Government of Maharashtra

Maharashtra State Water Policy

Water Resources Department

(2019)

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MAHARASHTRA STATE WATER POLICY 2019

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MAHARASHTRA STATE WATER POLICY, 2019

1. PREAMBLE:

Per capita water availability is decreasing due to ever increasing population. Also, due to rising food demands, rapid industrialization and urbanization the stress on water management is increasing. As an effect water management has emerged as one of the 21st century's grand challenges.

In September 2015, the United Nations 193 member states including India, committed to the 17 Sustainable Development Goals (SDGs) to be achieved over the next 15 years. SDG-6, "ensuring clean water and sanitation for all" has placed "water" firmly on the global agenda. Without water, the other development goals - such as ensuring healthy lives, ending hunger, boosting economic growth and others- will not be achieved. Further, SDG - 12 - "**Ensure sustainable consumption and production patterns**" and SDG - 15 - "**Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt degradation and halt biodiversity loss,"** also are equally relevant. Thus, to achieve the targets set forth in the SDGs, it is of utmost importance to effectively develop and manage the water resources.

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. Large part of the State has already become water stressed. With the threat of climate changes the situation is likely to deteriorate.

Water being a State subject, State of Maharashtra had framed its Water Policy in 2003 which was subsequently revised in May 2011. Since adaptation of this policy, significant positive changes have occurred in the water scenario of the State. However, some of the issues and challenges faced in the state water sector still continue and require policy reforms.

Government of India (GoI) has also revised its earlier policy and released the National Water Policy in 2012. GoI vide provisions of clause 16.2 of the National Water Policy, expresses the intent that the states may revise and align their respective state Water Policy in accordance with the National Water Policy, keeping in mind the basic concerns, principles and also a unified national perspective.

With this background, the State has again revised its Water Policy in accordance with the National Water Policy for addressing certain State-specific concerns and challenges.

2. SCOPE OF THE POLICY :

This Policy applies to all the line departments, semi-government agencies of the State Government related to water, local bodies, bulk water users (domestic, industrial/commercial and others) and the citizens of the State.

3. OVERVIEW OF THE STATE:

Maharashtra occupies the Western and Central parts of India and has a long coastline of about 720 km along the Arabian Sea. With population of 112.4 million, as per population Census 2011 and geographical area of 0.308 million sq. km, Maharashtra is ranked 2nd by population and 3rd in terms of area. Maharashtra is highly urbanized with 45.2 % population residing in urban area.

The State enjoys tropical monsoon climate and is semi-arid. There exists an extreme spatial and temporal variation in the rainfall pattern in the State. The average annual rainfall in the State ranges from 400 to 6000 mm. The State witness frequent drought conditions. Almost, 42.5 % area of the State is drought prone. Gross cropped area in the State is 22.9 million ha (2015-16), net sown area is 17.19 million ha and area sown more than once is 5.929 million ha. Half of the State's population is dependent upon agriculture for their livelihood.

4. WATER RESOURCES OF THE STATE:

The area of the State is covered under five major river basins namely Godavari, Krishna, Tapi, Narmada and West flowing river basins. Also, a very small area of North-Eastern part of the State comes under the Mahanadi basin. The estimated average annual availability of water resources of the State is 198 Billion cubic metres (BCM) which consists of 164 BCM of surface water and 34 BCM of groundwater. The storage capacity created through State Sector water resources projects is 42.85 BCM as of June 2017.

Except the West flowing rivers, Maharashtra shares remaining four river basins with the neighbouring states. Various inter-state river water disputes, tribunal awards /agreements and decisions on water sharing have limited the use of surface water resources of the State to about 126 BCM, of which 69 BCM (55%) contribution is alone of west flowing river basins. The Cultivable area of this region is very limited (10.6 %), comprising narrow strip of 50 km between Sahyadri ranges and Arabian Sea. Hence, there is a limitation on local use of entire available water. The entire water available in basins of West flowing rivers can neither be used locally nor can be transferred economically to other basins as the rest of the basins are separated by high altitude ridge (+610 m). On the other hand, remaining four river basins having 89.4% of the cultivable area has only 45% of the water resources. Due to these constraints, about 42.50% area of the State lies in deficit or highly deficit sub-basins. The State is experiencing water shortage and recurrent droughts.

The State is divided into 1531 elementary watersheds considering river basin and sub-basin boundaries as the base. Watershed wise groundwater assessment was done in 2013-14 and it revealed that net groundwater availability is 31.48 BCM and annual draft is about 17.07 BCM.

5. WATER RESOURCES DEVELOPMENT AND RELATED REFORMS IN THE STATE:

Since independence and in particular after formation of the State in 1960, significant investments have been made in water sector which has resulted in:

I. Increase in irrigation potential (surface water) from 2.74 lakh ha to 68.37 lakh ha (State Sector: 50.36 lakh ha, Local Sector: 18.01 lakh ha) by June 2017. The actual utilisation of potential created through State Sector projects in 2017-18 is 39.50 lakh ha.

II. Effective management of the drinking water supplies to majority of the cities and towns as well as augmented supplies in the rural areas.

III. Achieving accelerated industrial growth.

IV. Increasing hydropower capacity from 290 MW to 3684 MW up to March 2019.

The State has also achieved following milestones in water governance;

I. Water Users' Association (WUAs) have been empowered under Maharashtra Management of Irrigation Systems by Farmers (MMISF) Act, 2005 and its Rules. WUAs formed till September 2017 are 5326.

II. To regulate the water resources within the State, the Maharashtra Water Resources Regulatory Authority (MWRRA) has been established under section 3 of the MWRRA Act.

III. To regulate and facilitate sustainable, equitable and adequate supply of groundwater within the State, the Maharashtra Groundwater (Development and Management) Act, 2009 has been enacted, which empowers MWRRA to regulate groundwater resources of the State also.

IV. For auditing the bulk water use the State has established a separate office at Aurangabad viz. Chief Auditor, Water & Irrigation, Maharashtra State.

V. The State has received first prize in Best State Award category, in 2018, for its excellent work in Water Management Sector.

6. CONCERNS AND CHALLENGES FACED BY THE STATE WATER SECTOR:

In spite of large investment and reforms in the water sector, the existing scenario of water resources and their management in the State has certain concerns and critical challenges, prominent amongst them are listed below:

6.1 Growing imbalance between demand and supply of water :

Rapid increase in demand of water due to population growth, urbanization and changing lifestyle has created a considerable gap in demand and supply. This has posed serious challenges to water security. Conflicts amongst inter-sectoral, inter-regional and the upstream and downstream water users in the basin are increasing. Access to safe water for drinking and other domestic needs still continues to be a challenge in the rural area of the State. The conjunctive use of surface water and groundwater is still not considered in urban areas.

6.2 Uncertainty in availability of water :

There is a wide temporal and spatial variation in the availability of water resources within the State which may increase substantially in future due to the impending Climate Change, causing deepening of water crisis and instances of water related disasters; i.e. floods, increased erosion and increased frequency of droughts etc.

6.3 Limitation to access to available water :

There are limitations for utilizing available water in Eastern Vidarbha due to difficulties in diversion of forest land, and in Konkan region due to topographical constraints.

6.4 Lack of assured access to allocated quota of water:

There is no assured access to the farmers for their allocated quota due to deferred maintenance of the water resources projects.

The delineation and handing over command areas to WUAs is very slow due to lack of funds for carrying out restoration & rehabilitation of the distribution system to design parameters.

6.5 Low operational efficiency:

Lack of proper maintenance of the created irrigation infrastructure results in low water use efficiency. To strike a balance in the investment on completion of the ongoing water resources projects and that on maintenance of the existing infrastructure through limited available resources is a challenge.

6.6 Significant gap between IPC & IPU:

Bridging the gap between Irrigation Potential Created (IPC) and Irrigation Potential Utilized (IPU).

6.7 Depleting groundwater resources:

Groundwater, though part of the hydrological cycle and a community resource, is still perceived as an individual property and is being exploited inequitably without any recharge obligations leading to its over-exploitation in several areas. Presently, seventy six watersheds have become over-exploited and four are rendered critical.

6.8 Losses in Urban Distribution Network:

Reducing the Non-Revenue Water (NRW) and Restricting domestic water use within the prescribed norms particularly in urban areas is a key issue which needs to be addressed on priority.

6.9 Deteriorating Water Quality:

Release of untreated effluent by the industries and urban local bodies is deteriorating water quality of both the surface water as well as the ground

water, causing reduction in availability of safe water, environmental and health hazards and damages to aquatic ecosystem.

6.10 Lack of accurate data base and trained human resources :

Adequate data base required for informed decision making is not available. Also, the trained personnel who can address the concerns and challenges in a scientific or technical manner with modern tools and techniques are not available in adequate numbers.

6.11 Encroachment in Natural water Bodies and Drainage channels:

Natural water bodies and drainage channels are being encroached upon and diverted for other purposes. Ground Water recharge zones are often blocked.

6.12 Achieving Ultimate Irrigation Potential:

Achieving ultimate irrigation potential of 126 Lakh ha. (56% cultivable areas) at the earliest, considering the present pace of growth in agricultural sector is essential.

7. APPROACH TOWARDS FORMULATION OF THIS POLICY:

In furtherance to the National Water Policy and in line with the best global practices, the State Government intends to ensure balanced and sustainable development, management of the water resources of the State by way of a holistic, inter-disciplinary approach, thereby addressing the various concerns and challenges faced by the State Water Sector.

7.1 Objectives of the State Water Policy:

The aim of the State Water Policy is to apprise all the line departments, local bodies, agencies working for the water sector, industries and all the water users of the State their rights, roles and responsibilities along with the planned strategies, expectations and directions of the State Government for achievement of specified objectives. These objectives are broadly:

i. To ensure clean water and sanitation in the State.

ii. Building resilience to water scarcity and drought.

iii. Judicious and strategic sectoral allocation of water among different water use sectors.

iv. Equitable distribution of water and assured access to allocated quota of water.

v. Protection of ecosystems.

vi. To protect and enhance water quality of surface as well as groundwater.

vii. Increase in productivity and efficiency of water use.

viii. To make systematic transition from the water resources development mode to an integrated water resources management mode; with appropriate reforms.

7.2 Water Policy Focus Areas:

i. Engagement of stakeholders for inclusive water governance.
ii. Strategic planning and prioritizing investments;
iii. Continuous monitoring and updating the policies;
iv. Demand Management;
v. Improving Water Use Efficiency in all water use sectors;
vi. Increasing quantity of usable water;
vii. To adopt good governance through transparent informed decision making to achieve objectives of equity, social justice and sustainability.

STATE WATER POLICY

8. ENVISAGED STRATEGIES:

8.1 Stakeholders Engagements:

Ensure stakeholders' involvement for a long term sustainable change. Emphasis shall be given on consistent stakeholder engagements in building certain degree of consensus on change in the prevailing water use practices. Stakeholders' opinion shall be taken before taking major decisions. Views of water users, policy makers, experts in the field, non-governmental 2organisations shall be ensured in the decision making and reform process.

8.2 Sectoral Allocation:

Water allocation across different user groups e.g. domestic, agricultural, industry, eco-systems and other uses is an effective policy instrument to manage the water resources sustainably for increased resilience, economic prosperity and quality of life for the present as well as future generations. Properly structured allocation policy can boost the economy of the State.

Sectoral allocation of water shall be optimally structured with the following objectives:

i) Meeting basic human needs.
ii) Sustaining basin health（Eco System）.
iii) Maximizing the value of water.
iv) Enhancing the water use efficiency.
v) Achieving economic development of the State in sustainable manner.

Sectoral allocation need not be uniform throughout the State. It may vary project to project to cater for area specific requirements. The project specific sectoral allocations of available water resources shall be done by the competent authority as specified in the extant laws. Water allocation between different uses will be done to meet critical needs, sustain basin health and maximise the value of water. Following principles will be observed while deciding the sectoral allocation.

(i) The State Government is committed to respect, protect and fulfill the formally recognised human right to drinking water and sanitation. The first priority and charge on water shall be to meet the basic safe water

requirements of each human being, which include water for drinking, cooking, bathing, sanitation, personal hygiene, related personal or domestic uses and water required for domestic livestock;

(ii) After meeting the prescribed norm-based basic safe water requirement of human being in the service jurisdiction of the project and subject to the sub-clause (iii), the importance to other water user categories in allocation will be in the following order:

a) Other Domestic Needs.

b) Agriculture and agro-based industries.

c) Industry, Thermal Power Generation, Hydro Power Generation.

d) Eco system.

e) Other uses such as water for cultural and religious ceremonies, recreation, amusement, sports etc.

(iii) The order of water use set out above may be modified in a particular project at the discretion of the competent authority, with reference to area specific considerations such as prevalent land use pattern, activities and means of livelihood, cultural and spiritual values of water to indigenous citizens etc.

(iv) RBA shall distribute the bulk water entitlements to various users within the project wise sectoral allocation as may be decided by the competent authority.

(v) In water deficit years, allocation criteria (deficit sharing percentage) for different uses shall be determined by the regulatory authority considering the views of the stakeholders.

8.3 Integrated State Water Plan (ISWP):

ISWP has been prepared to ensure balanced, sustainable development and management of the State's water resources (surface/sub-surface) with the effective inclusion and participation of representatives of all basin water user entities, various categories of water user, other stakeholders, various line departments. The integrated plan is developed to promote the balance development among the different regions/ basins, especially for minimizing regional imbalance. Water resources planning, development and management in the State will be guided by ISWP.

8.4 Water Resources Planning and Principles Thereof:

I. The water resources of the State shall be used, conserved and managed to provide the maximum economic and social benefits for the people of the State and in a manner that minimizes regional imbalance and maintain important ecological values within river and adjoining lands. The water resources of the State must be planned, developed and managed with a river basin and/or sub-basin as the unit, adopting a multi-sectoral and Integrated Water Resources Management (IWRM) approach. Integration in planning will be achieved between;

(a) Soil moisture, direct precipitation, groundwater and surface water.

(b) Small water harvesting structures and conventional reservoirs.

II. The availability of water resources and its use by various sectors in various basins in the State will have to be assessed scientifically and reviewed periodically, for instance every ten years. So also, the water planning of each major and medium project will be reviewed after ten years. Base year shall be taken as year of 1st impounding of water.

III. The water resources projects must be planned by taking into consideration social and environmental aspects in addition to the techno-economic considerations and also considering the impact on the project affected and beneficiary families, local governing bodies. Projects and programs shall be planned and formulated taking into account full range of costs and benefits.

IV. The water resources projects, including hydropower projects must be planned, to the extent feasible, as multi-purpose projects with provision of over the year storage (carry over storage) planning for adaptation to Climate Change. The anticipated increase in variability in availability of water because of climate change will have to be dealt by initiatives to increasing water availability in various forms, namely; soil moisture, ponds, groundwater, small, medium and major reservoirs and their combination.

V. The planning of irrigation projects in water deficit and highly water deficit sub-basins must be done on eight-monthly basis.

VI. No irrigation project shall be commenced unless all statutory clearances are obtained. Comprehensive investigation and detail project design shall be completed prior to commencement.

VII. No project shall be commenced without ensuring adequate budgetary financial stream until its completion.

VIII. The distribution system in the water resources projects, where technically feasible and economically viable, will preferably be through pipe network. Particularly in area having limited irrigation facilities projects with pipe distribution network and micro irrigation must be planned to spread the benefit of available water on a larger area. Lift Irrigation Schemes shall be promoted with micro irrigation system (drip & sprinkler) through pipe network distribution system with the participation of beneficiaries.

IX. Untapped ground water potential shall be developed and used conjunctively with surface water.

X. The command area development activity will be a part of the project planning and shall be executed through a multi-disciplinary approach.

XI. As a part of project activity, baseline socio-economic, environmental and ecological surveys must be done in the project benefited area and also in adjoining influence area to assess the impact of water resources project.

XII. Enhanced economic viability norms for the projects located in hilly areas and in saline track (*khar-pan-patta*) will be framed.

8.5. Sustainable Approach for Mitigating Demand-Supply Gap:

The State Government will adopt sustainable approach for mitigating existing demand-supply gap with following strategies:

8.5.1 Integrated Water Management:

Integrated management of surface water, groundwater and manufactured water (recycled/desalinated water) shall be promoted.

8.5.2 Demand Management and Water Use Efficiency

There is a mismatch between supply and demand. Considering limited scope for new storages, existing resources shall be used more effectively. State shall focus on demand side management and promoting the uptake of more efficient infrastructure technologies e.g. micro irrigation, water reuse and more efficient appliances etc.

Concerned line Departments shall prepare action plan in respect of strategies as defined in this policy along with measurable targets, resources required and the time lines for completion of the targets to State Water Board and State Water Council for approval. State Water Board/ Council shall periodically monitor its implementation.

8.5.3 Integrated Planning for Maximizing Utilisable Water:

The demand for water is increasing rapidly due to growing population, change in the life style, rapid urbanization and industrialization and economic development. Therefore, the availability of water needs to be augmented to meet the increasing demands of water. The strategies envisaged to achieve this are:

(i) Rainwater harvesting and maximizing the direct use of rainfall.

(ii) Maharashtra has a typical Geographical pattern with skewed distribution of rain fall resulting in limited availability of natural water resources. Nearly 42.5% of the Geographical area at the state is water stressed. There is need to supplement the fresh water sources by exploring options of reuse of treated waste water particularly in the urban area. Emphasis be laid on collection and treatment of all sewage using cost effective technological innovations and minimum 30 % of the recycled water shall be reused to reduce the fresh water demand in next 5 years. Comprehensive policy in this regard shall be framed by respective department.

(iii) Inter-basin transfers (Diversion Schemes).

(iv) Protecting and enhancing quality of surface and subsurface water resources.

(v) Desalination.

(vi) A system evolving benchmarks for water uses for different purposes: i.e water footprints and water auditing shall be strengthened to promote and incentivize efficient use of water. The ‘project’ and the ‘basin’ water use efficiencies need to be improved through

continuous water balance and water accounting studies.

(vii) Water saving in irrigation use is of paramount importance. Methods like aligning cropping pattern with natural resource endowments, micro irrigation, automated irrigation operation, evaporation-transpiration reduction, etc, should be encouraged and incentivized. Recycling of canal seepage water through conjunctive groundwater use shall also be accounted.

(viii) Agricultural irrigation water use will be kept in check by providing economic incentives to farmers.

8.5.4 Water Quality Management:

The quality of the water resources shall be protected to preserve their usability in sustainable manner for the peoples of the State. The State shall establish a programme, to control discharge of any pollutants to the surface and groundwater including the sea and saltwater marshes of the State. This programme shall also include the establishment of standards and acceptable limits for discharge of any pollutants into these waters. Urban water supply and sewage treatment scheme shall be integrated and executed simultaneously. Domestic water supply bills shall include sewerage treatment charges also.

The system of third party periodic inspection shall be introduced and stringent punitive actions be taken against the persons or entities responsible for pollution. Polluter pays principle shall be adopted as provided in the laws and regulations. Strong regulation to stop water polluting activities shall be initiated.

For the effective control over water pollution in all sectors, and also to monitor maximum recycling & reuse of water, an integrated approach is necessary by all the water stake-holders together. For this, a high-power Apex body need to be formed, under the leadership of Environmental Ministry of the state and with members from all the water users line departments.

8.5.5 Conservation of Water:

(i) Water conservation consciousness will be promoted through public participation, training, education and awareness campaigns, incentives, and disincentives and penalties through regulation mechanism. Program on water literacy should be launched right from the primary school level so as to create awareness about the importance of conserving water and quality thereof.

(ii) Conservation of rivers, river corridors, water bodies and infrastructure must be undertaken in a scientifically planned manner through community participation.

(iii) In urban and industrial areas, the rainwater harvesting must be made mandatory by the relevant State agency.

(iv) Measures to control evaporation from the water bodies shall be taken up in a cost-effective manner.

(v) Tendency of wastage of water shall be monitored by monetary penalties/ reducing the entitlements.

(vi) "Water Resources Conservation Fund" shall be created with the participation of Corporate sector, Industries and Urban local bodies. The funds thus raised shall be utilized for conservation of the all Natural Fresh Water and Water Bodies and overall Eco System in a sustainable manner.

8.5.6 Intra and Inter Basin Transfers:

Intra and inter-basin river water transfer from surplus Basins to deficit ones shall be undertaken on the basis of merits of each individual case after evaluating environmental, social and economic impacts and inter-state water sharing obligations.

8.5.7 Water Governance:

The State Government has recognized the need to have appropriate regulatory institutional and legal framework in the water sector. Necessary amendments shall be done in prevailing statutes with a view to ensure that there is a certainty in the role / responsibility / functions and powers of MWRRA and other relevant in-line departments.

9. WATER USE

9.1 Domestic Water Management:

Adequate domestic water facilities shall be provided to the entire population both in urban and in rural areas including water required for animals. Disparity between norms for water supply in urban and rural areas will be removed gradually. Efforts should be made to provide improved water supply in urban and rural areas with proper sewerage facilities. Development of eco-friendly sanitation shall also be promoted. Multi-purpose projects shall invariably include a domestic water component wherever there is no alternative and adequate source of drinking water. Norms for permissible per capita consumption of water shall be different, in different basin / sub-basin depending upon the availability of water resources.

A perspective plan to meet rural domestic water requirements including water for animal shall be prepared and steps taken to provide adequate resources for this purpose in a phased manner. For new water supply schemes, drawing water from storage reservoirs and only through closed conduits shall be mandatory. The existing water supply schemes drawing water from canals or rivers as a source shall have to be converted to draw water from storage reservoirs with closed conduits in a phased

manner. Integrated use of other sources including groundwater shall also be explored.

In urban areas, the rainwater harvesting shall be made compulsory. Groundwater use plan shall be necessary document with the development plan of new townships. Assessment of groundwater shall be carried out in urban areas taking into consideration the quantity and quality of the water available, so as to plan for conjunctive use of surface water and

groundwater. In urban areas, the electronic meters shall be used to measure the water supplied to every consumer. A rolling programme shall be undertaken to prevent leakages and unauthorized withdrawals in all reticulated water supplies.

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. The community level organization and appropriate local level bodies / community organizations shall manage, operate and maintain these services on day to day basis. –

Water Budgeting and Water Auditing, prompt compliance of recommendations and shortcomings pointed out in the audit report which will lead to water savings.

In water resource planning of the basin it is assumed that at least 80% of the water used for domestic purpose will be available for reuse. Therefore, it is the obligation of local bodies to make available, entire quantity of generated sewage, for reuse after treating it to the standards prescribed by the MPCB.

Considering limited availability of water to meet future requirement, a suitable legislation targeted towards water budgeting, water accounting, water rationing and punitive action in case of default, shall be mooted to regulate domestic water supply.

9.2 Agricultural Water Management:

Agriculture is the dominant water consuming sector in the State. Low water use efficiency and considerable gap between IPC and IPU are the major concerns in the agricultural water management.

As per Maharashtra Water & Irrigation Commission Report (1999), the ultimate irrigation potential of the State through surface and sub-surface water resource is 126 lakh ha. The cultivable area of the State is 225 lakh ha. Thus only 56% of the cultivable area can be brought under irrigation. Further, due to rapid urbanization more and more water is being diverted for catering the needs of domestic sector.

On this background, State Government shall strive to create enabling infrastructure to promote micro-irrigation. In remote areas micro irrigation with solar pumps will be promoted. Water intensive crops like sugarcane and banana will be brought under micro-irrigation in first phase. Also cropping pattern requiring less water shall be promoted.

Command Area Development and Water Management (CADWM) works along with correction of system deficiency in canal network will be implemented for providing assured supply of water to each farm / field in the command.

For improving water use efficiency in agricultural sector the State will focus on:

(i) Conjunctive use of soil moisture, rainfall, groundwater, surface

water and recycled water.

(ii) Volumetrically measured supply of water.

(iii) Pipe water distribution system, wherever it is technically feasible.

(iv) Proper upkeep and maintenance of the existing water bodies and their distribution systems.

(v) Expeditious implementation of Extension Rehabilitation & Modernization (ERM) of old schemes.

(vi) Auditing and Benchmarking of the water resources projects.

(vii) Optimal distribution of water and integration of water resources services with agriculture services to increase productivity, crop yields, cropping intensities and enhance the diversification of agriculture.

9.3 Industrial Water Management:

The strategies envisaged for industrial water management are:

(i) All industrial units must endeavour to reduce their water footprint over the time by optimizing the various industrial processes, modifying the equipment, recycling wastewater and creating awareness amongst their workers. Accordingly, industries shall be encouraged to recycle and reuse water and follow the policy of 'Zero effluent' in the final stage.

(ii) All industries /industrial bulk water having annual water consumption of 1 million m3 or more will be required to publish Annual Water Report, giving the account of annual water entitlement as per the Criteria determined by the MWRRA, gross annual water consumption, water use per unit of production, harvested rainwater used, water recycled and reused and fresh water used. The Annual Water Report shall also cover information regarding permissible effluent discharge and actual effluent discharge, its test reports etc. The Annual Water Report shall also set out the proposed plan of action including the methodology to reduce their net water footprint over the time with specific targets along with its achievements. Industries will submit their Annual Water Report to respective RBA and also to MWRRA and shall put the same in public domain.

(iii) Priority will be given to agro-based industries in water deficit sub-basins.

(iv) With an objective to reduce the burden on fresh water resource, the State will promote the use of recycled water for cooling purposes. In the first phase, all thermal power plants within radius of 50 km from urban STPs must be switched over to use treated effluent of STPs.

(v) Water intensive industries will be permitted only in sub-basins having average annual water availability more than 3000 cubic metre per ha of Cultivable Command Area.

(vi) Groundwater exploitation by the industries shall be regulated in over exploited and critical watersheds.

(vii) Water bailed out from mines must be treated before releasing it into natural streams. MPCB authorities must monitor the quality of mine discharges. The water so bailed out from the mines will be used for providing irrigation benefits to nearby areas.

9.4 Water Policy regarding other uses :

9.4.1 Ecosystem:

Rivers, water bodies, aquifers and wet lands will be recognized as ecological systems and must be protected from over exploitation, depletion, pollution or contamination and degradation. Rivers will be protected from any form of construction on their flood plains and from excessive sand mining.

9.4.2 Thermal Power Generation:

In order to reduce burden on fresh water, the State will promote use of treated and recycled water for TPS.

9.4.3 Hydro Power Generation:

Installed capacity of hydropower stations in the State is 3684 MW. Theoretically, water used in hydropower generation is non-consumptive in nature, provided the hydro projects are planned as multipurpose projects. However, at present, the water which is being diverted westward for power generation, across Sahyadri ranges is not being fully utilised after power generation for other uses. Efforts will be made to optimize its use. The sites for conventional hydro projects in the State have already been exploited. Small /mini/micro hydro projects coupled with irrigation systems will be promoted wherever economically viable. The State has some attractive sites for Pumped Storage Schemes (PSS) which will be developed preferably on PPP model.

9.4.4 Pisciculture (Inland Fisheries):

Pisciculture is a non-consumptive use of water. Maharashtra has a good potential for Pisciculture, which will be developed in a planned manner to generate revenue as well as employment opportunities in rural areas.

9.4.5 Tourism:

Water based tourism is also a non-consumptive water use activity. It does not require specific water allocation. It has a very good employment and revenue potential. However, while developing tourism, measures must be adopted to keep the water bodies clean, and pollution free.

9.4.6 Navigation:

Most of the rivers in the State are not perennial rivers; therefore the scope for year round water routes is limited. However, this aspect cannot be left out in water resource planning as it is the most convenient and

economical mode of transportation. Water links in tanks and reservoirs could be used for local transport and as tourism activity.

9.4.7 Aviation:

Water aviation will be promoted in the submergence of major and medium dams with due care as to preservation of water quality.

10. GROUNDWATER DEVELOPMENT AND MANAGEMENT STRATEGY:

Groundwater must be recognized as a common property of the society held in public trust, for the use of all, subjected to reasonable restrictions to protect all water and associated ecosystems. The State has already enacted Maharashtra Groundwater (Development and Management) Act, 2009 for regulation of development and management of its groundwater resource.

The strategies envisaged for groundwater management are:

(i) Groundwater will be conserved, protected, regulated and managed in accordance with the extant laws.

(ii) The regulation of groundwater shall be in consonance with the principles of non-discrimination and equality, the principle of subsidiary and the precautionary principle.

(iii) Priority charge on groundwater shall be for drinking purpose.

(iv) Adequate measures must be undertaken to ensure that present and future generations will have access to sufficient quantity and acceptable quality of groundwater.

(v) Quality conservation and improvement for groundwater is very important. Since reversing of groundwater pollution is very difficult, State will take necessary efforts to reduce and prevent pollution and degradation of groundwater. It needs to be ensured that industrial effluent, residues of chemical fertilizers, local cesspool or soak pits do not infiltrate to the groundwater table.

(vi) Based on the encouraging experiences from the pilot studies in the past, the participatory groundwater management will be up-scaled in the entire State.

(vii) Groundwater entitlements will be given based on preceding year recharges. Necessary mechanism will be established to monitor monthly entitlements. Special initiatives will be taken for groundwater recharge with water of acceptable quality. It shall be obligatory for water users to adopt groundwater recharge measures to compensate for the water extracted by them.

(viii) There will be a periodical preferably a biannual assessment of the groundwater potential on a scientific basis.

(ix) Aquifer mapping studies will be undertaken to assess the groundwater dynamics and its occurrence.

(x) Rain water harvesting and aquifer recharge projects will be taken up on priority.

11. DROUGHT MITIGATION:

The State has been facing recurring drought conditions due to uneven and unpredictable monsoon. Strategies identified for drought mitigation and management are:

(i) The objective of drought mitigation measures must be to reduce soil erosion, augment soil moisture, retard drainage of rainwater and improve the efficiency of water use.

(ii) Relief works undertaken for providing employment to drought stricken population will preferably be for drought proofing. Water resources development and management works will be given top priority.

(iii) Drought mitigation program must be implemented with active participation of Panchayat Raj Institutions and NGOs.

(iv) The State shall involve the corporate sector for undertaking drought mitigation activities as a part of their CSR activities.

(v) 'Jalyukta Shivar Abhiyan' program will be continued as a long term drought mitigation measure with adequate technical support and target of 5000 villages per year.

(vi) Subsidy scheme named 'Magel Tyala-Shettale' shall be continued as a drought mitigation measure.

(vii) 'Gal Mukta Dharan and Gal Yukta Shivar' program for restoring storage capacity of water bodies by de-silting and making adjoining barren land fertile will also be implemented with community participation and CSR convergence.

(viii) Priority will be given to water resource projects in drought prone area.

(ix) Micro-irrigation shall be promoted in drought prone areas.

(x) Soil Water Conservation measures such as mulching, poly house, green house, hydro gel, etc. will be promoted.

(xi) Less water intensive economic activities shall be promoted in water deficit and highly water deficit sub-basins.

12. WATERSHED DEVELOPMENT:

(i) Integrated watershed development and management plan will be prepared for each watershed which will form the part of sub-basin / basin water plans of the State, and must be implemented through community participation.

(ii) Watershed Development Program will be implemented on priority in an area devoid of conventional irrigation system owing to natural constraints to provide soil moisture security and to ensure minimum water needs of the people.

(iii) Watershed Development & Management programs will be implemented with convergence of various central and state government schemes, with an objective to increase the productivity of rain-fed farming.

(iv) Watershed development and management activities shall be carried

out from ridge-to-valley in a scientific manner. Typical watershed development program has several components. Appropriate components depending on topography (shape, configuration of slope of land), nature and depth of soil cover, types of rocks and their pattern of formation, water absorbing capacity of land, rainfall intensity and land use shall be selected. In the planning and implementation of watershed development works and related activities, the involvement of geologist must be made mandatory. Detailed geo-hydrological investigations will be carried out to ensure that the substrata are amenable to augment groundwater recharge.

(v) The works undertaken under watershed development program will be geo-tagged for monitoring the progress of work. Performance evaluation of water conservation works done earlier will be subject to a periodic review by a third party, comprising of representatives from Agricultural Universities, WALMI and NGOs working in the water sector. Outcome of such evaluation shall be used for planning, designing and implementation of future schemes.

(vi) Since watershed development works / schemes are carried out as a part of Government schemes through public money, entitlement/right on the augmented recharge of groundwater will be treated as common right of beneficiaries in the watershed. Beneficiaries shall provide requisite undertaking setting out clearly that they would share the benefits reaped from the watershed development works. Such undertaking must be taken before selecting the watershed for development.

13. FLOOD MANAGEMENT:

Seven per cent of the geographical area in the State is flood prone. Flood mitigation and management strategies envisaged are:

(i) While every effort will be made to avert flood related disasters through structural and non-structural measures, emphasis should be on disaster management as an option.

(ii) Flood forecasting methods will be modernized using setting up of a real time data acquisition system and forecasting models.

(iii) Frequency based flood inundation maps will be prepared to evolve flood management strategies and an emergency plan for mitigation of floods and management for each flood prone area. Habitation and economic activities shall be strictly prohibited in the food plain zones (prohibitive zones –with 25 years return period flood) by the local authorities. The phase wise program can be implemented by concerned local authorities to remove existing encroachments.

(iv) The State will develop Decision Support System (DSS) for flood forecasting in flood prone areas addressing state/site specific issues.

(v) SMS-based flood alert system must be developed in flood prone areas.

(vi) Emergency action plans/disaster management plans will be periodically reviewed and updated by involving people in flood

prone area. To increase preparedness for sudden and unexpected flood related disasters, dam break analysis must be carried out.

14. MAINTENANCE OF INFRASTRUCTURE:

The policy for maintenance of water infrastructure will be as follows:

(i) The responsible authorities of WRD including Irrigation Development Corporations (IDCs), WUAs and other water user entities, will maintain the water resources infrastructure and facilities in their respective jurisdiction to continue to get the intended benefits.

(ii) Annual maintenance plans must be prepared by the respective IDCs on the basis of Irrigation Status Report, Report of Dam Safety Organization and inspection reports of the officers.

(iii) The State Government will undertake Maharashtra Water Sector Improvement Program, with focus on Activities related to Dam Safety of old dams and Restoration of old canals distribution systems required to be carried out as per the provisions mentioned in the MMSIF Act 2005 in the delineated command area of completed project before handing over the same to WUAs.

(iv) Repairs-Rehabilitation–Restoration (R-R-R) of traditional water harvesting water bodies such as ex-Malguzari Talav, etc.

15. INSTITUTIONAL ARRANGEMENTS:

(i) An autonomous centre for research on water policy shall be established. This centre will also evaluate impact of policy decisions and advise on policy matters with changing scenario.

(ii) "Centre of excellence" in water sector will be opened with international collaborations to promote the soft skills, to learn from global best practices and disseminate the same after assessing its state specific suitability. Innovative ideas will be incubated at such centres before they are rolled out for wider use.

(iii) E-modelling platform will be developed to support integrated planning, operation and management of the water resources in the basin with global support.

(iv) Capacity building of existing research institutes functional in water sector will be done with necessary collaborations with national / international institutes.

(v) Innovative ideas and programmes in water resources sector must be encouraged, recognized and awarded. (e.g. best performing WUA, best performing city in terms of recycling of its sewage, city having least NRW etc).

(vi) Continuing research and advancement in technology will be promoted to address the issues in the water sector in a scientific manner. Adequate funding will be provided for R & D activities and also for updating the existing technology, design, planning and management practices. R&D Advisory Panel of internal/external experts will be established for steering and monitoring research

activities and validating the same before role out.

(vii) Key persons will be provided with sponsorships for higher studies / specialization and exposure through international cooperation activities.

(viii) Collaboration with State educational institutes will be done to meet the changing need of the skilled manpower in the water sector.

16. MONITORING AND INFORMATION SYSTEM:

(1) Reliable and appropriate data and information essential for effective management of water resources. A modern integrated monitoring networks for hydro-meteorological, water resources and water use data with information management system, shall be established on real time basis. This will sustain and support planning, project formulation and implementation, operations and decision making by the River Basin Agencies, all water users, water service providers and other agencies.

(2) All State agencies, departments and all entities - public or private, that collect, maintain, collate or archive hydro-meteorological, related water resources and water use data shall contribute data to information system after ensuring its validity and accuracy. All such data shall be in public domain.

(3) The State shall monitor and take appropriate measures through community involvement to address problems like unacceptable depletion or raising the groundwater level, salinity or similar problems arising out of prevailing water uses.

(4) In view of change in water availability, change in cropping pattern and diversion of more water for non-irrigation purposes, the irrigation potential of the water resources projects completed before ten years shall be reviewed realistically.

(5) All water user entities shall publish annual water accounts and water audit reports. Such reports shall contain all data relating to water quota, actual water use, pollution levels, losses, leakages, unauthorized withdrawals, recycle and reuse of water, including return flows, treated effluent water quantity, and per unit consumption etc. All such reports shall be in public domain.

(6) The Water Resources Department shall undertake the benchmarking exercise in all the projects in the State, in a phased manner, in such a way that all projects will be covered. The State shall publish annual

benchmarking report of water resources projects along with analysis and recommendations for improvement, every year by 22nd March i.e. World Water Day.

(7) Water auditing shall be made mandatory 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. The cost of such meters shall be

recovered from the users in phased manner. The Water Resources Department shall publish annual water audit report of all water resources projects, along with analysis and recommendations for improvement, every year by 22nd March i.e. World Water Day.

(8) The Water Resources Department shall collect and compile data for water storages, water use for various categories of use- irrigation potential developed and utilised, water charges levied and collected and all other such relevant data. The State shall publish annual irrigation status report every year by 15th September; i.e. Engineers' Day.

(9) Remote sensing coupled with Geographic Information System (GIS) shall be used for sustainable management of Water Resources, covering all extensively spread water harvesting structures including irrigation projects. This will include information on runoff, flood management- mapping of flood plains, watershed management, management of irrigation in command area- for estimation of acreage of crop and production, silt accumulation in dam etc. This will facilitate availability of real time data in public domain leading to transparency.

17. WATER CHARGES:

Water pricing plays an important role in regulating the water use and ensuring the efficiency of water use. The State has already entrusted the responsibility of tariff determination to MWRRA. The Authority is further guided by following Principles in finalising tariff structure;

a) The Authority shall function in a transparent and participatory manner, conducting public consultations & hearing before deciding upon the tariffs.

b) Authority shall ensure the realisation of at least norm based recurring expenses on the water infrastructure initially, as well as cost reflective water pricing subsequently in a phased manner.

c) The recurring expenses shall include operation and maintenance charges including electricity charges, spares, consumables, establishment and administrative charges, overheads and also the cost of special repairs (restoration and retrofitting of structures) including replacement cost of any component of the infrastructure (viz. control gates etc.), required to ensure sustainability of the system, water use efficiency, user access to avail water rights and equitable water distribution.

d) In order to meet equity, efficiency and economic principles, the water charges, as a rule, shall be determined on volumetric basis.

e) The pricing of water shall encourage its efficient use and reward conservation.

f) Recycle and reuse of water after treatment of sewage water to specified standards be incentivised through a properly planned tariff system.

g) The cross-subsidy among various users categories will be removed in a gradual manner.

Necessary amendments as may be necessary shall be carried out in the extant law to achieve above policy objectives.

18. PARTICIPATION OF THE PRIVATE SECTOR:

The participation of the private sector will be encouraged in the planning, development and management of water infrastructure projects to introduce new ideas, new technology, innovative financing, management expertise, improved quality and cost effectiveness of water services and accountability to water users. Private sector participation in development of pumped storage schemes, development / operation of large lift irrigation schemes, water treatment plants, water distribution systems, and wastewater treatment plants shall be promoted, wherever feasible. External funding at reasonable rate of interest shall also be promoted in water resources development and management.

19. IMPLEMENTATION AND MONITORING:

Various targets mandated by ISWP and the SDGs are to be achieved in time bound manner. The Respective Line Department shall prepare action plans to achieve these targets as well as for implementation of the strategies envisaged in the policy. These action plans shall be finalized by State Water Board and approved by State Water Council. State Water Board shall regularly monitor its implementation. State Water Council will review the progress periodically.

20. REVIEW OF THE POLICY:

The State Water Policy being a dynamic document would be periodically reviewed, as and when needed, to overcome the future water sector development and management challenges.

[Note :- In case of any discrepancy in english and marathi version of State Water Policy, the provisions in english version shall prevail.]