GOVERNMENT OF KARNATAKA

WATER RESOURCES DEPARTMENT

STATE WATER POLICY

2002

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(Water Resources Department)

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1. Introduction :-

The State is endowed with limited water resources that are stressed and depleting. Different Sectoral demands are growing rapidly. Increase in population, urbanization, rapid industrialization and rising incomes are putting this resource under stress. Unless water resources are properly developed and managed, the State will face acute crisis within the next two decades. Serious destabilization of the water sector affecting the hydrology, economy and ecology of the State is likely.

2. Overview of State's Water Resource Situation :-

Rainfall 2.1 The occurrence and distribution of rainfall in the State is highly erratic. The annual normal rainfall is 1138 mm received over 55 rainy days. It varies from as low as 569 mm in the east to as high as 4029 mm in the west. About 2/3rd of the geographical area of the State receives less than 750 mm of rainfall. Even assured rainfall areas of the State experience scarcity of water in some years.

Surface Water Availability 2.2 There are seven river systems in the State viz., Krishna, Cauvery, Godavari, West Flowing Rivers, North Pennar, South Pennar and Palar. Utilization of water in the West Flowing Rivers is hampered due to difficulties in construction of large storage reservoirs. Yield in the seven river basins is estimated as 3418 TMC at 50% dependability and 2934 TMC at 75% dependability. Yield in the six basins (excluding west flowing rivers) is estimated as 1396 TMC at 50% dependability and 1198 TMC at 75% dependability. The economically utilizable water for irrigation is estimated as 1695 TMC.

Groundwater Availability 2.3 Availability of ground water is estimated as 485 TMC. Ground water resources have not been exploited uniformly throughout the state. Exploitation of ground water in the dry taluks of North and South interior Karnataka is higher as compared to Coastal, Malnad and irrigation command areas. There is deficiency of water for drinking, agricultural and industrial use in dry taluks of North and South interior Karnataka. Where adequate surface water is available, utilization of ground water resources is minimum. In about 43 taluks there is over

exploitation of ground water resources. Further, groundwater exploitation has exceeded 50% of the available ground water resources in 29 taluks of the State. These 72 taluks are critical taluks from the point of view of the ground water exploitation. In the 72 critical taluks about 4 lakh wells irrigate an area of 7.5 lakh ha. Due to over exploitation of ground water resources, more than 3 lakh dug-wells have dried. Shallow bore wells have failed and yield in deep bore wells are declining. Area irrigated by ground water extraction structures is decreasing. Consequently, more than Rs.2000 crores of investment made by the individual farmers on the construction of wells, pumping equipment, pipelines, development etc., have become infructuous.

3. Need for State Water Policy :-

As per Entry 56 of the list I of the Constitution, development and management of Water is primarily a "State Subject", with legislation and administration substantially framed within the context of State boundaries. Karnataka is endowed with limited surface and ground water resources that need to be systematically developed and properly utilized adopting new approaches for the overall development of the State. Therefore, there is a need to formulate a State Water Policy, which is responsive to the States future needs.

4. Objectives :

4.1 Provide drinking water at the rate of 55 litres per person per day in the rural areas, 70 litres per person per day in towns and 100 litres per person per day in the city municipal council areas and 135 litres per person per day in city corporation areas.

4.2 Create an ultimate irrigation potential of 45 lakh hectares under major, medium and minor irrigation projects. Facilitate creation of an additional irrigation potential of 16 lakh hectares by individual farmers using ground water.

4.3 Improve performance of all water resources projects.

4.4 Improve productivity of irrigated agriculture by involving users in irrigation management.

4.5 Harness the hydropower potential of the State.

4.6 Provide a legislative, administrative and infrastructural environment, which will ensure fair, just and equitable distribution and utilization of the water resources of the State to benefit all the people of the State.

5. Key Issues :

Present Institutional Arrangements

5.1 There are no institutional arrangements at the State level to consider sectoral water, demands, plan and manage water between them. Responsibilities of water issues are fragmented between different departments without formal mechanism to ensure co-ordination.

Past Investments

5.2 Karnataka's developmental priorities have been influenced by the present need to utilize the share of river waters. Heavy investments have been made on creating storage capacities in irrigation projects, without investments on canals and field irrigation channels. Though there has been substantial increase in agricultural production, the revenue from water rates is to be increased proportionately.

5.3 Investments have been spread too thinly over large number of ongoing and new irrigation projects. Costs and time overruns have resulted in more expenditure and less commensurate benefits. The pace of creation of irrigation potential has been slow.

5.4 Priority for new construction in making investments has resulted in decreased availability of funds for operation and maintenance, rehabilitation and modernization of existing irrigation works, reclamation of water logged and problematic lands.

Utilization

5.5 There is a gap in the utilization of created irrigation potential due to delays in the construction of field irrigation channels, leveling of land and lack of farmer participation in the irrigation management.

Tanks

5.6 There are 38,608 Minor irrigation tanks in the State. Storage capacities of most of these tanks are reduced due to siltation

and deferred maintenance.

Operation & Maintenance Expenditure

5.7 Expenditure on wages and salaries, operation and maintenance and interest payments have increased consistently and will further increase over the years. Revenue receipts from irrigation are meager and cover only a small part of the operation and maintenance costs.

Drinking Water Demand

5.8 The demand for drinking water in the urban and rural areas will increase in the coming years. This demand cannot be met entirely from groundwater sources. In about 4500 villages groundwater is not fit for drinking purposes on account of high fluoride or iron content or brackishness. Therefore, in the next two decades water supply systems for larger habitations will have to be based on surface water sources like perennial rivers and reservoirs and reduction in the irrigation water use may be inevitable.

Water Quality

5.9 Water quality problems like degradation from Agro-Chemicals, industrial and domestic pollution, Groundwater depletion, water logging, salinisation and siltation are reducing the effective water availability.

Irrigation Management

5.10 Deficiencies in water management have resulted in inequitable distribution of water, under utilization of the irrigation potential created and problems of land degradation due to excessive use of water. Unauthorized use of irrigation water, excess usage of water by farmers in the head reach and pumping of water from canals are depriving the tail-end farmers their due share of water.

5.11 Productivity of irrigation is below potential. Sub-optimal distribution of water and lack of integration of irrigation services with agriculture services have resulted in low yields, low cropping intensities and has prevented diversification of agriculture. Land development and agricultural extension have not kept pace with the creation of irrigation potential.

6. Future Vision :

6.1 Water resources planning, development and management will

be carried out adopting an integrated approach for a hydrological unit such as River basin as a whole or for a sub basin, multi-sectorally, conjunctively for surface and ground water incorporating quantity, quality and environmental considerations. Development projects and investment proposal will be formulated and considered within the framework of river or sub-basin plan so that the best possible combination of options can be obtained for poverty alleviation, increasing incomes and productivity, equity, reduced vulnerability to natural and economic risks and costs. Solutions to water allocation and planning issues will be found adopting a demand management approach.

6.2 Irrigation planning will take into account the irrigability classification of land, cost effective irrigation techniques and the needs of drought prone and rain shadow areas. Wherever water is scarce, the irrigation intensity will be such as to extend the benefits of irrigation to as large an area as possible in order to maximize production. Land and Water are mutually reinforcing resource systems, which are limited in the State. Land use pattern has perceptible influence on the hydrological characteristics, the soil erosion factors and soil is non-renewable and irreplaceable beyond a certain point of damage. Water availability is limited but it's irrational and overuse has resulted in low overall project efficiencies and considerable land degradation. The management of water and land resources and water and land use planning and management are closely intertwined and hence, there will be close integration of water use and land use policies. Appropriate cropping patterns will be adopted in co-ordination with the Agriculture Department. Drip and sprinkler irrigation to improve water use efficiency will be promoted. Irrigation and multi purpose projects will invariably include drinking water component.

Institutional Arrangement

6.3 For multi-sectoral water planning, inter sectoral water allocation, planning of water development programmes, management decisions, and resolution of water resources issues, a State Water Resources Board will be established. The Water Resources Development Organization will act, as technical secretariat for the State Water Resources Board. A

State Water Resources Data and Information Center will also be established.

Allocation Priorities

6.4 In planning and operation of water resources projects, water allocation priorities shall be broadly as follows :

a. Drinking water

b. Irrigation

c. Hydropower

d. Aquaculture

e. Agro industries

f. Non-Agricultural Industries

g. Navigation and other uses

Expenditure Prioritization

6.5 Prioritisation for incurring expenditure in respect of Major and Medium irrigation projects will be as follows :

a. Completion of on-going & committed projects

b. Promoting participatory irrigation Management

c. Operation and maintenance

d. Repairs & modernization

6.6 In irrigation projects where reservoirs are already completed, top priority will be given to the construction of the canals, field irrigation channels in the shortest possible time and steps taken to utilize the potential created.

Participatory Approach to Water Resources Management

6.7 The management of water resources shall be done adopting a participatory approach. Necessary legal and institutional changes will be made. The ultimate goal will be to transfer operation, maintenance, management and collection of water charges to users groups.

6.8 Minor Irrigation works and sub-systems of Major & Medium

Irrigation works will be rehabilitated with participation by the users of these tanks and sub-systems and handed over to Users Organization for operation, maintenance and management. Technical assistance will be rendered to Water Users Societies / Associations and they will be encouraged to undertake land leveling and also take up cultivation of high value crops requiring less water for efficient use of scarce water.

6.9 To create awareness among citizens on de-centralization user participation and involvement in decision-making, implementation and management of water resources projects, campaigns will be undertaken.

Improving Agricultural Production & Farm Incomes

6.10 Improve agricultural productivity and farm income by involving the Departments of Agriculture and Horticulture universities of Agricultural Sciences Krishi Vigyan Kendras and Non-Government Organization to promote cost effective and also high value agricultural production technologies.

Restructuring of Water Resources Department

6.11 The Water Resource Department will be restructured to suit new approaches envisaged, increase efficiency of plan and non-plan spending and reduce non-plan spending. Available manpower will be trained and re-deployed based on needs.

Water Rights

6.12 A system of water rights along with suitable enforcing mechanisms will be established. Water quotas for different sub-systems like distributary, sub-distributary, minors or laterals will be fixed in order to distribute water equitably and use water more efficiently. The prime requisite for resources planning and introducing water rights is a well-developed information system. A state of the art information system will be developed. This information system shall contain data on surface and ground water availability and actual use for diverse purposes in different basin/sub-basins.

Governance

6.13 Action will be taken to improve governance, bring transparency in administration, reduce corruption and make the administration accountable.

Private Sector Participation

6.14 Private sector participation will be encouraged in various aspects of planning, investigation, design, construction, development and management of water resources projects for diverse uses, wherever feasible. Private sector participation

will help introducing corporate management in improving service efficiency and accountability to users. Depending upon specific situation, various combinations of private sector participation, in building, owning, operation, leasing and transferring of water resources facilities will be considered.

Water Rates 6.15 Water rates for various uses will be revised in a phased manner and fixed so as to cover at least the operation and maintenance charges of providing services.

Removal & Prevention of Encroachments 6.16 A River, Stream and Tank Bed Authority will be established to remove and prevent encroachments and prevent eh occurrence of man made floods.

6.17 Unauthorised pumping / lifting / siphoning of water from main canals, branch canals distributaries will be prevented.

Catchment & Command Area Treatment 6.18 Reduce siltation of dams through soil conservation and afforestation measures. Undertake in co-ordination with the Forest Department and the Directorate of Watershed Development, measures for protecting the environment and improve the quality of life by planting different types of trees suited to the particular area. Allow water users organization to plant trees in the command area handed over to them for management and to share the benefits accruing with the Government.

Ground Water Recharge 6.19 Periodical reassessment of the groundwater potential on a scientific basis will be undertaken. Exploitation of groundwater resources will be regulated so as not to exceed the recharge capabilities. Ground water recharge project will be formulated and implemented.

Coastal Management Plan 6.20 A comprehensive coastal management plan will be prepared keeping in view the environmental and ecological impacts and future developmental activities regulated accordingly.

Rainwater Harvesting and Water Conservation 6.21 The efficiency of utilization of water will be improved and awareness about water as a scarce resource fostered. Rainwater harvesting and water conservation will be encouraged. Conservation consciousness will be promoted through education, regulation incentives and disincentives.

Ecology 6.22 Catchments of the storages supplying water to urban centers will be protected from environmental degradation and industrial pollution. Steps shall be taken to ensure that effluents are treated to acceptable level standards before discharging them in natural streams.

Disaster Management 6.23 Disaster management strategy for drought and floods will be formulated.

Mini Hydel Schemes 6.24 A number of mini hydel schemes have been investigated. These schemes have negligible storage and no environmental rehabilitation and resettlement problems. Private Sector participation in establishing mini hydel schemes will be encouraged.

Monitoring 6.25 Close monitoring of planning, execution and performance of water resources projects will be undertaken to identify bottlenecks and to obviate time and cost overruns.

Training 6.26 A perspective plan for training for integrated water resources development and management shall be prepared. Training will be imparted to all categories of staff of the government, Farmers and all varieties of users and also Panchayat Raj Institutions by organizing training courses, workshops, discussions, conferences and study tours.

Research 6.27 Promote integrated and co-ordinated applied research in water sector.

Eco-Tourism 6.28 Efforts to restore natural landscape, develop habitat to attract inland and migratory birds, beautify landscape around shores and islands will be made. Eco-Interpretation centers will be created to bring awareness and to educate society to protect and manage precious natural resources especially elixir of life viz; Water.

7. For implementing the above aspects, following is the action agenda :

7.1 Formulate and implement projects and schemes of rainwater harvesting and recharging of underground water sources,

with community participation.

7.2 Establish State Water Resources Board. Complete review of existing policies and formulate new policies. Review existing legislative framework, draft new legislation and propose amendments to existing legislative framework within 12 months, in order to achieve the Objectives enumerated in Para 4 antes.

7.3 Complete all on-going and committed water resource development projects by 2005.

7.4 Complete Command Area Development works by 2006 consistent with the policy of decentralization and participation.

7.5 Undertake and complete rehabilitation and development of all Minor Irrigation Tanks on the basis of participation by water-users including farmer, within period of 10 years and entrust these works and also subsequent Operation & Maintenance with Tank Users Associations which will themselves regulate water use, cropping pattern, levy and collection of water-user charges.

7.6 Establish Water Resource Data Information Center and collaborating arrangements with concerned Departments / Agencies. Develop protocols for data sharing and exchange. Establish direct access by water management units to water resource Data Center's databases and decision support systems like GIS and MIS. Make water accounting and audit mandatory.

7.7 Restructure the Water Resources Department to improve planning and management capabilities, eliminate multiplicity of functions, increase efficiency of plan and non-plan expenditure, train and redeploy staff based on needs, change operating rules to ensure transparency and accountability and make the Department responsive to user needs.

7.8 Assess overall water resource availability, current and future problems and conflicts and identify drought and flood risk zones in each river basin.

7.9 Mobilize community and stakeholder participation through Users Organizations, empower them, provide training, technical support and create public awareness. Form and empower Water Users Co-Operative Societies and Federations for Participatory Irrigation Management.

7.10 Develop integrated, conjunctive basin management plan using participatory approach.

7.11 Develop plans for modernization and rehabilitation of water resources projects as well as reclamation of water logged and salt affected lands and implement them.

7.12 Restructure and strengthen Training, Research and Development Institutions in the water sector to meet technology requirements to support basin planning, participatory approaches and render technical assistance to users organizations.

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