

Government of Rajasthan

STATE WATER POLICY

(Draft)

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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. Integrated 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 largest state in the country covering an area of 3.42 lac square kilometers, 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 hectares 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 surface water resources in the state are mainly confined to south and southeastern part of the State. The rivers of the state are rainfed and identified by 14 river basins. There is a large area in north-western part of the State, having no defined drainage basin of its own and is designated as 'outside basin'. It is dependent on the Rabi-Beas-Sutlej waters. The rainfall in the state is not only scarce but has 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 every year at an alarming rate.

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

- a. All development projects in the state shall be prepared keeping in view the availability of water and priority of utilisation

- b. Development of all utilisable water resources to the maximum possible extent, including surface water – both internal and external, groundwater and waste water, for optimal economic development and social well-being
- c. Assuring an integrated and multi-disciplinary approach to planning, evaluation, approval and implementation of Irrigation, Drainage and River Basin Management projects of surface and ground water
- d. Optimisation of water resources exploitation and raising the level of reliability of supplies through conjunctive use of surface and ground water
- e. Judicious, equitable and economically sound allocation of water resources to different sectors, with drinking water supply as a first priority. However, the norms of drinking water should be revised bearing in mind the water availability in the state. Priority should be reflected at every stage of availability, utilisation, development and management of water resources of the state.
- f. Optimum utilisation of water resources to maximise production in all user sectors.
- g. Providing flood protection and drainage facilities, as well as assuring minimal supplies during drought periods
- h. Maintenance of water quality at acceptable standards and reduction of water resources pollution by urban and industrial sewage
- i. Ensuring proper functioning of existing structures, conveyance systems and other assets through adequate maintenance and operation
- j. Minimising adverse impacts of water resources development on the natural environment and on population affected by project implementation works
- k. Promoting beneficiaries' participation in all aspects of water planning and management, with particular emphasis on Water User Associations intended to manage and maintain irrigation and drinking water systems, both physically and financially
- l. 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
- m. Advancing the technological and scientific level of all the staff in the water sector through intensification of applied research, technology transfer, training and education
- n. Ensuring well coordinated and efficient decision making, planning, design, execution and operation and maintenance activities among all GOR Departments and agencies
- o. Facilitating private initiative in development, operation and management of water projects.

- p. Emphasis to be given for recharge of Ground water aquifers to mitigate the crisis of drinking water supply and for industrial and other purposes.
- q. Incentives and disincentives for efficient utilisation of water
- r. Priority and pricing should be based on purpose of water use and availability of water in the region.

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. Apart from the data regarding water availability and actual water use, the system should also include comprehensive and reliable projections of future demands of water for diverse purposes. 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. Inventory of main reports to be generated.

3. Maximizing Water Availability

Due to the high variability of hydro meteorological 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 prioritized 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 with respect to qualitative and quantitative aspects of water shall be created. Construction of a new scheme in the catchment area of any existing irrigation project should be taken up only after careful examination of its effect on the existing project.
- h. Traditional water harvesting structures shall be preserved and encouraged. Roof top water harvesting, storm water harvesting, recycling and reuse of waste waters shall be promoted.
- i. Projects for artificial recharge of ground water shall be undertaken on extensive basis.
- 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, Rabi-Beas-Sutlej, Yamuna, Chambal, Mahi and other inter state waters, including Inter Linking of Rivers 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 would be reflected in development plans of the State. 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 weak sections of the population, etc.

Water resource development projects shall as far as possible be planned and developed as comprehensive and multi-purpose projects. Integrated and coordinated development of surface and ground water and their conjunctive use should be envisaged right from the project planning stage and should form an integral part of the project implementation. All present and predictable future demands, including domestic, livestock, irrigation, industrial, 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, rehabilitation and resettlement of affected

people, occupation, 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 project planning 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- public-community initiative in water sector.
- f. separation of water resources planning from execution of projects and service delivery functions

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 their timely modernisation, following actions shall be taken:

- a. Budget requirement for execution, renovation and modernisation of existing structures as also for maintenance and repair of systems would be given due consideration and emphasis under plan and non-plan.
- b. Water rates shall be rationalised and collections 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 Users Associations shall be encouraged to undertake execution, maintenance and repairs of works and shall be empowered to collect revenue.

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 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. Ground water recharge projects should be developed and implemented for improving quality and augmenting availability. Underground storage of water should be given priority wherever feasible, to minimise evaporation losses. Saline water in areas suffering from acute water scarcity may be desalinated using reverse osmosis or electro dialysis or flash distillation techniques to make it potable. Drinking water supply schemes based on ground water shall be shifted to surface water in a phased manner, wherever feasible.

Following steps shall be taken for ground water development and management:

Legal: Based on consensus amongst the stakeholders to regulate and manage extraction of ground water in the “Dark” as well as “Potentially Dark Zones”, the existing laws shall be amended/new legislations shall be enacted. This would ultimately pave way for comprehensive regulation and management of ground water in the State.

Organisational: Organisational structures and procedures shall be improved. Water campaigns shall be launched to create mass awareness amongst the users and stakeholders to discourage them from over exploiting ground water from

- already over exploited and critical areas except for drinking water. Support of NGOs and Panchayat Raj Institutions shall be obtained.
- Social: Public awareness for self-control in ground water exploitation shall be fostered through Water Users Associations and community based organisations.
- Educational: Sense of water scarcity and need to conserve shall be developed.
- Technological: Data collection shall be improved by extensive network of hydrological monitoring stations. Conjunctive use of ground and surface water, mathematical modeling, artificial recharge of ground water shall be done. Master Plan for artificial ground water recharge shall be prepared for implementation by the concerned Departments/Agencies of the State. Adequate built in plan provision should be kept in the budget of Local Bodies for recharge of ground water in cities and towns.
- Environmental: The detrimental environmental impacts 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, industrial, tourism and other uses in that order. However, these priorities, except for drinking water, 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 water.

9. Drinking Water

Adequate drinking water facilities should be provided to the entire population both in urban and in rural areas with community participation. Future irrigation and multi-purpose projects should invariably include a drinking water component wherever there is no dependable alternative source of

drinking water. State Government shall make sincere endeavour to provide potable drinking water to every citizen. Drinking water needs of human beings and livestock should be the first charge on any available water. Following actions shall be taken to fulfill this need:

- a) Norms for drinking water supply should be prescribed taking into account the water availability in the State.
- b) Increased budget shall be allocated for upgrading urban and rural domestic and livestock water supply.
- c) Water rates should be gradually rationalised to move towards self-supporting the operation and maintenance of urban and rural water supply schemes. Differential water rates based on volume of water consumption/usage shall also be considered.
- d) Water demand for livestock should be considered along with demand for human beings for drinking purposes for all rural areas.
- e) Finance of rural water supply schemes shall be continued.
- f) Water quality standards shall be ensured.
- g) Strict control over activities, which endanger sources such as hazardous wastes and sewage, shall be exercised.
- h) Private-public-community participation for O&M in urban and rural water supply would be encouraged.
- i) Rainwater harvesting structures would be constructed to augment water supply – especially in rural areas where ground water sources are not sustainable.

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 & 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 irrigation 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 shall

be adopted, which includes following actions:

- a) It shall be ensured that the Government regulations are adhered to by law and persuasion.
- b) Farmers shall be encouraged to adopt scientific water management and farm practices through use of sprinkler and drip irrigation systems.
- c) Farmers shall be encouraged to use ground water in conjunction with surface water.
- d) Water charges shall be rationalised in a phased manner considering water consumption by different crops and regional factors.
- e) Reclamation of waterlogged/salinity-affected land by scientific methods should form a part of command area development programme.
- f) Penalties and disincentives for inefficient water use and wastage and incentives for water saving practices would be considered.
- g) Judicious mix of technological, agronomical and economic measures to promote efficient use of water would be considered.

11. Water Rates

Water rates shall be decided so as to convey the scarcity value of water to users and foster the motivation for economy in water usage. Rates shall be prescribed from time to time to move towards covering at least the annual maintenance and operation charges and part of the fixed costs, within a specified time frame, to ensure uninterrupted and timely supply of irrigation water.

While deciding water rates, it is important to distinguish between pricing of water for drinking, irrigation, industrial and commercial purposes and the cross subsidies.

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 civil society organizations/NGOs shall be taken in educating the farmers in efficient water use and water management and prepare ground for public acceptance of reforms, regulations in water sector and demand management.
- e. WUAs and the local bodies such as municipalities and panchayat raj institutions, NGOs and other voluntary agencies should be involved in the execution, operation, maintenance and management of water infrastructure/facilities. Their involvement may be increased progressively, with a view to eventually transfer the management of such facilities to the user groups/local bodies. Role of women in this should be ensured.
- f. Organisations at the intermediary level between the State Government and WUAs with representation of PRIs, water user groups and public representatives should be planned as it will go a long way in bridging the gap between the policy planners and water users.
- g. Financial incentives should be given to panchayats, other local bodies, WUAs to encourage water conservation and water management.
- h. Formation of user organisations and associations at various levels to evolve strategy for judicious and equitable use of water and to propagate usufructuary rights of community.

13. Water Quality Monitoring

Both surface water and groundwater as well as soil quality shall be regularly monitored for quality and a phased program shall be undertaken for improvement 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 or underground. The Government should identify polluting industries and develop separate industrial area for such industries. A centralised effluent treatment plant should be operated for that area by associating concerned industrial units/Associations, under supervision of the Government.

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

Principle of “polluter pays” should be followed in treatment of polluted water.

14. Water Zoning

Economic development and activities, including agricultural, industrial and urban development, should be planned with due regard to the constraints imposed by the configuration of water availability. Water zoning of the State, in regard to following, shall be done to guide and regulate the future activities in accordance with such zoning.

- a. Groundwater depletion zones.
- b. Flood-affected zones
- c. Waterlogged zones
- d. Salt affected zones
- e. Drought-prone zones
- f. Watershed protection zones
- g. Environmental conservation zone
- h. Drinking water zones

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. Prevention of leakage in all sectors should be ensured. State should evolve a suitable mechanism to involve industrial and individual users in re-charge of ground water, re-cycling and re-use of wastewater. Conservation consciousness shall be promoted through education, regulation, incentives and disincentives by taking following actions:

- A. Domestic Sector
 - Introduction of water saving devices in domestic, industrial, institutional, commercial, governmental, public utility and all other sectors
 - 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
- Less water consuming crops should be encouraged.
- Cropping pattern and crop rotation should be adopted according to availability of water

D. Watershed management for each basin:

- Afforestation, soil conservation, catchment area treatment, construction of check dams
- Livestock management.
- Treatment and disposal of sewage.

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.

Efforts should be made to utilise surplus water available during monsoon, wherever feasible, by diverting it to the ground water aquifers having potential for recharge of ground water.

Flood plain zoning in flood prone areas should be done. Regulation of settlements and economic activity in such zones along with flood proofing, to minimise the loss of life and property on account of floods should be prepared and strictly implemented.

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 drinking water to human population and livestock.
- b. Provide employment and direct provision of basic needs to population in times of crisis.
- c. Drought-proofing of area through measures such as plantation, dry farming etc.
- d. Planning for water harvesting schemes should be done to optimally utilise the resources available locally to minimize huge investments on famine relief operations.
- e. Development of training and skills to enable population to supplement the earnings from agriculture.
- f. Development of the ground water potential including recharging and the transfer to surface water from surplus areas wherever feasible and appropriate.
- g. In planning water resources development projects, the needs of drought prone areas should be given priority.
- h. In drought prone areas, livestock and animal husbandry related activities should be given priority as means for livelihood, in place of agriculture, because of water scarcity.
- i. Rejuvenation of traditional water sources should be encouraged.

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 users. Information, education and communication (IEC) activities should be taken up for all sections of the society to sensitize the community for all user sectors so as to develop awareness about scarcity value of water and its economical and judicious use through civil society organizations/NGOs. The concept of water conservation and utilisation should be introduced at school level emphasizing the need for conservation of water. 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.

For effective economical management of our water resources, the frontiers of knowledge need to be pushed forward in several directions by intensifying research efforts in various areas, including:

- Hydrometeorology, surface and ground water hydrology; assessment of

- water resources, water harvesting and ground water recharge
- Water quality, recycling and reuse of water
- Evaporation and seepage losses, better water management practices
- Sedimentation of reservoirs, safety and longevity of water related structures
- Crops and cropping patterns, soils and material research
- Prevention of water logging and salinity, reclamation of water logged and saline lands
- Environmental impact study of water resources projects.
- Traditional Water Sources- their importance in present day needs and their rejuvenation.

19. Legislation and Regulation

Some of the existing laws or their provisions have outlived their utility and are out dated. These must be repealed and / or amended suitably. With changed environment many new legislations are also required. 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.
 - j. It should be made obligatory for bulk consumers of ground water like industries, hotels, multi storey buildings, farm houses, swimming pools and water entertainment parks etc to make arrangements for compensatory ground water recharge in the same ground water potential zone, commensurate with their consumption so as to control indiscriminate ground water exploitation and encourage ground water recharge

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 spelt out accordingly.