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Andhra Pradesh State Water Policy, 2008

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1. Need for the State Water Policy

- 1.1 Water security is intimately tied with food security, livelihood, health, environment, economic development and overall well-being of the society. Water is a finite resource and managing water in days of rapid socio-economic growth and change is challenging. The water challenges for the state are, therefore, manifold – improving and safeguarding the existing drinking water supplies, managing water for irrigation, industry, power supply and environmental and prevention of pollution.
- 1.2 The total water resources (surface water and groundwater) of Andhra Pradesh are estimated to be about 108 BCM (about 78 BCM from surface water, primarily from the Godavari and Krishna rivers), of which nearly 65 BCM are currently utilized (0.6 BCM for drinking, 64 BCM for irrigation, 0.3 BCM for industry and 0.3 BCM for power generation). Most of the water (about 98%) is currently supplied for irrigation, although other needs are expected to grow in the future. The current trends of increase in water supply from all users will outstrip available supplies significantly by 2025.
- 1.3 In addition, there are a number of challenges related to the development of new infrastructure, maintenance and operation of existing infrastructure, and increasing threats to the resource base from pollution, over-abstraction and unplanned development that exacerbate existing climate risks such as droughts and floods.
- 1.4 Water logging, salinization and increased levels of toxic elements in water are serious concerns for the agriculture sector. The water sector planning & management also have opportunity costs of action or inaction. A lasting solution has to come from ushering in major reforms, financial and institutional, to ensure that the system is put on a sustainable track.
- 1.5 Groundwater development has played a crucial role, in meeting the rising demands for water resulting from the onset of the green revolution, as well as drinking water & droughts. Nevertheless, groundwater exploitation has major drawbacks and limitations.
- 1.6 The Inter-Ministerial Task group established for mid-term appraisal of the 10th Plan made recommendations to the states to have water policies that work towards the efficient use of water resource. The Government of A.P. have enacted two legislations viz., Andhra Pradesh Water, Land and Tree Act 2002 for regulating water use and Andhra Pradesh Farmers Management of Irrigation System Act 1997 to make community as partners in water and irrigation system management.

- 1.7 The Government of A.P has already initiated a massive program of creation of irrigation infrastructure for augmenting the food production and livelihood security. The government is committed to
- (a) Provide hygienic, affordable and secure drinking water supplies to the entire population
 - (b) Improve the performance and financial viability of irrigation systems
 - (c) Make groundwater use sustainable in economic and environmental terms and
 - (d) Make systematic transition from the water resource development mode to an integrated water resource management mode, with appropriate reforms in water sector through a water policy.
- 1.8 The policy in a dynamic sector with rapid changes cannot remain a static statement and will be subjected to regular reviews and changes.

The State Water Policy focuses on key areas of water management, which include:

- 1. Building an enabling environment
 - 2. Implementing a range of institutional tools, including local capacity building and participatory approaches.
 - 3. Integrating new management tools and systems such as the integrated data systems, water demand management and a new communication system.
- 1.10 First, Water demand and utilization is multi sectoral and governed at various levels. Adverse impacts of rapid population and industrial growth, unsustainable exploitation of water resources consequent to haphazard urbanization and unchecked pollution are some of the issues to be addressed adequately and substantially to meet the challenges of the water sector.
- 1.11 Secondly, vulnerability of the drought prone areas in the State should be reduced to safeguard against drought associated problems through soil moisture conservation measures, water harvesting practices, minimization of evaporation losses and the sustainable development of the ground water potential. This would also entail the need to improve management of the basic natural resources of the State such as land, water and forests through improved land management, water harvesting, soil moisture conservation and dry land farming practices, as considerable areas will continue to rely on rain fed agriculture.
- 1.12 Thirdly, there is need to plan for flood control and management. Physical flood protection works like embankments and dykes, extensive soil conservation in the catchments, preservation of forest and increase in forest coverage, adequate flood cushioning in water storage projects wherever feasible to facilitate better flood management and an extensive network for flood forecasting to establish a system of timely warning to the settlements in the flood plains, along with the regulation of settlements and economic activity in the flood plain zones would be required to be

adequately continued to be supported or initiated to minimize the loss of life and property on account of floods.

- 1.13 Finally, the prime requisite for effective water resource planning is a well developed decision support system linked to a dynamic database of water resources comprising of demand and utilization pattern in the state. Existing distributed database required to be networked while improving the quality of data collection, processing and analysis.
- 1.14 Therefore guiding principles of water management need to be coherent across the various sector and institutions through statement of intent of government as a state water policy specifically to address the future increases in demand and recognizing the present inadequacies and gaps in water management. The water policy is in consonance of the National Water Policy and would be a dynamic document to keep on evolving to address the new challenges effectively and adequately.

2.0 Objective of the Andhra Pradesh State Water Policy

The objective of the Andhra Pradesh State Water Policy, 2008 is to ensure the comprehensive multi-sectoral planning, development and management of the State's water resources, and effective, efficient, equitable and sustainable service deliveries for various water uses. In particular, the Policy aims the following:

2.1 To ensure water security to the entire population by

- 2.1.1 Supplying adequate clean, hygienic, accessible, affordable and safe water to all citizens for drinking
- 2.1.2 Ensuring appropriate institutional and legal frame work, in particular the regulatory institutions arrangement in the water sector for supply of water to various users / users.

2.2 To improve water management and efficiency by

- 2.2.1 Integrated and coordinated efforts by all concerned institutions/organizations in developing a policy framework for planning water resources, augmenting them and putting them to productive use.
- 2.2.2 Effective participation of users in development and management of the State's water resources.
- 2.2.3 Mandating development and management of water resources with involvement of primary stakeholders for efficient and optimal utilization of water through progressive re-engineering and reorientation of institutions,

practices and processes. Traditional and common-law user rights shall be respected in such an arrangement.

- 2.2.4 Evolving institutional systems involving farmers for fixing and collection of service charges for water provided for various uses such as drinking and sanitation, irrigation, industries, recreation and energy.
- 2.2.5 Effective use of modern technology, tools, and approaches in water resources planning, development, and management, including the development and effective use of an appropriate modern knowledge base, monitoring and communication systems, applied research, improved information flow and access to relevant agencies and the general public, and awareness raising on key water-related issues.
- 2.2.6 Increasing the productivity of water by fixing standards of infrastructure, services and utilization efficiency.
- 2.2.7 Holistic and optimal development, management, and operation of water infrastructure with appropriate attention to technical, social, environmental, economic, and institutional aspects and to ensure financial sustainability of the water sector.
- 2.2.8 Reducing risks to climate risks and improvement of rain fed agriculture productivity.

2.3 To improve availability and efficiency of irrigation water by

- 2.3.1 Improving the productivity of the State's water resources to achieve economic, social, and environmental objectives through an outcome-orientated approach for institutional and investment activities. Ensure water security to the State's population to maximize the benefits to various users of water while minimizing vulnerability to droughts, floods, and pollution.
- 2.3.2 Realizing optimum irrigation potential under major, medium and minor irrigation projects.
- 2.3.3 Promoting sustainable use of groundwater.
- 2.3.4 Improving the performance of irrigation projects by narrowing the gap between potential created and the utilization.
- 2.3.5 Involving primary stakeholders in operation and maintenance of irrigation systems.

2.4 To maintain and sustain ecological balance by

- 2.4.1 Conserving and protecting water bodies and wetlands, through regulation and enforcement of standards for water infrastructure, usage and waste disposal.
- 2.4.2 Regulating the use of the land around water bodies.

- 2.4.3 Enforcing the recycling of industrial effluents and wastewater for secondary uses.

3.0 Strategies for accomplishing the Objectives of the policy

3.1 Water-use priority

1. Drinking water
2. Irrigation
3. Hydro-power
4. Ecology
5. Agro Industries and non agricultural industries
6. Navigation and other uses.

Prioritization impacts water-resource management and therefore demands careful balancing with a perspective for the future. Therefore, these priorities could be modified or added, if necessary. These priorities for the State are consistent with the National Water Policy 2002.

3.2 Water Resources Planning

- 3.2.1 Water resources planning for development and management of water resources projects in the state would be done, as far as possible, for multi-purpose uses. The provision for drinking water would be the primary consideration.
- 3.2.2 Planning water resources projects involve a number of socio-economic and environmental sustainability aspects, appropriate resettlement and rehabilitation of project-affected people and livestock, public health concerns, dam safety and other technical issues, which need to be conceived in a holistic context.

3.3 Water Resources Development

- 3.3.1 The State recognizes the need to develop its water resources on priority to ensure water and food security and to promote and sustain overall growth.
- 3.3.2 **Resettlement and Rehabilitation Aspects:** Optimal use of water resources, including for storage and irrigation systems development, can involve resettlement and/or rehabilitation of the population. This is to be done in a planned and systematic manner to ensure that project affected persons are compensated and that construction and rehabilitation activities proceed smoothly. This should be consistent with the Andhra Pradesh State R&R Policy, 2005 and the National Policy for R&R, 2007. Cultural assets should also be adequately protected in project development.

3.3.3 Environmental Aspects: The development of projects should take into account environmental aspects, including catchment area treatment and management, mitigation of environmental and ecological impacts, and groundwater and surface water sustainability. Effective screening procedures should be in place to adequately factor environmental and social opportunities and concerns during all stages of projects.

3.4 Water-resource Management

The State recognizes the need for optimal management of existing water and irrigation infrastructure to ensure effective service delivery and sustainability of the resource base

3.4.1 Service Delivery: The State will take appropriate measures to ensure effective, timely, and cost-effective delivery of water-related services, including drinking water, irrigation, hydropower, industrial, environmental, fisheries, and community services.

3.4.2 Rehabilitation and Modernization of Existing Water Resources and Irrigation Infrastructure: The State will ensure that existing water infrastructure is appropriately rehabilitated and modernized to ensure that it performs to its optimal level and recognizes multi-purpose dimensions of the assets.

3.4.3 Operation and maintenance of water resources and irrigation infrastructure: The State will ensure provisions for full operations and maintenance requirements of water resources and irrigation infrastructure projects, through an appropriate combination of rationalization of water charges and budgetary subsidy support, to ensure that the quality of the service delivery is not allowed to suffer for want of system's O&M needs.

3.4.4 Users participation of irrigation system management: The state has already enacted an enabling legislation, namely, APFMIS Act, 1997 (amended in 2002), to provide a legal frame work for the formation of legally empowered water users organizations (WUOs) at various levels of the irrigation systems and to pro mote their involvement in the irrigation system management. The state would continue to promote and further strengthen these WUOs to ensure their meaningful and effective involvement to ensure that every water users receives its share of water in a given irrigation command and that the quality of irrigation service deliveries are maintained and sustained.

3.4.5 Asset Management: Project level Asset management will be ensured through the creation and updating of asset inventories, functional specifications, and asset management frameworks.

- 3.4.6 **Promoting Modern Management Practices:** Modern management practices will be ensured in the development of appropriate information, analysis, and communication systems and soliciting feedback from service delivery clients to improve performance. Appropriate benchmarking and auditing systems should be developed to monitor and improve service delivery efficiency through the use of modern management instruments. Particular attention will be paid to professional development of staff to effectively use modern technical and management practices.
- 3.4.7 **Environmental Aspects:** In the operation of water resources infrastructure, appropriate measures will be taken to ensure adequate provision of water to maintain ecosystem services and manage water quality in sensitive stretches. Adequate measures should be taken to address the substantial waterlogged areas that are present in many irrigation commands as well as to regulate over-abstraction of groundwater.

3.5 Special Focus Areas

- 3.5.1 **Use of Appropriate Modern Technology in Water Resources Development and Management:** The State would ensure that appropriate modern technology is utilized in the pursuit of the mandate of the water-related agencies. This includes the deployment of modern computer hardware and software, development of a modern knowledge base (using GIS, Remote Sensing, and MIS tools), interactive decision support systems and other analytical tools, modern data and voice communication systems, improved use of the internet, improved information flow arrangements, effective targeted research, and knowledge partnerships. These should be targeted to improve water-related agencies to improve performance, reduce overall costs, and reduce redundancies.
- 3.5.2 **Urban and Rural Water Supply:** Priority will be made to move towards 24x7 safe water supply in adequate amounts to meet the growing needs in urban and rural areas for domestic and industrial use. Drinking water and sanitation will be accorded high priority in water resources development, allocation, and management with adequate resilience to climate risks.
- 3.5.3 **Water Quality and Ecological Aspects:** There should be due consideration to maintain and enhance the environmental functions of the State's water resources. Adequate measures must be taken to ensure the prevention of pollution of the State's surface and ground waters, water bodies and coastal zones. Efforts should be undertaken to control point and non-point source pollution from industrial, domestic, agricultural, and other sources that pose that threat to public health and ecosystems. Integrated Pest Management

and Integrated Nutrient Management practices and organic farming should be encouraged where appropriate to ensure sustainable agricultural practices are undertaken without compromising public and ecosystem health.

- 3.5.4 **Conservation of Water:** Efforts should be taken to ensure effective water conservation, including promotion of demand-side management, reducing losses in evaporation, conveyance, and distribution, and promotion of water saving technologies and practices. As agriculture represents the major user of water in Andhra Pradesh, special attention should be given to agricultural water conservation, including promotion of drip/sprinkler systems, SRI, cropping pattern changes to less water-intensive crops, etc. as appropriate.
- 3.5.5 **Flood Management:** Effective steps will be taken for flood management using an appropriate combination of non-structural and structural measures. This includes provision of appropriate flood cushion in water storage infrastructure, flood risk identification, zoning, and regulation, modern flood forecasting and communications systems, and flood preparedness planning in vulnerable communities.
- 3.5.6 **Drought Management:** The State is highly vulnerable to droughts. The risks of drought will be better managed through improved forecasting and communication, drought preparedness planning, appropriate watershed management and water harvesting, improved consideration of management instruments such as insurance, and diversification of livelihoods to improve climate resilience.
- 3.5.7 **Land Erosion Management:** Land degradation issues adversely impact water quality and productivity. There is a need to improve land erosion management both for local livelihood improvement as well as natural resource management benefits. In addition, coastal erosion needs to be managed with appropriate measures to protect coastal zone assets.
- 3.5.8 **Safety of Water Infrastructure:** Appropriate measures based on periodic inspection should be taken to ensure the safety of the water assets created. In particular, dam safety will be adequately monitored and enhanced in dams of all sizes. The recommendations of the State Dam Safety Panels should be fully funded and implemented.

4.0 Governance and Institutional Arrangements

4.1 Institutional and Legal Aspects

The State recognizes the need to have appropriate regulatory institutional and legal framework in the water sector, and also of restructuring and capacity building of the existing institutions in the water sector in the state, and to achieve the above needs, the state would take the following actions.

- 4.1.1 **Establishment of Regulatory Institutions in the Water Sector:** An Andhra Pradesh Water Resources Regulatory Commission (APWRRC) will be established, under a state legislation to provide the regulatory institutional frame work at the state level.
- 4.1.2 **Strengthening of Water User Organizations:** Water User Associations will be strengthened to assume greater responsibility in the management of water and irrigation infrastructure.
- 4.1.3 **Restructuring and capacity-building of the existing I&CAD Department and other Water Sector Institutions:** The existing Irrigation and Command Area Development Department and other water sector institutions (including WALMTARI) would be suitably restructured to ensure effective water resources stewardship and effective service delivery. Appropriate legal and administration actions should be taken to build their capacity, and encourage a shared-vision approach to help them achieve mandates.

5.0 Implementation of the Policy

The Mid Term Appraisal of Tenth Plan has made certain recommendation for respective states to have water policy and work on the recommendation of the Inter Ministerial Task Group on efficient utilization of water resources. The Government of India has further formed subgroups of National Development Council as part of the planning process for the 11th Five Year Plan. The subgroup on Agriculture and Irrigation has made certain recommendations on various issues concerning water use efficiency, related institutional restructuring, realization of the potential of water among others. The implementation of the A P Water Resources Policy will broadly coincide with the 11th Five Year Plan (2007-12). The Government of Andhra Pradesh will formulate programmes and projects based on the provisions of the Policy to incorporate the recommendations during the implementation of the 11th Plan. Towards this the Government of Andhra Pradesh will notify the schedule for implementation of the following provisions of the Policy.

5.1 Institutional Instruments

- 5.1.1 Establishment of Water Management Committee
- 5.1.2 Reorganizing the Irrigation & CAD Department.
- 5.1.3 Establishment of the Andhra Pradesh Water Resources Regulatory Commission

5.2 State Water Policy Review

The state water policy would be a dynamic policy document, and would be periodically reviewed, as and when needed, to meet the future water sector development and management challenges.

6.0 Conclusion

Water is critical for Andhra Pradesh. The gulf between water supply and demand is rapidly growing due to the ever-increasing demand for water and its limited supply. The State Government has launched several innovative initiatives to augment water supply through conservation and people's participation. Huge infrastructure support has been provided for irrigation and power, in order to benefit the agriculture sector.

A mass awareness programme supplemented by appropriate technologies, policies, institutional arrangements and stakeholders' participation would increase water productivity, accelerate economic growth and assure safe and secure water in the present and in future. This would require an integrated approach at different levels in the Government and in the various regions. Micro-level water development, need-based priorities and planning will go a long way in enhancing water supply in a sustainable manner.

A.P. Water Policy is only a starting point. The challenge for the administration and the people is to build a secure water future for A.P. The water policy aims to improve overall water productivity by removing constraints and providing institutional mechanisms. Water Policy suggests that effectiveness of the policy will be achieved through sectoral and cross-sectoral co-ordination and collaboration.

The provisions of present policy would be implemented following step-by-step approach with existing policy law and organization. Mid term review of the process would enable the implementation of Policy and achievement of its objectives. However the challenge remains!

Acronyms & Abbreviations

AP	Andhra Pradesh
AD	Agricultural Department
A.P.F.M.I.S	Andhra Pradesh Farmers management of Irrigation Systems
APGENCO	Andhra Pradesh Power Generation Corporation
A.P.WALTA	Andhra Pradesh Water, Land and Trees Act.
C.A.D	Command Area Development
G.o.A.P	Government of Andhra Pradesh
G.O.I	Government of India
G.W.D	Ground water department
I&CAD	Irrigation & Command area development
I.W.R.M	Integrated water resource management
NRM	Natural resource management
O & M	Operation and management
PIM	Participatory irrigation management
S.P.V	Special Purpose Vehicle
S.T.P	Sewage treatment plant
WALAMTARI	Water and Land Management Training and Research Institute
WUA	Water Users Association.