MAHARASHTRA STATE WATER POLICY

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1.0 Need for the Maharashtra State Water Policy

1.1 Water is a prime natural resource. Acknowledging the vital importance of water for human and animal life, for maintaining ecological balance and for economic and developmental activities of all kinds considering its increasing scarcity, the planning and management of this resource and its optimum, economical and equitable and sustainable use has become a matter of the utmost urgency. The distribution of water resources is uneven over a large part of the State. A large area is, therefore, water deficit whereas a small part is bestowed with abundance in water.

1.2 Since independence and in particular after formation of the State of Maharashtra in 1960, large investment has been made in the water sector for the development of water storage projects and other water supply related schemes. This has resulted in :

(I) Increasing the irrigation potential from 2.74 lakh ha to 38 lakh ha and thereby increased agriculture productivity and agro-based industries.

(II) Enhancing the drinking water supplies to the major cities and towns as well as rural areas.

(III) Made available industrial water supplies to spur industrial growth.

However, a few discrepancies of the last 50 years of the water resources development and management brought about certain critical challenges requiring immediate attention. This isolated and fragmented approach to surface and groundwater development and management for the various purposes is deteriorating water qualities both of the surface as well as groundwater due to release of untreated effluent by the industries and municiple bodies.

Increasing conflict among the competing uses of the water for various purposes (such as irrigation, urban water supplies and industries etc.) and poor operation and maintenance of the created facilities in the water sector has resulted in poor service delivery and large gap in the irrigation potential created and utilised.

A careful planing, development and management of the water resources in the State is, therefore, called for.

Water resources are important to the people of Maharashtra in many ways - to sustain rural livelihood, for agricultural production on which most rural income depend, rural and urban water supply, industrial, hydropower generation for the health and well being of all people, to sustain environmental values and benefits and for commerce and industry on which growth in employment to meet the needs of a growing population will depend. In many of the State's river basins and sub-basins, competition for limited water supplies and conflict among these different uses of water has emerged and is growing. This growing scarcity of water and the competition for water services comes at the same time when the State also needs to find new ways to overcome stagnation in agricultural production growth, increase productivity, expand and intensify irrigation and increase income opportunities in rural areas. These challenges also come at a time when the State's

budget resources are limited and stretched. Hence both the State and all water users must find ways to become more efficient and productive.

1.3 To face these new challenges and ensure the future welfare of all its people, there is need to adopt State water policy for Maharashtra. 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 minimising 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 to use water more efficiently and productively it will empower water users' organizations and entities to participates more fully in water resources management to manage, operate and maintain their water distribution and service facilities and grant these new water users' organizations and entities a stable and predictable entitlements to 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 river basin levels to guide and regulate water resources management; to decentralize the responsibility for water resources planning, development, management, operation and maintenance functions to the river basin and sub-basin level by suitably revising the responsibilities and powers of the existing river valley corporations. The State will also review existing institutional arrangement in the water sector and appropriately restructure and adjust them. **Fourth**, the state will place a high priority on promoting and supporting the development, adaptation and dissemination of new 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 enact appropriate legislation and enabling rules to give effect to the above mentioned strategies in short time. To begin with, the State will adopt three critical items of legislation, including an act to authorize farmers' management of irrigation systems, and act to create the State water authority and river basin authorities.

2.0 Maharashtra State Water Policy

The objectives of the Maharashtra State Water Policy are 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 Maharashtra in a manner that maintains important ecological values within rivers and adjoining lands.

2.1 Objectives of the Maharashtra State Water Policy (MSWP)

2.1.1 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.

The water resources of the State shall be planned developed, managed with a river basin and sub-basin as the unit, adopting multi-sectoral approach 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 units. The State shall be divided into 5 river basin drainages and appropriate river basin agencies shall be established within each river basin. Water resources development corporations shall be established within each river basin.

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 water storage and delivery infrastructure. These river basin agencies shall prepare integrated river basin plans with the effective inclusion and participation of representatives of all basin water user entities, categories of water users and other stake holders. Such basin plans shall include a development plan, a long-term operations plan, a monitoring plan, a comprehensive watershed management plan, an efficiency improvement and water conservation plan and a waste minimization and water quality management plan.

2.1.2 State Water Plan

Based on the water resources development and management plan developed by the respective river basin agencies, the state shall prepare a State water resources plan to promote a balanced development and by proper coordination among diverse water uses which shall include structural measures, operational measures, watershed management measures, demand management measures such as conservation, scarcity 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 and its peoples.

2.2 Water Resources of the States

The water resources of the State shall be defined as all waters - 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 308 lakh ha and cultivable area is 225 lakh ha. Out of this, 40% of the area is drought prone. About 7% area is flood prone. The highly variable rainfall in Maharashtra ranging from 400 to 6000 mm occurs in a 4 months' period between June-September with the number of rainy days varying between 40 and 100. The estimated average annual availability of water resources consists of 164 km^3 of surface water and 20.5 km^3 of subsurface. Of the 5 river basin systems, only 58% of this average annual availability is found in the four major river basins (Krishna, Godavari, Tapi and Narmada) east

of the Western Ghats. These four river basins comprise 92% of the cultivable land and 75% of the people living in rural settlements and fast growing towns and industrial area. An estimated 49% of the area of these river basins containing 43% of the population is already considered deficit or highly deficit in regard to water availability; and these deficit areas are expected to increase steadily as both the population increase and the economic growth take place. Moreover, Maharashtra shares all these four river basins with neighbouring states, and various Interstate river water tribunal awards/agreements, decisions on water sharing have reduced estimated available surface water resources in these river basins for the state of Maharashtra to about 125 km^3 .

2.2.1 Users' Participation in Planning, Development and Management of Water Resources

Water users, through their legally recognised organisations 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 infrastructure and facilities and to manage their entitlement to water.

2.2.2 Farmers' Management of Irrigation Systems

Farmers' participation in irrigation management should be made mandatory and water will be supplied 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. The women's participation in the irrigation management should also be considered. These WUAs will hold a bulk entitlement to water use on behalf of their members; and water will be allocated, delivered and charged to WUAs on a volumetric basis. WUAs will manage and distribute their bulk entitlement and maintain all irrigation infrastructures within their jurisdiction. In case of ex-malgujari tanks, the agreement systems on irrigation schemes in Vidarbha Region and the block system on three pre-independent projects (Neera, Pravara and Godavari), beneficiary farmers will be entitled for the water quota in their WUAs as per present practice of block/agreement system and it will be made obligatory to WUAs to observe accordingly. WUAs will be federated at the distributary and project levels. These federations will be responsible for operation and maintenance of their respective canals and appurtenant structures and facilities.

2.2.3 Water for Domestic and Industrial Use

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

A perspective plan to meet domestic water requirement shall be prepared and steps taken to provide adequate resources for this purpose in a phased manner. Efforts shall be made to take water directly from reservoir. As far as possible, dedicated pipeline for

avoiding loss of water through canal or river should be laid for getting supply of drinking water preferably from reservoir. Efforts shall be made to make the water supplies self- sustaining, at least to meet the O&M costs considering the socio-economic conditions of the population to be served.

It shall be made obligatory for newly coming up industries to set up effluent treatment plants either collectively or individually. Effluent treatment plant installations shall be made in stages (within 5-7 years) for existing industries as well as for civic water supply schemes. Encouragement will be given for recycling or reuse of treated wastewater.

2.2.4 **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 organisation and appropriate local level bodies/community organisations shall manage, operate and maintain these services on day to day basis.

2.2.5 **Participation of the Private Sector**

In each river basin, the full and effective participation of private industrialists and commercial enterprises and water service providers will be sought and encouraged in the preparation of river basin plans and in the sustainable management of basin water resources.

The participation of the private sector, in partnership with the Government or other competent authority, in the financing and implementation of water projects will be encouraged where appropriate in order to introduce new technology and innovative financing, obtain management expertise, improve the quality and cost-effectiveness of water services and accountability to water users.

2.3 **Water Quality**

The quality of the water resources of the State shall be protected to preserve their usability in a sustainable manner for the peoples of the State. The State shall establish a program of control of discharge of any pollutants to the surface and sub-surface waters of the State including the ocean, bays and saltwater marshes of the State. This program shall include the registration of any such discharges, the licensing and monitoring of such discharges and the establishment of standards for the waters of the State and acceptable and appropriate limits for any discharge of pollutants into these waters. The river basin agencies shall consider the maintenance of water quality in the preparation of river basin plans, operations plans and watershed development plans.

The pollution of the waters 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 the regulations of the State through its relevant State agencies.

2.4 **Monitoring and Information Systems**

Reliable and appropriate data and information is essential for effective management of water resources. A modern integrated monitoring network for hydro-meteorological and related water resources and water use data and a shared data and information management system shall be established and sustained to support planning, project formulation and implementation, operations 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 levels.

All State agencies, departments and all entities - public or private - that collect, maintain, collate or archive hydro-meteorological and related water resources and water use 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 for all water users and stake holders - public or private - and for concerned State agencies and departments.

2.5 **Benchmarking of Water Resources Projects**

The performance of water resources projects and service delivery through these projects for various water user sub-sectors can 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 of Mahrashtra 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.

2.6 **Water Audit**

For increasing utilization of available potential, 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 for giving the account of water use in various sectors.

2.7 **Conservation of Water**

2.7.1 The efficiency of utilisation in all the diverse uses of water 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.

2.7.2 Water harvesting shall be given consideration in planning water resources. Viable projects especially in scarce groundwater areas shall be investigated and implemented to increase the surface water availability, which would also help in recharging the groundwater.

2.7.3 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 should be made mandatory for industries use.

2.7.4 Measures to control the evaporation from the water bodies is taken up and efforts made to make the process more cost-effective.

2.7.5 Program of water literacy should be launched right from primary school level so as to create awareness about the importance of economising the use of water among the diverse users.

2.7.6 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.

2.7.7 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.

2.8 Drought Management

Drought-prone areas shall be made less vulnerable to drought-associated problems through soil-moisture conservation measures (farm tanks, nalla training, percolation tanks, K.T.weirs), water harvesting practices, minimisation of evaporation losses, development of the groundwater potential including recharging and the transfer of surface water from surplus areas where feasible and appropriate.

Pastures, forestry or other modes of development which are relatively less water-demanding shall be encouraged. In planning water resource development projects, the needs of drought-prone areas shall be given priority. Dependability of projects be lowered subject to economic viability. Modern irrigation systems such as drip and sprinkler irrigation be encouraged. In planning and regulation of irrigation projects, eight-monthly cropping pattern shall be adopted.

The distress in water availability during deficit period shall be shared equitably amongst different sectors of water use and also amongst upstream and downstream users. The norms of supply of water for domestic use shall be different for different river sub-basins of the State depending upon the water availability status of the areas concerned.

Relief works undertaken for providing employment to drought-stricken populations shall preferably be for drought proofing. Water resources development works shall be given top priority.

2.9 Watershed Development and Management

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

3.0 Water Resources Planning and Principles thereof

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 minimises regional imbalance and maintain important ecological values within rivers and adjoining lands. All agencies of the State shall cooperate in the provision of the optimum integrated benefit to be derived from the State's Water resources.

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.

3.1 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.

3.2 Water resources development projects shall be planned according to present and future availability with basin/sub-basin as a unit for development.

3.3 The water resources available to the State shall be brought within the category of utilisable resources to the maximum possible extent. The resources shall be conserved and the availability augmented by measures for maximising retention, eliminating pollution and minimising 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, modernisation 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.

3.4 Non-conventional methods for utilisation of water such as through interbasin transfers from surplus basins to deficit ones, artificial recharge of groundwater, rainwater harvesting may be practiced to further increase the utilisable water resources.

4.0 Priority of Water Usage

Water resources shall be allocated in accordance with the following general principles:

(a) Domestic use for drinking, cooling, hygiene and sanitation needs including livestock

(b) Industrial, commercial use and agro-based industrial use.
(c) Agriculture and hydropower
(d) Environment and recreation uses
(e) All other uses

4.1 **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, and shall be treated as such in the management, use and transfer of the entitlements as prescribed by the State act, and the rules and regulations under such an act. Expropriation of these entitlements will be prohibited for any reason without just and equitable compensation and mitigation of the impacts of such expropriation.

4.2 **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 entitlement. Such transfers shall be undertaken under the administration and control of the appropriate State water authority or its designee.

4.3 **Physical and Financial Sustainability of Water Resource Use and Development**

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

4.4 **Bulk Water Supply and Water Charges**

A transparent system of water tariffs that recuperates the cumulative cost of providing water services from all water user entities in all categories of water use 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.

Water charges shall be assessed and paid at each appropriate level of management and service provision. They will be sufficient to pay all administration, operation and maintenance costs of the delivery and use of water and to recuperate all or a portion of the capital costs of the infrastructure needed for the storage, delivery and use of that water.

Water charges shall be assessed to WUAs and other water user entities on the basis of the 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.

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 recuperate all management, operation and maintenance costs of the delivery of the water and the capital costs for the infrastructure necessary for the storage and delivery of that water.

5.0 Groundwater Management

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

5.2 Exploitation of groundwater resources shall be so regulated as not to exceed the recharging possibilities as also to ensure social equity. Groundwater recharge projects shall be developed and implemented for augmenting the available supplies.

5.3 Integrated and coordinated development of surface water and groundwater and their conjunctive use shall be envisaged right from the project planning stage and shall form an integral part of the project.

5.4 Overe-xploitation of groundwater shall be avoided near the coast to prevent ingress of seawater into sweet water aquifers.

6.0 Resettlement and Rehabilitation

Optimal use of water resources necessitates construction of storages and the consequent resettlement and rehabilitation of population. The State has already adopted a policy namely the Maharashtra Project-Affected Persons Rehabilitation Act- 1999 to share the benefits of the project and ensure welfare of affected persons. In cases where the resettlement and rehabilitation are involved, the State shall ensure that the rehabilitation activities will be completed before completion of projects. This principle will be followed scrupulously. Efforts shall be made to avoid the adverse impacts on displaced population. The project-affected persons shall have the first right on benefits from the projects

7.0 Water Zoning

Considering the water availability, the development plan for agriculture, industries and urbanisation shall be prepared.

8.0 Flood Control and Management

8.1 There shall be a master plan for flood control and management for each flood-prone basin. Adequate flood cushion shall be provided in water storage projects wherever feasible to facilitate better flood management. In highly flood-prone areas, flood control shall be given overriding consideration in reservoir regulation policy even at the cost of sacrificing some irrigation or power benefits. While physical flood protection works - like embankments and dykes - will continue to be necessary, increased emphasis shall be laid on non-structural

measures such as flood forecasting and warning, flood plain zoning and flood proofing for the minimisation of losses so as to reduce the recurring expenditure on flood relief. An extensive network for flood forecasting shall be established for timely warning to the settlements in the flood plains. There shall be strict regulation of settlements and economic activity in the flood plain zones alongwith flood proofing to minimise the loss of life and property on account of floods. Watershed management through extensive soil conservation, catchment area treatment, preservation of forests and increasing the forest cover and the construction of check dams shall be promoted to reduce the intensity of floods.

9.0 Maintenance and Modernisation of Infrastructure Facilities

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

10.0 Cost-effectiveness of State Water Services

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

10.1 **Financial and Physical Sustainability**

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 costs with interest subsequently. These rates shall be linked directly to the quality of service provided. The subsidy on water rates to the disadvantaged and poorer sections of the society shall be well targeted and transparent.

10.2 **Investment Priorities and Plans**

10.2.1 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 in this water policy. In the context of multi-year programs, individual sub-projects will be prioritized, selected and implemented in the same manner. While deciding the investment priorities preference shall be given to the projects which are at advanced stage.

10.2.2 Time and cost overruns and deficient realisation of benefits characterising most 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.

10.3 **Safety of Water Resources Infrastructure**

The safety of all structures including dams and canals that have been or will be constructed to develop water resources shall be ensured through statewide program of periodic inspection in accordance with standards and procedures established by the State.

10.4 Research, Development and Promotion of State-of-Art Technology in Water Sector

Optimal development and use of the State's water resources for the benefit of the State's peoples in the future will require the introduction of new technology for more efficient and productive water use namely drip and sprinkler and management and the continuous development and dissemination of knowledge and information. The reuse of water for non-irrigation (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 under the State and the State's education institutions and research institutes by improving coordination among the States existing research institutions.

The cities, which are close to sea, feasibility and use of desalination of seawater by the industries/hotels, will be studied and promoted.

10.5 **Human Resources Development**

Improved water service and management in the future will require that water users and officers of State agencies have increased capacity and capability. The State shall formulate comprehensive and innovative programs to impart training and knowledge to water users and Government officers.

11.0 Periodical Review of Policy

The State water policy will be reviewed after every 5 years or otherwise as per the actual requirement.

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