Reviving Community Managed Tank Based Fisheries

Processes Emerging from the Experience of
AP Drought Adaptation Initiative (APDAI)

THE WORLD BANK

SERP

Commissioner, Rural Development
Government of Andhra Pradesh

WASSAN

Tank irrigation systems permeate the drainage systems in the rainfed areas of Andhra Pradesh. In the districts of Mahabubnagar and Anantapur, these traditional structures harvest run-off at different order of streams in the drainage system. The storage capacities of these systems are generally designed in excess of the available flows to capture water during cyclical high rainfall years. These irrigation systems are designed for multiple uses, particularly serving irrigation, drinking water for livestock and fisheries. The rights over water for irrigation and fish cultivation are clearly demarcated and vested with respective institutions. Faced with disrepair, weed infestation and catchment interference, the frequency of filling up of the tanks is declined over time. Along with it the interest in fish production also declined. The Fishermen Cooperative Societies (FCSs), which are vested with rights over fish cultivation in many of these tanks, have become near defunct. Ultimately, several societies are giving away the right to cultivate fish to an external contractor.

Climate Change may become an opportunity for fish cultivation as it extends storage of water over time in the tanks and also help to increase water inflows with high run-off. Diversity of income portfolios in a geographical area enhances adaptation to climate change and droughts. Making the best use of opportunities of good rainfall year balances cyclical adverse impact of droughts. Promoting fisheries in drought prone rainfed areas, therefore, needs to be looked at as an income enhancing/ diversifying and drought adaptation measure than a measure to enhance national fish production. This dimension is largely missing in the mainstream fisheries development programs such as promoted by NFDB and Fisheries Department, which primarily focuses on large water bodies and intensive fisheries. Apart from that, the technical requirements of fisheries in water bodies in drought prone areas are markedly different (see box 2).

In this context the AP Drought Adaptation Initiative (APDAI)[1] has taken up a pilot program on Community Managed Inland Fisheries. The initiative was built over the earlier work of WASSAN in partnership with Village Service Society (VSS), a partner organization and the federation of wassan groups, Mandal Mahila Samakhyas (MMSs). This publication captures the processes, institutional mechanisms and main experiences of the pilot initiative.

Box 1 : Climate Change and Inland Fisheries in Rainfed Areas

High intensity rainfall events and off-season rains are expected to result from the Climate Change. High intensity rainfall events trigger run-off and helps in better filling-up of tanks/ water bodies. The off-season high rainfall events, in particular may help in better spread of water in the water bodies across the year.

[1] AP DAI is a pilot program to evolve various drought adaptation measures. It was supported by the World Bank and anchored by the Rural Development Department of the Government of Andhra Pradesh. The pilot was implemented in Mahabubnagar and Anantapur districts of Andhra Pradesh. It was founded on the platforms of Mandal and Village level Women Fedarations (MMSs), facilitated by Society of Elimination of Rural Poverty (SERP). WASSAN extended technical and process facilitation support to the initiative. For more details, visit www.wassan.org/apdai

Box 2 : Rainfed Fisheries

Depending on the size and other factors, tanks and other water bodies in rainfed areas have water storage upto February or March. They also have cyclical filling – i.e. they get filled once in every three years or so. Fisheries in such water bodies need special technical packages to harness their full potential. The potential for income generation and fish production is high as there are several such water bodies. Special 'stunted fish' nurseries for a cluster of tanks can help in quick weight gains in the seasonal tanks when they fill up. The tanks need to have special pondage below the dead storage (maintained without any weed growth) so that the final harvest can be captured easily. These areas are basically fish-deficit areas having ready markets. Introducing staggered harvesting of fish and linking with local fish vending will further enhance livelihood opportunities.

Observations in Situation Analysis

The initial situational analysis/ surveys brought out a 'messy' institutional set up in fish production systems. None of the 31 Fishermen Cooperative Societies (FCSs) having rights over fisheries in three program Mandals (Kosgi, Daulatabad and Bomraspet in Mahabubnagar district) were really in control over the tanks and fisheries production. In almost all the cases, the FCS gave the rights of fish production to an external contractor. And the members were working in the same tank as wage labour for protection and fish harvesting. Such contractual arrangements are in two predominant forms, viz., a) fixed amount paid to the FCS by the contractor b) paying fixed price per kg of fish. In both the cases the contractor releases the fish fry into the tank, harvests the produce and markets it. The contract is normally for few seasons. As the contractor cannot intensively take up fish production, the productivity levels used to be very poor.

The compelling reasons for FCS to settle for such agreements are as follows:

- Caste and family based membership rather than occupation based membership in FCS. The families which have original membership in the FCS have proliferated, each one claiming a stake.
- The FCS ultimately has to distribute the profits/ proceeds equally to all the 'members (including their sub-divided families)'- each one getting a meager amount.
- Difficulties in resolving internal conflicts (within FCS) if FCS takes up production.
- Seasonality in the tanks and risk involved, which is transferred to the contractor.
- Inability to 'protect' the fish in the tank from theft/ pilferages.
- Strong nexus between the FCS leadership and the contractors.

It is an irony that while the contractor sells the harvested fish in bulk at Hyderabad market, the local fish vending women bring fish from Hyderabad or outside for local sale.

Setting the Objectives

In this background, the AP DAI pilot initiative has set three objectives viz.,

- Restoring control over fish production in the tanks to the cooperative.
- Improving fish productivity of the tanks and establishing necessary support systems, and
- Organizing fish-vending women and make produce available for them for local sale.

Box 3 : Program Strategy

Institutional reforms within the FCS, organizing them into self-help groups for mobilizing capital, formation of a Mandal level network of FCSs were the main institutional strategies. Intensive training and exposure visits of the FCS members, technical backstopping by experienced resource persons, introduction of composite fish culture and nurseries, establishing proper linkages with the Fisheries Department and Employment Guarantee Scheme were the thrust areas of the technical interventions.

Processes and Experience

The initial attempts in Phase 1 of AP DAI program on fish-seed rearing and fish-production through the self-help groups/ VOs and MMS failed. Learning lessons from such failure, the strategy was changed in the second phase and the work was taken up with fisheries cooperatives facilitated by a local NGO - 'Village Service society' (VSS). VSS interfaces with MMS regularly. WASSAN supported this organization initially from another program funded by Hivos. The focus was initially in Kosgi mandal and the pilot was extended beyond the program villages in the Mandal. After one year, VSS was requested to facilitate this pilot and extend it to the three program Mandals of APDAI.

Kadampalli FCS in Kosgi Mandal was the first in breaking the control of the contractor over the tank and take up fish rearing on their own. Work in this tank started earlier to AP DAI. The community managed inland fisheries pilot in AP DAI has further consolidated the initial successes.

Towards the end of the year 2009, out of the 31 Fisheries Cooperative Societies, work was initiated in 18 cooperatives having rights over 23 tanks in the three program Mandals. Of these 23 tanks, the control over fisheries is restored to the Cooperatives in 21 tanks. The processes emerged out of these initiatives are as follows;

1. Evolving and Strengthening Institutions

Village Service Society, local NGO facilitated the processes along with the staff of Mandal Mahila Samakhya (MMS). The MMS and the Village Organization, as implementing agencies of the AP DAI program channeled the program investments. The detailed institutional actors and their respective roles are detailed in Table 1.

Table 1: Institutional actors and their roles

S.No.	Institution	Roles
1.	Fisheries cooperative societies	Field implementation and primary stakeholder group.
2.	SHGs – of fisherfolk	Within FCS – thrift and credit rotation, bank linkages, mobilizing investments
3.	FCS – Mandal level network	Planning among various FCS and liaison with government departments
4.	Fisheries contractors	Bulk marketing in some cases (earlier illegal lease agreements)
5.	Village Organisations (VO) Federation of village level SHGs	Village level holding of project budgets and linkages.
6.	Mandal Mahila Samakhya (MMS)- Federation of Mandal level SHGs	Channeling the budgets, monitoring.
7.	Village Service Society (VSS)	Field facilitation, community organization, network facilitation and field level linkages
8.	Fisheries Department	Technical support, linkages with mainstream programs for accessing assets like nets.
9.	WASSAN	Process design, capacity building, secondary level facilitation and process support, facilitating scaling up
10.	Fisheries Resource Center, KVK, Jammi Kunta, Karimnagar.	Technical support to FCS, exposure visits, technical training
11.	BASIX	Local Area Bank, providing loans to the SHGs formed within the cooperatives
12.	National Fisheries Development Board (NFDB)	Scaling up and policy discussions
13.	MDO/Employment Guarantee Scheme/Commissioner, Rural Development	Establish EGS linkages for tank landscaping to suit fisheries and for fish nurseries.

Box 4 : Democratizing the cooperatives

The SHGs within the FCCS have democratized the cooperatives and actively involved several of the members in the decision making, thus, weakening the stronghold of the dominant leadership. Larger participation also brought about transparency in the operations and finances

1.1 Organizing SHGs within the FCS

The initial work after situation analysis consisted of a series of discussions with the FCS members and leaders to form the SHGs of the fishermen (mainly men). 53 such SHGs were formed in the three Mandals. The process involved field support in the formation of groups, introducing thrift and credit, training of book-keepers, opening of a bank account etc. In this process issues related to FCS accounts were also discussed and necessary support extended for streamlining. The total savings of all these groups by the end of 2009 stood at Rs. 3.94 lakhs.

1.2 Bank Linkages

This was intended to encourage the FCSs to take up the fish production on their own by enabling them with the required financial resources. As the scheduled commercial banks refused to extend credit facilities to the FCSs, they were linked to the BASIX local area bank. It gave a loan of about 4 lakh rupees for all the FCS put together. But as the SHGs' own savings increased, the required capital for fish seedlings was mobilized internally and bank linkage has become redundant for this purpose. Only two FCS, have taken Rs.27,000 as loans from banks in the year 2009.

1.3 Developing Community Resource Persons

Community Resource Persons from among the FCS in various successful tanks were identified and trained intensively. They provide services on consultancy basis on aspects like visiting the new/ non-member cooperatives and explaining about the process, book-keeping, technical support etc. Their tasks include organizing CIG/FCSs and women vendor meetings apart from extending support in book keeping, bush clearance, seed stocking, feeding and harvesting etc.

1.4 Mandal Level FCS Networks

Mandal level networks of FCS (delinked from contractual system) were formed in the three program Mandals. These networks meet on a fixed date every month at the respective Mandal Mahila Samakhya office. They provide a platform for FCS to come together and mutually strengthen each other. The network also helps in planning the logistics of procuring fish-seed and liaison with the Fisheries Department. They serve as a node for technology dissemination and review the functioning of the groups. Cross-sharing of experiences and information are the main purposes of the network platform. It is expected that these networks will become marketing nodes in future. The active network members also dialogue with other FCS, which are still in the clutches of contractors.

1.5 Organizing Fish Vendors (Women)

Fish vending women were identified in each of the program villages. 40 such women were given training in fish storage. They are part of the women SHGs and Village Organizations. They were linked to the Fisheries Department programs to get ice boxes at 50% subsidy. In total, 33 ice boxes were supplied. These women were also linked to the FCSs in 16 tanks for regular supply of fish for local sale.

1.6 Establishing Fisheries Resource Centre

The need for strong technical inputs/ services emerged during the course of the pilot. It was felt that these requirements would increase manifold during the scaling up phase and the linkages with the Department alone would not be sufficient in this regard. A need for professionalizing training services was also felt. GNNS-Krishi Vignan Kendra (KVK), Jammi Kunta in Karimnagar district has expertise in in-land fisheries. They have also supported FCS in the district. WASSAN partnered with the GNNS-KVK to establish a Fisheries Resource Center by mobilizing support from Ford Foundation and Hivos. Through this centre, KVK provided technical back-up services to the pilot initiative of inland fisheries in APDAI. Several training modules and communication material were developed by WASSAN and the KVK. The KVK also has anchored several exposure visits for the FCS members. Thus, the concept of Community Managed In-land Fisheries is being scaled up by the Fisheries Resource Center.

1.7 Partnership with the Fisheries Department

The program, right from its inception, was evolved in collaboration with the Fisheries Department. The local officials of the Department (FDO) and the Assistant Director attended several community meetings. This linkage is much stronger as the FCSs were formally registered with the Department. The officials visited the tanks for extension of technical support, linking the FCS with their programs and extended the available subsidies.

Table 2: Institutional details of Community Managed Fisheries activity under APDAI (2008-2009)

Sl. No	Village	Total members in the FCS/CIG	No.of tanks	No. of SHGs formed	Total savings (Rs.)	Bank linkage (Rs.)	Women vendors organised
1	Gokafasalwad	5	1	1	5500	0	4
2	Deverfasalwad	105	1	7	3150	0	0
3	Allapur	30	1	2	2700	0	0
4	Thimmareddipalli	30	1	2	5400	0	0
5	Kothur	85	1	6	4250	0	0
6	Regadimailaram	60	1	4	6000	0	0
7	Metlakunta	110	1	4	12000	0	0
8	Kosgi	20	2	1	19200	12000	0
9	Bijjaram	33	1	2	35200	0	5
10	Kadampalli	72	1	5	65800	15000	12
11	Mirzapur	48	1	3	52500	0	3
12	Bhogaram	28	2	2	37700	0	5
13	Bhakthimalla	31	2	2	22000	0	7
14	Amlikunta	76	1	6	43950	0	2
15	Lodhipur	32	1	2	31300		10
	Total	**765**	**18**	**49**	**346650**	**27000**	**48**

2. Breaking the strangle-hold of External Contractor

The first strategic step was to break the strangle-hold of external contractor and restore the tank management in the hands of community / cooperative members. Initially it required intensive inputs. With the initial success in few tanks and the formation of Mandal level networks of FCS, the facilitation became easier.

However, very large tanks (such as Daulatabad tank) with high potential value and perennial water source have serious contractor-political nexus with dominant rentier interests. The caste identity further complicates the institutional scenario. Often, the lease agreements span over two to three year periods. Further, the fishermen from poorer households live from the daily harvests (sort of pilferages) from these water bodies. Increased regulation by reformed institutions would negatively impact them. Organizing the large number of members in these tanks has proven to be difficult. There is no breakthrough in such tanks so far.

58% of the FCS in the program Mandals regained their control over fisheries production towards the end of 2009. The process started with situation analysis identifying the specific arrangements with the external contractor and type and period of lease agreements. The VSS (facilitating NGO) team, supported by network representatives, discussed with the new FCS. The comparative picture as presented in Table 3 was put forth for discussion.

Table 3: Advantages of shifting to Community Managed Fisheries

Parameter	Contractual System	Community Managed System
Tank Preparation	❖ As there is no incentive, uisually not done	❖ As it increases productivity, generally taken up
Time of Stocking	❖ Stocks fish fry	❖ Can maintain seed farm· Can stock fingerlings or even stunted fish· Can take advantage of the limited seasonality of water in the tanks
Taking advantage of climate change	❖ Sourcing advanced fingerlings/ stunted fish at a short notice is difficult and costly	❖ As the fish seed is available locally in perennial seed ponds, can take advantage of unseasonal rains or high intensity rainfall – results into frequent tank filling.
Types of fish seed	❖ Stocks mainly rohu and katla in view of the bulk markets (other fish is not valued in distant markets)	❖ Can stock even the local fish like bangaru teega as they have local market
Feeding and management	❖ Does not invest on feeding or disease control – only stocks and harvests	❖ Can have intensive fisheries & proper management systems including disease control and feeding, leading to higher productivity
Harvesting	❖ Bulk and one time harvesting	❖ Can have phased or staggered harvesting of low volumes for local markets – results in higher price realization
Livelihoods	❖ Only wages for the local people for protection and harvesting	❖ Possibility of incomes from; o fish seed rearingo Income from harvestingo Local fish vendingo Higher productivity / higher volumesoBetter price realization
	❖ Pilferages are common- some poor fishermen depend on such pilferages for their regular income	❖ Indiscreet harvest is restricted- all harvests are according to the schedules drawn.
Institutions	❖ Less intensive and easily managed at sub-optimal level / less conflicts	❖ High institutional intensity
Credit/ Investments	❖ Easy, made by one individual with clear personal profit	❖ Extended either through Cooperative or bank linkage

3. Capacity Building

After the initial discussions with the FCS and an interaction with the successful cooperative, training programs were organized for the FCS members at KVK on themes of composite fish culture, pond development, identifying diseases, supplementary feeding, trial netting, Murrel culture and fish seed production. Training programs were also organized for women vendors. The network meetings of the FCS were a constant source of exchange of knowledge and information

as officials from fisheries department also participated. Aspects related to cooperative functioning were covered in general in the training program. In addition special programs were organized for book-keepers on maintenance of SHG books. The visits of the FCS members to commercial fisheries in Krishna district for purchasing the fish-seed remained as a source of inspiration and new knowledge.

4. Improving Production Systems

In the initial year, proper pond development, supplementary feeding etc., was not insisted upon. They were introduced gradually. Clearance of weeds (Ipomea) at least in the dead storage area where final harvest takes place, ploughing the land, application of lime and manure were introduced. Plans were prepared for integration of these activities, particularly the removal of weeds, into Employment Guarantee Scheme. In Kosgi Mandal, weed removal was taken up in four tanks under EGS. While in the contractual system, no such interventions used to be taken up as the contractors arrive only when the tank is full with water.

Composite fish culture was introduced in place of single or two species practiced earlier. Staggered harvesting was introduced in place of or along with bulk harvesting. The FCS in Kadampalli brought murrel breeding fish from an adjoining tank and raised them in separate tanks for seed. They also took up natural seed production of bangaru teega (Cyprinus carpeo) in a separate pond. The KVK technically supported the FCS in determining appropriate stocking rates for the tanks. The preference was gradually shifting to fingerlings from fry in view of the limited water storage time available in these seasonal tanks. As transport costs of procuring fingerlings from nurseries in Krishna is expensive, attention was also put on developing nursery ponds.

Supplementary feeding was done with rice bran in four tanks but it was not systematized. It is expected that with experience over time the cooperative will make its own choices relating to feed supplementation. There was also no major disease occurrence.

Table 4 provides an overview of production in 15 tanks in the three program Mandals. The produce was sold by local vendors, men and women- which generated 676 person days of employment.

Table 4: Compiled details of fisheries activity (year wise progress)

Subject/Year	2007-08	2008-09	2009-10	Total
Total FCS/CIGs	18	15*	15	
Total tanks	21	18	18	
Total SHGs	65	49	49	
Total savings (Rs)	280030	346650	522000	
Fish seed released (number)	250000	820500	750000	1820500
Fish seed type (fry/fingerlings)	Flinger lings	Flinger lings	Flinger lings	
Place of fish seed purchase	Kaikaluru	Kaikaluru	Kadampalli & Kaikaluru	
Fish seed rearing centres	0	1	1	2
Bank linkages (Rs.)	65000	27000	0	92000
Women vendors organised	0	48	48	
Total production(Kgs)	**72000**	**62510**	**Yet to come**	**134510**
Type of harvesting	staggered	staggered	staggered	
Access of infrastructure (nets, ice boxes from government schemes)	able to access	able to access	able to access	

* Only 15 villages were selected as part of APDAI

Box 5 : Fish Nurseries & Stunted Fish:

Kadampally FCS pioneered the nursery ponds with support from the project. They dug four nursery ponds of size 30 m x 25 m x 2 m depth, within the tank bed area. The FCS invested on digging a borewell within the tank bed, purchasing a motor and pipe line. The pond digging costs were borne by the project (about Rs.70, 000). Black saline soil was brought from outside and spread on the nursery tank bed to arrest seepage. Out of the four dug ponds, they used only two nursery ponds initially. Other two are yet to be properly developed. They brought 50000 fry in 2008 and stocked the nursery ponds. Due to drought conditions, as the tanks are not filled to the required extent, they continued rearing the fry to stunted fish level. With good rainfall and inflow of water into the tank this year, they have released the stunted fish into the main tank. A simple breach in the nursery pond releases the fish seed into the main tank as they are integrated. The produce is yet to be harvested. They bought 50,000 fry this year and are presently rearing them in the nursery ponds.

The second pond was stocked with 15 breeder murrel fish bought from Bhogaram FCS. They breed naturally and the murrel fry is reared to advanced fingerling stage. These were also released into the main tank this year. With this inspiration from Kadampally, the FCS in Regadi Mailaram village in Bomraspet mandal also took up development of fish ponds. In all, the program now has capacity to rear about 4 lakhs fish fry to fingerling stage.

Kadampally illustrated that fish nursery ponds in-built into the tank's landscape and integrated into the tank systems with access to groundwater (borewell) can become a productive support system for fish production in the tanks

Fish Production in Kadampally tank

The production over the last five years in Kadampally illustrates the nature of fish production in the seasonal tanks in drought prone rainfed areas. In one out of the five years there is no production owing to rainfall failure and the returns are poor in another year. The returns are good in three out of the five years.

Table 5: Details of fish production in Kadampally tank during 2005-2010

Year	Water availability In tank	Total seed stocked (numbers)	Total expenditure (Rs.)	Total Yield (Quintals)	Sale price (Rs/ Kg)	Gross returns (Rs.)
2005-06	Good	150,000 (3 types)	20,000	30	15	45,000
2006-07	Poor	130,000 (3 types)	25,000	10	12	12,000
2007-08	Poor	12 breeder fish	1,500	6	120	72,900
2008-09	Tank driedup no water	no seed release	-	-	-	-
2009-10	Good (tank filled)	100,000	10,000	Yet to harvest		Yet to harvest

The fish production and support systems need to consider this variability. The tanks generally fill by August while seed has to be procured in June for rearing in the nursery ponds. There is always an element of risk in such cases. Availability of nursery ponds now open up an opportunity for continued seed stocking in the event of rainfall failure to prepare stunted fish for the next season.

Box 6 : Murrel culture:

An initiative on Murrel culture sparked off from one of the training programs at KVK. 26 individuals from the 3 Mandals were inspired by an exposure visit and invested on digging of 29 ponds in their own fields. They released 1.20 lakh Murrel fish fingerlings. Supplementary feed was given by collecting waste from the local chicken centers. This did not give desired economic returns as the stocking rates and management was not technically sound. Further work needs to be done in this regard.

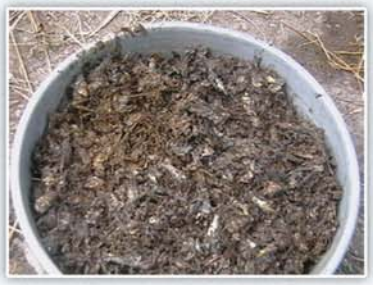
Harvesting and Local Marketing

48 women fish vendors were organized into 8 Common Interest Groups. Together they have sold about 9.2 tons of fish in the year 2008-09. In three cases, the FCS signed an agreement with three fish-contractors for bulk sale of the fish to external markets. The instances of bulk sales have drastically come down with the introduction of community managed fisheries and staggered harvests.

In 2007-08, a total of 72,000 Kg fish worth Rs. 10, 80,000/- was harvested from the tanks managed by the FCSs. The average net profit to the FCS was Rs. 51,428/- per tank. In 2008-09, though it was a drought year, a total of 62, 510 Kgs worth Rs. 11, 25,180/- was harvested from the tanks managed by the FCSs in the program area. The average net profits to the FCS was Rs.62, 510/- per tank.

Convergence from the Fisheries Department

The fisheries department has provided 25 throw nets, 3 drag nets, 8 gill nets and 10 ice boxes at subsidized rates.



UP SCALING

The entire experience in community managed inland fisheries was generated with active collaboration of the Department of Fisheries. FCS are legal bodies entrenched into the administrative architecture of the Department. As a follow-up to the discussions, the Commissioner Fisheries visited the program area and interacted with the FCS networks. The Department took a decision to scale up the program in few districts. Subsequently, a meeting was organized with the department officials of four districts (Mahabubnagar, Adilabad, Khammam, Karimnagar, Ranga Reddy). The proposal could not be taken forward immediately as the Commissioner was transferred.

The Fisheries Resource Center and WASSAN together have taken up situation analysis and identified 200 potential tanks (in Karimnagar, Ranga Reddy and Mahabubnagar districts) for scaling up the experience. A dialogue was initiated with the National Fisheries Development Board (NFDB). Subsequently in November, 2009 a convergence meeting was organized at the Commissioner, Rural Development office with the CEO of NFDB; Commissioner, Fisheries and Commissioner and Special Commissioner, Rural Development; WASSAN; Fisheries Resource Center; VSS and few FCS members. The Director, Employment Guarantee Scheme also participated in the event.

Following the deliberations in the convergence workshop, it was decided to scale up the experience in three districts working with 200 tanks. It was agreed that while the Commissioner, Rural Development will fund all the infrastructure costs like earthwork, NFDB will fund the training components and the Fisheries Department will integrate all their schemes into these tanks. A Steering Committee was also formed with the CEO, NFDB; Commissioner, Fisheries and Commissioner, Rural Development to take the initiative forward. WASSAN prepared the proposal. The required training modules, communication material etc., were prepared by WASSAN and the Fisheries Resource Center. A pool of about 30 community resource persons was also trained in various aspects for providing support services.

The pilot experience on community managed tank-based inland fisheries brought out the need for a separate dispensation and focus on tank-based fisheries in drought prone areas. This is particularly relevant as a drought adaptation measure, for making the best use of the strategic opportunities thrown out by the Climate Change. Institutional readiness is the key to success. Restoration of community control by facilitating appropriate institutions, investing on appropriate infrastructure and appropriate technological packages as evolved in the pilot initiative are important.

Reviving Community Managed Tank Based Fisheries

For more details, contact:

Commissioner, Rural Development
5-10-192, 2nd & 5th Floor, Hermitage Complex
HUDA Bhavan, Hill Fort Road
Saifabad, Hyderabad-500 004
Ph: 040 - 23298903 / 23296790 / 23296791
E mail : comm_rd@ap.gov.in, Web : www.rd.ap.gov.in

Watershed Support Services and Activities Network (WASSAN)
12-13-450, Street No.1
Tarnaka, Secunderabad - 500 017
Andhra Pradesh
Ph: 040 - 27015295 / 27015296 / 27018581
E-mail: wassan@eth.net, Web: www.wassan.org