Meghalaya Draft State Water Policy, 2011

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NEED FOR A WATER POLICY:

1.1 Water is a prime natural resource, a basic human need and a precious national asset. Planning, Development and Management of water resource need to be governed by the State Government against the backdrop of national perspectives.

1.2 As per the most recent assessment (1993), out of the total precipitation, including snowfall, of around 4000 billion cubic metre in the country, the availability from surface water and replenishable ground water is put at 1869 billion cubic metre. Because of topographical and other constraints, about 60% of this i.e., 690 billion cubic metre from surface water and 432 billion cubic metre from ground water, can be put to beneficial use. Availability of water is highly uneven in both space and time. Precipitation is confined to only about three or four months in a year and varies from 100 mm in the western parts of Rajasthan to over 10000 mm at Cherrapunji in Meghalaya. Rivers and under ground aquifers often cut across state boundaries. Water, as a resource is one and indivisible: rainfall, river waters, surface ponds and lakes and ground water are all part of one system.

The only form of precipitation occurring in Meghalaya is rainfall. The state receives bountiful rainfall in its Southern river basins and boast the highest annual rainfall in the world in the belt of Sohra- Mawsynram region.
The water scenario in the State is as under.
Average annual rainfall-Southern Meghalaya = 2600mm
Northern Meghalaya = 2500 to 3000mm
South Eastern Meghalaya = 4000mm
State average = 2818mm
11, 800 sq km of the State drains into the Brahmaputra basin and the rest into the Barak Basin.

1.3 Water is a very important part of the overall ecological system. Realizing the significance and scarcity attached to the fresh water and the fact that it is an essential requirement for sustaining all life forms, it has to be planned, developed, conserved and managed with maximum prudence and care.

1.4 Planning and implementation of water resources projects involve a number of socio-economic aspects and issues such as environmental sustainability, appropriate resettlement and rehabilitation of project-affected people and livestock, public health concerns of water impoundment, dam safety etc.

1.5 Different problems and weaknesses have adversely affected some of the water sector projects in the State of Meghalaya. There have been substantial time and cost overruns on certain projects. Problems of water logging and soil salinity have emerged in some irrigation commands, leading to the degradation of agricultural land. Complex issues of equity and social justice in regard to water distribution are required to be addressed. The development, and over exploitation of ground water resources in certain parts of the state have raised the concern and need for judicious and scientific resource management and conservation. These concerns need to be addressed on the basis of sound policies and effective strategies.

1.6 Water demands for production of food grains haves increased substantially, The drinking water needs of people and livestock have also gone up and have to be met. The water demand in rural areas is also expected to increase sharply as the development programmes improve economic conditions of the rural areas. Demand for water for hydro and thermal power generation and for other industrial uses is also increasing substantially. As a result, water, which is already a scare resource, will become even scarcer in future. This underscores the need for the utmost efficiency in water utilization and a public awareness of the importance of its conservation.

1.7 Floods which were mostly unheard in the past have now begun to affect a significant population in certain pockets of the State. Initially 0.02 million hectare of area was flood prone area in the state, on an average. But the latest figures indicate floods affect area of around 0.6 million hectare per year. Calamitous hailstorms also affect the farming community at large whereby crops suffer damage. Approach to management of floods has to be co-ordinated and guided at the State level as a part of Disaster Management.

1.8 Growth process and the expansion of economic activities inevitably lead to increasing demands for water for diverse purpose: domestic, industrial, agricultural, hydro-power, thermal-power, navigation, recreation etc. So far, the major consumptive use of water has been for irrigation and municipal and industrial water supply. While the ultimate irrigation potential is estimated as 20000 hectare in the major and medium irrigation sector, further development of a substantial order is necessary if the food and fiber need of our growing population are to be met with. The State population which is over 2.96 million (2011 AD) at present is expected to reach a level of around 3.39 million by 2025 AD.

1.9 Another important aspect is water quality. Improvement in existing strategies innovation of new techniques resting on a strong science and technology base are needed to eliminate the pollution of surface and ground water resources especially from coal wash to improve water quality. Science and technology and training have to play important roles in water resources development and management in general.

INFORMATION SYSTEM:

2.1 A well developed information system, for water related data in its entirely, is a prime requisite for resource planning. A standardized information system should be established with a network of data banks and data bases, integrating and strengthening the existing State

level agencies, District Water Resources Councils and Communities. The quality of data and the processing capabilities also need substantial upgradation.

2.2 Standards for coding, classification, processing of data and methods/ procedures for its collection should be adopted. Advances in information technology and remotesensing techniques must be assimilated in order to create a modern information system promoting free exchange of data among various agencies, Special efforts should be made to develop and continuously upgrade technological capability to collect process and disseminate reliable data in the desires time frame.

2.3 Apart from the data regarding water availability and actual water use, the system should also include comprehensive and reliable projections of demands of water for diverse purposes.

WATER RESOURCES PLANNING:

3. 1 Water resources available to the state should be brought within the category of utilizable resources to the maximum possible extent.

3. 2 Non-conventional methods for utilization of water such as artificial recharge of ground water, reclamation and repair renovation and restoration of water bodies as well as water conservation practices such as rainwater harvesting, including roof top rain water harvesting, insitu soil moisture conservation and conservation of moisture into water need to be experimented and applied to further increase the availability of net utilizable water resources. Promotion of frontier research and development, in a focused manner, for these techniques in necessary.

3. 3 Water resources development and management will have to be planned for a hydrological unit such as drainage basin as a whole on for a sub- basin through multi – sectoral approach, taking into account surface and ground water for sustainable use incorporating quantity and quality aspects as well as environmental considerations. All individual development projects and proposals should be formulated and considered within the framework of such an overall plan keeping in view the existing agreements/ awards for a basin or sub- basin so that the best possible combination of options can be selected and sustained.

3. 4 Watershed management through extensive soil conservation, catchment area treatment, preservation of forest and increasing the forest cover and the construction of check dams should be promoted. Efforts shall be to conserve the water in the catchment.

3. 5 Water should be made available to water short areas by transfer from other areas including transfers from one river basin to another, based on a state perspective, after taking into account the requirements of the area/basins.

INSTITUTIONAL MECHANISM:

4. 1 With a view to give effects to the planning, development and management of the water resources on a hydrological unit basis, along with a multi-sectored, multi disciplinary and participatory approach as well as integrating quality, quantity and the environmental aspects, the existing institutions at various levels under the water resources sector will have to be appropriately reoriented/reorganized and even created, wherever necessary. As maintenance of water resource schemes is under non-plan budget, it is generally being neglected. The institutional arrangements should be such that this vital aspect is given importance equal or even more than that of new constructions.

4. 2 Appropriate river basin organization should be established for the planned development and management of a river basin as a whole or sub basins, wherever necessary, Special multi-disciplinary units should be set up to prepare comprehensive plans taking into account not only the needs of irrigation but also harmonizing various other water uses, so that the available water resources are determined and put to optimum use having regard to existing agreements or awards of Tribunals under the relevant laws. The scope and powers of the river basin organizations shall be decided by the basin organizations themselves.

WATER ALLOCATION PRIORITIES:

5. In the planning and operation of systems, water allocation priorities should be broadly as follows:

- Drinking water
- Irrigation
- Hydro-power
- Ecology
- Agro-industries and non-agricultural industries
- Navigation and other uses.

However, the priorities could be modified or added if warranted by the area/region on the basis of specific relevant considerations.

PROJECT PLANNING:

6.1 Water resource development projects should as far as possible be planned and developed as multipurpose projects. Provision for drinking water should be a primary consideration.

6.2 The study of the likely impact of a project during construction and later on human lives, settlements, occupations, socio-economic, environment and other aspects shall form an essential component of project planning.

6.3 In the planning, implementation and operation of a project, the preservation of the quality of environment and the ecological balance should be a primary consideration .The adverse impact on the environment, if any should be minimized and should be offset by adequate compensatory measures. The project should, nevertheless, be sustainable.

6.4 There should be an integrated and multi-disciplinary approach to the planning, formulation, clearance and implementation of projects, including catchment area treatment and management, environmental and ecological aspects, the rehabilitation of affected people and command area development. The planning of projects in hilly areas should take into account the need to provide assured drinking water, possibilities of hydro-power 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 economic evaluation of projects in such in areas should also take these factors into account.

6.5 Special efforts should be made to investigation and formulate projects either in, or for the benefit or, areas inhabited by tribal or other specially disadvantaged groups such as socially weak, scheduled castes and scheduled tribes. In other areas also, project planning should pay special attention to the needs of such disadvantaged sections of society.

6.6 The drainage system should form an integral part of any irrigation projects right from the planning stage.

6.7 Time and cost overruns and deficient realization of benefits characterizing most water related projects should be overcome by upgrading the quality of projects preparation and management. The inadequate funding of projects should be obviated by an optimal allocation of resources on the basis prioritization, having regard to the early completion of on- going projects as well as the need to reduce regional imbalances.

6.8 The involvement and participation of beneficiaries and other stakeholders should be encouraged right from the projects planning stage itself.

GROUD WATER DEVELOPMENT:

7.1 There should be a periodical reassessment of the ground water potential on a scientific basis, taking into consideration the quality of the water available and economic viability of its extraction.

7.2 Exploitation of ground water resources should be so regulated as not to exceed the recharging possibilities, as also to ensure social equity. The detrimental environmental consequences of

over exploitation of ground water need to be effectively prevented by the State Government. Ground water recharge projects should be developed and implemented for improving both the quality and availability of ground water resource.

7.3 Integrated and coordinated development of surface water and ground water resources and their conjunctive use, should be envisaged right from the project planning stage and should form and integral part of the project implementation.

7.4 Over exploitation of ground water should be avoided especially near the brackish/ polluted water bodies to prevent ingress of salt/polluted water into sweet water aquifers.

DRINKING WATER:

8 Adequate safe drinking water facilities should be provided to the entire population both in urban and in rural areas. Irrigation and multipurpose projects should invariable include a drinking water component, wherever there is no alternative source of drinking water. Drinking water needs of human beings and animal should be the first charge on any available water.

IRRIGATION:

9.1 Irrigation planning either in an individual project or in a basin as a whole should take into account the irrigability of land, cost-effective irrigation options possible from all available sources of water and appropriated irrigation techniques for optimizing water use efficiency. Irrigation intensity should be such as to extend the benefits of irrigation to as large a number of farm families as possible, keeping in view the need to maximize production.

9.2 There should be a close integration of water and land use policies.

9.3 Water allocation in an irrigation system should be done with due regard to equity and social justice. Disparities in the availability of water between head-reach and tail- end farms and between large and small farms should be obviated by adoption of a rotational water distribution system and supply of water on a volumetric basis subject to certain ceilings and rational pricing.

9.4 Concerted efforts should be made to ensure that the irrigation potential created is fully utilized. For this purpose, the command area development approach should be adopted in all irrigation projects.

9.5 Irrigation being the largest consumer of fresh water, the aim should be to get optimal productivity per unit of water. Scientific water management, farm practices and sprinkler and drip system of irrigation should be adopted wherever feasible.

9.6 Reclamation of water logged /saline affected land by scientific and cost-effective methods should from a part of common area development program.

RESETTLEMENT AND REHABILITATION:

10 Optimal use of water resources necessitates construction of storages and the consequent resettlement and rehabilitation of population. A proper state policy in this regards needs to be formulated so that the projects affected persons share the benefits through proper rehabilitation. State should accordingly evolve their own detailed resettlement and rehabilitation policy for the sector, taking into account the local conditions. Careful planning is necessary to ensure that the construction and rehabilitation activities proceed simultaneously and smoothly.

FINANCIAL AND PHYSICAL SUSTAINABILITY:

11 Besides creating additional water resources facilities for various uses, adequate emphasis needs to be given the physical and financial sustainability of existing facilities. There is, therefore, a need to ensure that the water charges for various uses should be fixed in such a way that they cover at least the operation and maintenance charges of providing the services initially and a part of the capital costs subsequently. These rates should be linked directly to the quality of service provided. The subsidy on water rates to the disadvantaged and poorer sections of the society should be well targeted and transparent.

PARTICIPATORY APPROACH TO WATER RESOURCES MANAGEMENT:

12 Management of the water resources for diverse uses should incorporate a participatory approach; by involving not only the various governmental agencies but also the users and other stakeholders, in an effective and decisive manner, in various aspects of planning, design, development and management of the water resources schemes. Necessary legal and institutional changes should be made at various levels for the purpose, duly ensuring appropriate role for women. Water Users' Associations and the local bodies such as District Councils, municipalities and headman/nokmas/ Dolloi should particularly be involved in the operation, maintenance and management of water infrastructures/ facilities at appropriate levels progressively, with a view to eventually transfer the management of such facilities to the user groups/local bodies.

PRIVATE SECTOR PARTICIPATION:

13 Private sector participation should be encouraged in planning, development and management of water resources projects for diverse uses, wherever feasible. Private sector participation may help in introducing innovative ideas, generating financial resources and introducing corporate management and improving service efficiency and accountability to users.

Depending upon the specific situations, various combinations of private sector participation in building, owning, operating, leasing and transferring of water resourced facilities may be considered.

WATER QUALITY:

14.1 Both surface water and ground water should be regularly monitored for quality. A phase programme should be undertaken for improvements in water quality.

14.2 Effluents should be treated to acceptable levels and standards before discharging them into natural streams.

14.3 Minimum flow should be ensured in the perennial streams for maintaining ecology and social considerations.

14.4 Principle of 'polluter pays 'should be followed in management of polluted water.

14.5 Necessary legislation is to be made for preservation of existing water bodies by preventing encroachment and deterioration of water quality.

WATER ZONING:

15. Economic development and activities including agricultural, industrial an urban development should be planned with due regard to the constraints imposed by the configuration of water availability. There should be water zoning of the state and the economic activities should be guided and regulated in accordance with such zoning.

CONSERVATION OF WATER:

16.1 Efficiency of utilization in all the diverse uses of water should be optimized and an awareness of water as a scare resource should be fostered. Conservation consciousness should be promoted through education, regulation, incentives and disincentives.

16.2 The resources should be conserved and the availability augmented by maximizing retention, eliminating pollution and minimizing losses. For this, measures like selective linings in the conveyance system, modernization and rehabilitation, Repair Renovation and Restoration of existing systems including tanks/ponds/lakes, recycling and re-use of treated effluents and adaptation of traditional techniques like mulching or pitcher irrigation and new techniques like drip and sprinkler may be promoted, wherever feasible.

FLOOD CONTROL AND MANAGEMENT:

17.1 There should be a master plan for flood control and management for each flood prone basin.

17.2 Adequate flood cushion should be provided in water storage projects wherever feasible to facilitate better flood management. In highly flood prone areas, flood control should be given overriding consideration in reservoir regulation policy even at the cost of sacrificing some irrigation or power benefits.

17.3 While physical flood protection works like embankments and dykes will continue to be necessary, increased emphasis should be laid on non – structural measures such as flood forecasting and warning flood plain zoning and flood proofing for the minimization of losses and to reduce the recurring expenditure on flood relief.

17.4 There should be strict regulation of settlements and economic activity in the flood plain zones along with flood proofing, to minimized the loss of life and property on account of floods.

17.5 The flood forecasting activities should be modernized, value added and extended to other uncovered areas. Inflow forecasting to reservoir should be instituted for their effective regulation.

LAND EROSION BY RIVER, STREAMS ETC:

18.1 The erosion of land by river waters inland should be minimized by suitable cost effective measures. The State should also undertake all requisite steps to ensure that indiscriminate occupation and exploitation of land near rivers and streams are discouraged and that the location of residential and economic activities in areas adjacent to the river/streams is regulated through proper legislation.

18.2 The State should prepare a comprehensive land management plan, keeping in view the environmental and ecological impacts, and regulate the developmental activities accordingly.

DROUGHT - PRONE AREA DEVELOPMENT:

19.1 Drought prone areas should be made less vulnerable to drought associated problems through soil moisture conservation measures, water harvesting practices, minimization of evaporation losses, development of the ground water potential including recharging and the transfer of surface water from surplus areas where feasible and appropriate. Pastures, forestry or other modes of development projects, the need of drought- prone areas should be given priority.

19.2 Relief works undertaken for providing employment to drought stricken population should preferably be for drought proofing.

MONITORING OF PROJECTS:

20.1 A close monitoring of projects to identify bottlenecks and to adopt timely measures to obviate time and cost overrun should form part of project planning and execution.

20.2 There should be a system to monitor and evaluate the performance and socio-economic impact of the project.

WATER SHARING/ DISTRIBUTION AMONGST THE STATES:

21.1 The water sharing/ distribution amongst the states should be guided by a National perspective with due regard to water resources availability and need within the river basin. Necessary guidelines including for water short state even outside the basin; need to be evolved for facilitating future agreements amongst the basin states.

21.2 The Inter- State Water Disputes Act of 1956 may be suitably reviewed and amended for timely adjudication of water disputes referred to the Tribunal.

21.3 International aspects of cross country river shall dealt by the Union Government.

PERFORMANCE IMPROVEMENT:

22. There is an urgent need of paradigm shift in the emphasis in the management of water resource sector. From the present emphasis on the creation and expansion of water resources infrastructures for diverse uses, there is now a need to give greater emphasis on the improvement of the performance of the existing water resources facilities. Therefore, allocation of funds under the water resources sector should be re- prioritized to ensure that the needs for development as well as operation and maintenance of the facilities are met.

MAINTENANCE AND MODERNIZATION:

23.1 Structures and systems created through massive investments should be properly maintained in good health. Appropriate annual provisions should be made for this purpose in the budgets.

23.2 There should be a regular monitoring of structures and systems and necessary rehabilitation and modernization programmes should be undertaken.

23.3 Formation of Water User's Association with the authority and responsibility should be encouraged to facilitate the management including maintenance and operation of irrigation system in a time bound manner.

SAFETY STRUCTURES:

24. There should be proper organizational arrangements at the state levels for ensuring the safety of storage dams and other water-related structures consisting of specialist in investigation, design, construction, hydrology, geology etc. A dam safety legislation may be enacted to ensure proper inspection, maintenance and surveillance of existing dams and also to ensure proper planning, investigation, design and construction for safety of new dams. The guidelines on the subject should be periodically updated and reformulated. There should be a system of continuous surveillance and regular visits by experts.

SCIENCE AND TECHNOLOGY:

25. For effective and economical management of our water resources, the frontiers of knowledge need to push forward in several directions by intensifying research efforts in various areas, including the following:

- Hydrometeorology;
- Rainfall hydrology;
- Snow and lake hydrology;
- Surface and ground water hydrology;
- River morphology and hydraulics;
- Assessment of water resources;
- Water harvesting and ground water recharge;
- Water quality;
- Water conservation;
- Evaporation and seepage losses;
- Recycling and re-use;
- Better water management practices and improvement in operational technology;
- Crops and cropping system;
- Soils and materials research;

- New construction materials and technology (with particular reference to roller compacted concrete, fiber reinforced concrete, new methodologies in tunneling technologies, instrumentation, advanced numerical analysis in structures and back analysis);
- Seismology and seismic design of structures;
- The safety and longevity of water – related structures;
- Economical designs for water resources projects;
- Risk analysis and disaster management;
- Use of remote sensing techniques in development and management;
- Use of static ground water resource as a crisis management measure;
- Sedimentation of reservoirs;
- Use of river water resources;
- Prevention of water logging and soil salinity;
- Environmental impact;
- Regional equity;

TRAINING:

26. A perspective plan for standardized training should be an integral part of water resources development. It should cover training in information systems, sectoral planning, project planning and formulation, project management, operation of projects and their physical structures and systems and the management of the water distribution systems. The training should extend to all the categories of personnel involved in these activities as also the farmers.

CONCLUSION:

27. In view of the vital importance of water for human and animal life, for maintaining ecological balance and for economic and development activities of all kinds and considering its increasing scarcity, the planning and management of this resources and its optimal, economical and equitable use has become a matter of utmost urgency. Concerns of the community need to be taken into account for water resources development and management. The success of the State Water Policy will depend entirely on evolving and

maintaining a general consensus and commitment to its underlying principles and objectives. To achieve the desired objectives, State Water Policy backed with an operational action plan shall be formulated in a time bound manner say in two years. State Water Policy may be revised/amended periodically as and when need arise.