

Water Strategies For Chhattisgarh: A Review

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Abstract: *The Government has come out with a policy for water resources development in the state of Chhattisgarh. In this paper, the suggestions given in this policy are critically examined. The paper also examines the various water policies being adopted by other administrative bodies. The pros and cons of all such policies have been discussed at length here and the suggestions most suitable for the state of Chhattisgarh, keeping in view the availability of water in the region, the sources of water, the possible methods for efficiently utilizing these available resources etc. are outlined. It is noted that the state of Chhattisgarh had failed to utilize its groundwater resources efficiently, and this combined with limited irrigation facilities, results in several problems for all stakeholders. In conclusion various efficient strategies for water resources management, best suited for the state of Chhattisgarh, are recommended.*

I. Introduction

Water resource management is the activity of planning, developing, distributing and managing the optimum use of water resources. Ideally, water resource management planning has regard to all the competing demands for water and seeks to allocate water on an equitable basis to satisfy all uses and demands. As with other resource management, this is rarely possible in practice. Water is an essential resource for all life on the planet. Of the water resources on Earth only three percent of it is fresh and two-thirds of the freshwater is locked up in ice caps and glaciers. Of the remaining one percent, a fifth is in remote, inaccessible areas and much seasonal rainfall in monsoonal deluges and floods cannot easily be used. At present only about 0.08 percent of all the world's fresh water is exploited by mankind in ever increasing demand for sanitation, drinking, manufacturing, leisure and agriculture. Much effort in water resource management is directed at optimising the use of water and in minimising the environmental impact of water use on the natural environment. Successful management of any resources requires accurate knowledge of the resource available, the uses to which it may be put, the competing demands for the resource, measures to and processes to evaluate the significance and worth of competing demands and mechanisms to translate policy decisions into actions on the ground.

II. Demand Management And Water Use Efficiency

The National Commission for Integrated Water Resource Development (NCIWRD) has assessed that in India about 83% of water is used in irrigation and the remaining for domestic, industrial and other purposes. Although, water for irrigation would increase over the time, the share of irrigated water in the overall demand has been estimated to reduce from the present level to about 69% by the year 2050.

The National Water Mission suggests an increase of 20 % in water use efficiency in the next couple of years. The National Water Policy also stresses on efficient use of water, as part of the demand management strategies. This is an achievable goal and must be strongly supported by State level policies. This should require States to adopt technological as well as regulatory measures, some of which include the following:

- Methods to encourage water saving during irrigation which need to be propagated include aligning cropping pattern with natural resource endowments, micro-irrigation such as drip, sprinkler, automated irrigation operation, and evapo-transpiration reduction.
- Conjunctive use of surface water and ground water needs to be encouraged.
- Local level micro-irrigation through small bunds, field ponds, agricultural, and engineering methods for watershed development would be very useful for enhancing water use efficiency.
- Water use efficiency needs to be incentivized by proper energy pricing for use in agriculture, both in ground water extraction and lift irrigation.
- Regional water audits with respect to water use in agriculture on sample basis needs to be institutionalized in order to locate policy and management gaps for remedial action.
- Water audit needs to be made mandatory for specified types of industries and/or identified areas in order to efficiently manage water resources in the industrial sector.

III. Summary Of Pwc Report

Prior to the National Water Policy 2002, the state government commissioned international development consultants Price Waterhouse Coopers (PWC) to prepare an Infrastructure Development Action Plan for the state, which has been endorsed by the government of Chhattisgarh. The summary of the water sector report is as follows:

- Water is an extremely important resource for Chhattisgarh as almost 80 % of its population relies on agriculture for a livelihood. Hence irrigation systems are vital.
- The State has sufficient water resources and a large untapped potential. It is estimated that 43 lakh ha area can be irrigated as against the existing irrigation potential of 13.37 lakh ha.
- Aware of the critical importance of water resources, the Government of Chhattisgarh has accorded high priority to the development of the sector by assigning Rs. 246.47 cr., namely more than 20 per cent of the State's plan budget to the sector.
- The key issues facing this sector include absence of a State-wide water resources plan; low utilization of developed water resources; inequitable development of resources; low coverage of urban water supply; low operation and maintenance budget; thin spread of resources, low recovery rate and tariff; poor demand management.
- In order to address these issues the State needs to undertake wide ranging measures, which can be segregated into 4 distinct stages which are preparatory, run-up, execution and monitoring.
- The various activities that need to be undertaken during these phases include development of a long term water resource plan, formation of a high level committee, formation of a water regulatory body, regulation of ground water, creation of the conditions for attracting private sector participation, etc.

IV. State Water Policies

Water being a State subject, the State has jurisdiction extending to water supplies, irrigation and canals, drainage and embankments, water storage and water power as mentioned in Schedule VII, List II, Entry 17 of the Constitution. States and local governance institutions ultimately have to manage the proper use of local resources, and local communities and local governance institutions and Panchayats and Municipalities have to work in coordination with each other and the State departments concerned. State governments need to bring out clear and comprehensive policies in furtherance of the national policy. The Policy must:

- Set out State level priorities based on State level conditions, policies, and prospects of industrialization, urbanization, etc.
- Specify regulatory policies.
- Put in place State level and local planning regulatory systems to address issues of pricing, management, and good governance.
- Spell out the role for Panchayats, ULBs, User Associations, Community Institutions, and Civil Society Organizations and how their capacity can be enhanced.

V. Strategies for Water Resources Management For Chhattisgarh

The national water policy lays emphasis on local level micro-irrigation through small bunds, field ponds, agricultural, and engineering methods for effective use of water resources and enhancing water use efficiency. One such techno-economical measure, "Bridge cum Bandhara" system is suggested here for use in rural areas of Chhattisgarh.

"Bandhara" is the term typically used for a structure used to store water in the river so that it may be available during the dry periods. The cost of such small water retaining structures is substantially reduced if used along with the piers of existing bridges / new bridges that are being constructed, as shown in figure 1.

In such Bridge-Cum-Bandharas post monsoon flow is blocked at the upstream edge of the bridge and storage is created at low cost. The stored water is not only useful for cattle, as drinking water, for irrigation, etc. but it also raises the water table by percolation of the stored water.

There are several types of bridge cum Bandhara systems in prevail in other parts of the country, and each one of these have their own advantages and disadvantages depending upon the local site conditions and the availability of related construction material, technique, equipments and expertise in the vicinity.

Bridge cum Bandhara system is typically suited in rural areas so as to fulfill the needs of surrounding population in relatively dry season. Such type of construction is prevalent in various forms in different parts of the country, particularly in Maharashtra.

By enhancing the scope of existing bridge and converting it into small water retaining structure, the availability of water can be increased during the dry periods. Additional secondary piers and gates may be needed in the bridge structure to convert it into a bridge cum Bandhara structure. However, the current know how about which type of system will be most suited for a particular site out of the various alternatives, is still not documented. The field engineers working in various departments are unaware of the details regarding the construction of bridge-cum-Bandhara system.

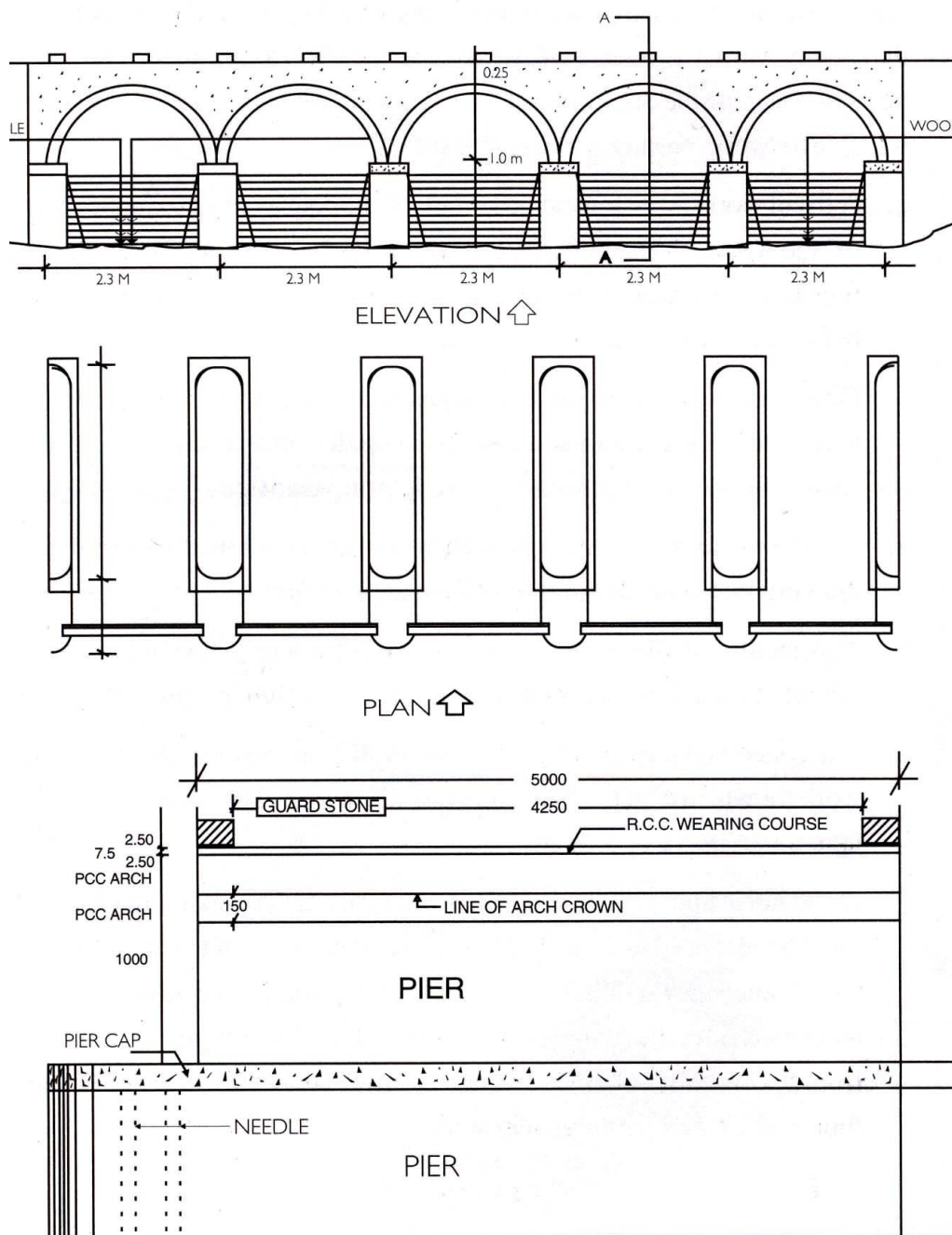


Figure 1: Typical sketch of a Bridge-Cum-Bandhara

VI. Conclusion

The National water policy lays emphasis on local level micro-irrigation through small bunds, field ponds, agricultural, and engineering methods for effective use of water resources and enhancing water use

efficiency. One such techno-economical measure, “Bridge cum Bandhara” system is suggested here for use in rural areas of Chhattisgarh. Further, the approach in water resource management that incorporate local materials and are manageable and maintainable by local communities is advocated. The Gram Panchayat as well as the local community need to be involved at all stages of discussion, planning, implementation, management and maintenance.

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