Pro-Poor Interventions in Irrigated Agriculture in Andhra Pradesh

C. Sithapathi Rao

IRRIGATION IN ANDHRA PRADESH

Andhra Pradesh (AP) is the fifth largest State in India with a geographical area of 2.75 lakh sq.km., and a population of about 750 million. More than 70 percent of the population depend on agriculture, and in this context, development of irrigation has become an important component in the various plan programs.

Two of the major rivers in India, the Krishna and Godavari pass through the heart of the State before joining the Bay of Bengal. In addition, a large number of medium-sized rivers like Vamsadhara, Nagavali, Pennar, and a number of coastal rivers like Sarada, Paleru, Thandava, Varaha, Yeleru, Swamamukhi etc., flow through the State and have immense potential for irrigation development.

The estimated availability of surface flows of water from these rivers at 75 percent dependability is estimated as 2,746 TMC. Around 66 percent of these dependable surface flows have been tapped so far for irrigation (table 1).

Table 1. Water utilization and balance available.

<table>
<thead>
<tr>
<th>River basins in AP</th>
<th>Availability (TMC)</th>
<th>Utilization (TMC)</th>
<th>Balance (TMC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Godavari</td>
<td>1,479</td>
<td>795</td>
<td>684</td>
</tr>
<tr>
<td>Krishna</td>
<td>811</td>
<td>811</td>
<td>Nil</td>
</tr>
<tr>
<td>Pennar</td>
<td>98</td>
<td>98</td>
<td>Nil</td>
</tr>
<tr>
<td>Nine other inter-State rivers and veers within the State</td>
<td>358</td>
<td>124</td>
<td>234</td>
</tr>
<tr>
<td>Total</td>
<td>2,746</td>
<td>1,828</td>
<td>918</td>
</tr>
</tbody>
</table>

*C. Sithapathi Rao, Director, Institute of Resource Development and Social Management (IRDrL1), College Road, Sojibai, Hyderabad - 4, AP, India.
The surface flows are harnessed through various irrigation projects. There are 18 major and 104 medium irrigation projects in AP, which have created irrigation on around 36 lakhs ha. However, irrigation utilization is reported to be around 55 percent due to various reasons. Also, various observations have indicated that the efficiency of irrigation utilization is around 35 percent.

**Recent Initiative in AP**

Irrigation has been the primary sector not only for increasing the agricultural production but also for improving the livelihoods of rural poor. It generates more employment and incomes particularly to the small and marginal farmers and landless laborers.

However, the irrigation potential created is utilized stands around 59 percent only. Further, the yields and incomes have not reached the expected levels.

The white paper prepared by the Government of AP in 1996 indicated that this situation has arisen due to a combination of mutually supporting negative influences that have dominated the irrigation sector over the past few years. These are:

a. Limited involvement of the water users in operation, management, and maintenance of the system;

b. Deteriorated condition of the irrigation system, due to inadequate and poor maintenance; and

c. Inadequate agricultural extension.

To remedy the situation, the Government of AP initiated irrigation reform process in early 1997, central theme being to promote participatory irrigation management (PIM), through farmer organizations.

The vision 2020 document of the government of AP states:

“The development of water resources is critical to several aspects of the state’s development. Irrigation has been the key force behind the agricultural revolution in the state—yields of food grains and other crops have almost trebled under irrigated conditions. Increased and assured irrigation leads to greater investments in inputs by farmers, a shift to high-value crops, intensification of agriculture and increased employment. Irrigation, therefore, can be considered a lead input in agricultural and rural development. Irrigation also ensures the availability of potable water to all urban and rural areas in the state and water supplies to industries.”

Since irrigation utilizes a major share of water, the vision document has laid special emphasis on:

i. Realizing maximum irrigation potential of the State;

ii. Improving the efficiency of the existing irrigation utilization, which is to be increased from the present level of 30–35 percent to at least 57 percent; and
iii. Managing water resources better through stakeholder participation.

Legal framework to facilitate stakeholder participation is developed in AP through a special Act called *Andhra Pradesh Farmers’ Management of Irrigation Systems (APFMIS) Act, 1997*. The following are the main features of the Act:

a. Creation of farmers’ organization in all irrigation projects of the State. At the field level these are called Water User Associations (WUAs) covering a group of minors/ or small distributaries on a hydraulic unit basis, under major and medium irrigation projects. These are federated at the middle and upper level depending on the size of the irrigation project.

b. Gives water rights to the WUAs;

c. Provides functional and administrative autonomy in managing and operating the system to the WUAs;

d. Makes irrigation department (ID) staff accountable to the WUAs, requiring ID staff to implement the decisions of the WUA;

e. Enables WUAs to resolve conflicts by themselves within their area of operation;

f. Enables proper maintenance and improvement of the irrigation systems by the WUAs based on resources raised by them and from out of the grants as a percentage of water charges collected in the area;

g. Allows access to information on project operations;

h. Permits preparation of the operational plan for water distribution by the WUA and ensures assured and reliable supplies to all farmers;

i. Provides freedom of cropping pattern to farmers within the overall availability of water, and

j. Contains procedures and guidelines on accounting, social auditing, water budgeting, election procedures, and other matters of administration.

Through these farmers’ organizations it is envisaged that large number of poor farmers, whose lands are generally in the tail-end reaches and who are now not getting any irrigation from the projects, even though their lands are included in the command area, will be benefited.
INTERVENTIONS

Formation of WUA

In a WUA all the landholders within its boundaries are its members. The Act provided for two types of membership:

1. Members with voting rights: These are members who have been registered as owners or tenants in the record of rights. Where both the owner and the tenant are landholders of the same land, the rights are given to the tenant.

2. Members with no voting rights—other water users: All other water users are categorized as members with no voting right. These include any individual or body corporate or a society using water for domestic, power, non-domestic commercial, industrial or any other purpose from a government source of irrigation. This would also include cultivators who have not been recorded in the revenue records.

The WUA will have a managing committee, which attends to the day-to-day functioning. This body will have a president and members ranging from 4 to 10, all elected by the voting members. The operational area of a WUA is divided into segments called territorial units and the voting members in that area elect its members. This is done to give equitable representation by the entire area. The President is elected directly by all the voters. This elected body called Managing Committee will operate and manage the system within its area for providing irrigation to all holdings in its area in a dependable way. The tenure of these elected bodies is fixed for a period of 5 years.

The President or the member of the managing committee can be recalled by the members after a period of one year if he is found to be misusing his position. This is to be done by giving a written notice signed by not less than one-third of the members of the organization. The motion for recall has to be adopted by a simple majority of the members present in the general body meeting specially convened for the purpose.

In the state, around 1,700 WUAs under major irrigation systems and 400 WUAs covering medium irrigation projects have been formed.

A special program to assist the WUAs for taking up minimum rehabilitation and maintenance was taken up as part of the World Bank assisted project from 1998 onwards. The works were identified and prioritized by WUA. They also organized the execution ensuring the quality of work. The number of work done and amounts utilized are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount utilized (Rs. in Crores)</th>
<th>Number of work done</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998-1999</td>
<td>118.82</td>
<td>21,406</td>
</tr>
<tr>
<td>1999-2000</td>
<td>169.57</td>
<td>17,185</td>
</tr>
<tr>
<td>2000-2001</td>
<td>51.55</td>
<td>9,289</td>
</tr>
</tbody>
</table>
Maintenance of the System

This has improved the distribution system to a large extent.

Finance for WUA

One of the major requirements for the sound functioning of an organization is the need to have adequate financial resources and the WUAs are no exception to this.

The Government of AP has decided to pass on 50 percent of the water tax (Rs.250 per ha) to the WUAs and to the higher bodies at the distributary level and project level which can form their regular recurring income. The Mandal Revenue Officer, who at the local level keeps track of the collections of water tax, is authorized to transfer the funds at the end of each quarter.

A study in one district (Krishna) has shown that as against the normal grant of Rs.1.00 crore by the Government for O&M, this year by end of May 2001, these organizations have Rs.5.2 crores by the end of May 2001.

Progress

The experience of the working of WUA in the past 3 years has shown considerable awakening in the rural side and the importance of the WUA has been on the increase.

Information on various aspects of WUA was gathered from the Presidents of the WUAs, in the form of “Yes” and “No” answers during 1999–2000. The summary is given below:

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Yes (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Maintenance of System:</td>
<td></td>
</tr>
<tr>
<td>i. Have you conducted walk through surveys for fixing up item of maintenance</td>
<td>84.79</td>
</tr>
<tr>
<td>ii. Maintenance work done:</td>
<td></td>
</tr>
<tr>
<td>- Removal of silt</td>
<td>62.02</td>
</tr>
<tr>
<td>- Removal of vegetation</td>
<td>61.25</td>
</tr>
<tr>
<td>- Repairs of structures and outlets</td>
<td>65.24</td>
</tr>
<tr>
<td>- Closing of breaches</td>
<td>65.55</td>
</tr>
<tr>
<td>- Strengthening of embankments.</td>
<td>66.14</td>
</tr>
<tr>
<td>- Repairs to drains</td>
<td>31.58</td>
</tr>
<tr>
<td>b. Water regulation and distribution</td>
<td></td>
</tr>
<tr>
<td>i. Preparation of operational plan and water distribution</td>
<td>79.63</td>
</tr>
<tr>
<td>ii. Getting irrigation water in time.</td>
<td>80.67</td>
</tr>
<tr>
<td>iii. Irrigation reaching the tail-end areas.</td>
<td>81.12</td>
</tr>
<tr>
<td>iv. Reduction in disputes - in water distribution.</td>
<td>81.72</td>
</tr>
<tr>
<td>v. Improvements due to repairs to drains.</td>
<td>54.73</td>
</tr>
<tr>
<td>c. Other Items:</td>
<td></td>
</tr>
<tr>
<td>i. Raising internal resources through contribution</td>
<td>11.06</td>
</tr>
<tr>
<td>ii. More trainings to be organized</td>
<td>85.75</td>
</tr>
</tbody>
</table>
OUTLOOK FOR FUTURE - PRO-POOR INTERVENTION

Pro-poor intervention in an irrigation system essentially entails providing irrigation water to small and marginal farmers within the command whose lands are generally situated in tail-end reaches. The supplies should be reliable, adequate, time-specific to enable the poor farmers to plan their crop production. This entails essentially three things. They are:

i. Proper maintenance of the system, to enable the designed/ desired flows to reach farm holding;

ii. Implementation of an operational plan, to enable a definiteness in water flows; and

iii. Involving the farmers in the above (i) & (ii) activities.

The WUAs already formed in AP have created the necessary platform for this. However, there is a need to pursue them vigorously so that it becomes a regular practice and forms a part of irrigation management culture.

RESEARCH ISSUES

All major and medium irrigation projects are designed and constructed to provide irrigation by gravity flow. The command areas are demarcated taking into consideration the elevations, and have hydraulic boundaries. Water is expected to reach each outlet, below which the lands for irrigated agriculture are available.

Experience has shown that due to various reasons the designed water flows do not reach the outlets, more particularly in the lower reaches of the command area. This deprivation of water is termed as "tail end problem" resulting in "gap" in the irrigation potential created.

In this situation, generally big and influential farmers manage to get water for irrigated agriculture in their lands by various means and the small and poor farmers, within this gap command remain as helpless spectators and continue to remain as dry land farmers. The irrigation agency, due to its own work culture, has not been able to do much in this direction.

Measures to remedy this depend on implementing a proper “operation and maintenance” (O&M) of the system involving the water users (farmers) as partners and developing a good agriculture support program.

A “pro-poor” approach to improve irrigated agriculture is adopted in Andhra Pradesh, through the process of “Participatory Irrigation Management” (PIM), and creating farmer organizations at various levels in the system. An enabling law called “Andhra Pradesh Farmers’ Management of Irrigation Systems Act 1997” is also made in the State and farmer organizations (Water Users Associations/ Distributary Committees) are operating from the past three (3) years in all major and medium irrigation projects in the State.
Looking from the angle of “pro-poor strategies” in any major and medium irrigation systems the issues mainly are:

i. Nonavailability of water;

ii. Flow of irrigation in a non-dependable pattern;

iii. No information regarding the water supplies;

iv. Delayed water flows;

v. Effected by waterlogging and salinity'; and

vi. Inadequate or poor agriculture extension support:

The research study “to determine what can be realistically done to improve the returns to poor farmers in the low productivity irrigated areas” need to be planned taking into consideration the present ground situation. These can broadly be classified into:

• General Issues

  i. Overall water utilization in the command area/area irrigated/crops grown/water use efficiency;
  ii. Levels of productivity in the command— at head, middle, and tail reaches of important crops; and
  iii. Organization/responsibilities in relation to water supplies and maintenance.

• Specific Issues – Country Level

  i. Operational procedures (for water regulation/deliveries);
  ii. Maintenance/procedure and process;
  iii. Cropped areas/productivity/input usage; and
  iv. Assessment/water tax recoveries.

• Macro-Level

  i. Project level organization/operation/maintenance procedures;
  ii. Performance (in the past five years); linkages with the distributary committee;
  iii. Water budgeting at project level; and
  iv. Overall crop pattern/productivity levels in different reaches.

• Meso-Level

  i. Functioning of distributary level committees;
  ii. Water regulation/supplies to each WUA;
iii. Maintenance;
iv. Resolving disputes;
v. Transparency and accountability in its functioning; and
vi. Linkages with irrigation/agriculture/revenue departments.

- Micro-Level - (Here it will be a combined area of minor/outlet/farm level)
  i. Water user association level;
  ii. Functioning in relation to providing transparency and accountability;
  iii. Tail-end poor farmers’ role in the WUA; and
  iv. Linkages for improving productivity in poor farmers’ fields.

For this study Nagarjuna Sagar Left and Tungabhadra Low Level Canal can be taken as they provide different situations.