

# **Jharkhand State Water Policy**

## **Our Vision**

“ To ensure the sustainable development and optimal use and management of the State’s water resources to provide the greatest economic and social benefit for the people of the State of Jharkhand in a manner that maintains important ecological values within rivers and adjoining lands. ”

Government of Jharkhand  
Water Resources Department  
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## 1.0 Need for the Jharkhand State Water Policy

1.1 Water is the prime natural resource. Acknowledging the vital importance of this scarce resource for human and animal life, as well as for maintaining ecological balance for economic and developmental activities of all kinds is a matter of utmost concern. In view of uneven distribution of rainfall in the State, some of the area comes under heavy water deficit. Therefore planning and management and its optimum, economical, equitable and sustainable use has become a matter of extreme urgency.

It is important to make sure that the right of every citizen to equitable access to water for his or her basic needs is protected and enforced through appropriate policy, and legislative and programme initiative.

State water policy is therefore, a necessary prerequisite for proper planning, thoughtful utilization and sustainable management of water. It calls for a multidisciplinary and holistic approach that considers water as part of the ecosystem for the benefit of all and not as a commodity for the profit of a few.

1.2 Since independence of India and till formation of the State of Jharkhand in 2000, some investments were made in the water sector for the development of water storage projects and other water supply related schemes. This resulted in:

- (i) creation of irrigation potential from a few thousand ha. to around 3.00 lakh ha. and there by increased agriculture productivity and agro-based industries;
- (ii) enhancing the drinking water supplies to the major cities and towns as well as to rural areas; and
- (iii) made available industrial water supplies to spur industrial growth.

However, inadequate measures of the last 63 years of the water challenges require immediate attention. The isolated and fragmented approach adopted to surface and groundwater development and management is deteriorating water qualities of both, surface as well as groundwater, due to release of untreated effluent by the industries and municipal bodies and some parts of the State is facing scarcity of water during non-rainy season.

1.3 Increasing conflict among the competing uses of the water for various purposes (such as, ecological, municipal, irrigation, industrial, etc.), poor operation and maintenance of the created

infrastructures in the water sector has resulted in poor service delivery, large gap in the irrigation potential created and utilized. Therefore careful planning, development and management of the water resources in the State, is called for.

- 1.4 Water resources are important to the people of Jharkhand in many ways –for the health and well being of people to sustain environmental values, rural and urban water supply, agricultural production on which the most rural income depends, rural livelihood, hydropower generation, industrial, and benefits for commerce and industry on which growth in employment, to meet the needs of a growing population, will depend.

In many of the river basins and sub-basins of the State, competition for limited water supplies and conflict among these different uses of water have emerged and are growing. The growing scarcity of water and the competition for water services come at the same time when the State also needs to find new ways to overcome stagnation in agricultural production growth to increase productivity, to expand and intensify irrigation and increase income opportunities in rural areas. These challenges also come at a time when the budget resources of the state are limited and stretched. Hence, both the State and all water users, must find ways to become more efficient and productive.

- 1.5 To face these new challenges and to ensure the future welfare of its people, there is a need to adopt State Water Policy for Jharkhand. This policy will broadly have a five-pronged strategy :-
- First**, the State will adopt a new State Water Policy framework to create the enabling environment for better and more equitable and productive water resources management in an environmentally sustainable manner for promoting growth reduction in poverty and minimizing regional imbalance,
- Second**, the State will restructure the fundamental roles and relationships of the State and the water users. To create the incentive for water users’ organizations and entities to participate more fully in water resources management to manage, operate and maintain their water distribution and service facilities and grant these, and new water users’ organizations and entities a stable and predictable entitlements of water so that they can decide on the best use of water without bureaucratic interference.
- Third**, the State will create a new institutional arrangement at the State level and at the river basin level to guide and regulate water resources planning, development; to decentralize the responsibility for water resources planning, development, management, operation and maintenance functions to the river basin and sub-basin level by suitably defining the

responsibility and powers of proposed river valley institutions. The State will also review the existing institutional arrangement in the water sector and appropriately restructure and adjust them.

**Fourth**, the State will place a high priority on promoting technology to improve efficiency and productivity, expansion of the knowledge base of the sector and the development of human resource capacity and capability.

**Fifth**, the State will formulate appropriate legislation/administrative orders and enabling rules to give effect to the above mentioned strategies in short time. **To begin with, the State will introduce farmer's management of irrigation system and create State water authority, and river basin authorities by enacting through appropriate act/legislation/rules/administrative orders.**

## **2.0 Jharkhand State Water Policy – Our Vision**

**“ To ensure the sustainable development and optimal use and management of the State's water resources to provide the greatest economic and social benefit for the people of the state of Jharkhand in a manner that maintains important ecological values within rivers and adjoining lands. ”**

## **3.0 Objectives of the Jharkhand State Water Policy (JSWP)**

### **3.1 Integrated, Multi-sectoral and River Basin Approach**

To adopt an integrated and multi-sectoral approach to the water resources planning, development and management on a sustainable basis, taking river basin/sub-basin as a unit and treating surface and sub-surface water with unitary approach.

The management of the water resources of the State shall be decentralized to the lowest practicable level on the basis of hydrologic or watershed unit. The State shall be divided into five major river basins and appropriate river basin agencies/authorities shall be established within each/or group of river basins.

The river basin agencies shall have the responsibility and authority for the integrated planning, development and management of the water resources, and watersheds of their respective river basins; for flood management, drought management, and operation and maintenance of water storages and delivery infrastructures. These river basin agencies shall prepare integrated river basin plan with the effective inclusion and participation of representatives of all basin water user entities, categories of water users and other stake holders. Such basin plan shall include a development plan, a long-term operation plan, a monitoring plan, a comprehensive watershed management plan, an efficiency improvement and water conservation plan, a waste minimization and water quality management plan.

#### **4.0 State Water Plan**

Based on the water resources development and management plans developed by the respective river basin agencies, the State shall prepare a State Water Resources Plan to promote a balanced development by proper coordination among diverse water uses which shall include structural measures, operational measures, watershed management measures, demand management measures such as conservation scheduling and efficient technologies, water pollution control measures and monitoring measures that will assure comprehensive sustainable management of the water resources and equality of water distribution for the benefit of the State as well as to its people. Preparation of State Water Resources Plan will require convergence of various departments and agencies of the State like State Environment and Forest Department, Agriculture Department, Drinking Water and Sanitation Department, State Watershed Development Agency, State Pollution Control Board, etc.

#### **5.0 Inter-State Water Sharing**

Most of the inter-State water sharing agreements were made by erstwhile Bihar State. With the creation of Jharkhand State in 2000, the whole developmental scenario, for the State of Jharkhand, has undergone perceptible change. It has therefore become necessary to undertake performance evaluation of all Inter-State water sharing arrangements and initiate necessary action to protect the interest of the State.

## 6.0 Watershed Development and Management

Integrated watershed development and management programme shall be encouraged in Drought-prone areas. In such areas, viable watershed programme shall be identified and planned for development.

## 7.0 Water Resources of the State

The water resources of the State shall be defined as all water, surface or sub-surface arising within the State or passing through the State in any and all drainages and aquifers within the State.

The geographical area of the state is 79 lakh ha. and cultivable area is 38 lakh ha. Out of this, 80% of the area is drought prone. About 7% area is flood prone. The highly variable rainfall in Jharkhand ranging from 1000 to 1400 mm mainly occurs within four-month period between June to September with the number of rainy days varying between 60 and 80. The estimated average annual availability of water resources consists of 27.726 km<sup>3</sup> of surface water and 5.251 km<sup>3</sup> of subsurface. Of the 16 river basin systems, more than 50% of this average annual availability is found in the five major river basins (Subarnarekha, Damodar Barakar, North Koel, Gumani & South Koel) of the State.

### 7.1 Irrigation for cultivable land

- 7.1.1 State has a noble aim of providing irrigation facility to each cultivable plot of the State. A strategy will be worked out to achieve this aim in a phased manner in each river basin of the State within a period of ten years **taking into account the agro-climatic zones of the State.**
- 7.1.2 The basic element of this strategy will be, preparing a computerized database of all cultivable plots and the irrigation source/projects available in the State. This data base shall have multilayer information containing land capability, existing land use, cropping pattern, rainfall pattern and also the topography covering spatial and altitudinal variation. This data base will be use to formulate project plan for ensuring irrigation in each plot of cultivable land. The State will identify a suitable agency for this purpose to create such data base within a definite time frame.



## **7.2 Optimal Utilization of Existing Irrigation Potential**

- 7.2.1 It is essential to achieve optimal utilization of existing irrigation potential created so far, from major, medium and minor irrigation projects. As far as possible, the renovation and maintenance of all such projects through WUAs/federation of WUAs will be priority of the State. These works will also be a priority, while allocating funds for various projects.
- 7.2.2 It will be endeavour of the State to prepare a complete database of such projects and to complete the exercise of renovation and maintenance of such projects in a planned manner within a period of five years.

## **7.3 Water Users' Participation in Planning, Development and Management of Water Resources**

Water users, through their recognized organizations or service providers, shall have increased responsibility and be empowered to participate effectively in water resources planning and development, the operation and maintenance of water infrastructures and facilities and to manage their entitlement to water.

### **7.3.1 Farmers' Management for Irrigation System**

Farmers' participation, through their Water Users' Association, in irrigation management shall be made mandatory and it is intended that water will be allocated, supplied and charged on volumetric basis to Water Users' Associations (WUAs) only. The irrigation system shall be managed through WUAs as per provisions made in the appropriate act / administrative orders. The women's participation in the irrigation management shall also be ensured. WUAs will hold a bulk entitlement to water use on behalf of their members and manage and distribute their bulk entitlement. These WUAs shall maintain all irrigation infrastructures up to the distributary level within their jurisdiction and will be federated at the project level. The federation will be responsible for operation and maintenance of canals, appurtenant structures and other facilities created in the project.

**Panchayati Raj Institutions shall be involved in the management and conservation of traditional water sources to cover the work of minor irrigation.**

## 7.4 Water Use Entitlements

The State recognizes that there is considerable economic and social value in water user entities and service providers having a stable bulk entitlement to water. The State shall establish a well-defined, transparent system for water entitlements that cannot be unilaterally changed by any state agency or authority. Entitlements to use the water resources of the State, as defined in regulations issued by the State, shall use rights of the recipient of the entitlement within the limitations specified in the entitlement, shall be treated as such in the management, use and transfer of the entitlements as prescribed by the State act, and the rules regulations under such an act. Appropriation of these entitlements will be prohibited for any reason without just and equitable compensation and mitigation of the impacts of such appropriation.

## 7.5 Transfers of Water Entitlements

Transfer of all or a portion of water entitlement between entitlement holders in any category of water use and priority shall be permitted on both annual and seasonal basis based upon fair compensation of the administrative control of the appropriate state water authority or its assignee.

## 8.0 Water for Domestic Use

### 8.1 Drinking Water for All

Adequate domestic water facilities shall be provided to the entire population both in urban and in rural areas to meet their domestic needs. Multipurpose projects shall invariably include a domestic water component wherever there is no alternative and adequate source of drinking water. **Ecology and drinking water needs of human beings and animals shall be the first priority on any available water resource.**

- 8.1.1 A perspective plan to meet domestic water requirement shall be prepared and steps be taken to provide adequate resources for this purpose in a phased manner. Planning shall be made to draw drinking water directly from the reservoirs by taking into account the commitments made to other water consuming sectors. As far as possible, dedicated pipeline should be laid down for getting supply of drinking water preferably from the reservoirs for avoiding loss of water through canal or river.

8.1.2 Efforts shall be made to fix up the water rates for making water supply self-sustaining, at least to meet the O&M costs considering the socio-economic conditions of the population to be served.

## 8.2 Special Plan for Augmenting Drinking Water Facilities

8.2.1 The demand for safe and clean drinking water is increasing with the increasing population, both in rural as well as in urban areas. The percentage decadal growth of population in rural and urban areas during the decade 1991-2001, is 17.9% and 31.2% respectively **whereas this decadal growth of population of the State during the decade 1991-2001 and 2001-2011, have been 24.55 % and 22.34 % respectively.**

8.2.2 In order to meet the increasing demand of safe and clean drinking water for the people of Jharkhand, a serious effort with time bound action plan shall be worked out to augment the live capacity of existing reservoirs dedicated for supplying drinking water through desiltation or by adopting other effective technical interventions including saving water by checking leakages in drinking water supply pipe line under short-term measures. Whereas for boosting this effort, a series of dedicated long-term measures, such as undertaking techno-economic feasibility study of lifting water from river Ganga (an international river) from June to December taking into consideration of international agreement signed on sharing of Ganga water between India and Bangladesh for partly supplying water for storing into a series of existing, on-going and proposed dams/ reservoirs for meeting the drinking water demand for non-monsoon period, and also for supplementing irrigational needs.

8.2.3 In view of growing urban population demand for drinking water, the Government will take initiative for the construction of large reservoirs near thickly populated cities for the supply drinking water.

## 8.3 Community Management of Drinking Water Supply and Sanitation

The community will be effectively involved in the planning and management of drinking water supply and sanitation facilities in the urban as well rural areas. Community level organization and appropriate local level bodies shall manage, operate and maintain these services on day-to-day basis.

## **9.0 Water for Industrial Use**

- 9.1 Allocation of water shall also be made to the industries from the balance water available in the river basin after meeting the requirement of the sectors put under priority of water uses as indicated at para 19.0.
- 9.2 The treatment of effluents by the existing and new industries should be done as per the statutory provisions under Water (Prevention and Control of Pollution) Act 1974. It will be mandatory for all pollution creating industries to install effluent treatment plants. Encouragement will be given for recycling or reuse of treated waste water.

## **10.1 Participation of the Private Sector**

- 10.1 In each river basin of the State, the full and effective participation of private industrialists, commercial enterprises and water service providers will be sought and encouraged in the preparation of river basin plan and in the sustainable management of water resources of the river basins.
- 10.2 The participation of the private sector, in partnership with the Government or other competent authority in the financing and implementation of water resources projects wherever appropriate, will be encouraged in order to introduce new technologies and to obtain innovative financing management expertise, to improve the quality and cost-effectiveness of water services and accountability to water users.

## **11.0 Water Quality**

- 11.1 The quality of the water resources of the State shall be protected and preserved to its usability in a sustainable manner for the people of the State. The State shall under the provisions of Water (Prevention and Control of Pollution) Act, through the authorized agency establish a program of control of discharge of any pollutant to the surface and sub-surface water of the State. This program shall include the registration of any such discharge, the licensing and monitoring of such discharges, the establishment of standards and acceptable and appropriate limits for any discharge of pollutants into any river/tributary/nala/stream, etc. The river basin agencies shall

consider the maintenance of water quality in the preparation of river basin plan, operation plan and watershed development plan.

- 11.3 The pollution of water resources of the State will be prohibited and those polluting, contributing to the pollution or abetting the pollution of the water resources of the State shall be penalized as provided in the laws and regulations of the State through its relevant State agencies.

## **12.0 Monitoring, Creation and Strengthening of Hydrological Information System (HIS)**

- 12.1 The collection, compilation, storage, analysis and use of accurate, comprehensive, timely, and quality hydrologic data and also data about the economic, social and environmental dimensions is necessary and pre-requisite for wise water management. Good quality data will serve as a key to all hydrologic analysis.

Therefore a concerted effort will be made for the creation and strengthening of Hydrological Information System for the entire State of Jharkhand. All decisions and management actions will be based on analysis of such quality data.

- 12.2 A modern integrated monitoring network for acquisition and transmission of hydro-meteorological data and information management system shall be established to support planning, project formulation and implementation, operation and decision making by the river basin agencies, all water users and water service providers, and State departments and other agencies at the river basin, sub-basin and State level.
- 12.3 All State and Central agencies, departments and entities – public or private – those who collect, maintain, collate or archive hydro-meteorological data shall contribute data to this information system after ensuring its validity and accuracy. Full access to the data in this information system shall be ensured to all water users and stake holders – public or private (**on payment basis**) and concerned State and Central agencies and departments.

## **13.0 Benchmarking of Water Resources Projects**

The performance of water resources projects and service delivery through these projects for various water user sectors shall be improved by increasing the efficiency, transparency and accountability of the personnel responsible for providing services and seeking participation of users.

Benchmarking is a very powerful management tool for analyzing and improving performance of water resources projects. Therefore, the Government will undertake the benchmarking exercise in all the projects in the State in a phased manner in such a way that all projects are covered under benchmarking exercise in a period of about five years.

## **14.0 Water Audit**

For optimal utilization of created irrigation potential available in the State, water audit is necessary. Water audit will be compulsory for all water resources projects. The service providers shall be accountable for providing measuring devices for volumetric supply and also for giving the account of water use in various sectors.

## **15.0 Conservation of Water**

- 15.1 The efficiency of utilization of water in all its diverse uses shall be improved and an awareness of water as a scarce resource shall be fostered. Conservation consciousness shall be promoted through education, regulation, incentives and disincentives.
- 15.2 Rain water harvesting shall be given due consideration in planning water resources. Viable projects especially in scarce groundwater areas shall be investigated and implemented to increase the surface water availability. Such projects would also help in recharging the groundwater.
- 15.3 Recycling and reuse of water have to be attempted for augmentation of water resources. This will include reclaiming usable water from sewage after necessary effluent treatment. This shall be made mandatory for industrial use.
- 15.4 Measures to control the evaporation from the water bodies shall be taken up and efforts will be made to make the process more cost-effective.

- 15.5 Program of water literacy should be launched right from primary school level so as to create awareness about the importance of economizing the use of water among the diverse users.
- 15.6 The water conservation works shall be taken on top priority where groundwater table has considerably gone down and the Central Government has declared the area as dark zone.
- 15.7 The water conservation works (village tanks, percolation tanks and K.T. weirs) in the command area of the completed major and medium projects shall be taken up, as per the requirement, where water supply is inadequate and irregular for irrigation purpose.

## **16.0 Drought Management**

- 16.1 A systematic approach for drought prediction and assessment will be made for effectively tackling the recurrent drought situation prevailing in certain areas of the State. Such drought-prone areas shall be made less vulnerable to drought associated problems through soil-moisture conservation measures (farm tanks, nala training, percolation tanks, K.T. weirs), water harvesting practices, minimization of evaporation losses, development of the groundwater potential including recharging and the transfer of surplus surface water from one river basin of the State into deficit river basin where ever feasible and appropriate.
- 16.2 Pastures, forestry or other modes of development, which are relatively less water-demanding, shall be encouraged. In planning water resources development projects, the needs of drought-prone areas shall be given priority. Economic viability shall be given weightage while deciding the technical feasibility of a water resources project. Modern irrigation system, such as drip and sprinkler irrigation, be encouraged. In planning and regulation of irrigation projects, eight monthly cropping pattern shall be adopted.
- 16.3 The distress in water availability during deficit period shall be shared equitably amongst different sectors of water users either located in the upstream or downstream. The norms of supply of water for domestic use shall be different for different river sub-basins of the State depending upon the status of water availability in these river basins.
- 16.4 Relief works undertaken for providing employment to drought-hit population shall preferably be for drought proofing. Water resources development works under draught proofing measures shall be given top priority.

## 17.0 Water Resources Planning and Principles

- 17.1 The water resources of the State shall be used, conserved and managed to provide the maximum economic and social benefit for the people of the State and in a manner that minimizes regional imbalance and maintain important ecological values within rivers and adjoining lands. All agencies of the State shall ensure the the optimum integrated benefit will be derived from the Water resources of the State.
- 17.2 Water resource development projects and programs shall be planned and formulated taking into account the full range of costs and benefits including economic, environmental, social and off-site or external costs and benefits. Water resource development projects and programs that maximize benefits and minimize costs and are economically viable and technically feasible will be undertaken.
- 17.3 The planning of projects in hilly areas shall take into account the need to provide assured drinking water, possibilities of hydropower development and the proper approach to irrigation in such areas in the context of physical features and constraints of the basin such as steep slopes, rapid run-off and the incidence of soil erosion. The economical norms of projects in such area shall be different than the norms in the normal area.
- 17.4 Water resources development projects shall be planned according to present and future availability of water and be developed with basin/sub-basin as a unit.
- 17.5 The water resources available to the State shall be brought within the category of utilizable resources to the maximum possible extent. The resources shall be conserved and the availability be augmented by adopting measures for maximizing retention, eliminating pollution and minimizing losses. For this, measures like use of evaporetardants and other suitable measures to control evaporation from storages and distribution, selective lining in the conveyance system, modernization and rehabilitation of existing systems including tanks, recycling and reuse of treated effluents and adoption of traditional techniques like mulching or pipe irrigation and new techniques like drip and sprinkler be promoted, wherever feasible.
- 17.6 Non-conventional methods for utilization of water such as through intra-State river basin transfer of surplus water from a river basin into deficit basin, artificial recharge of groundwater, rainwater harvesting, etc. may be practiced to further increase the utilizable water resources.
- 17.7 Short-duration and low-water consuming crops should be encouraged.



- 17.8 Integrated and coordinated development of surface water, groundwater and their conjunctive use shall be envisaged right from the project planning stage and shall form an integral part of the project.
- 17.9 Water Resources Commission shall be constituted for the reassessment of water availability existing in different river basins of the State.

## **18.0 Flood Water- Planning and Management**

- 18.1 An emphasis will be given to capture the flood flow available in the river for a short duration by diverting and storing it into natural depression pockets including abandoned mines, etc. to utilise for different need-based priority sectors. For this, a comprehensive planning will be made by putting in place inflow-forecast system, including installation of telemetry at all the existing reservoirs as well as keeping provision for the on-going and proposed reservoirs of the State and accessibility of meteorological long-term, medium-term & short-term monsoon forecast.
- 18.2 Structural measures in the form of construction of embankments, anti-erosion works along the river banks, etc. as well as non-structural measures in the form of afforestation in different river basins of the State, flood proofing, flood plain zoning, etc. shall be undertaken on need basis as and when required to safe guard the agricultural land from flood inundation and change in the river morphology.

## **19.0 Priority of Water Usage**

Water will be earmarked to the sectors as per the priority given below :

- (i) **Domestic use for drinking, hygiene and sanitation needs of human beings including livestock;**
- (ii) Ecology with respect to sustainability of water Resources;
- (iii) Irrigation for Agriculture including horticulture, herbal, aqua based agriculture, pisciculture, etc.;
- (iv) Hydel Power Development ;
- (v) Agro-based Industries;
- (vi) Industrial Development ; and
- (vii) All other useful proposes.

**The priority of the remaining water utility sectors except drinking can be changed considering the area specific needs.** Irrigation development shall go hand-in-hand with the development of Hydel power generation.

## **20.0 Physical and Financial Sustainability of Water Resources**

**Ensuring sustainable and optimal benefit** of the development of water resources shall be the joint responsibility of the State and water users.

## **21.0 Bulk Water Supply and Water Charges**

- 21.1 A transparent system of water tariff that recovers the cumulative cost of providing water services from all water user entities in all categories of water uses shall be established by the State. Water charges, determined on the basis of the approved water tariff system, will be levied on a volumetric basis.
- 21.2 Water charges shall be assessed and paid at each appropriate level of management and service provision. Such charges will be sufficient to pay all administrative, operation and maintenance cost of the delivery and use of water and to recuperate all or a portion of the capital cost of the infrastructure needed for the storage, delivery and use of that water.
- 21.3 Water charges shall be assessed to WUAs and other water user entities on the basis of volume of water delivered at their respective off-takes. WUAs and other water user entities shall be responsible for determining internal water charges and assessing each of its members to obtain the funds required for paying water charges, carrying out necessary maintenance and for any other purpose approved by the membership.
- 21.4 In order to alleviate the impact of such charges on those unable to pay the complete charge, the State may allow cross-subsidies and allocate Governmental funds. In the event that such measures are utilized, the aggregate amount of the cross-subsidies and Government funds shall, when combined with the regular water charges, be sufficient to recover all management, operation and maintenance cost of the delivery of water and the capital cost of the infrastructure necessary for creating the storage and delivery of that water.

## 22.0 Groundwater Management

22.1 **It has been observed that over exploitation of ground water in some of the blocks of the State like Chas, Ratu, Dhanbad, Ramgarh, Godda, Jamshedpur Sadar, Jharia and Kanke is done/being done.**

There shall be a periodical reassessment of the groundwater potential on a scientific basis taking into consideration the quality of water available and economic viability.

22.2 **Exploitation of groundwater resources shall be so regulated to ensure social equity and also not to exceed the recharging possibilities. Groundwater recharge projects shall be the developmental projects. These projects shall be developed and implemented for augmenting the available supplies from ground water. Ground water legislation shall be enacted by taking into account the model legislation communicated by the Govt. of India for the sustainable management of ground water.**

## 23.0 Resettlement and Rehabilitation

Optimal use of water resources necessitates construction of storages and implementation of consequent resettlement and rehabilitation of policy. The State has already adopted a rehabilitation policy to share the benefits of the project and ensure welfare of the affected people. In case, where the resettlement and rehabilitation issues are involved, the State shall ensure that the rehabilitation activities will be completed well before the completion of such projects. This principle will be followed scrupulously. Efforts shall be made to avoid the adverse impacts of resettlement and rehabilitation on displaced population. The Project-affected people shall have the first right on the benefits from such projects.

## 24.0 Water Zoning

**Water zoning; Drinking water zone, Ground water depletion zone, Flood affected zone, Water quality deterioration zone, based on the availability of water, shall be done for each river basin of the State considering the need of economic development in future and accordingly the developmental plan for all the water usage sectors shall be prepared and**

implemented phase wise and in consultation, co-ordination and involvement with the concerned sectors.

## **25.0 Maintenance and Modernization of Infrastructure Facilities**

The responsible authorities including river basin agencies, WUAs, other water user entities and water service providers, shall ensure and sustain the performance and function of all water infrastructures and facilities within their jurisdiction by implementing cost-effectively, timely and in technically sound manner the maintenance and modernization of such infrastructure, and manage and allocate funds to ensure that such maintenance programs are fully and effectively implemented to achieve this objective. Wherever necessary old infrastructures/system shall be rehabilitated and modernized so as to keep them in order.

## **26.0 Cost-Effectiveness of State Water Services**

State departments, water service providers and the river basin agencies shall optimize the cost of services including establishment, works, materials, energy and other cost and maintain transparent account of the services and the sources of revenues and their allocation to various functions and services.

## **27.0 Financial Sustainability of Water Charges**

There is a need to ensure that the water charges for various uses shall be fixed in such a way that they cover at least the operation and maintenance of providing the service initially and a part of the capital cost with interest subsequently. These rates shall be linked directly to the quality of services to be provided. The subsidy on water rates to the disadvantaged and poorer sections of the society shall be well targeted and transparent.

## **28.0 Investment Priorities and Plans**

- 28.1 Investment plans for the development of water resource projects and programs shall be formulated to ensure timely completion at the least cost and with maximum benefit. Project priorities and selection shall be consistent with current and projected limits of available financing to ensure the timely completion of projects and programs and with the economic principles laid down in this water policy.
- 28.2 In the context of multi-year programmes, individual sub-projects will be prioritized, selected and implemented accordingly. While deciding the investment priorities preference shall be given to the projects which are at advanced stage.
- 28.3 Time and cost overruns and deficient realization of benefits, characterising most of the water related projects, shall be overcome by upgrading the quality of project preparation and management. The underfunding 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.

## **29.0 Safety of Water Resources Infrastructures**

The safety of all structures including dams and canals that have been or will be constructed to develop water resources, shall be ensured through state-wise program of periodic inspection as per the standards and procedures established by the State.

## **30.0 Research, Development and Promotion of State-of-Art Technology in Water Sector**

- 30.1 Introduction of new technology for more efficient and productive water-use namely drip and sprinkler, management, the continuous development and dissemination of knowledge and information will be given importance for the optimal development and use of water resources for the benefit of people of the State. The reuse of water for non-irrigation and non-drinking purposes by recycling and effluent treatment should be promoted. The State shall undertake to promote the development, adaptation and dissemination of affordable and appropriate water and agricultural technology, and expand the knowledge base through its various institutions.

## **31.0 Human Resources Development**

- 31.1 Improved water services and management in future will require increased capacity and capability of water users, officers of the State agencies. The State shall formulate comprehensive and innovative programmes to impart training and knowledge to water-users and Government officials.
- 31.2 The State shall make all out efforts to encourage technical competency and integrity among the officers of the State agency. This will be done by introducing an appropriate system of rewards including out of turn promotion for the exemplary services such as, timely completion of projects with desired quality, implementing innovative ideas and concepts for optimal and efficient use of water in all its diverse perspectives to boost the economy of the people of the State.

## **32.0 Periodical Review of Policy**

The State water policy, as per the actual requirement, will be reviewed as and when required, but normally after every five years or so.

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