

**A Study on Operation and Maintenance Cost of Irrigation Projects
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INTRODUCTION

An analysis of the operation and maintenance for the growing water cells represents gross neglect and mismanagement of water resources. The problem is not due to absolute shortage of water, it is due to the absence of the proper mechanism for conservation and distribution in efficient use. As Miasmic all (1997) in a study pointed out to the irrigation department the need for correct technology and to the Government departments for the establishment of efficient markets and capable agencies for desirable results. For sustainable agricultural development, the importance of irrigation management and farmer organizations have been felt over the years. The adhoc arrangements are more of the nature of political games linked with bureaucratic structures of which operation and maintenance of irrigation water is one.

As per literature reviews found these approaches to be ineffective in the options of decentralization and devolution of powers to water users associations. For the effective and sustainable irrigation the restructuring and reforming and state irrigation department and the bureaucracy is critical. It is argued that political will is a necessary condition for making water users associations autonomous and self-sufficient.

INSTITUTIONAL CHARACTERS

Irrigation plays an important and dynamic role in the agricultural development of our country. Creation of irrigation potential by constructing new schemes/projects is important and should be continuous process. But equally more important is the operation and maintenance of irrigation systems. The construction cost of irrigation projects depends upon the topography of the area, hydrology of the stream, availability of construction material and labour in the vicinity, location of project site. Transportation and communication facilities and other social factors by considering these factors the cost of minor irrigation schemes work out to above Rs. 30,000 to Rs.40, 000 per acre and for medium & major irrigation projects Rs.50, 000 to Rs.60, 000 per acre. This cost includes land acquisition, construction of head works, surplussing arrangement of irrigation channels and field channels but not the cost required for land development. The initial cost for construction of any irrigation project is being born by the government. In very rare cases, the public is coming forward to contribute not more than 15% of the cost of project in the shape of land, cash and labour. The projects are being constructed in the areas where irrigation is not developed, in drought prone areas and where projects are hydrological, feasible and economical. It all depends upon the government's priority for the development of any area and necessity. After completion of the project to keep the system sustainable it requires maintenance of the project regularly in order to withstand the head work and surplussing units for receiving, storage and discharging the waters, and also regular maintenance is required to maintain head sluices and irrigation channel to draw the required water as per demand up to the tail end of the project. For all these the system is to be maintained for standards. Regular maintenance is essential and a must for any project to run the system effectively and to achieve the targeted goals as completed at the time of grounding the project. The nature of maintenance works depends upon the components involved and may vary from project to project. The very important items of these are the Dam and the works and main canal and distributaries. These are some of the

routine maintenance works to be attended to regularly to keep the system sustainable and we call it as *operation and maintenance*. The life of the irrigation system depends upon the catchment area, treatment of overflow and non overflow dam, earthen embankment, head sluices, diversion work etc. Further communication network is to be established between the stations and the dam site and also with project head quarter to monitor and to transmit the timely direction to the operation staff. To monitor all these things day-to-day, maintenance cost besides establishment cost is also to be incurred.

On the basis of above outlined guidelines, here we have considered the following two aspects for analysis of the *operation and maintenance* under different projects.

- 1) Operation and maintenance cost.
- 2) Rehabilitation cost or modernization cost (long term basis).

OPERATION AND MAINTENANCE COSTS

The maintenance of projects depends on many factors and the cost varies from project to project. This *operation and maintenance* cost is divided into three parts.

- 1) Labour, material and equipment i.e. work cost
- 2) Work charged establishment i.e. staff maintenance
- 3) Engineering personnel, design and consultancy

The third item i.e. the charges towards engineering personnel including designs and consultancy are to be born by the government. Where as the cost on the first and second parts are to be born by the water users associations. This is called as an *operation and maintenance* cost.

The requirement on *operation and maintenance* cost works out to about 1 percent of cost of the project. This works out to Rs.300 per acre for minor projects and Rs.500 per acre for medium and major irrigation projects. The *operation and maintenance* cost is to be updated every 5 years depending upon the latest cost of the project.

REHABILITATION COSTS

Generally within 20 years from the construction of any project do not require any rehabilitation cost to the project. After 20 year period for each 5 to 6 years interval about Rs.15000 per acre is required for attending to major works i.e., rehabilitation works to bring the system to its original standards¹.

IRRIGATION WATER CHARGES

Herein we made an attempt to present the current water cess, fee, levies and others collected from the users.

WATER CESS

At present Water cess of Rs.100 per acre for wet crop of minor irrigation projects and Rs.200 per care for medium and major irrigation projects are being collected from the farmers.

The department (irrigation department) is spending Rs.100 per acre towards works cost for maintenance of irrigation projects from the past four years only. The cost of work charged for establishment is being borne by the Government. Only Rs.40 per acre used to spend on *operation and maintenance* including the salaries of work charged staff four years ago. The water cess being collected is far less than the amount required for *operation and maintenance* cost because of insufficient grant allotted towards *operation and maintenance*, the irrigation projects are becoming unsustainable, resulting increasing in gap ayacut and decreasing in food production.

DISTRIBUTION OF WATER FEE

One of the most important decisions that have been brought in the field of operation and maintenance in the linkage between water fees collected by the revenue department and the distribution of water fee for operation and maintenance works. The government issued orders for the opportunity water fee collected among the farmers' organizations for the operation and maintenance of

the irrigation systems. The water fee collected is to adjust in the following manner under different sources of irrigation. The particulars of water fee are presented in table below

Details of water fee

Sector	Water fee Per acre (In Rs)	Allocation				
		WUA	DC s	PC s	GP	Irrigation Department
Major	200	50	20	20	10	100
Medium	200	60	-	30	10	100
Minor	100	90	-	-	10	-

Source: G.O. Ms.No. 115 revenue LR -3 Department Dated 13/2/2001.

To have an overview the above particulars are shown in the pie diagrams for major, medium and minor sources.

Figure-a : Major

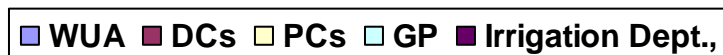
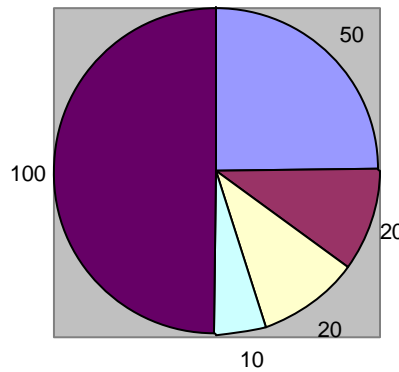


Figure-b : Medium

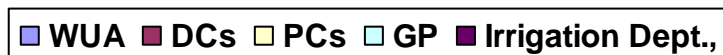
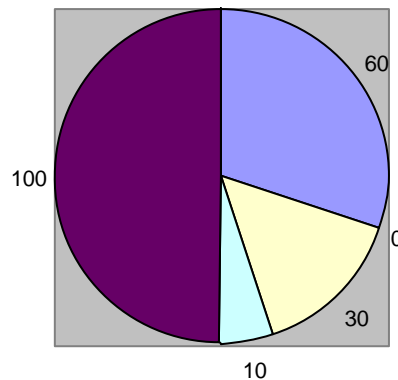
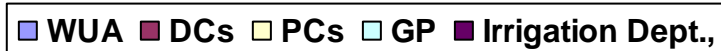
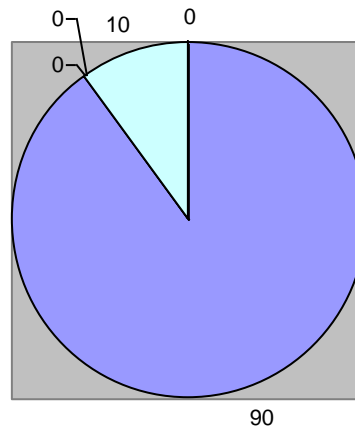


Figure- c: Minor



LEVY FEE

The act also empowers farmers’ organizations to levy a fee to achieve the objects of the act and for performing its functions. All the members are mandated to pay the amounts as decided by the general body of the farmers’ organization².

OTHER SOURCES

In addition, the water users associations can collect construction fee from their members. They can also rise from properties within the system such as auction of trees, rent on irrigation properties etc. Other funds as received from the central government, as management subsidy or calamity relief would also contribute to its resources.

Having discussed general characters and institutional aspects of *operation and maintenance*, we propose to present the financial aspects of long term sustainability along with institutional structures coordinating with water users association.

AN INSIDER OBSERVATION

We have to assume that the institutional characters by the government of Andhra Pradesh has to reform and restructure for the benefit of water users associations. The following items have to be reckoned.

On the basis of the literature available from working papers No.65, November 2005 entitled “How participatory is Participatory Irrigation in Management (PIM)? - A study of water users associations in Andhra Pradesh and *operation and maintenance* of Irrigation projects in Andhra Pradesh an unpublished note by M.K. Rahaman Engineer in chief (Irrigation) government of Andhra Pradesh, we have outlined the following characters.

All the water users are the land owners. The person eligible to become a member must belong to territorial constituency of the specified water users associations.

Though the user contribution of 15 percent is in the participatory irrigation management act, there is no evidence of any collection from farmers so far.

The allocation of water fee G.O. Ms 115 revenue, (LR3) department dated 13/2/2001 is Rs. 20 for distributory committees and project committees, for irrigation department Rs.100 the remaining Rs.10 for grampanchayath for major water users association.

The same for the medium source Rs.60 for water users associations, Rs.30 for project committees Rs.10 for grampanchayat and the remaining Rs.100 for irrigation department.

Where as in the minor irrigation projects water users association share is Rs.90, the remaining Rs.10 for grampanchayat are allocated.

CONCLUSION

We have outlined some observations for the above three aspects discussed in summing up of the *operation and maintenance* cost under various sources. We have made the following three major observations

The first aspect i.e. *operation and maintenance* cost which was divided into two types as *operation and maintenance* cost and rehabilitation cost.

The institutional aspects are very clear not on the basis of micro level designs as incorporated in the participatory irrigation management act.

Both management skills and devolution of financial powers are required to reach the tasks, which are not reachable in the absence of required level of funds.

The second aspect is the financial aspects. We have briefly presented the details in table where the maintenance cost, financial insufficiency as resulted in the adhoc mechanisms initiated by institutions at ground level as well as the government mindset driven by bureaucrats, unimaginativeness to optimize the maintenance of irrigation schemes.

In some, it is observed that the operation and maintenance aspect has become more a '*political and bureaucratic*' nexus. There is need to change the '*mind set*' of policy makers to '*re-look*' into the whole operation and maintenance institutional arrangements for the devolution financial, operation and distribution aspects.

REFERENCES:

1. **Rahaman, M.K.** (2000): *Operation and Maintenance (O&M) of Irrigation Projects in Andhra Pradesh*, CADA, Hyderabad.
2. **G.O. Ms.No. 115 revenue LR -3 Department**, Dated 13/2/2001.
3. **Ratna Reddy,V. and Prudhvikar Reddy** (2005): *How Participatory is Participation Irrigation Management (PIM)*, A study of Water Users Associations in Andhra Pradesh, CESS, Hyderabad, p.1.
4. **Government of Andhra Pradesh Amendment on APFMIS Act 1997** (2003): *the Andhra Pradesh farmers management of irrigation systems act* (act 11of 1997) I & CADA.