

STATE WATER POLICY

1. The Need for a State Water Policy

Water is a prime natural resource, a basic human need and a precious asset of the State. Planning, development, operation and maintenance of all water resources to support the growth of the state economy and the well being of the population, in response to the growing need for drinking water, agricultural products, industrial production and electricity, a general improvement of living conditions and employment is of utmost importance. Planning and development of water resources need to be governed by the state's perspectives. The requirement of utilising all available water resources, surface and ground, in a judicious and equitable, as well as sound economic manner needs a well defined **State Water Policy**.

The State of Rajasthan is the second largest state in the country covering an area of 34.271 Million ha which is more than 10% of the total geographical area of the country. About 5% of the total population of the country resides in the state and it has more than 15.7 million ha of land suitable for agriculture. The State of Rajasthan is one of the driest states of the country and the total surface water resources in the state are only about 1% of the total surface water resources of the country. The rivers of the state are rainfed and identified by 14 major basins divided into 59 sub-basins. The surface water resources in the state are mainly confined to south and south-eastern parts of the State. There is a large area in western part of the state which does not have any defined drainage basin. Thus the water resources in the state are not only scarce but have highly uneven distribution both in time and space.

The ground water also plays an important role especially in agriculture and drinking water supply. The situation of ground water exploitation is also not satisfactory as in areas where surface irrigation is provided there is a tendency of not using ground water for agriculture which creates problem of water table rise and even water logging. On the contrary, in large areas of the State, ground water is being over exploited and the water table in some areas is going down even at the rate of 3 metre per year.

This background leads to the formulation of the following water resources development and management objectives:

- a. Development of all utilisable water resources to the maximum possible extent, including surface water - local and imported - groundwater and waste water, for optimal economic development and social well-being.
- b. Assuring an integrated and multi-disciplinary approach to planning, evaluation, approval and implementation of irrigation and drainage projects, including river basin management, of surface and ground water.
- c. Optimisation of water resources exploitation and raising the level of reliability of supplies through conjunctive use of surface and ground water.
- d. Judicious and economically sound allocation of water resources to different sectors, with drinking water supply as a first priority.
- e. Optimum utilisation of water resources to maximise production in all user sectors.
- f. Providing flood protection and drainage facilities, as well as assuring minimal supplies during drought periods.
- g. Maintenance of water quality at acceptable standards and reduction of water resources' pollution by urban and industrial sewage.
- h. Ensuring proper functioning of existing structures, conveyance systems and other assets through adequate maintenance and operation.
- i. Minimising adverse impacts of water resources development on the natural environment and on population affected by project implementation works.
- j. Promoting beneficiaries' participation in all aspects of water planning and management, with particular emphasis on Water User Associations intended to manage and maintain irrigation systems, both physically and financially.
- k. Motivating and encouraging water conservation through appropriate and socially acceptable water rates, introduction of water-saving devices and practices in all sectors, and educational campaigns.
- l. Advancing the technological and scientific level of all the staff in the water sector through intensification of applied research, technology transfer, training and education.

- m. Ensuring well coordinated and efficient decision making, planning, design, execution and operation and maintenance activities among all GOR agencies.
- n. Facilitating private initiative in development, operation and management of water projects.
- o. Emphasis to be given for recharge of ground water aquifers to mitigate the crisis of drinking water supply and demand of drinking water supply and for industrial and other purposes.

2. Information System

The prime requisite for resources planning is a well developed information system. There should be free exchange of data among the various agencies and duplication in data collection should be avoided. Timely availability of reliable information, conveniently accessible to all users, is necessary as a tool for integrated planning of new projects, and for following up the performance of existing systems and the status of water resources. Following actions shall be taken in this regard:

- a. Setting up of a central information center for the entire water sector of Rajasthan.
- b. Clear definition of duties and responsibilities of those charged with data collection.
- c. Detailing of main reports to be generated.

3. Maximizing Water Availability

Due to the high variability of hydrometeorological phenomena not all the potentially available resources can be harnessed and made utilisable. The overwhelming interest of the State is to bring, by physical and managerial measures, as much of the potentially available resources into beneficial utilisation as is physically and economically feasible.

The resources shall be conserved and the availability for use augmented by measures for maximising retention and minimising losses. Following actions shall be taken for maximising water availability:

- a. Comprehensive and integrated water resource planning shall be done for the State on the basis of hydrological units i.e. basin or a sub-basin.
- b. Water resources potentials, both surface and ground, shall be assessed.
- c. Basin-wise and State-level water resources development and environmental plans shall be prepared.
- d. Water resources development projects shall be prioritised on economic, social and financial criteria to aid in budget allocation.
- e. Waste water reclamation shall be considered in all basin plans.
- f. Efficient water application and utilisation practices shall be encouraged.
- g. A **Central Planning Authority** for policy related issues for integrated water resources development and management shall be created.
- h. Traditional water harvesting practices shall be preserved and encouraged.
- i. Projects for artificial recharge of ground water shall be prepared.
- j. Inter basin transfer projects shall be prepared based on a State-wide perspective, after taking into account the requirements within the basins.
- k. The case for full utilisation of State's share in Ganga waters shall be pursued.

4. Project Planning

Water resources development planning shall aim at assuring accelerated growth by contributing to the State's economic and social advancement, and improving the general social and economic conditions of the population, while keeping the environmental and ecological balance. The State Water Policy shall be reflected in all plans recommended for implementation. Special attention shall be given to the non-structural elements of this policy, aimed at achieving the objectives of reduction of poverty, basic food self-sufficiency, overall economic growth, environmental well-being, progress of weaker sections of the population, etc.

Water resource development projects shall as far as possible be planned and developed as comprehensive and multi-purpose projects. All

present and predictable future demands, including irrigation, domestic and livestock demand, industries, thermal and hydroelectric power stations, pisciculture and recreation, and all sources of natural water as well as reclaimed wastewater must be considered. Provision for drinking water shall be a primary consideration. The study of the impact of a project, during its construction period as well as during its operational life, on human lives, settlements, occupations, economic and other social aspects, shall be an essential component of project planning.

Time and cost overruns and deficient realisation of benefits characterising most irrigation projects shall be overcome by upgrading the quality of project preparation and management. The under-funding of projects shall be obviated by an optimal allocation of resources, having regard to the early completion of ongoing projects as well as the need to reduce regional imbalances.

The following institutional and procedural reforms and manpower development in projects shall be carried out:

Institutional Reforms:

- a. integrated long and short term planning of water resources development.
- b. economic analysis and feasibility studies of projects.
- c. monitoring and evaluation of existing projects.
- d. drafting annual and multi-annual expenditure programmes for the entire water sector and obtaining approval.
- e. encourage private initiative in water sector.

Human Resources Development:

- a. Introduce training courses and professional career incentives, and foster professional dedication, with emphasis on client management.

Procedural Reforms:

- a. Improvement in process of project planning, sanctioning, bidding, etc.
- b. Define accountability and authority.

- c. Define information flow routes and access to data.
- d. Establish guidelines for priority in public spending in water sector.

5. Maintenance and Modernisation

For maintaining the existing structures and systems in satisfactory condition and timely modernisation, the following actions shall be taken:

- a. Adequate budget for maintenance, repair, modernisation of existing structures and systems shall be allocated.
- b. Water rates shall be increased and collections shall be improved.
- c. Orders and instructions for inspections / reporting of maintenance, repair and replacement works shall be issued.
- d. Maintenance oriented training programmes shall be undertaken.
- e. Water User Associations shall be encouraged to undertake maintenance, repairs and modernisation of works.

6. Safety of Structures

The Dam Safety Organisation shall be reinforced and supported, at State level, for ensuring the trained staff in improved inspection, analysis and evaluation techniques of dams and other structures. Guidelines issued by State authorities on the subject shall be kept under constant review and periodically updated and re-formulated

Dam Safety Legislation may be enacted to ensure proper inspection, maintenance and surveillance of existing dams and also to ensure proper planning, investigation, design and construction for safety of new dams.

7. Groundwater Development

Exploitation of groundwater resources should be so regulated as not to exceed recharging possibilities, and also to ensure social equity. There should be a periodical reassessment on a scientific basis of groundwater potentials, taking into consideration the quality of the water available and economic viability. Following steps shall be taken in this regard:

- Legal** : Existing laws shall be amended /new legislation shall be enacted.
- Organisational** : Organisational structures and procedures shall be changed. Attempt to control deep drilling through licensing and control on private operators shall be made.
- Social:** Public awareness for self-control in ground water exploitation from WUAs shall be fostered.
- Educational:** Sense of water scarcity and need to conserve shall be developed.
- Technological** : Data collection shall be improved, conjunctive use of ground and surface water shall be planned, mathematical modeling of aquifer shall be done and artificial recharge of ground water shall be planned.
- Environmental** : The detrimental environmental consequences of over exploitation of ground water need to be effectively prevented.

8. Water Allocation Priorities

In the planning and operation of systems, water allocation priorities shall be to Drinking water, Irrigation, Power generation and Industrial and other uses in that order. However, these priorities might be modified if necessary in particular regions with reference to area specific considerations, and they may be different in the context of allocating water to existing consumers than in the context of planning the development of water resources for new consumers.

A detailed methodology for multi-priority analysis shall be developed for decision making in the Central Planning Authority to enable prioritisation in water resources planning and management.

The demands of drinking water, irrigation, power generation, industrial and other uses shall be studied scientifically for appropriate development and allocation of funds.

9. Drinking Water

Adequate drinking water facilities shall be provided to the entire population both in urban and in rural areas. Future irrigation and multi-purpose projects shall invariably include a drinking water component wherever there is no dependable alternative source of drinking water. Drinking water needs of human beings and animals shall be the first charge on any available water and following actions shall be taken to fulfill this need:

- a. Increased budget shall be allocated for upgrading urban and rural domestic and livestock water supply.
- b. Water rates shall be gradually increased to self-support the operation of urban and rural piped schemes.
- c. Finance of rural water supply schemes shall be continued.
- d. Water quality standards shall be ensured.
- e. Strict control over activities which endanger sources such as hazardous wastes and sewage shall be exercised.
- f. Privatisation in urban water supply especially for meter reading, billing etc. can be contracted out.

10. Irrigation Water

Irrigation planning, either in an individual project or in a basin as a whole, should take into account the irrigability of land, cost-effective irrigation options possible from all available sources of water, and appropriate irrigation and drainage techniques. The irrigation intensity should be such as to extend the benefits of irrigation to as large as number of farm families as possible, keeping in view the need to maximise production.

Following measures shall be taken to ensure that the irrigation potential created is fully utilised, the gap between the potential created and its utilisation is removed, water allocation in an irrigation system is done with due regard to equity and social justice, disparities in the availability of water between head-reach and tail-end farms and between large and small farms should be obviated by adoption of a rotational water distribution system, supply of water on a volumetric basis subject to certain ceilings is introduced and there is close integration of water-use and land-use policies.

To achieve these objectives a multidisciplinary and integrated approach will be followed under C.A.D. programme.

- a. It shall be ensured that the Government regulations are adhered to by law and persuasion.
- b. Farmers shall be encouraged to adopt high efficiency water equipments and practices and use of ground water in conjunction with surface water.
- c. Water charges shall be reviewed and realistic water rates shall be introduced.
- d. Reclamation of waterlogged / saline affected land by scientific methods should form a part of command area development programme.

11. Water Rates

Water rates shall be so decided that it conveys the scarcity value of water to users and foster the motivation for economy in water usage. Rates shall be gradually increased to cover the annual maintenance and operation charges and part of the fixed costs to assure undisturbed and timely supply of irrigation water. Water rates shall be rationalised with due regard to the interests of small and marginal farmers. It shall be accompanied by volumetric measurement of water consumption in all sectors.

12. Participation of Water Users

Farmers shall be involved in various aspects of management of irrigation systems, particularly in water distribution and collection of water charges through following measures:

- a. Evaluating results of on-going pilot projects where farmers' participation has been introduced.
- b. Introducing changes in legislation for fostering user participation in irrigation.
- c. Giving priority of funds for rehabilitation and modernisation of irrigation projects to those projects where farmers are willing to organise into WUAs.
- d. Assistance of voluntary agencies shall be taken in educating the farmers in efficient water use and water management.

13. Water Quality Monitoring

Both surface water and ground water as well as soil quality shall be regularly monitored for quality and a phased program shall be undertaken for improvements in water quality. Government shall issue orders to routinely enter future water and soil quality figures in the water resources database and publish groundwater statistics and maps for River Basins. Proposals for contracting the work of water sampling and analysis to private operators will be studied.

Effluents should be treated to acceptable levels and standards before discharging them in natural streams.

Minimum flow should be ensured in the perennial streams for maintaining ecology and social considerations.

14. Water Zoning

15. Water Conservation and Efficiency of Utilization.

The efficiency of utilisation in all the diverse uses of water should be improved and an awareness of water as a scarce resource should be fostered. Conservation consciousness shall be promoted through education, regulation, incentives and disincentives by taking following actions:

A. Domestic Sector:

- Introduction of domestic water saving devices
- Water meters on all consumers.
- Progressive water tariff structure.
- Auditing of water balance from distribution systems. etc...

B. Industrial sector:

- Progressive water tariff.
- Water recycling facilities.
- Treated urban sewage water for cooling and other processes.

C. Agriculture Sector:

- Water rates on volumetric basis should be kept sufficient for maintenance.
- Treated sewage water for non-edible crops.
- Saline water for tolerant crops.
- Improvement in irrigation practices and reduction of water losses.
- Pressure irrigation systems to be introduced

D. Watershed management for each basin:

- Afforestation, soil conservation.
- Livestock management.
- Treatment and disposal of sewage.

Every drop of water needs to be conserved and optimally utilised for which detailed scheme shall be framed ensuring its time bound implementation.

16. Flood Control and Drainage Management

Sound watershed management through extensive soil conservation, catchment area treatment, preservation of forests and increasing the forest area and construction of check dams shall be promoted to reduce the intensity of floods. Adequate flood cushion shall be provided in water storage projects whenever feasible to facilitate better flood management. An extensive network for flood forecasting shall be established for timely warning to the settlements in the flood plains, along with the introduction of regulation for settlements and economic activity in the flood-prone zones to minimise loss of life and property caused by floods. Master plan for flood control and management for each flood prone basin / area shall be got prepared. Due consideration to provide proper drainage shall also be given to build up capabilities to tackle water logging and salinity problems.

17. Drought Management

Drought prone areas shall be made less vulnerable to drought associated problems through measures listed below. In planning water resource development projects, the needs of drought prone areas should be given priority. Relief works undertaken for providing employment to drought stricken populations should preferably be for drought proofing.

- a. Continue efforts to assure water supply and livelihood to population and care for livestock.
- b. Employment and direct provision of basic needs to population in times of crisis.
- c. Drought-proofing of the area in measures such as plantation, dry farming.
- d. Development of training and skills to enable population to supplement the earnings from agriculture.
- e. Development of the ground water potential including recharging and the transfer of surface water from surplus areas wherever feasible and appropriate.

18. Training and Education.

Standardised training shall be a part of water resources management and should cover all its aspects and all personnel involved in it, including farmers. The State shall also encourage education of the public at large. Scholarships, study tours, incentives etc. shall be provided by the State to encourage and support training. Technology transfer shall be made obligatory on all technical assistance and consulting services. Emphasis on research on all matters related to water management shall also be given.

19. Legislation and Regulation

After a critical examination of rules, regulations, ordinances, legal and legislative measures related to the State's water sector has been made, with a view to improve and streamline their scope and cover in the legal framework all aspects pertaining to water resources management, protection of water quality, flood protection, drought proofing, abstraction licensing, water rights, etc. the Government shall introduce the following measures:

- a. Enact the necessary amendments and additions to existing Act, rules, regulations, orders, decisions, etc.;
- b. Ensure that the responsibilities and powers of Governmental agencies and the rights and obligations of individuals be clearly spelled-out in the relevant laws and regulations;

- c. Ensure that the legislation would allow for easy implementation of policy decisions while protecting the interests of individuals and taking into account the administrative capacity to implement them;
- d. Empower the appropriate agencies to carry out their obligations and responsibilities as implied by the public ownership of water projects, and spell out the administrative procedures necessary for coordinated, equitable and efficient control, as well as the resolution of conflicts which may arise from them;
- e. Provide legal support for the formation of WUAs and handing over to them the distribution of water for irrigation and the maintenance of canals;
- f. Establish rules and regulations for the involvement of the private sector in development and operation of water-related projects;
- g. Provide in the law for an effective participation of farmers in the planning and decision making processes which involve users and public authorities;
- h. Introduce the necessary legislation for a periodic amendment of water rates and tariff structures which would enable the full coverage of O&M expenditures, based, as far as possible on volumetric metering of supplies, while motivating users to economise in the use of water, and catering for the weaker sections of the population;
- i. Establish effective conflict resolution legal entities and procedures.

The entire body of water-related laws and regulations will eventually be amalgamated into a State Water Law, which would, in addition to the above mentioned subjects, establish the State ownership of all the water resources within the State, as well as waters imported from outside the State under various agreements, and the requirement for any public or private entity or individual to obtain from the Government a permit to abstract surface water or groundwater, to utilise it, to sell or distribute it, or to dispose off after use. Permitting and enforcement rules and regulations will be spelled-out accordingly.

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