustainability is taking the WUA beyond the responsibilities of water management and facilitating its functioning as a development unit for collective action for production and marketing.

The integration of the perspectives of other water users will become possible through this relationship. Where there are many villagers served by a tank, the *Panchayats* in all these villages have to be involved in the water user system.

The Panchayat Secretary currently plays the key role in collecting water charges. The relationship between the Secretary and the WUA also can be clearly defined so the tax recovery process becomes smooth.

The integration of the field staff of other line departments would be another element in ensuring sustainability after project completion. Such a process would be facilitated in the course of the project and has to be maintained thereafter.

CHAPTER V
Institutional Arrangements for MI Tanks at the District-Level

5.1 Introduction

Within a district, several major institutions are involved in the management of minor irrigation resources. These are:

- The Irrigation Department, vested with the responsibility for managing tanks and minor irrigation structures with a command area exceeding one hundred acres and below 500 acres.
- The *Gram Panchayat,* owning all common property resources and responsible for minor irrigation sources, irrigating less than a hundred acres.
- The Revenue Department, in charge of surveying and notifying *ayacuts*, constituting the WUA, and assessing and collecting water charges.
- Institutions and programmes like the DRDA, DPAP, DPIP, APREGS, etc., which undertake important development projects.
- Other line department, particularly those of Groundwater, Forestry, Agriculture, and Fisheries.
- Training institutions and resource centres.
- CSOs, CBOs, and professionals in the district engaged in advocacy on water-related issues.
- Contractors who regularly take up irrigation-related work.
- *Zilla* and *Mandal Parishads*.

All these institutions follow their own agendas and it is difficult to get them to collaborate on something that is not strictly in line with their targets. The District Collector is often a very strong, informal presence, in bringing together these different elements, with an aim to deliver better results on the ground. The focus at the district level becomes one of orchestrating the various players so that they work together for larger impact.

5.2 Review of District-Level Institutions

5.2.1 The Irrigation Department

The Irrigation and Command Area Development (I&CAD) Department is organized in teams of nine circles and there are two or three divisions within each circle. Often the division may be a district or a part thereof. A Chief Engineer at the state-level is entrusted with the portfolio of Minor Irrigation. A Superintending Engineer at each circle – with an Executive Engineer at each division – is available to oversee Minor Irrigation works at the district-level. Three or four Deputy Executive Engineers (DEEs), with up to ten Assistant Executive Engineers (AEEs), are in charge of the Minor Irrigation systems in the field. *Lascars* are available at the tank-level in a few instances, and sometimes a work inspector is present as well.

This staffing sometimes results in an uneven distribution of work as some divisions have many tanks and others do not. One common feature is the acute shortage of AEEs prevalent in almost all the divisions we visited; in fact, we found in our filed visits that fifty per cent of the AEE positions are vacant. Sometimes the EE, too, holds charge of two divisions or medium, as well as minor, irrigation systems.

Minor irrigation systems are considered less critical for a variety of reasons. There is no great technical challenge and the community often manages with groundwater when the tank sources have failed. Currently, the engineers focus on the preparation of revival proposals where they are urgently needed (for example, where tanks are breached and there is a threat to habitations). Often, the revival initiatives come from the MLA.

The SE has to maintain the necessary linkages with the district administration and the other line departments. These interactions are complex in some cases; for example, the Rural Development, *Panchayat Raj*, Agriculture, Fisheries, and Animal Husbandry Departments are all organized along district lines while the Forest Department goes with Ranges, which do not always coincide with districts or Circles.

Some of these problems are to be addressed through the APCBTMP. The different types of experts needed, will be available within the DPU and they will, in turn, work with their corresponding agencies. These experts can be hired from the open market or taken on deputations from the line departments.

5.2.2 The Revenue Department

The Revenue Department is assigned a range of important tasks related to property registration, land records, and the management of revenue collections where applicable.

Work concerning the collection of water charges is somewhat of a non-priority item in the Department. The procedures to collect and transfer money to WUAs are cumbersome. The WUA members are not aware about the funds they are entitled to receive from the state government as part of the local share of the collected user charges, and are therefore distrustful of the whole system. The Agriculture Department also plays a role in water charges assessment; and joint working of these departments makes it operationally difficulty.

The Revenue Department seems to hold a key function, but without the corresponding accountability to the user system or to the Irrigation Department. This aspect must be addressed at the outset.

5.2.3 The Other Line Departments

Each department operates within its own plans and targets. The way forward would be to integrate tank revival-related targets within each department's overall plans. This has to be negotiated at the state and district-levels so that the details are carefully handled. The Project Steering Committee at the State level can help in this regard.

5.3 Institutional Space for Collaboration

The main task for tank revival at the district-level can be described in the following terms:

- To nurture the institutional collaborations with a view to enlarge the opportunity space available at the tank- and district-levels to pursue development objectives.
- To facilitate the convergence of efforts from other key institutions, at both the tank- and district-levels.
- To optimize economic returns to the district arising from MI command areas.

The constraints and opportunities for collaboration experienced in the district (as observed by the research team) are discussed below.

5.3.1 Legal Aspects

The Irrigation Department at the district-level is in charge of the minor irrigation structures and is responsible for their upkeep and safety effectiveness. It is the Competent Authority (as under the APFMIS Act) to distribute water according to the water distribution plans finalized by the WUAs. The constraints include the shortage of staff, an exclusive focus on engineering aspects, and the non-availability of resources and authority to build WUA capacities in the District.

The WUAs are very local structures and there is no federated body at the district level to represent their interests. The *Zilla Parishad* has to take cognizance of the challenges of tank revival and collaborate with the Department if this is to work; however, this link is not yet in place.

5.3.2 Political Aspects

Key political issues include the choice of tanks for restoration and revival and the choice of district-level partners and collaborators. The Department currently relies on the inputs from MLAs and MPs (that is, the elected representatives) in making these choices. In addition, the WUAs use their informal (political) alignments to influence key decisions.

5.3.3 Financial Aspects

The Department is severely constrained for financial resources. This aspect needs reform at several levels. Local resource mobilization and autonomy in financial matters should be introduced. At the same time, the relative inexperience of the Department in independently handling finances at the district level has to be dealt with in order to protect various stakeholders.

5.3.4 Administrative Aspects

The Department has strong capabilities relating to technical aspects. The skills for collaboration and networking have to be developed. Similarly, the Department has to learn to assimilate the various types of expertise available from external resource providers. The CSOs and CBOs at the district level have some degree of expertise on tank revival; they would need to strengthen their managerial skills and project-execution abilities.

At the district-level, there is a near-absence of federated bodies of water-user organisations that can effectively represent the interests of the users. They are now operating indirectly through other systems, such as the Panchayat. These are strong both politically and administratively. The Department is more focused on technical aspects. There is scope for integrating the IWRM framework in its functioning.

The scope for collaboration has to be developed further by creating representative space for water users to articulate their requirements at the district-level.

5.4 The Proposed Changes

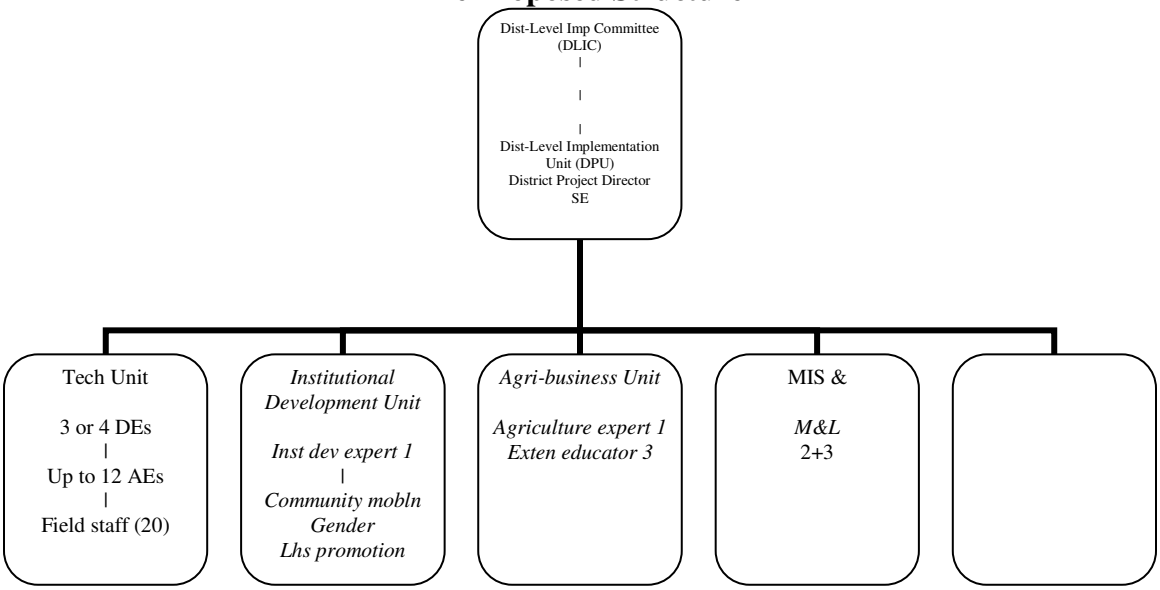
5.4.1 The Institutional Structure at the District-Level

The structure proposed for the District Project Unit (DPU) is shown below.

It will be headed by the Director selected on the basis of relevant skills and aptitude, who will be assured a tenure of three years. The District-Level Implementation Committee (DLIC) would be a forum to facilitate the convergence of efforts by various stakeholders and to guide the work of the DPU.
The required range of expertise for the DPU will be integrated by recruitment from the open market and efforts will be made to get the team to work together. The composition and numbers are based on discussions about the requirement.

The DPU will be headed by the District Project Director (PD) who will be of the rank of an EE. One Irrigation Division in the district will be identified and earmarked for this project only. Three or four DEEs will be in charge of the divisions within the district. Each DEE will have three AEEs reporting to him. Thus, one AEE will cover two or three *mandals*, which may mean taking responsibility of around twenty project tanks. In addition, the district team will have institution- and capacity-building support, finance and accounting, procurements, MIS and M&E, and agri-business and livelihoods-promotion support. This is being considered to create a well-balanced support facility at the district-level.

The Proposed Structure



In addition, a District-Level Implementation Committee (DLIC) will be set up to facilitate the convergence of various efforts to improve productivity and address concerns of equity, etc. The EE heading the district unit will be the Member Secretary and convener of this forum, which will be chaired by the District Collector. The Vice-Chairperson would be an eminent professional or an NGO leader interested in the project. The district heads of line departments and a few WUA presidents in the district will constitute the members of the DLIC. This committee will be the forum for building convergence among the various stakeholders so that the various linkages are established. One risk in the arrangement is the possibility that the District Collector is already overloaded with multifarious responsibilities and is therefore unable to give time. The situation has to be studied and the office of the Vice Chairperson activated if needed.

This arrangement will be introduced in eleven districts that have the largest area under tank irrigation. Within the district, those *mandals* with the highest poverty levels will be identified for the first stage of the project. When hydrological and technical criteria are applied, approximately ten tanks in a *mandal* may get selected for revival in the initial phase under the project. Care will be taken to select interconnected or linked tanks. If ten to fifteen *mandals* are identified in a district, we may expect that 100-150 tanks will be covered under the project at this stage. Gradually, other *mandals* will be taken up.

If we cross-check this against the number of tanks with WUAs in each district, we find that there are, on average, 500 MI tanks per district in these selected districts. Thus, this project will address the needs of approximately 25% of the tanks in the district.
Eventually, around 3,000 are to be taken up in the whole state.

5.4.2 Tasks at the District-Level

The project Log-Frame has identified the following tasks at the district-level.

Capacity-building

1. Awareness campaigns using mass media
    - Facilitation of community-level tank-based livelihoods planning and implementation.
    - Training on water audit for NGOs, farmers, CBOs, and Department staff,
    - Orientation of WUA members on equitable water distribution.
    - Facilitation for setting up water distribution from upper to lower reach through awareness and handholding in order to achieve equity within tank areas.
    - Identification of para-workers in these tank areas and arranging for decentralized training.
    - Contracting *Krishi Vigyan Kendras* (KVKs) for the promotion of SRI paddy.
    - Introduction of exposure visits to these sites for tank-area farmers.
    - Introduction of award scheme for better tank water resources management.

2. Strengthening WUAs
    - Creating a platform for regular interaction among different tank users at the *Panchayat*-level.
    - Defining usufruct rights on tank water for various stakeholders with additions/ refinements to the APFMIS Act.
    - Co-opting WUA members in *Gram Panchayat's* NRM Sub-Committee.
    - Grading of WUA in ABC categories.
    - Identification of NGOS and subsequent signing of MoUs and orientation for community mobilization.
    - Priority to tribal areas for the creation of irrigation potential/revival/ restoration.

3. Assessment and collection of water charges
    - Increase in coordination with the Revenue Department at district and sub-district levels.
    - Each tank to define the share of revenue to be generated from alternate water uses. To be motivated on a regular basis.
    - Introduction of pilots, wherein select WUAs collect tax and use them for O&M as per their approved plans.
    - Creation of a livelihoods fund at the grassroots-level.
    - Monitoring of time gap to reach plough back funds to WUAs.

Promotion of improved water use through better package of practices

1. Introduction of SRI paddy, farmer field schools, and demonstration plots in pilots.

2. Promotion of actions for input cost reduction, productivity enhancement, water-use efficiency and new techniques.
3. Development of silt depots in tank areas, pilots/models with value addition to silt, and farmer-based silt use promotion scheme.
4. Development of linkages with other programmes.
5. Decentralised trainings through KVKs.
6. Promotion of micro-enterprises based on post-harvest in selected areas.

Policy recommendations to state-level

1. Action research project to assess effect of catchments area treatment on groundwater levels.
2. Actions to take up MI work in the tribal areas (negotiation with the Forest Department, modifications in the current regulations/Acts).
3. Study of O&M needs of MI tanks in Andhra Pradesh (basin/region/rainfall-specific).

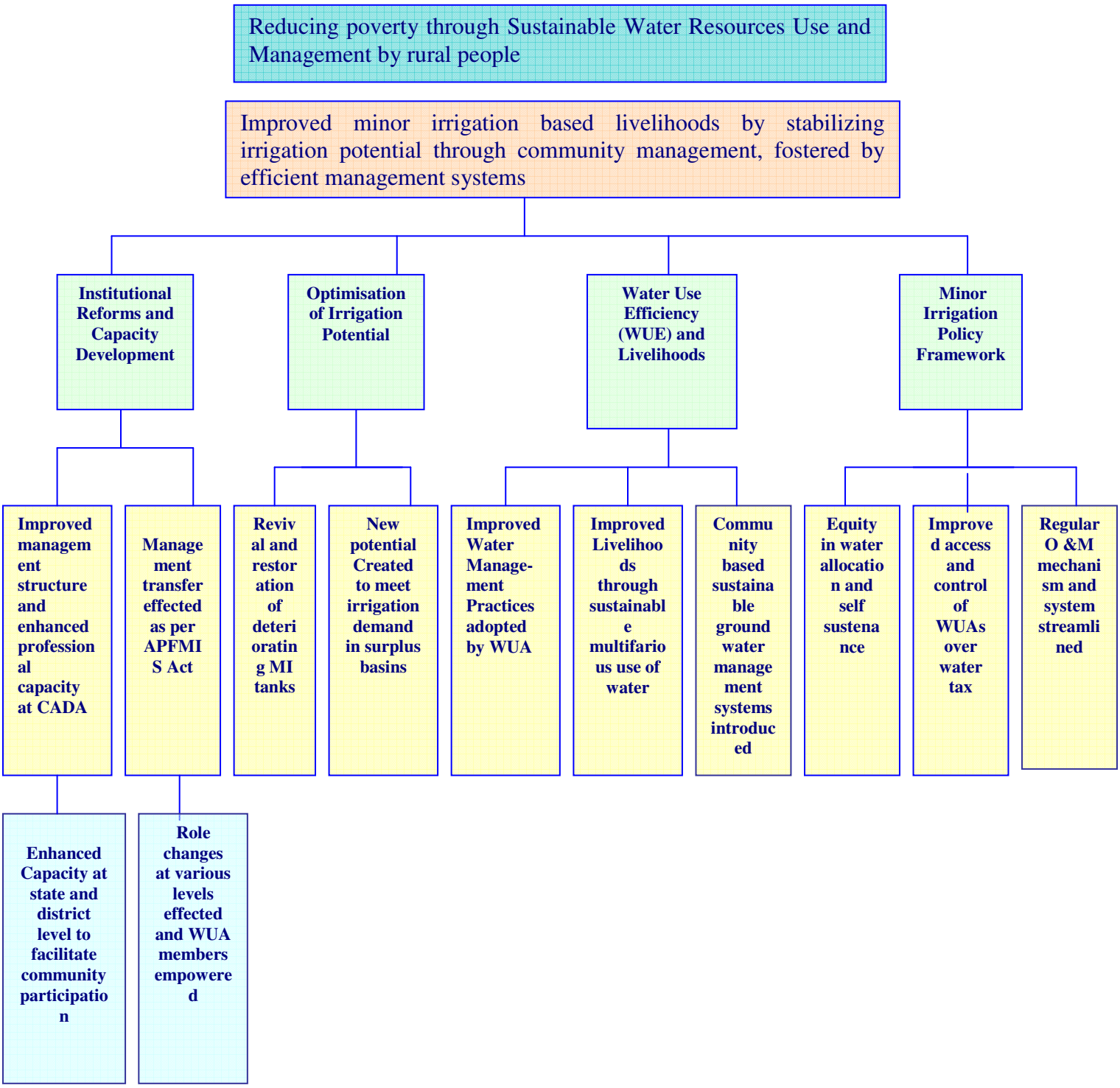
The Project Log Frame depicts an overview of the changes that are envisaged. In the previous chapter, the path to institutional maturity at the field-level had been described. The task at the district-level is now mapped, based on the detailing of the tasks at the tank. The institutional arrangements required at the district-level for this purpose are also discussed in this chapter.

The significant gaps in the institutional arrangements proposed can be summarized as follows:

- The internal capacity-building needs are not clearly assessed.
- The arrangements to facilitate closer collaboration with *Panchayats* are not defined.
- The water users do not have a direct voice on the DLIC or at any other level above the tank-level.
- The distance between the district- and the tank-levels seems huge and an integrating mechanism at the *mandal*-level would prove useful.

Keeping these aspects in mind, this chapter is concluded with our observations and specific suggestions.

OUTLINE OF THE PROJECT LOGFRAME



5.5 Observations and Specific Suggestions

Some of the urgent tasks that have to be completed at the district-level to ensure smooth project functioning are identified below.

5.5.1 Taking Stock of Assets and Capacities

Assessing the status and potential of water bodies

The district team will have to make a rapid assessment of the asset base it is supposed to manage. At present, there is incomplete information on the tanks and many tanks are in a 'no man's land' between *Panchayats* and the Irrigation Department.

After a due listing of the water bodies, the hydrological potential has to be assessed. This can be seen as part of a larger statewide task of GIS-based assessment of water availability from various sources. The district society will have to draw what it needs from such information bases under preparation. This process would lead to the identification and prioritization of *mandals* for early intervention.

5.5.2 Assessing the Status of WUAs

Similarly, the district has to assess the availability status of the WUAs. Very often the WUA is as active as the tank systems. In places where the tank is a vital source for the livelihoods of the community, the WUA has become active in managing the distribution.

The tanks most in need of restoration may not have active WUAs. Tanks recently transferred from *Panchayats* will also not have a formally convened WUA. The district will have to identify such cases and initiate procedures to constitute and strengthen the WUAs. The district team will be able to map the WUA capacity-building agenda and identify the necessary resource support providers for this purpose.

5.5.3 Identifying Project Support Organisations

The DPU would need local collaboration from CSOs and NGOs, or other local institutions to facilitate the transformation in the communities. Our consultations with NGOs indicated the following:

- There are potential collaborators who can be identified for the project.
- The role they will play would be facilitative, rather than managerial.
- As the project implementation progresses, they will enable the collaboration in the field to move forward to the next stage.

The discussions with NGOs with prior experience in this area led to the following criteria being suggested for the selection of support organizations:

- Five years' experience as an active organization with a good track record, at least three of which are spent working on water-related projects.
- The organization must have worked on at least five water-related projects as well as at least three in other fields.
- The area of operation of the organization should be at least two to three *mandals* in the district.

The guidelines for the selection of support organizations can be finalized by the state unit and circulated.

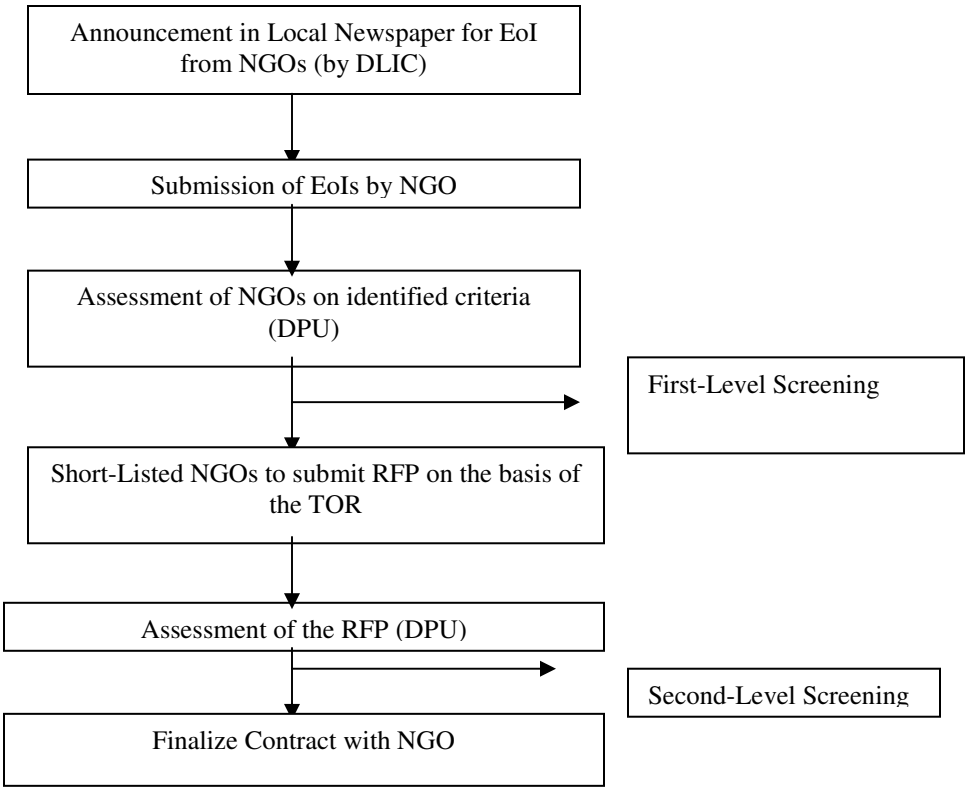
5.5.4 Identifying Training and Capacity-Building Institutions

Each district has the physical infrastructure to house the training programmes that will be needed for the field teams, the WUAs, para-workers, and other resource providers.

District-level resource persons, too, are available. For example, the recent recruits for APREGS have been trained and mentored by the local resource persons. Such external faculty can be engaged to conduct the required field-level training programmes, after they have gone through the required TOTs.

5.5.5 NGO Selection

NGO Selection Process suggested by CADA



NGO Selection Process suggested by CADA

NGOs with experience in this field have suggested a number if institutions that can serve as resources for the project. These include various state and national institutions and departments, research and training institutions of NGOs, and international organizations.

State Institutions	National Institutions	NGO Training Institutes	International Organisations
APARD	**Engineers Staff College**	**Action for Food Production (APFRO)**	**ICRISAT – IWMI**
Agricultural Research Stations (ARS), e.g. LAM in Guntur	**Institute for Social and Economic Change (ISEC)**	**Center for Sustainable Agriculture**	**World Wildlife Fund**
Acharya NG Ranga Agriculture University	***Krishi Vigyan Kendras* (state-sponsored)**	**RDT Center**	
Minor Irrigation Department, esp CADA	**NABARD**	**WASSAN**	
Groundwater Department	**NIRD**	***Jeevan Sudha*, Kurnool**	
Department of Rural Development, esp DWMA, DLRC/CLRC, MDTs	**Central Institute of Dryland Agriculture (CRIDA)**	**MYRADA**	
WALAMTARI	**National Institute of Agricultural Extension Management (MANAGE)**		
	Geological Department		

The district team will have to negotiate with the local institutions and develop suitable packages – within guidelines from the state office. Other collaborators and experts needed could include accounting and audit professionals, and technical support (works supervision, measurement, etc). A similar process of assessing them and initiating contacts will be necessary.

These aspects are further explained in the next chapter.

5.5.6 Project-Related Tasks

The important project implementation tasks are:

- Identifying *mandals* for intervention
- Selecting the first batch of tanks and initiating local campaigns
- Selecting SOs – negotiating and signing MoUs
- Setting up *mandal*–level teams
- Identifying and preparing para-technical staff
- Framing the task schedules of the *mandal* team, through a participatory process
- Ensuring availability of various resources like materials, training and knowledge inputs, etc. for the batch
- Monitoring the implementation and adding specific support where needed
- Beginning the process for the next batch

Many of these tasks have to be bunched for optimizing cost and effort. The DPU would have to introduce and maintain financial and accounting practices that will ensure transparency and good governance. It will have to develop the procurement norms for costing (SSR) and provide technical estimation and assessment-support where needed.

Convergence and Coordination

The DPU has to leverage on the District-Level Implementation Committee to build convergence and coordination efforts. The DLIC structure had been useful in the districts where the RRR project has been implemented and can now be introduced wherever the APCBTMP is being implemented. One major area for collaboration would be the coordination with the APREGS system to ensure de-silting of the selected water bodies. There are a few districts included in this project which are not yet included in the Employment Guarantee Act implementation. The issue of de-silting has to be sorted out in the case of those districts and it can be made part of any Food For Work programme in that area.

The district office must work for convergence within the irrigation sector as well and fit itself into the common framework emerging among agencies in the irrigation sector, namely, groundwater major and medium irrigation systems, and so on.

5.6 Some Issues for Special Consideration

5.6.1 Selection of Key Personnel

It is proposed to identify and earmark one Irrigation Division to the project. We would recommend that greater attention be paid to identify staff with suitable attitudes and competencies.

The identification of suitable persons to head the DPU is of crucial importance, the criteria being sensitivity to community based approaches and willingness to work on the same. We recommend a selection procedure where leadership, communication, facilitation, and managerial competencies of candidates are assessed. The persons qualified through this

process should then be briefed about the new role and only those who are willing should be posted. Tenure of at least three years should be ensured, both at the state level and at the district level. Similarly, the DEEs and AEEs should be selected carefully and taken into the project only if they are interested. The recent batches of AEEs/AEs who have had rigorous induction training should be preferred for the society.

An orientation and induction workshop has to be organized for all Project staff to build a lateral team that will keep up the morale and offer peer support. Themes should include sector perspectives, collaboration and facilitation skills, and project management skills, beside the details of the project itself.

5.6.2 Capacity-Building for the District Team

Given the multifaceted expertise available in the district team, the strategy for capacity building should emphasise cross learning. One way to do this would be to have regular presentations by team members on their own work and its links with others' work. Further, effort should be made to reduce barriers of hierarchy to facilitate learning. Clarity about roles, delegation of authority and financial powers are very important to empower staff to perform. This has to be worked out for the DPU.

5.6.3 Mandal Structure

The project proposes to address the revival of the tanks in a *mandal* (or sub-basin). The AEEs who would each handle perhaps forty tanks across three or four *mandals*, would have approximately ten 'project tanks' in their area. They would have to pay special attention to three or four such selected tanks at any given point of time. A structure at *mandal* level could be useful in supporting coordination and convergence. We would suggest a committee headed by the DEE, with AEE, SO, WUA presidents of selected tanks and the APREGA programme officers as members, to meet every fortnight. This forum can feed in issues for district-level support or intervention as they arise. Such a structure can be continued beyond the project life also.

5.6.4 Para-Professionals in Irrigation Management

Given the paucity of staff in the Department and the project aspiration of making WUAs truly empowered bodies, project legacies on the ground and the exit strategy should be thought of from the beginning.

The DPU should find ways to build at least three types of para-professionals at each project location:

1. Animators for community mobilization around water resources and common property resources.
2. Para-water engineers with an adequate grasp of the technical aspects of tank construction and irrigation maintenance.

3. Agents for livelihoods promotion

The project should use existing resources rather than invest too much in developing more of them. It would, of course, be ideal if a single person could play all these roles simultaneously. In contrast, having a few persons with his orientation and training within the community may serve as a check against a new monopoly of knowledge. Gradually these resources developed in the project will be available for other initiatives

We would suggest the following process in this regard:

- The topic should be brought up for discussion with the WUA in the pre-planning stage itself.
- It should be an item in the MoU that such a person(s) will be identified. S/he would be a local resident with some established livelihood and will be paid a service fee by the individual farmers or the WUA (depending on the type of service rendered).
- Each *mandal* team could take up the responsibility of identifying, mentoring and building the skills of a few people in their area.

The availability of such a resource will enable the WUA to gather the relevant data on cropping pattern, revenue assessment, collection and remitting to WUA account, managing procurement, works execution, and so on. This will be a major contribution to the water resource conservation on this site.

5.6.5 Identification of Support Organizations

In selecting a local partner for project implementation, the availability of suitable partners becomes a constraint in some situations. The availability of a sound grass-root level organization cannot be assumed. Sometimes, necessary skill and orientation may be available with an individual in the community. There could also be some local institutions, such as it is, engineering colleges, or religious trusts, with the capability to play the support organization role effectively. These organizations can continue to collaborate beyond the project limits and the SO can work with other tanks in the region also. Thus, specifying that the Support Organisation should be an NGO in the conventional sense may prove shortsighted; we would recommend that the long-term Support Organisation should be in a defined manner that will include all these options.

5.6.6 DLIC – Working

The key factor in the effectiveness of the DLIC contribution to project progress is the interest of the District Collector. This factor cannot be taken for granted and the state-level leadership should intervene discretely to build the Collector's support. Similarly, meeting management skills of the convener would be a great asset. This can be achieved through appropriate training inputs in the orientation workshop and opportunities for review and feedback. State level outcome base workshops, providing information on economic returns and resource mobilization by WUA, may be a way to build district level leadership.

5.6.7 Capacity-building of WUAs

A key task for the DPU would be to build the overall capacity of the WUA stage by stage.

- The first step would be to constitute or activate them where needed. A negotiation with the revenue authorities would be necessary for this. In the case of larger tanks, the possibility of enlarging the WUA has to be taken up, as stated under the amendment to the APFMIS Act. The four sub-committees have to be constituted and the two members from the *Gram Panchayat* co-opted.
- A member of the WUA should be on the NRM sub-committee of the *Panchayat*.
- Through an awareness campaign, WUA members should be sensitized to the needs of other water users and other stakeholders in the tank system. Similarly, gender and equity issues should be highlighted.
- Within each sub-basin, the WUA committees should initiate dialogue with the other CBOs that have water-related concerns, such as *Rythu Mitra* groups, fishing cooperatives, diary cooperatives, watershed committees, and bore well users' associations. If there are any canal-based WUAs present, they too should be included in this dialogue.
- The WUA should emerge as a local institution holding the interests of the water system and its sustainable use.

5.6.8 District-Level Training System

One training strategy for project staff and collaborators could be to build interventions around the roles of various officials/teams. The programme will build an understanding of the key aspects of the role such as:

- Key contribution to overall purpose
- Key links to state, tank/mandal and external resource agency-professionals
- Typical functions
- Inter-role linkages

Skills and knowledge inputs will be built into this framework, thereby highlighting the relevance of the input and linking it to practice and application.

5.6.9 PAG for Governance Concerns at The District Level

The need for institutional space at the District level for taking up governance issues relating to selection of tanks for revival and the impact of these choices on other linked water bodies is very important. This has already been commented upon earlier in this chapter. We are therefore of the view that at the district-level, a Project Advisory Group (PAG) should be convened with a membership that would consist of two WUA Presidents, two ZP members, two NGO leaders of the district (all these not already on the DLIC or from support organizations for the project), the SE, and an institutional development expert. The body could meet every quarter to review governance issues and other disputes. Emergency meetings could be convened when any member has a concern about the governance aspects or inordinate delays. The group will keep the Project Ombudsman at the State and DLIC informed about their deliberations and offer

guidance for action on any disputes that may arise. A specific arrangement for this purpose brings focus on governance concerns, which often get lost in the details of routine activities. It also provides for transparency and legitimacy in decision-making.

5.6.10 Sustaining the Project Benefits

It should be emphasized, within the Irrigation department, that the 'process' used to implement this project should become the general way of managing tasks. Ongoing process documentation would be useful to capture the knowledge generated and integrate it in the system. Similarly, the NGOs and support organizations should be encouraged to continue their interest in the sector because of its impact to poverty.

The most important challenge in sustaining the benefits of such projects beyond the funding period is the collapse of the institutions upholding a particular 'way' or process that goes with it. This issue should be debated at this stage and consciously addressed throughout.

Appendix 5.1

Tank Memoir

1.1* Physical Details

a.	Name of the Tank	:
b.	Location (Village/ Mandal, District)	:
c.	Tank Type	:
d.	History/Background of Tank	:
e.	Concerned AEE/DEE Office Contact Details	:
f.	Agro-climatic zone	:
g.	Type of land/soil	:
h.	Catchments area	:
i.	Capacity of the tank	:
j.	Live storage	:
k.	Dead storage	:
l.	Length of the Bund	:
m.	F.R.L	:
n.	M.W.L	:
o.	T.B.L	:
p.	Length of surplus weir	:
q.	Sill of sluice	:
r.	No. of vents	:
s.	Water-spread area in acres	:
t.	No. of fillings in a year	:

1.2* Other Natural Resources in the Tank Area

a.*	Forest	:
b.*	River access/canal access	:

c.*	Hills	:
d.	Other	:
e.	Condition of Inflows	:
f.	Condition of Outflows	:

1.3 Tank-Usage Profile

a.	No. of villages covered	:
b.	Names of villages covered and ayacut under each (Mandals & Districts)	:
c.	Planned ayacut	:
d.	Actual ayacut	:
e.	Current level of usage (estimated % of planned ayacut)	:
f.	Other water sources in ayacut (wells, bores, streams, canals, etc) & their relationship with the MI tank	:
g.	Other water users	:
h.	Tank monitored by whom on a day-to-day basis	:
i.	Details of major repairs, etc. in the last 5 years	:

2. Institutional Details

2.1	Village Institutions	:
a.	Panchayats (Number & Names)	
b.	Fishermen's Cooperatives/Other cooperatives like farmers or dairy	:
c.	Common livelihood groups - e.g. RMGs	:
d.	Other CBOs (such as Velugu VO's, federations, etc.)	:
e.	NGOs/CSOs	:
f.	VSS	:
g.	Other	:

2.2 WUA details

a.	President	:
b.	Vice-President	:
c.	T. C. Members	:
d.	Sub-committees – who are the members, if any	:
e.	Are there representatives from all the villages	:
f.	Representation of GP in WUA	:
g.	Women in WUA, if any	:
h.	Any training received by WUAs? What are the trainings? Manual or rulebook? Who keeps these and in what condition?	:

2.3 Activities and Projects

a.	Usual activities of the Managing Committee?	:

	Dates of last 6 meetings of WUA/Committee.	
b.	Scheduling of tank-related activities; usual processes; water audit?	:
c.	Sustainability of O & M - how are maintenance costs being met by local resources and actual collections	:
d.	Proposals for new investments, if any	:
e.	Problems usually faced; precautions taken for breaches? Leaks?	:
f.	No of visits by Department personnel	:
g.	Information collected regularly and its utilisation specify	:

3. Financial details

3.1 Local Contributions (water charges, etc)

a.	Amount assessed per member/ per acre	:
b.	How was this amount fixed	:
c.	Did everybody pay?	:
d.	Time of collection (before/after project, etc)	:
e.	Who collected these amounts?	:
f.	Contributions from other water users (not farmers)	:
	Paid from other mandals/districts in the ayacut area	

3.2 Procurement and Financial Arrangements

	Description and value of any works handled by the WUA in the last 10 years	:
a.	Date	:
b.	Details	:
c.	Total cost of work	:
d.	Local contribution (in cash, shramdhan, other)	:
e.	Source of funds	:
f.	Procured items	:
g.	Services of contractor for the work	:
h.	Materials used (specify)	:
I.	Services of engineer, surveyor and other technical expertise used	:
j.	Labour	:
k.	Other	:
l.	Procedure to identify suppliers	:
m.	How the rates were decided	:

4 Livelihoods

4.1 Govt. or other schemes operational in the area

a.	Watershed development	**:**
b.	Groundwater replenishment	:
c.	Food for Work	:
d.	APREG	:
f.	Help received from outside (NGOs etc), if any	:
g.	Marketing interventions	:
h.	Livelihoods interventions	**:**

Appendix 5.2

Water Users' Association Rating Tool

Items		Score[14]
1. INSTITUTIONAL DETAILS		
1.1 Constitution of WUA		
a. WUA membership in addition to farmers from upper reach	**i. *Panchayat* members** **ii. Women** **iii. SC/ST/OBC** **iv. Tail-end farmers (all villages under tank represented)** **vi. None of the above** **vii. WUA does not exist**	
b. WUA Sub-Committees for specific tasks	**i. Functioning sub-committees exist** **ii. Sub-committees exist, but inactive** **iii. No sub-committees exist**	
1.2 Leadership/Decision-Making within the WUA		
a. Leadership	**i. Rotation of WUA President/Vice-President/ Secretary** **ii. Women, SC/ST/ OBC, & tail-end farmers given the opportunity to hold office** **iii. Rotation of TC members** **iv. None of the above**	
b. Decision-making process	**i. *Gram Sabha* referendum** **ii. WUA General Body referendum**	

[14] It is recommended that scores be developed by the Department based on trial implementation of the rating tool on a sample of at least 100 WUAs around the state.

	iii. Only TC members consulted **iv. None of the above - WUA President makes unilateral decisions or Department influences decisions**
2. WUA MANAGEMENT	
2.1 Meetings	
a. Regularity of meetings	**i. Regular meetings held at fixed time & venue.** **ii. Meetings are held tentatively on need-basis at no fixed venue** **iii. No meetings held so far**
b. Attendance (Managing Committee)	**i. Meetings with 85% & above attendance** **ii. Meetings with 50-85% attendance** **iii. Attendance below 50%** **iv. Not applicable**
2.2 Records and Accounts	
a. Maintenance of records (including meeting minutes) and audit of accounts	**i. All necessary records maintained & updated. Book-writer maintained.** **ii. Necessary records maintained on *ad hoc* basis** **iii. No records maintained.**
2.3. Transparency	
a. Knowledge of WUA activities and proceedings	**i. Reading of income & expenditure particulars at meetings** **ii. Only TC members have knowledge about WUA activities** **iii. Only WUA President and a few others have knowledge about WUA matters.**
b. Display of information	**i. Income & expenditure particulars displayed in public places**

	ii. Display boards are fixed but not updated with information
	iii. No public display of WUA-related information
2.4 Resource Mobilisation	
a. Resources mobilised by WUA	**i. Local contributions in cash and/or as *shramdhan***
	ii. Donations from outside sources
	iii. Only government funds received
2.5 Conflict-Resolution	
a. Conflicts arising within the WUA	**i.90% & above of conflicts resolved**
	ii. 40-89% of conflicts resolved
	iii. Below 40% conflicts resolved
b. Conflicts arising among WUA members and other users	**i. 90% & above of conflicts resolved**
	ii. 40-89% of conflicts resolv66
	iii. Below 40% conflicts resolved
3. OPERATION & MAINTENANCE AND COLLECTION OF CHARGES	
3.1 Operation and Maintenance	
a. Awareness of conjunctive use of water	**i. Yes**
	ii. No
b. Condition & maintenance of feeder channels and other inflows	**i. Inflows in good condition and well maintained by WUA**
	ii. Inflows in adequate condition and maintenance undertaken by Department when funds available
	iii. Inflows in poor condition; no maintenance activities undertaken

c. Maintenance of tank	**i. Original storage capacity of tank maintained by WUA** **ii. Storage capacity reduced to 50-90%** **iii. Storage capacity reduced to below 50%**
d. Status of distribution network	**i. Distribution network is intact and farmers maintain the network in the fields** **ii. Irrigation officials maintain network as and when funds are available** **iii. No maintenance of network within the past 5 years**
3.2 Collection of Charges	
a. Assessment of water user charges	**i. Both WUA and CA participate in joint *ajomish* every crop season** **ii. Secretary assesses charges on his own.**
b. Collection of charges	**i. Collection rate is 90% or above** **ii. Collection rate is 40-89%** **iii. Collection rate is below 40%**
4. WATER DISTRIBUTION	
4.1 Awareness and Concern for Social Imbalance and Equity	
a. Level of social imbalance in community	**i. All households from similar caste /class background.** **ii. Mixed population with well-integrated housing.** **iii. Mixed population with well-marked areas for SC/STs**
b. Social imbalance in community at large and also in water distribution	**i. Awareness and concern about situation, and WUA actively seeking to address issue**

	ii. Awareness but no concern or action about situation on WUA's part
	iii. No awareness or concern about situation => no action to address issue
4.2 Water Distribution Practices	
a. *Warabandi*	**i. Water Distribution Schedule prepared in advance with dates and adopted by WUA**
	ii. *Warabandi* in practice only on insistence of Department or during water scarcity
	iii. No regulation of water
b. Tail-end area receiving water and additional area brought under cultivation	**i. 90% or above of tail-end area receiving water & additional area brought under cultivation**
	ii. 75-90% of tail-end area receiving water
	iii. Tail-end area problems persist
c. Innovations in water management and cropping pattern	**i. Effective management of water for its conjunctive use**
	ii. Significant change in cropping pattern (ID), e.g. with SRI
	iii. Low-level of adoption of new cropping patterns
	iv. Efficient distribution of water
	v. Other, please specify
5. CAPACITY-BUILDING	
5.1 Training and Awareness-Generation	
a. Trainings received by current TC members	**i. Cropping pattern**
	ii. Livelihoods
	iii. WUA management
	iv. Records & accounts

	maintenance	
	v. Operation and maintenance	
	vi. Exposure visits and field demonstrations	
	vi. Other, please specify	
b. Trainings and Community Awareness Campaigns for all water users	**i. Cropping pattern**	
	ii. Livelihoods	
	iii. Field demonstrations	
	iv. Irrigation structure operation and maintenance	
	v. Other, please specify	
5.2 Receptivity to New Skills		
a. How receptive are WUA members to new skills learned	**i. Acceptance and effective implementation of new skills learned**	
	ii. Acceptance but no proper implementation of new skills	
	iii. No acceptance of new skills learned	
6. RELATIONSHIP WITH OTHER INSTITUTIONS		
6.1 Level of Collaboration with other institutions		
a. Other village institutions	**i. *Gram Panchayat***	**Good/moderate/none**
	ii. Fishermen's cooperatives	**Good/moderate/none**
	iii. SHGs/VOs/RMGs/VSS	**Good/moderate/none**
b. Support Organisations	**i. NGOs**	**Good/moderate/none**
	ii. Youth groups	**Good/moderate/none**
c. Other Line Departments	**i. Agriculture**	**Good/moderate/none**
	ii. Animal Husbandry	**Good/moderate/none**
	iii. Fisheries	**Good/moderate/none**
	iv. Forestry	**Good/moderate/none**
	v. Horticulture	**Good/moderate/none**
	vi. Other, please specify	**Good/moderate/none**
d. Other	**Please specify**	**Good/moderate/none**
6.2 Participation in Other Development Programmes		
a. State government programmes	**i. APREGS**	
	ii. Watershed	

	Development **iii. APWELL/APFARM**
b. Central government programmes	**Please specify**
c. Other NGO-led programmes	**Please specify**

CHAPTER VI
Institutional Arrangements for MI Tanks at the State Level

6.1 The State-Level Scenario

The project for tank revival is crucial from the perspective of the government because

- This system has suffered a steeper decline than the medium and major irrigation systems and groundwater sources in the state.
- It has the potential to yield quick results.
- Its impact is high on the smaller and marginal farmers.
- It has the potential to mitigate the crisis of depleted groundwater tables.
- It is the only feasible way to ensure progress in the more arid regions in the state.
- It is a priority element in the national policy framework.
- Previous experiences with this kind of project have been encouraging, both in Andhra Pradesh and in other states.

The state has already embarked on the path of Participatory Irrigation Management and there are over 8,000 WUAs established at the tank-level with a mandate to manage water distribution and the maintenance of tanks. This project will help revive the early enthusiasm observed in the state for community-based revival of tank systems.

The recurring problems in the field are:

- Acute shortage of staff in the Department.
- Few officials with the skill-set to effectively work with the tank WUAs.
- Extremely modest improvements in tank maintenance after 1998-1999.
- Poor extension and livelihoods support services to the farmers.
- Lack of coordination among the line departments at the local level.
- Problems in assessing and collecting water charges.
- Continued problems of tail-end users.
- Conflicts among different user groups.

These problems are aggravated by the structure of the Irrigation Department at the district level; the Irrigation Circles in the Department span more than one district unlike the district-level structures in other line departments, creating imbalances in decision-making levels.

Some key assumptions that seem to hold back investment in tanks that we noticed are:

- The money required in these systems seems ‘too small’ and therefore can be left to local resources.
- The users of the tank system are relatively poorer farmers with less political clout.
- The technical challenges are locally well understood and the solutions are often through local and low-cost systems.

- With their own recourse to groundwater in many places, farmers in the tank sector are not solely dependent on tanks.

This project seeks to address these issues in a comprehensive and effective manner.

6.2 Opportunity Space for Tank Revival at the State-Level

In the earlier chapters, the tasks at the tank- and district-levels have been described. The mandate of the Irrigation Department with regard to minor irrigation at the state-level can be summed up in the following terms:

To integrate the efforts of revitalizing and stabilizing tank irrigation systems in the state of Andhra Pradesh through the facilitation and monitoring of participatory irrigation management, with the aim to improve the livelihoods of the people depending on it, addressing concerns of equity, sustainability, and the environment.

The emphasis should shift towards decentralized management and the Department should take up a role of facilitation and monitoring in community-based tank management.

The various measures required at the state-level to enable and support these changes are broadly as follows.

Legal Frameworks

The legal landscape on the user side is now defined by the APFIMS Act 1997. This defines the roles and responsibilities of the Department and the user bodies such as the WUAs. There have been changes in the legislation recently, mainly to include consideration for other users and closer convergence with the *Panchayats*. However, the changes have yet to be realized on the ground. The responsibilities for service delivery resting with the Department, as well as those with the WUA, have to be reiterated in various ways in order to strengthen the service delivery platform.

Political Factors

There is significant scope available for collaboration and joint initiatives to restore tanks as demonstrated in various state projects and NGO initiatives. This was noticeable in places where a constructive use is being made of the available opportunity. (See chapter IV). There are often constraints that arise because of the following factors:

- Local rivalries within the user group;
- Rivalries with other users;
- Difficulties in negotiations with the elected representatives;
- Articulation of rights by marginalized sections;
- Resource constraints.
- Poor awareness of possibilities for economic growth and social transformation; and
- Poor coordination among the institutions providing services.

This project should design and create negotiation spaces at the different levels that will bring together the contending interests. The governance structure should integrate these issues. Moderation and collaboration mechanisms should be in-built.
The Project should also ensure that existing ways to deal with some of these political issues are activated and kept alive at all levels (for example, implementation of the GOs to take over tanks from *Panchayats*, rotation of leadership within the WUA, co-option of members of *Panchayats* in WUAs, and recognition of the rights of fishermen).

Fiscal Factors
This project anticipates an outlay of Rs1,000 crores across the State. The tank repair and restoration projects will constitute major public expenditure in the selected locations. The only other comparable scheme would perhaps be the APREGS. There could be complementarities between the two schemes when the activity of de-silting and other labour-intensive components of tank revival become part of the APREGS.

The fiscal aspects that have to be addressed are:

- Systems to facilitate timely transfers of resources to the field-level.
- Procedures to monitor the end-use of funds, avoiding leakages, misuse, etc.
- Ways to retain the investments within the local economy as a strategy to promote livelihoods and market linkages.
- Transparency about financial management issues at all levels, especially among the user groups.
- Greater financial stake and responsibility for resource mobilization for WUA in PIM, tank improvements works and regular maintenance as per the Act.

At the state-level, the major issue that will have to be addressed is the transfer to the user groups of the responsibility to assess and collect water-service charges. This would mean shifting away from the tradition of the Revenue Department collecting the water charges for the *Panchayat*. The Irrigation Department would have to institute systems to assess, collect, and utilize the water charges for operations and maintenance that will be carried out by the WUA. Part of the revenue generated should be shared with the *Gram Panchayat*, who is the 'owner' of the tank.

The state-level authorities should decide on the level of financial autonomy necessary at the district level for effective and smooth functioning. An effective and quick reporting and control system, preferably automated, will have to be put in place. The reports should be supervised and monitored quickly and regularly.

Administrative Capacity
At the state-level, managerial capacities have to be developed to hold in place the following managerial and decision-making processes at different levels:

- Project implementation and monitoring.
- Grading, sorting, and prioritizing challenges.
- Strategizing to mobilize the different inputs required to improving water-use efficiency, including human resources for greater interventions beyond repair and maintenance of physical infrastructure.

- Identifying and catering to special needs arising from different districts and zones, as well as making good use of any available opportunities.

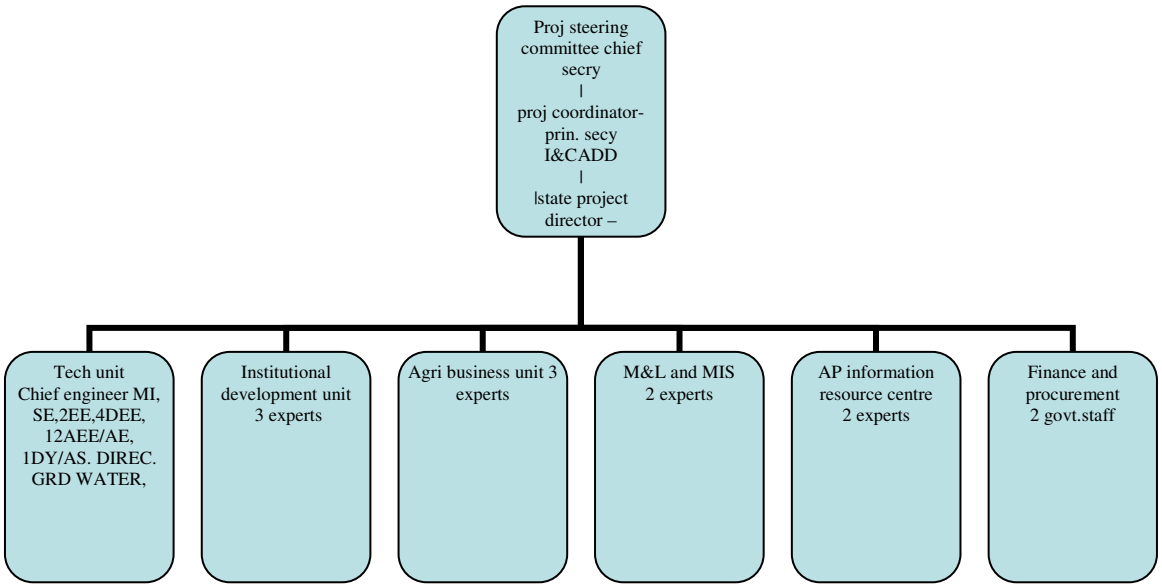
The generic administrative processes to be held in place would include:

- Personnel policies, including norms for staffing, recruitments, performance appraisal, etc.
- Processes for sourcing necessary support services (e.g., community mobilization, audit and accounting, etc.).
- Spearheading capacity-building efforts within the Department and among WUAs and SOs.
- Developing policy changes and negotiating for their implementation.

Structural Changes

Following an examination of current structure and that proposed under the project, as well as the details of activities undertaken, we present here suggestions about the institutional, financial, and procurement arrangements that can be made to cover the gaps observed.

Currently the Chief Engineer (Minor Irrigation) is vested with the responsibility for the Minor Irrigation system in the state and reports to the Special Commissioner, CADA, for administrative functions and other support. It is now proposed to set up a separate SPV for this project with the following overall structure.



6.3 Log-Frame Activities and Tasks at the State-Level

The envisaged state-level activities under the Log-Frame are presented below under the four main components.

6.3.1 Institutional reform and capacity development

Improving the management structure and enhancing professional capacity

- Completion of procedural formalities for setting up state- and district-level project teams
- Enhancing capacity of WALAMTARI and contracting new faculty
- Establishing networks with other resource agencies to meet capacity building needs in newer dimensions
- Formation of the District-Level Implementation Committee as per GOI guidelines
- Recruitment of professionals for water management, livelihoods capacity building, and M&E at the state- and district- levels.

Transition and management transfer as per the APFMIS Act

- Developing a capacity-building strategy for primary and secondary stakeholders at the state- and district-levels.
- Identification of resource agencies/ professionals for capacity building
- Establishing linkages and working out collaboration terms and conditions with other training institutions
- Promoting involvement of NGOs for collective action and setting up operational systems through handholding
- Introduction of mass awareness campaigns in identified locations to stimulate participation in the project.
- Campaign to build support for the project among the legislators, opinion makers and civil society leadership.

6.3.2 Optimizing potential

- Seeking Hydrological clearance
- Action research project to assess effects of catchments area treatment on improving groundwater level in tank areas
- Actions to take up MI work in the tribal areas (negotiation with the Forest Department, modifications in the current regulations/acts)

6.3.3 Improving policy framework for Minor Irrigation

- Study of O&M systems set by other states (e.g. Maharashtra)
- Study of O&M needs of MI tanks in AP (basin /region/ rainfall specific)
- Devising draft guidelines, preparing the manual
- Discussions with practitioners, engineers, NGOs, etc. to get feedback and refinements to include suggestions
- Undertaking tax collection drives within a fixed period, coupled with awareness-creation through mass media well in advance
- Facilitation for setting up of water distribution from upper to lower reaches through awareness and handholding in order to achieve equity within tank areas
- Co-opting WUA members in *Gram Panchayat*'s NRM sub- Committee

6.3.4 Monitoring and Annual Evaluation

- Issue of executive instructions to district staff
- Introduction of results-based management with focus on outcomes rather than on monitoring inputs and outputs
- Involvement of WUA members in self-assessment

- Use of monitoring for learning and capacity-building in the process of facilitating PIM
- Introduction of incentives-based implementation strategies to encourage community-based management based on M&E results, e.g. introduction of performance based O&M release and matching grant
- Monitoring and periodic review on key performance indicators such as water service charges, economic returns from each tank, etc., and to introduce operational planning systems, such as annual financial planning for tax collection at state- and district-levels
- Monitoring of time gap to reach plough back funds to WUAs, monitoring of role changes and additional responsibilities taken up by the WUAs as per the opportunity space and the capacities enhanced using indicators like growth and management of livelihood corpus fund, etc.
- Process documentation on community-based tank management
- Basin study to identify issues and appropriate management structure in Year 1.

6.3.5 Gaps Observed

The following areas need to be taken care of at this stage:

- Institutional arrangements for addressing Governance issues
- The structural change proposed has to be supported by appropriate systems and processes to make it work.
- The inducting of the array of new skill sets will have to be supported by strong integrative processes so that a new culture is created, combining the best of the Department and the functional expertise being brought in.
- The availability of IT and GIS solutions to manage the information and communication systems is a great advantage. This has to be capitalized upon effectively.

One major aspect of the log frame, namely Water-use Efficiency and Livelihoods, is taken care of mainly at the district- and sub-district-levels. This ensures the delegation of these responsibilities. The monitoring and evaluation systems have to be strengthened at the state-level to ensure project completion.

6.4 Our Observations and Specific Recommendations

6.4.1 Special challenges in irrigation management

The sharing of water resources entails the balancing of three crucial aspects:

- The technical aspects of engineering and design
- The operational aspects or day-to-day water distribution management
- Improving / optimizing the returns from tank based irrigation to improve WUE
- The socio-political aspects determining access and control over a vital resource is still an issue.

The integration of all these aspects determines the quality of the outreach. The Irrigation Department of the state government is equipped to deal with the technical aspects. However,

the Minor Irrigation Department is seen as a unit requiring relatively lower level of technical sophistication. The O&M tasks at tanks are considered simple enough to be left to local talent. Thus the technical aspects have received less attention and the project is an opportunity to reverse this neglect.

6.4.2 Suggestions for staff-selection

It is important to identify engineers with a good understanding of the issues of community-based tank management and some grounding in development perspectives. Further, the officials identified should be retained in the position for at least three years to ensure that the changes are institutionalized.

We suggest the following procedure:

- For each position, shortlist names of 4 times the number of candidates actually required from the pool available internally.
- Examine their service records and assess their competencies, relevant for development, based on community mobilization.
- Have an open dialogue with the candidate sharing the expectations in the project
- Select only those actually interested in the process

Engineers who have been to recent induction programmes (which included inputs on development perspectives) should be preferred. Similarly, those who have demonstrated actual success in working with WUAs should be preferred.

This process is particularly important for the selection of the top leadership -PD, PC, CE, SEs, and key members of the state-level teams. Similarly, the norms for selecting the external experts have to be developed carefully and used. Recent experiences in the state (SERP, APARD, etc.) will be useful as guidance.

Initial induction of all Project staff should be made mandatory. A strong HR team or an external HR agency should be retained for this process, which should begin working from the early stages of the project itself.

6.4.3 Governance issues

The third aspect concerns the governance of key choices and allocations, the direction for which usually emerges from the political elites. The interests of the less powerful or marginal users, therefore, often go unrepresented. Examples of key issues include:

- The factors that are used to select and deselect *mandal*/tanks for the project from among the locations satisfying the techno-hydrological criteria.
- Decisions about the awarding of work contracts
- Use of project funds and quality concerns
- Rights of water users, particularly tail end and a marginalized user groups
- Autonomy and role of WUA in procurement
- Quality monitoring mechanism existing at the state level – online quality check on site during the construction

Project Ombudsman and PAGs for good governance

We have examined the role, expected to be, played by the DLIC in this regard. The DLIC would find it very difficult to deal with informal pressures that are often brought to bear on these choices. A state level recourse to address these issues will be most essential in our view.

We therefore suggest the appointment of a Project Ombudsman at the state-level and of a Project Advisory Group (PAG) at the district-level.

At the state-level, the Project Ombudsman could be an eminent public figure with technical competence about water issues and tank irrigation in the state, besides the laws relating to usufruct rights over common property resources. S/he will be provided with a Secretariat and would be available for public consultations and hearing on a continuous basis. The Project Steering Committee would be apprised of the nature of referrals and action points every quarter. The Ombudsman will be guided by the principles of Alternate Dispute Resolution (ADR) mechanisms.

The composition of the PAG at the district has been suggested in Chapter 5.

A specific channel for this purpose creates the required space for focus on such concerns, which often get lost in the details of routine activities. The issues too would keep changing as the project evolves and an alert independent forum will better ensure project benefits accrue evenly across stake holding groups.

6.4.4 Building WUA capacity

The challenge before the Irrigation Department is to facilitate a gradual transition, whereby the WUAs emerge as broad-based representative bodies, which address the needs of the less privileged and marginalized users in a water basin.

The structural changes have to be leveraged through behavioural changes, both within the community, and in the relevant departments. The way ahead is to push for deeper reform, in terms of improved equity and informed participation of the community in making key decisions. This requires a strategic initiative to manage the change in the long-established norms of interaction within, and among, the key stakeholder groups. The key principles guiding this reform process are:

- Decentralized community-based management.
- Efficiency and returns from performance.
- Equity and respect for the rights of all users.
- Self-sustaining institutional arrangements at all levels.

The capacity-building strategy based on this would include the following elements:

- An initial communication campaign to propagate the theme of tank revival
- Orientation to possible potential for economic benefits that can be expected with various livelihoods and collective actions in management and marketing.
- Strengthening of farmers' involvement and participation in tank WUAs to make them truly representative bodies, sensitive to the needs of all categories of users.
- Developing an acceptance of the 'costs' recovery' principle and work towards sustainable water resources management.

- Informing and educating WUA members and the community at large about the technical options available to them through extension services and enabling them to make informed choices about the efficient use of available water.
- Developing business models using the livelihoods corpus fund.

Profile of Tank WUAs
(According to ORG MARG study):
Nearly 70% of WUA and the MC members of tanks are small and marginal farmers (<5 acres) and 50% are BC. All caste groups are represented on WUAs.60% MC members are literate and 75% members aware of WUA MC. Collection of water charges not seen as their role.

Technical training for MC members is needed because: Only 33% of MC aware of books to be maintained; General Body meetings (2 per annum stipulated) are not held; Monthly MC meetings are not held. Women members need to be particularly trained

WUA decisions usually obeyed and usually members are required to make contributions in *shramdhan* for O&M. Only 9% of WUA of tanks have sub- committees. Only 15% of MCs are active in maintenance and can make estimates or keep books

Our observations in the field (described in Chapter IV) also affirm these findings.

Suggestions for building WUA capacity
The institutional development team at the state-level should detail the programme for WUA capacity building. The plans should address the learning needs of the WUA as they evolve with the project stages. Each stage of the training should address the skills, the attitudes, and the overall knowledge levels of MC members and the farmers. Experiential methodologies not much dependant on the written word will have to be created. The Support Organizations at the selected locations would be then trained to deliver these programmes on the ground. The rating tool could be redesigned to help WUAs track their own progression across the stages in the project. Methods used could include games (for example, the river basin game can be adapted for the tank, and the tragedy of the commons game could also be used effectively), exposure visits (to tanks in Mahabubnagar, Anantapur, or Karnataka), and multi-level training sessions.
The project staff should be closely involved in implementing the capacity building activities in the initial stage at a project location. As the WUA builds itself, the project team can gracefully step back.

6.4.5 Attitudinal shifts among staff members
Integrated Water Resource Management (IWRM) involves changes in mind-sets towards tasks within the line departments, and among interconnected departments. This would be a major capacity-building challenge. The reviews of most of the other projects identify this as the major factor that affects impact. (See chapter 3)
WALAMTARI is the training institution that meets the training and capacity building needs of the Irrigation Department. It has the capacity to train 90 people (three batches) at any given time and is staffed with 32 scientific staff as well as adequate administrative and support personnel. The major categories of training are:

1. Irrigation and water management programmes
2. Computer programmes
3. DVD-based programmes on personnel management and office administration
4. APERP programmes on PIM
5. Farmer training at field training centres

Detailed inputs on participatory irrigation are imparted in the APERP programmes. One session on the working of WUAs is invariably included in all the training programmes.
The training requirement for the APERP agenda is assessed through workshops (2) involving the Senior Engineers of the Irrigation Department and Joint Directors from the Agriculture Department. The inputs and the schedules are based on the discussions in the workshop.

For example, the WALAMTARI training calendar for 2004-2005 had scheduled programmes on

1. PIM for field engineers and district agriculture officers (48 programmes, with batches of 30 each; 1,440 in total)
2. TOTs on "Orientation to PIM for WUAs" for field engineers (6 programmes for batches of 30 each; 180 in total)
3. TOT on "CB and HRD for WUAs" for field engineers and district agriculture officers (8 programmes for batches of 30 each; 240 in total).

In addition, it envisaged that a series of workshops by those attending the TOTs would be held to cover all the newly elected WUA members.

The programmes have been rescheduled for various reasons (such as the induction programmes for the newly recruited AEEs, the current water scarcity, and the delays in the conduct of WUA elections in the State).

6.4.6 Suggestions for meeting internal training needs

It is clear that the capacity at WALAMTARI has to be enhanced in order to address the training needs arising for this project. The Department also realizes the need of having more than one resource agency to meet the challenges of capacity building. Hence there is a need of identification of more resource agencies/ professionals for capacity building with WALAMTARI. Challenges are also undertaking decentralized trainings
A core team can be constituted within WALAMTARI with a suitable mix of institution development, project management and technical skills especially for the tank project. This team can design the change management steps and take necessary external support to implement the programme.

The change strategy should be developed through an OD/ID process, which involves all layers of staff and the key stakeholders. It is necessary to adopt a highly participative process in order to integrate the layers and hierarchies. Further, this experience will also form the ground for enabling the officials to move towards a more facilitative mode of functioning in other settings. This can be done with support from an external resource agency with specific expertise.

This process requires the services of an OD process consultant, familiar with large bureaucracies and development issues. They should have the close support of the in- house team from WALAMTARI. The resource-persons available within the system have to be identified and trained as internal change agents. They would in turn carry through interventions to develop local strategies, which will take the system towards its goals.

The process may take 18 to 24 months to actually be implemented. It would require sustained commitment from the top executives and the political leadership in the state. Such initiatives in neighboring states have been documented and the positive impact acknowledged.

6.4.7 Suggested steps in the OD/ID programme

Typically an OD/ID programme would be a series of workshops bringing in project staff across locations to take them along project stages. After an initial diagnosis, interventions would be contextualized in terms of roles, linkages, and institutional arrangements to ensure that the action in the field is impacted by the workshops.

Such a complex and large-scale process has to be consciously supported over a period of time. It will therefore require the following steps:

1. Completion of HR audit and institutional analysis by the core group within WALAMTARI.

2. Formation of task forces for:
   a. Training and vision-building workshops
   b. Systems and processes redesign
   c. Technology upgrading
   d. Formulation of overall transformation framework and monitoring progress.

3. Capacity-Building Activities
   a. Developing change agents
   b. Training for orientation to the transformation measures
   c. Training for skill-development
   d. Training for agri-business orientation and community work

Cluster Facilitation Team (CFT) - multi-disciplinary team

Example –
Training needs for orienting to change
Secretaries level 1 day
Executive level 5 days

4. Examination and addressing of other HR issues - recruitment, re-skilling, rightsizing, placements, transfers, compensation models, performance appraisal, rewards, punishments, and grievance procedures.
5. Drawing up of overall improvement plan for unit /division with a strong HR component.
6. MoU with executive level for implementation of plan.
7. Close monitoring and review of progress.

8. Handholding, where required.

6.4.8 Suggestions about other HR processes

The executive layer of the project staff will be drawn from the bureaucracy. The operational management would be with the engineers. It is now proposed to induct other functional specialists to support the changed agenda.

A HR strategy that improves communication and collaboration within the Project team will be the key to building direct and strong relationships with other stakeholders. The strategy should focus on ways to

- Build an alignment around the overall goals
- Develop clear task-role focus for each level
- Communicate priorities and requirements
- Develop clear indicators for performance appraisal and links to reward systems
- Develop required technical, managerial, and tactical skills
- Streamline key HR processes such as goal setting, rewards, promotions, and transfers to improve staff morale.

A group of change managers or leaders of transformation will emerge and they will carry the message across to the different sub-groups and motivate their colleagues. They could gradually influence the working of other sections within the irrigation sector.

6.4.9 Communication strategy

A project of this magnitude should have a clear strategy for external communication. This is important from the early stages. The strategy should cover the requirements at three levels.

At the tank level, the community should become fully aware of the project details and develop its ability to articulate its expectations and needs. A mass media campaign and branding effort should be considered.

At the district level, the project mission should be made known widely. This would invite collaboration from different quarters and act as a check against any misuse of the opportunities created. The strategy should influence policy discussions and contribute to informed public debate on various key issues related to tank irrigation. Dialogue and information sharing with people's representatives, press, and civil society leadership will be necessary. Such a process would be a good insurance against the risk of rough weather in the political arena given the highly charged situation on water-related issues in the state.

There has to be a uniform image created through a coordinated set of media related activities across the eleven project districts.

CHAPTER VII

Assessment of Finance and Procurement Arrangements

7.1 Importance of Financial Systems

The project impact is closely dependent on the institutional capacity for financial management. Tank rehabilitation work has to be completed in the short interval from December to May when the dry season sets in. Much of the activity is labor intensive and the payment for labor has to be prompt, fool proof and error free. If there are delays either in the financial or other resource availability the project cannot be implemented within the short time span. Thus the timely availability of funds for the engineering works is most essential. Further, sound monitoring and audit systems should be in place to ensure quality and enduring project benefits. Social mobilization and livelihood promotion services from support organizations will have to be paid for in advance to make sure that these aspects are not neglected. The accounting and financial procedures have to be handled in such a way that timely support and appropriate checks are available in the project.

Tank revival projects are now proposed by the Minor Irrigation Department either under the NABARD scheme or other government budgets. There are frequent delays and project implementation suffers when the funds are not made available promptly. There are also problems in monitoring the qualitative aspects. The RRR scheme has been tried in two districts with better results.

Our discussions with WUAs and Service Organisations indicate a need for greater consistency in the service delivery of the financial systems. In this chapter, we offer our suggestions regarding the financial and procurement arrangements necessary for the smooth flow of resources to support activities on the ground.

7.2 Our Assessment Of Tank Level Arrangements

Financial management assessments were conducted in 13 WUAs that were visited. Twelve of the WUAs pertain to the proposed MI project being assessed; the thirteenth WUA is part of the ongoing RRR project being sponsored by the Central Government. The assessment was conducted during the course of a meeting with the Office Bearers of the WUAs concerned. Five aspects of financial management were examined namely:
Financial arrangements at WUA
Documentation at WUA
Procurement arrangements
Handling money form Government
Handling local collections

7.2.1 Selection of Tanks for Study

It would be pertinent to offer a brief explanation for the inclusion of the WUA implementing the RRR project in the current sample. It was clear from the outset that it would be difficult, if not impossible, to form an opinion on the financial capacities of bodies that have had no experience of handling monetary resources for the last few years. This was the case with all the tanks in the sample barring a couple of instances where some monies were transacted through these WUAs in the past but there was no institutional memory of how this was done. The tank from the RRR project was included to enable an understanding of the potential of the WUAs to undertake financial management provided monetary resources existed and capacity building efforts undertaken. The study design allowed for an inspection of 12 tanks out of 3000 that are proposed under the project, so in a universal sense the sample is by no means adequate and therefore these conclusions are necessarily tentative in nature. On the other hand however, these 12 WUAs are part of the 50 that are proposed for the first phase of the project. In that sense the sample is more than adequate as it covers different tank sizes, different agro-climatic zones and different regions of Andhra Pradesh so the findings and recommendations are of immediate practical consequence.

7.2.2 Observations On Financial And Procurement Arrangements At The Tank Level

The different aspects observed are tabulated below on a three-point scale that is self-explanatory.

S.n	Details		1st level	2nd level	3rd level
1.	**Financial Arrangement of WUA**				
a.	Study of books & records - how they are maintained and by whom	**:**	No maintenance of records	Reportedly maintaining but not shown for verification	Maintaining well structured
			8	**4**	**1**
b.	Accounting procedures	**:**	no transactions by WUA	Reportedly made transactions but no evidence	Transactions done by WUA
			10	**2**	**1**
c.	Budgeting procedures	**:**	Done by Department	WUA consulted for budget procedure	Done by WUA, received technical help from dept
			12	**1**	**0**
d.	Procurement systems	**:**	Done by Department, WUA don't know about procurement	WUA consulted for procurement procedure	Done by WUA, received technical help from dept
			11	**2**	**0**
f.	Auditing	**:**	No auditing	Auditing done at department	Auditing done at all levels
			10	**3**	
g.	Financial reporting	**:**	No Reporting	Reporting done Engineers	Financial sub committee reports to WUA
			12	**1**	**0**
2.	**Documents available with WUAs**				
a.	Meeting minutes and reports (some examples)	**:**	No meetings – No minutes	Reported held meetings but no minutes for verification	Meeting minutes available with WUA

			9	**4**	**0**
b.	Financial documents (e.g. balance sheets, budgets, etc - at least three years)	**:**	No financial documents available with WUA except Bank pass book	WUA know the financial details but no documents	financial documents available with WUA
			10	**3**	**0**
c.	Documents related to policy and procedures	**:**	No documents related to policy	Document copies available with DEE/AEE	Copies available with WUA and DEE/AEE
			10	**3**	**0**
3.	**Procurement and Financial Arrangements (Interviews with the Finance Sub-Committee or the DEE/AEE)**				
a.	Description and value of works handled by the WUA in the last 10 years	**:**	No details with WUA	Details presented verbal but no evidence	All details recorded
			8	**4**	**1**
b.	The following details are not available with any WUA i.e., Total cost of work, Local contribution, Procured items, Services of contractor for the work, Materials used (specify), Services of engineer, surveyor and other technical expertise used, Procedure to identify suppliers, How the rates were decided, documentation with these providers of services/inputs				
4	**Handling of money received from the Government**				
a.	Amount received	**:**	No details with WUA	Details presented oral but no evidence	All details recorded
			12	**1**	**0**
b.	Source within government from which amount was received	**:**	No details with WUA	Details presented verbal but no evidence	All details recorded
			13	**0**	**0**
c.	Details of bank account of WUA (who operates it etc)	**:**	WUA don't know about account or AEE operates account	WUA President and AEE have a joint account	Jointly operated by WUA President and Vice-President
			3	**9**	**1**
d.	Amount of cash kept separately by WUA, if any (how is this managed)	**:**	No amount kept separately by WUA	Amount kept separately by WUA but no use	Amount kept separately by WUA and using for maintenance
			13	**0**	**0**
5	**Local Contributions (Cess, etc)**				
a.	Water cess collected	**:**	None or below 50%	Between 50% - 80%	100%
			4	**5**	**4**
b.	How was this amount fixed	**:**	Department	By WUA and department	By WUA
			13	**0**	**0**
c.	Did everybody pay?	**:**	No payments	Those who got produce	Every body
			6	**4**	**3**
d.	Time of collection (before/after project, etc)	**:**	After project	During project	Before Project
			13	**0**	**0**
e.	Who collected these amounts?	**:**	Department	By WUA and department	By WUA
			13	**0**	**0**
f.	Contributions from other water users (not farmers)	**:**	No contribution from farmers and other users	Received contributions from farmers	Contributions done by all water users includes farmers
			0	**10**	**3**

7.3 Pointers for Action

Based on these results the following conclusions can be drawn regarding the present capacities of the WUAs and the steps that need to be taken before they are entrusted with the resources to implement the project.

On the positive side:

1. Water cess was being paid regularly in 10 WUAs and the level of compliance was over 50%.
2. Bank accounts were being maintained jointly with the engineers in 9 of the WUAs and members were aware of this account.
3. In over a third of the WUAs the details of the works undertaken in the past were known to the members along with the financial outlays involved.
4. In a third of them members had knowledge of meetings that were held in the past and financial transactions, though they could not produce the minutes and books of account for inspection by the team.

On the other hand however,

5. Required knowledge of aspects of financial and procurement management expected in the WUA i.e., Total cost of work, Local contribution, Procured items, Services of contractor for the work, Materials used, Services of engineer, surveyor and other technical expertise used, Procedure to identify suppliers, How the rates were decided, documentation with these providers of services/inputs etc. was totally absent or very inadequate.
6. The primary reason for this state of affairs is the fact that when a new set of Office Bearers is being elected the books of the previous term are not handed over to the new Office Bearers. This was the case in all the WUAs visited. This probably also has bearing on the lack of institutional memory within the WUA

7. The WUA in the RRR project presented a study in contrast as regards financial and procurement management. As seen in the table they scored uniformly between average to high on most aspects examined.

From the above, one is led to conclude that the WUAs have the potential capacity to undertake most of the activity pertaining to finances and procurement if the following conditions are met:

1. That sufficient capacity building activities are undertaken in the areas of financial and procurement management; accountability and transparency, before resources are made available to these bodies.
2. That a rating mechanism is put in place (similar to microfinance) and WUAs are made sufficiently aware that acceptable rating would be the trigger for the sanction of the project/release of funding.
3. That there is an incentive for them to perform in terms of their access to and control of financial resources and the autonomy to make decisions regarding the deployment of the same.

7.3.1 Overview Of Project Funding

The financial systems envisaged for the project are based on the experience of the RRR project in Mahabubnagar and Anantapur Districts, fulfilling the guidelines of the national policy and meeting World Bank requirements.

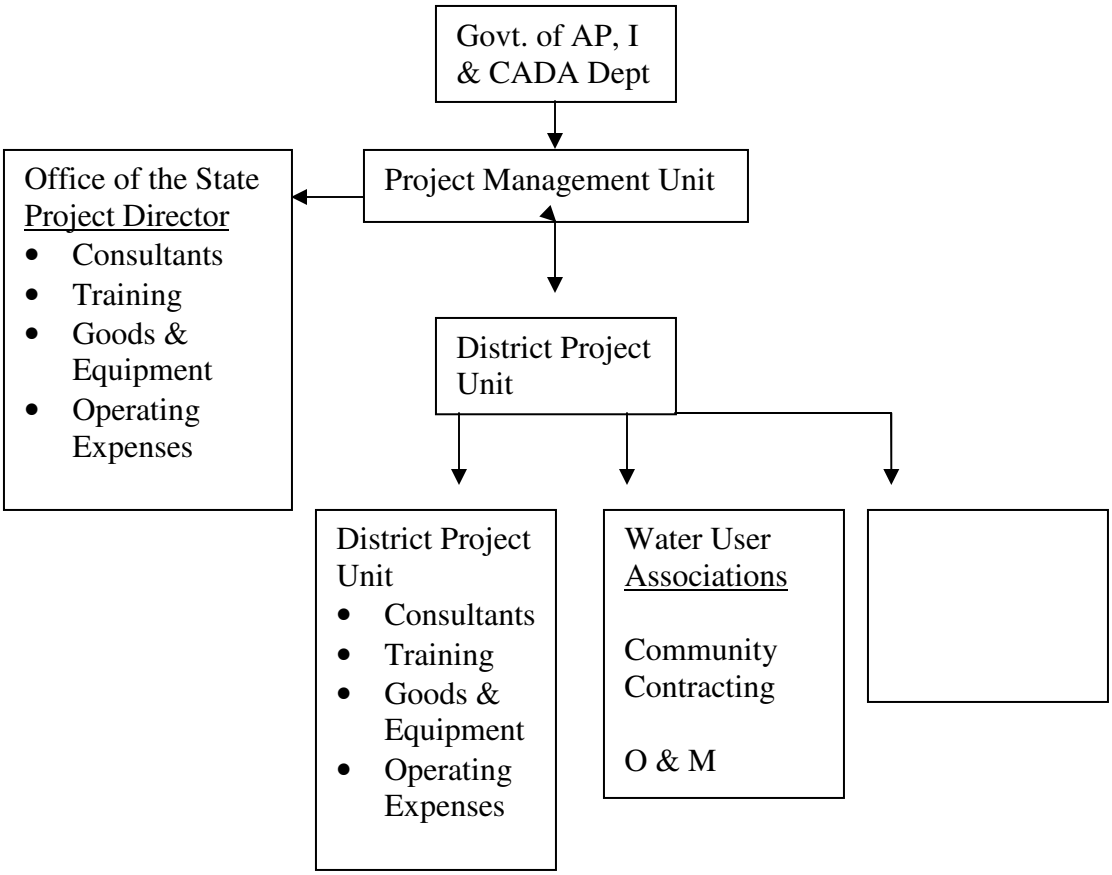
An Overview of the Proposed Financial Arrangements

Project Component	Approximate % Of Project Cost	To be drawn by	Type of billing	Comments
I-Strengthening Community Based Institutions	10-15%	State/district units as per location	AC bills	PMU can draw Rs 10 lakhs and the District unit Rs 3 lakhs and render accounts before next withdrawal
II-Tank System Improvement	60-65%	District units	Works bills (under LOC with PAO)	Scope for 40% advance when WUAs are executing the work
III-Agriculture Productivity Enhancement Services	15-20%	State/district units as per location	AC bills	
IV-Project Management	5%	State/district units as per location	AC bills	

7.3.2 Proposed Systems for the Project

The following is a description of financial management arrangements that are proposed at the State, District and Tank Level and a discussion of the implications for each of the four components of the project.

The diagram below gives a pictorial representation of the fund flow model adopted by the project.



7.3.3 The Framework for Financial Delegation

One of the core principles driving this project is the effort to decentralize the management of tank-based irrigation systems. Financial delegation becomes a prerequisite that will enable such a shift. A study of the typical financial decision-making pattern has to be taken up by the state-level PMU and the discretionary powers fixed at the three levels, namely tank, district and state. It is suggested that routine financial decisions are made at the tank and that most other decisions are taken at the district-level. The resource generation for capital expenditure, monitoring, and audit functions should be managed from the state-level.

The financial responsibilities to be vested in the different agencies collaborating for tank revival are suggested below.

- At the tank level, the WUA will be responsible for all the financial decisions within the approved budget. It will have a discretionary limit (to be defined by the state/district project management) to go beyond the budget in urgent situations.
- The DPU will co-ordinate, monitor and control the financial aspects at the WUA-level.
- The PMU at the state-level will be responsible for the overall financial management of the project.

The control mechanism will be the reports of external auditors as well as the monitoring system within the project.

7.3.4 State Level

The requirements for the following financial year are appropriated through the Annual Budget. These are based on the aggregation of the Annual Action Plans drawn up by all the implementation units of the project and those of the Commissioner's Office.

Once the Budget has been allocated, requirements for releases in each quarter are made to the Finance Department of the Government. The Finance Department releases these in the form of Letters of Credit in favour of each of the designated drawing/disbursing officers of the project. These Letters of Credit are lodged with the Pay and Accounts Officers in each of the districts and payments made by them, against bills/indents submitted by the concerned officials.

Within the sphere of financial management, State level is primarily responsible for:

- Preparation and Appropriation of Annual Budgets
- Ensuring quarterly release of LoCs
- Submission of Financial Returns in the prescribed formats to the World Bank
- Ensuring compliance to Audit requirements and Handling of objections

The above are well within the functions of a regular government department with the possible exception of the third Bullet point. With respect to this it is recommended that services of external financial expert/s, well versed in World Bank requirements, be procured.

7.3.5 District Level

The issues of financial management are more complicated at the district level. There are aspects to this project that are different from those normally associated with Engineering Departments, whose core competence is in the supervision of the design and execution of civil construction, and the release of funds associated therewith. These pertain mostly to community mobilization and capacity building; co-ordination with various line departments of the government involved with rural communities; and contracting of services from soft infrastructure providers such as NGOs, providing agriculture extension, organization development and microplanning; Chartered Accountants, Engineering personnel, implementing the project may not have sufficient exposure to managing these activities, all of which require financial outlays linked to performance on the ground. It is recommended that processes and procedures be written for assessing the quantum of work performed by contractors through evidence based means of verification so that they become the basis for release of funds.

The one area that is of concern would be the financial supervision of Component 2 i.e., the construction component of the project. Insofar, as the construction being done by contractors under appropriate procurement norms, there may not be any issues as supervision of such work is one of the core competencies of the department. Moreover, the procedure is such that the payment is made after the work is executed by the contractor and measured and certified by the concerned engineering staff. However it is envisaged that a significant proportion of the work will be executed through Community Contracting performed by the WUAs. Since the WUAs do not have access to working capital, the project provides for a release of up to 40% of the amount. To the extent of available information, though these amounts are treated as an advance by the Department, they are treated as payments by the PAO, and there is no requirement of the

certification of completion of work by that office. Further, the accounts of the WUAs are not subject to scrutiny by either the CAG or the Accountant General's office in a statutory fashion. A further consideration is the fact that the WUAs are the only entities in the project required to comply with the formality of double entry bookkeeping. This is an area in which the district team needs strengthening. It may require the services of a Chartered Accountant firm at the district level that will take the responsibility of reconciling bank accounts and maintaining books of account based on double entry either through computers or manually. Further the district unit needs to extend the process of work measurement to work done by the WUAs before authorizing further debits to their bank accounts.

7.3.6 Special Requirements At The District

1. Strengthening Community Based Institutions: This component is primarily meant for building the capacity of the WUAs. The areas for capacity building include technical skills related to infrastructure construction and maintenance, water management, bookkeeping and financial management.

These will be delivered by Service Providers, selected through appropriate procurement methods, and contracted through the District Level Implementation Committees. It is envisaged that most of them will be in the nature of NGOs who may not have adequate capitalization. Therefore the financial modality governing them needs to be treated differently from those of contractors involved in the construction of infrastructure. Provision has to be made for release of advances to the tune of at least 40% of the value of the contracts.

However safeguards need to be put in place to ensure proper utilization of funds by the service providers and preventing leakage. In addition to the normal practice of submission of Utilisation Certificates, the following are some of the practices that may be stipulated:

- Fortnightly Activity Reports by Service Providers
- Periodic Inspections and Evaluation by District Monitoring Team
- Self-Assessment of CBOs

The WUAs and Support Organizations have indicated a need for greater consistency and transparency in the accounting and financial systems. With the SPV now coming under the Department, a point of concern could be that there may be a lack of motivation on the part of farmers to pay water charges that go straight to the government. It will become easier to mobilize local resources when the general body of the WUA develops confidence that

- Any money collected is indeed used for tank maintenance.
- The local share of the taxes collected is given first and the balance remitted into the treasury.
- Costs recovered are carefully managed and accounted for.
- The system devised is easily managed with locally available skill-sets.

It is therefore recommended that local collections of water charges and contributions for specific expenditures should be taken up by the para-worker identified by the WUA, under the

supervision of the Finance Sub-Committee of the WUA. The amount collected should first be deposited into the savings bank account of the WUA. The proportion due to the Panchayat should then be transferred to the Revenue Department. The summary of the transactions should be shared in the WUA general body meeting every six months. A detailed financial manual to record these transactions should be prepared even before the project cycle begins.

2. Tank System Improvement: This component has two distinct parts. Works undertaken by the contractors and works undertaken by the Water User Associations. Whereas financial aspects of works undertaken by the contractors can follow usual government procedures, those implemented by the WUAs need special consideration.

WUAs need to have a separate bank account for funds related to construction work. The recommended modalities for the operation of this account are given below:

- Fund requirement for two months may be released in advance
- Subsequent releases may be made after the WUA submits:
    - Abstract of Expenditure and Vouchers for the past period duly certified by the supervising engineer from the department
    - Requisition for the subsequent period

3. Agriculture Productivity Enhancement: This component is very similar to Component 1 and it is suggested that similar procedures need to be adopted for this component also.

4. Project Management: Since the project is being implemented within the organizational framework of the Government, the procedures should be governed by the AP Financial Code and the AP Accounting Code.

7.4 Specific suggestions

There are a number of models available within India for the implementation of Tank rehabilitation projects and this report has considered a number of them. These vary from autonomous societies working outside of government, to Special Purpose Vehicles created for the project, to the project being totally implemented within the government system. The Government of Andhra Pradesh, in its wisdom, has chosen a hybrid that has aspects of the second and third models above. One of the consequences of this decision is the fact that the financial control directly exercised by the Project Coordinator would be somewhat diluted. It would therefore be necessary to incorporate certain additional measures to ensure timely and smooth flow of funds in a manner that the pace of project implementation is not hampered. The following are some suggestions in this regard:

7.4.1 Project Capital Expenditure

All payments for works will have to go through the PAO'office, which is known to be a bottle neck, considering the volume of payments handled at the PAO offices and the relatively small sums involved in the minor irrigation bills. The proposed system is prone to much delay and the project can ill afford this because the works have to be completed within the time frame imposed by the seasons. So, to ensure timely availability of funds, an Imprest Fund System is suggested, to work on the following lines:

On sanction of the TIMP, the PAO will transfer 40% of the budget to a savings bank for the project, to be operated by the SE and the Finance Officer. They will disburse funds from this account based on the recommendations of the DEE. The remaining 60% will be released to this account by the PAO on receiving confirmation of the disbursement of the first instalment and receipt of inspection report certifying adequate progress in the work. This is suggested because the contractors taking up tank revival would invariable be small local contractors without the capital base to first invest and then recover the money. This approach is approved for those situations where the contracts are taken up by the WUAs themselves. In our view it should be extended to the contractors also.

7.4.2 Procurement Systems

The procurement arrangements for civil engineering contracts are well understood in the system and they are in consonance with the National and World Bank Guidelines. The project also requires the services of Support Organizations and other specialist services. Our suggestions in this regard are presented below.

7.4.3 Pilot Batch

The project proposes to begin working with the tanks selected for the pilot batch even while the loan is being processed. The services of different agencies, which are required to begin the work, will have to be procured and the documentation maintained to fulfil the guidelines of the World Bank on retroactive financing.

7.4.4 District level Agencies

Some of the procurement tasks to be addressed immediately include those pertaining to the commencement of district and field teams. To be begin with

- District level staffs are to be selected/identified and appointed.
- Office space and equipment should be procured as per government procurement processes.

The Finance and Procurement Unit within the DPU at the district level will assess the technical aspects and assume the responsibility to ensure technical quality and give technical sanction. They will assess the various inputs that have to be procured and develop the district level Master

Procurement Plan & Annual Procurement Plan. All procurements including hiring of individuals for the project, support organizations for project facilitation, office space, equipment and materials required for the project will be strictly in accordance with the procedure laid down in the government guidelines and the World Bank guidelines.

In case of pilot batch, the NGO's too will have to follow the World Bank Guidelines/ National shopping procedure in order to get Retroactive financing. The Project needs to emphasize that silt removal should be minimized and wherever considered necessary, they should attempt to converge with APREGS (Andhra Pradesh Rural Employment Guarantee Scheme). The schedule of standard rates developed for the APREGS may be suitably adapted for use in this project also. In general, all procedures laid down for Government purchases as per "National Shopping Procedure" are to be strictly adhered to.

The Authority for procurement emanates form the approved Master Plan, Annual Action Plan and its Quarterly components. The goods, works and services to be procured for the project should be only those that are included in the above documents and Technical sanction, wherever required, is to be obtained as prescribed.

7.4.5. Internal control processes and Payment procedures:

Financial authorization limits may be fixed at various levels within WUA (RC, sub committee, MC), DLIC and state Society. Based on the RRR project experiences, WUAs may be vested with comprehensive powers to formulate and execute project estimated to cost within and up to Rs 5 lakhs per annum.
Payments may be effected only on certification by the designated official after verifying the approved budgetary sanction and enclosed supporting documents.
Technical evaluation /certification may be made compulsory for each payment above Rs 1000/-

7.4.6 Disbursement Procedures:

Every disbursement above Rs 1000/- should be made through a crossed account payee cheque only. Further, every disbursement should be made on receipt of proper acknowledgement supported by authorisation. Record of evidence of disbursement should be maintained, duly certified by the appropriate authority.

7.4.7 Audit arrangements, External, Internal and Social:

An Internal audit Dept. should be formed at the state level, reporting to the Managing Director, for carrying out Audit of DLIC on quarterly Intervals. Every WUA account should be audited by an external auditor, every 6 months, and the report may be submitted to project Director.
Society/ Nodal Agency Accounts could be subjected to both Accountant General's Audit and external Auditors (Chartered Accountants Firm) and the report may be submitted to GOAP and World Bank.

In addition to these audits, a people's audit process can be evolved on the basis of APREGS experience, to include social and water audits within the audit framework. This will be useful in generating checks and balances within the project itself.

7.4.8 Financial Reporting Systems and Formats.

i). Financial Management reports will include financial, physical progress and procurement Information

ii). Financial reports emanating from all the levels i.e. WUA, DLIC, Society, may be at monthly / quarterly/ half-yearly /annual basis, with cash receipts by sources and expenditures by classifications, as per budget, with supporting schedules compassing actual and planned expenditures.

iii). The financial report should be formulated to show the budget / approved amounts, receipts /expenses during the period, cumulative up to the project life.

iv). All the expenditure incurred before the project implementation should be accounted for and reported as per World Bank Guidelines and records may be maintained accordingly.

v). Financial reports may be formulated as per Govt. policies and World Bank requirements.

7.4.9 Capacity building:

Well-experienced and professional accountants should be employed at WUA and DPU/ DLIC. The professionals should be given training to handle this project accounting and reporting systems. The preferred package of Tally accounting may be used at WUA/DLIC and DPU levels. The staff should be trained for using tally package and generation of MIS reports to suite the Govt. / World Bank requirements. All these steps should precede the actual release of project funds.

CHAPTER VIII
Sustainability of Project Benefits

8.1 Introduction

One of the important considerations while designing a project of this scale and scope is that of ensuring the continued functioning and evolution of the institutions, systems, and processes initiated to offer benefits to the community beyond project completion. Tank systems are replete with traditional examples of sustainable systems such as the *neeraghanti* and the *warabandi.* This project provides opportunities for inventing contemporary versions of local institutions to maintain and manage tanks.

The three institutions that will have to continue to hold the responsibility for tank management are the MISOC, the WUA, and the *Gram Pancahyat*. These institutions should be in a position to carry on offering the following outputs upon project completion:

- *Reproduction.* The tank should continue to service the needs of the registered farmers and other users at the scale it is designed to operate.
- *Output-oriented.* The collaboration for tank management should continue to operate effectively to guarantee services and benefits for the institutions involved themselves, as well as for others.
- *Systems-oriented.* Related aspects like livelihoods development and natural resources management should continue to improve.
- *Innovation-oriented.* The institutional response should be flexible in order to suit emerging needs and situations.

8.2 Factors Influencing Long-Term Sustainability

Sustainability considerations should be integral to the objectives of infrastructure projects. The following factors are critical for the long-term sustainability of project benefits and should be taken into consideration throughout each stage of the project cycle.

Dynamic Sustainability Model –Key Elements

1. Supportive External Environment +
2. Adequate Resources After Execution +
3. Continuing Management Capacity +
4. Continuing Demand for Project Services
   = Durability of Project Benefits

The above four elements influencing project sustainability are described below:

1. *Supportive External Environment.* Although many external factors in a project's strategic context are beyond the control of project managers, they nevertheless greatly influence

whether benefits will be sustained. Such factors include the policy and legal frameworks, bureaucratic culture and procedures, social norms, and economic and political conditions. In some cases, project managers may be able to influence their strategic context to make it more hospitable for durable benefit flows. In instances where the environment is both inhospitable and less favourable to change, project design and implementation should acknowledge and accommodate potential constraints.

2. *Adequate Resources.* Durable benefits depend upon adequate resources – financial, human, natural and technical – following the end of the Execution stage. Benefits cannot continue unless adequate resources can be acquired by the implementing entities, responsible for project benefits, during the Sustainability stage.

3. *Continuing Management Capacity.* Implementing organizations and the people who staff them are crucial in influencing whether benefits continue. Individuals, supported by the organizational culture and standard operating procedures, need to recognize and work toward benefit continuation objectives, acknowledge and account for opportunities and threats in the external environment, and adapt the organization and its products to evolving stakeholder interests.

4. *Continuing Demand for Project Services*. To develop an enduring constituency for benefit continuation, the specific project benefits must address demands of the target population. Therefore, deciding which benefits to deliver are predicated upon identifying the target audience and eliciting from that audience information about what benefits they desire. Needs are not stagnant, however. Benefits should be designed with sufficient flexibility to respond and adapt to changes in demand over time.

The **Project Design phase** presents the most opportunities for incorporating sustainability into a project. A project's designers can influence the extent to which decisions reflect a concern for the durability of benefit flows. During this phase, the project design team can decide on the benefits the project should produce and the means for continuing them. The **Project Implementation phase** presents the greatest challenges to sustainability.

8.3 Assessment Findings

Supportive Elements in the External Environment

Several developments in the external environment are currently taking place that can prove beneficial to the project of tank revival. These are:

- The deepening crisis for water in the drier regions of the state generates political and community will to use the benefits of the project. Both agriculture- and non-farm-based livelihoods can be supported through tank revival.
- The project proposal has arisen in a policy environment that has definitely identified tank revival as a major task. Setting up an SPV with a mandate for this work will give it enough salience to overcome the inertia on this front.
- The legal status enjoyed by the WUAs is a unique advantage available in this state.

- This project will give energy and substance to the legal changes brought in by the APFMIS Act. WUAs that have been inactive can become significant in terms of the roles they can play in their particular settings.
- The implementation of APREGS has a considerable positive impact on tank revival. Desilting usually constitutes an important part of any tank revival and this can become an element in the APREGS.

Adequacy of Resources
The project will cover 25% of the tanks in a *mandal* .The Government would, in any case, continue to source funds from other avenues available for the remaining tanks. The system will therefore develop the capability to raise the required resources for the revival. The human and institutional resources available for tank restoration will be enlarged during the course of this project. Similarly, the range of expertise available and support organizations will also be identified and trained to support his work.

Continuity of Management Capacity
The project period will give the Irrigation Department time to build its own capacity in order to continue to provide the services required at the tanks.

Continuing Demand
At present, tanks are not seen as reliable sources of water; thus, instead of risking dependence on a common source, such as a tank, for the vital input of water, users quite often draw on bore wells to meet their individual needs. The success of this project will help change this mindset and community collaboration will become a feasible option.

8.4 Recommendations and Action Plan

We recommend particular attention to the following aspects with a view to strengthen sustainability of the project benefits

Supportive External Environment
The project period should be used to build external support for tank revival. This can happen when the framework for collaboration with other stakeholders is fully developed and in place.
The project should emphasize Department -WUA collaboration at the tank-level with

6. *Panchayats*
7. *Rythu Mitra* groups
8. Fishermen's cooperatives
9. Dairy cooperatives
10. Wage labour seekers and their groups, if any.

Within the district, the society should develop rapport with the *Zilla* and *Mandal Parishads*, their functionaries, and the NGO- and capacity-building systems. At the state-level, it should continue to work on policy reform in favour of tank systems.

Enlarge local resources

At the tank-level, the emphasis on finding and using local resources should be maintained. The economic benefits of tank revival should be calculated and made known in the local community to build consensus on cost-sharing and water-charge recovery.

Market interventions and those to promote livelihoods should be managed effectively at the district-level to demonstrate possibilities and create support for the society.

Continuing Management Capacity

Efforts to build cohesive teams within the Department will help in preserving management continuity. This aspect requires close attention because staff turnover and difficulties in assimilating external expertise have been cited as one of the issues for concern in comparable projects elsewhere. An internal work-culture that provides a stimulating work environment will ensure enhanced managerial capacity.

Continuing Demand

The tank revival effort should be presented to the community as a measure to combat the alarming levels groundwater depletion noticed in the region. The package of productivity enhancement and livelihood-support interventions should also be highlighted so that the community recognizes the advantages of this approach. This project has to deal with the trend towards bore-well use, and preference to see tanks as recharge mechanisms rather than common property resources for agriculture and other livelihoods.

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