

DRAFT NATIONAL WATER POLICY (2012)

1. PREAMBLE

1.1 Water is a natural resource, fundamental to life, livelihood, food security and sustainable development. It is also a scarce resource. India has more than 17 percent of the world's population, but has only 4% of world's renewable water resources with 2.6% of world's land area. There are further limits on utilizable quantities of water owing to uneven distribution over time and space. In addition, there are challenges of frequent floods and droughts in one or the other part of the country. With a growing population and rising needs of a fast developing nation as well as the given indications of the impact of climate change, availability of utilizable water will be under further strains in future with the possibility of deepening water conflicts among different user groups. Low public consciousness about the overall scarcity and economic value of water results in its wastage and inefficient use. In addition, there are inequitous distribution and lack of a unified perspective in planning, management and use of water resources. The objective of the National Water Policy is to take cognizance of the existing situation and to propose a framework for creation of an overarching system of laws and institutions and for a plan of action with a unified national perspective.

1.2 The present scenario of water resources and their management in India has given rise to several concerns, important amongst them are;

- (i) Large parts of India have already become water stressed. Rapid growth in demand for water due to population growth, urbanization and changing lifestyle pose serious challenges to water security.
- (ii) There is wide temporal and spatial variation in availability of water, which may increase substantially due to climate changes, causing more water crisis and incidences of water related disasters, i.e., floods, increased erosion and increased frequency of droughts, etc.

- (iii) Climate change may also increase the sea levels. This may lead to salinity intrusion in ground water aquifers / surface waters and increased coastal inundation in coastal regions.
- (iv) Access to safe drinking water still continues to be a problem in some areas. Skewed availability of water between different regions and different people in the same regions is inequitous and has the potential of causing social unrest.
- (v) Groundwater, though part of hydrological cycle and a community resource, is still perceived as an individual property and is exploited inequitably and without any consideration to its sustainability leading to its over-exploitation in several areas.
- (vi) Water resources projects, though multi-disciplinary with multiple stakeholders, are being planned and implemented in a fragmented manner without giving due consideration to optimum utilization, environment sustainability and holistic benefit to the people.
- (vii) Inter-State, inter-regional disputes in sharing of water hamper the optimum utilization of water through scientific planning on basin/sub-basin basis.
- (viii) The existing water resources infrastructure is not being maintained properly resulting in under-utilization of available resources.
- (ix) Natural water bodies and drainage channels are being encroached upon, and diverted for other purposes.
- (x) Growing pollution of water sources is affecting the availability of safe water besides causing environmental and health hazards.
- (xi) Low public consciousness about the overall scarcity and economic value of water results in its wastage and inefficient use.
- (xii) The lack of adequate trained personnel for scientific planning, utilizing modern techniques and analytical capabilities incorporating information technology constrains good water management.
- (xiii) A holistic and inter-disciplinary approach at water related problems is missing.

- (xiv) The public agencies in charge of taking water related decisions tend to take these on their own without consultation with stakeholders.

1.3 Public policies on water resources need to be governed by certain basic principles, so that there is some commonality in approaches in dealing with planning, development and management of water resources. These basic principles are:

- (i) Planning, development and management of water resources need to be governed by national perspectives on an integrated and environmentally sound basis, keeping in view the human, social and economic needs.
- (ii) Principle of equity and social justice must inform use and allocation of water.
- (iii) Good governance through informed decision making is crucial to the objectives of equity, social justice and sustainability.
- (iv) Water needs to be managed as a community resource held, by the state, under public trust doctrine to achieve food security, livelihood, and equitable and sustainable development for all.
- (v) Access to safe and clean drinking water and sanitation should be regarded as a right to life essential to the full enjoyment of life and all other human rights. As such, water for such human needs should have a pre-emptive priority over all other uses.
- (vi) Water, over and above the pre-emptive need for safe drinking water and sanitation, should be treated as an economic good so as to promote its conservation and efficient use.
- (vii) Water is essential for sustenance of eco-system, and therefore, ecological needs should be given due consideration.
- (viii) All the elements of the water cycle, i.e., evapo-transpiration, precipitation, runoff, river, lakes, soil moisture, and ground water, sea, etc., are interdependent and the basic hydrological unit is the river basin, which should be considered as the basic unit for planning.

- (ix) Water quality and quantity are interlinked and need to be managed in an integrated manner, consistent with broader environmental management approaches inter-alia including the use of economic incentives and penalties to reduce pollution and wastage.
- (x) The impact of climate change on water resources availability must be factored into water management related decisions.

2. WATER FRAMEWORK LAW

2.1 Even while it is recognized that States have the right to frame suitable policies, laws and regulations on water; there is a felt need to evolve a broad over-arching national legal framework of general principles on water to lead the way for essential legislation on water governance in every State of the Union and devolution of necessary authority to the lower tiers of government to deal with the local water situation.

2.2 Such a framework law must recognize water not only as a scarce resource but also as a sustainer of life and ecology. Therefore, water needs to be managed as a community resource held, by the state, under public trust doctrine to achieve food security, livelihood, and equitable and sustainable development for all. The Indian Easements Act, 1882 may have to be modified accordingly in as much as it appears to give proprietary rights to a land owner on groundwater under his/her land.

2.3 There is a need for comprehensive legislation for optimum development of inter-State rivers and river valleys to facilitate inter-State coordination ensuring scientific planning of land and water resources taking basin/sub-basin as unit with unified perspectives of water in all its forms (including precipitation, soil moisture, ground and surface water) and ensuring holistic and balanced development of both the catchment and the command areas. Such legislation needs, inter alia, to deal with and enable establishment of basin authorities with appropriate powers to plan, manage and regulate utilization of water resource in the basins.

3. USES OF WATER

3.1 The Centre, the States and the local bodies (governance institutions) must ensure access to a minimum quantity of potable water for essential health and hygiene to all its citizens, available within easy reach of the household.

3.2 Ecological needs of the river should be determined recognizing that the natural river flows are characterized by low or no flows, small floods (freshets), large floods, etc., and should accommodate developmental needs. A portion of river flows should be kept aside to meet ecological needs ensuring that the low and high flow releases are proportional to the natural flow regime, including base flow contribution in the low flow season through regulated ground water use.

3.3 After meeting the minimum quantity of water required for survival of human beings and ecosystem, water must be used as an economic good with higher priority towards basic livelihood support to the poor and ensuring national food security.

3.4 In the water rich eastern and north eastern regions of India, the water use infrastructure is weak and needs to be strengthened in the interest of food security.

3.5 Community should be sensitized and encouraged to adapt to utilization of water as per local availability of waters. Community based water management should be institutionalized and strengthened.

4. ADAPTATION TO CLIMATE CHANGE

4.1 Climate change is likely to increase the variability of water resources affecting human health and livelihoods. Therefore, special impetus should be given towards mitigation at micro level by enhancing the capabilities of community to adopt climate resilient technological options.

4.2 The adaptation strategies could, inter alia, include increasing water storage in its various forms, namely, soil moisture, ponds, ground water, small and large reservoirs, and their combination, which provides a mechanism for dealing with increased variability because of climate change.

4.3 Stakeholder participation in land-soil-water management with scientific inputs from local research and academic institutions for evolving different agricultural strategies, reducing soil erosion and improving soil fertility should be promoted. Cost sharing system between upstream and downstream regions should be evolved since these measures in upstream region may reduce the sediment load in the streams increasing life of and benefits from downstream structures.

4.4 In view of likely impact of the climate change, there is a need to adopt compatible agricultural strategies, and cropping patterns. This may be achieved by involving the water users, sensitizing them appropriately and building their capacities.

4.5 Planning and management of water resources structures, such as, dams, flood embankments, tidal embankments, etc., should incorporate coping strategies for possible climate changes. The acceptability criteria in regard to new water resources projects need to be re-worked in view of the likely climate changes.

5. ENHANCING WATER AVAILABLE FOR USE

5.1 The availability of water resources in the country need to be assessed scientifically and reviewed at periodic intervals, say, every five years. The trends in water availability due to various factors including climate change must be assessed and accounted for during water resources planning.

5.2 As per present estimate, India receives on average annual precipitation of about 4000 Billion Cubic Meter (BCM), which is its basic water resource. Out of this, after considering the natural evaporation- transpiration, only about 1869 Billion Cubic Meter (BCM) is average annual natural flow through rivers and aquifers. Of this, only about 1123 BCM is utilizable through the present strategies, if large inter-basin transfers are not considered. Thus, the availability of water is limited but the demand of water is increasing rapidly due to growing population, rapid urbanization, rapid industrialization and economic development.

Therefore, availability of water for utilization needs to be augmented to meet increasing demands of water. Direct use of rainfall and avoidance of inadvertent evapo-transpiration are the new additional strategies for augmenting utilizable water resources.

5.3 There is a need to map the aquifers to know the quantum and quality of ground water resources (replenishable as well as non-replenishable) in the country. This may be periodically updated.

5.4 Declining ground water levels in over-exploited areas need to be arrested by introducing improved technologies of water use, incentivizing efficient water use and encouraging community based management of aquifers. In addition, where necessary, artificial recharging projects should be undertaken so that extraction is less than the recharge. This would allow the aquifers to provide base flows to the surface system, and maintain ecology.

5.5 Inter-basin transfers are not merely for increasing production but also for meeting basic human need and achieving equity and social justice. Inter-basin transfers of flood waters to recharge depleting ground waters in water stressed areas should be encouraged. If the transfer is from an open basin to a closed basin, increased water use is achieved. Such transfers need to be encouraged.

5.6 Watershed development activities need to be taken in a comprehensive manner to increase soil moisture, reduce sediment yield and increase overall land and water productivity. To the extent possible, existing programs like MGNREGA may be used by farmers to harvest rain water using farm ponds and other soil and water conservation measures.

6. DEMAND MANAGEMENT AND WATER USE EFFICIENCY

6.1 Given the limits on enhancing the availability of utilizable water resources and increased variability in supplies due to climate change, meeting the future needs will depend more on demand management, and hence, this needs to be given priority, especially through (a) evolving an agricultural system which economizes on water use and maximizes value from water, and (b) bringing in maximum efficiency in use of water and avoiding wastages.

6.2 A system to evolve benchmarks for water uses for different purposes, i.e., water footprints, and water auditing should be developed 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. An institutional arrangement for promotion, regulation and controlling efficient use of water will be established for this purpose at the national level.

6.3 Recycle and reuse of water, including return flows, should be encouraged to the extent possible.

6.4 Project financing should be structured to incentivize efficient & economic use of water and facilitate early completion of ongoing projects.

6.5 Water saving in irrigation use is of paramount importance. Methods like micro irrigation (drip, sprinkler, etc.), automated irrigation operation, evaporation-transpiration reduction, etc., should be encouraged and incentivized. At many places, seepage from irrigation canals in monsoon results in recharging underground storage enabling higher conjunctive ground water use in the low flow season and the advantages of such re-cycling may also be considered.

6.6 Use of very small local level irrigation through small bunds, field ponds, agricultural and engineering methods and practices for watershed development, etc, need to be encouraged. However, their externalities, both positive and negative, like reduction of sediments and reduction of water availability, downstream, may be kept in view.

6.7 There should be concurrent mechanism involving users for monitoring if the water use pattern is causing problems like unacceptable depletion or building up of ground waters, salinity, alkalinity or similar quality problems, etc., with a view to planning appropriate interventions.

7. WATER PRICING

7.1 Over and above the pre-emptive uses for sustaining life and eco-system, water needs to be treated as an economic good and therefore, may be priced to promote efficient use and maximizing value from water. While the practice of administered prices may have to be continued, economic principles need to increasingly guide the administered prices.

7.2 There should be a mechanism in every State to establish a water tariff system and fix the criteria for water charges, preferably on volumetric basis, at sub-basin, river basin and State level after ascertaining the views of the beneficiary public, based on the principle that the water charges shall reflect the full recovery of the cost of administration, operation and maintenance of water resources projects taking into account the cross subsidy, if any.

7.3 Recycle and reuse of water, after treatment to specified standards, should be encouraged through a properly planned tariff system, in which there is a cost for the quantity withdrawn, a refund for properly treated water returned for reuse, and heavy fines for returning polluted waters.

7.4 Water Users Associations should be given statutory powers to collect and retain a portion of water charges, manage the volumetric quantum of water allotted to them and maintain the distribution system in their jurisdiction.

7.5 Heavy under-pricing of electricity leads to wasteful use of both electricity and water. This needs to be reversed.

8 PRESERVATION OF RIVER CORRIDORS, WATER BODIES AND INFRASTRUCTURE

8.1 Preservation of river corridors, water bodies and infrastructure should be undertaken in a planned manner through community participation. The storage capacities of water bodies and water courses and/or associated wetlands, the

flood plains, ecological buffer and areas required for specific aesthetic recreational and/or social needs may be managed to the extent possible in an integrated manner to balance the flooding, environment and social issues.

8.2 Encroachments and diversion of water bodies (like rivers, lakes, tanks, ponds, etc.) and drainage channels (irrigated area as well as urban area drainage) must not be allowed, and wherever it has taken place, it should be restored to the extent feasible.

8.3 Environmental needs of aquatic eco-system, wet lands and embanked flood plains need to be recognized and taken into consideration while planning.

8.4 Sources of water and water bodies should not be allowed to get polluted. System of third party periodic inspection should be evolved and heavy penalty should be imposed on the basis of polluter pays principle. The money recovered from penalty may be put in a fund for facilitating water treatment.

8.5 Quality conservation and improvements are even more important for ground waters, since cleaning up is very difficult. It needs to be ensured that industrial effluents, local cess pools, residues of fertilizers and chemicals, etc., do not reach the ground water.

8.6 The water resources infrastructure shall be maintained properly to continue to get the intended benefits. A suitable percentage of the costs of infrastructure development may be set aside along with collected water charges, for repair and maintenance. Contract for construction of projects should have inbuilt provision for longer periods of proper maintenance and handing over back the infrastructure in good condition.

8.7 Legally empowered dam safety services need to be ensured in the States as well as in Centre. Appropriate safety measures should be undertaken on top priority.

9 PROJECT PLANNING AND IMPLEMENTATION

9.1 Being inter-disciplinary in nature, water resources projects should be planned considering social and environmental aspects also in addition to techno-economic considerations in consultation with project affected and beneficiary families. The integrated water resources management with emphasis on finding reasonable and generally acceptable solutions for most of the stakeholders should be followed for planning and management of water resources projects.

9.2 Concurrent monitoring at project, State and Centre levels should be undertaken for timely interventions to avoid time and cost over-runs.

9.3 All components of water resources projects should be planned and executed in a *pari-passu* manner so that intended benefits start accruing immediately after completion of the component and there is no gap between potential created and potential utilized.

9.4 Local governing bodies like Panchayats, Municipalities, Corporations, etc., and Water Users Associations shall be involved in planning and implementation of the projects.

9.5 All water resources projects, including hydro power projects, should be planned to the extent feasible as multi-purpose projects with provision of storage to derive maximum benefit from available topology and water resources.

10 RESETTLEMENT & REHABILITATION

10.1 The identification, resettlement & rehabilitation of project affected families shall be given due consideration right at the beginning of the project formulation. In addition to compensation for loss of land, house and sustenance livelihood, the project affected families should be made partners in progress and given a share in the benefits comparable to project benefited families.

10.2 The cost of rehabilitation and compensation to the project affected families should partly be borne by project benefited families through adequate pricing of water.

10.3 The resettlement & rehabilitation policy for water resources project should conform to the national act / guidelines in this regard.

11 PREPAREDNESS FOR FLOOD & DROUGHT

11.1 While every effort should be made to avert water related disasters like floods and droughts, through structural and non-structural measures, emphasis should be on preparedness for flood / drought with coping mechanisms as an option.

11.2 Land, soil, energy and water management with scientific inputs from local, research and scientific institutions should be used to evolve different agricultural strategies and improve soil and water productivity to manage droughts. Integrated farming systems and non-agricultural developments may also be considered for livelihood support and poverty alleviation.

11.3 In order to prevent loss of land eroded by the river, which causes permanent loss, revetments, spurs, embankments, etc., should be planned, executed, monitored and maintained on the basis of morphological studies. This will become increasingly more important, since climate change is likely to increase the rainfall intensity, and hence, soil erosion.

11.4 Flood forecasting is very important for flood preparedness and should be expanded extensively all across the country and modernized using real time data acquisition system and medium range weather forecasting to enhance lead time.

11.5 Working tables for reservoirs should be evolved and implemented in such a manner to have flood cushion and to reduce trapping of sediment during flood season.

11.6 Protecting all areas prone to floods may not be practicable; hence, methods for coping with floods have to be encouraged. Frequency based flood inundation maps should be prepared to evolve coping strategies.

11.7 To increase preparedness for sudden and unexpected flood related disasters, dam/embankment break studies, as also preparation and periodic updating of emergency action plans / disaster management plans should be ensured. In hilly reaches, glacial lake outburst flood and landslide dam break floods studies with periodic monitoring along with instrumentation, etc., should be carried out.

12 WATER SUPPLY AND SANITATION

12.1 There is a need to remove the large disparity between stipulations for water supply in urban areas and in rural areas. Efforts should be made to provide improved water supply in rural areas with proper sewerage facilities.

12.2 Rural areas with endemic ground water quality problems (such as fluoride or arsenic) may be supplied piped surface water. If ground water treatment is done through local systems, the problem of disposing the concentrates should be tackled adequately with due regards to environmental hazards. Another alternative is to improve the quality of ground water through dilution with good quality surface water, wherever feasible.

12.3 Urban domestic water supplies should preferably be from surface water. Where alternate supplies are available, a source with better reliability and quality needs to be assigned to domestic water supply. Exchange of sources between uses, giving preference to domestic water supply should be possible. Also, reuse of urban water effluents from kitchens and bathrooms, after primary treatment, in flush toilets should be encouraged.

12.4 Urban domestic water systems need to collect and publish water accounts and water audit reports indicating leakages and pilferages, which should be reduced taking into due consideration social issues.

12.5 In urban and industrial areas, de-salinization, wherever techno-economically feasible, should be encouraged to increase availability of utilizable water.

12.6 Urban water supply and sewage treatment schemes should be integrated and executed simultaneously. Water supply bills should include sewerage charges.

12.7 Industries in water short regions may be allowed to either withdraw only the make up water or should have an obligation to return treated effluent to a specified standard back to the hydrologic system. Tendencies to unnecessarily use more water within the plant to avoid treatment or to pollute ground water need to be prevented.

12.8 Subsidies and incentives should be implemented to encourage recovery of industrial pollutants and recycling / reuse, which are otherwise capital intensive.

13 INSTITUTIONAL ARRANGEMENTS

13.1 A Water Regulatory Authority should be established in each State. The Authority, inter-alia, will fix and regulate the water tariff system and charges, in general, according to the principles stated in this Policy in an autonomous manner. The Authority may also have functions other than tariff systems, such as regulating allocations, monitoring operations, reviewing performance and suggesting policy changes, etc. Water Regulatory Authority in a State may also assist in resolving intra-State water-related disputes.

13.2 There should be a forum at the national level to deliberate upon issues relating to water and evolve consensus, co-operation and reconciliation amongst party States. A similar mechanism should be established within each State to amicably resolve differences in competing demands for water amongst different users of water, as also between different parts of the State.

13.3 A permanent Water Disputes Tribunal at the Centre should be established to resolve the disputes expeditiously in an equitable manner. Apart from using the 'good offices' of the Union or the State Governments, as the case may be, the paths of Arbitration and Mediation may also to be tried in dispute resolution.

13.4 The "Service Provider" role of the state has to be gradually shifted to that of a regulator of services and facilitator for strengthening the institutions responsible for planning, implementation and management of water resources. The water related services should be transferred to community and / or private sector with appropriate "Public Private Partnership" model.

13.5 Integrated Water Resources Management (IWRM) taking river basin / sub-basin as a unit, should be the main principle for planning, development and management of water resources. The departments / organizations at Centre / State Governments levels should be restructured and made multi-disciplinary accordingly.

13.6 Appropriate institutional arrangements for each river basin should be developed to collect and collate all data on regular basis with regard to rainfall, river flows, area irrigated by crops and by source, utilizations for various uses by both surface and ground water and to publish water accounts on ten daily basis every year for each river basin with appropriate water budgets and water accounts based on the hydrologic balances.

13.7 Appropriate institutional arrangements for each river basin should also be developed for monitoring water quality in both surface and ground waters.

13.8 States should be encouraged and incentivized to undertake reforms and progressive measures for innovations, conservation and efficient utilization of water resources.

14 INTERNATIONAL RIVERS

14.1 Even while accepting the principle of basin as a unit of development, on the basis of practicability and easy implementability, efforts should be made to enter into international agreements with neighbouring countries on bilateral basis for exchange of hydrological data of international rivers on near real time basis.

14.2 Negotiations about sharing and management of water of international rivers should be done on bilateral basis in consultative association with riparian States keeping paramount the national interests. Adequate institutional arrangements at the Center should be set up to implement international agreements.

15 DATABASE & INFORMATION SYSTEM

15.1 All hydrological data, other than those classified as secret on national security consideration, should be in public domain. A National Water Informatics Center should be established to collect and collate hydrologic data (other than data classified as secret on national security consideration) regularly from all over the country, conduct the preliminary processing, and maintain in open and transparent manner on a GIS platform. Periodic reviews of the need for the secrecy with regard to data may be carried out. In view of the likely climate change, much larger data about snow and glaciers, evaporation, tidal hydrology and hydraulics, river geometry changes, etc. needs to be collected. A programme of such data collection needs to be developed and implemented.

15.2 All water related data, like rainfall, snowfall, geo-morphological, climatic, geological, surface water, ground water, ecological, water extraction and use, irrigated area, glaciers, etc., should be integrated with well defined procedures and formats to ensure online updation and transfer of data to facilitate development of database for informed decision making in the management of water.

16 RESEARCH & TRAINING NEEDS

16.1 Continuing research and advancement in technology shall be promoted to address the issues in water sector in a scientific manner. Innovations in water resources sector should be encouraged, recognized and awarded.

16.2 It is necessary to give adequate grants to the States to update technology, design practices, planning and management practices, preparation of annual water balances and accounts for the site and basin, preparation of hydrologic balances for water systems, and benchmarking and performance evaluation.

16.3 It needs to be recognized that the field practices in water sector in advanced countries have been revolutionized by advances in information technology and analytical capabilities. A re-training and quality improvement programme for water planners and managers at all levels in India, both in private and public sectors, needs to be undertaken.

16.4 An autonomous center for research in water policy should also be established to evaluate impacts of policy decisions and to evolve policy directives for changing scenario of water resources.

16.5 To meet the need of the skilled manpower in the water sector, regular training and academic courses in water management should be promoted. These training and academic institutions be regularly updated by developing infrastructure and promoting applied research, which would help to improve the current procedures of analysis and informed decision making in the line departments and by the community.