

Bihar State Water Policy

The Govt. of Bihar appointed the second Bihar State irrigation commission consisting of the Hon'ble Minister, Water Resource Department, as its Chairman along with five full time members and fourteen ex-officio part-time members (vide letter no-1/PMC/M/60/86-268/Patna dated 15.2.91) According to the decision taken in the 3rd meeting of the 2nd Bihar State irrigation Commission held on 25.6.91, five sub-committees were constituted to study and prepare report on various terms of reference (vide letter no. 580 dated 15.7.91). The term of reference no 1 was assigned to Sub-committee no 1 with Sri Saryu Roy as its Chairman.

The term of reference no 1 reads as follows:-

“To review present policies and programmes of the Water Resources Development and Management in the light of the provisions of National Water policy and to suggest measures for appropriate improvement in the light of the State's problems of drought and flood, socio-economic backwardness and regional imbalance keeping in mind the use of water in irrigation, drinking, industries, hydropower generation and other purpose.”

The Sub-committee submitted its report on October 23, 1992 and formulated the water policy for erstwhile Bihar State on the basis of the National Water Policy – 1987. The detail of the policy is given below:-

Water policy for Erstwhile Bihar State

THE NEED FOR A STATE WATER POLICY

Water is prime natural resource. A basic human need and a precious asset of any nation. The planning and development of water resources therefore need to be governed by dynational perspectives with due consideration to the requirements in the basin itself which should receive topmost priority.

The State of Bihar has a geographical area of 173.83 LHA, out of which, as estimated at present, irrigation has to be provided to an area of 122.98 LHA, 66.30 LHA from surface irrigation schemes through major and medium projects and 56.68 LHA from minor irrigation schemes for surface as well as ground water exploitation.

Floods and droughts affect vast areas of the State. Almost entire North Bihar is flood-prone, Parts of Central Bihar also suffer from floods but not frequently. The State has to grapple with the menace of drought in some part of other of the State, at least once in four years or so, on the average.

Water is one of the most crucial elements in developmental planning. As water is a scarce and precious natural resource to be planned, developed and conserved as such on an integrated and environmentally sound basis, keeping in view the need of the concerned State, the need for National Water Policy was felt and accordingly, the National Water Policy was formulated in the year 1987.

Considering the growing demand of water, the mounting conflicts in the day by day allocation of available water as between its alternative uses, such as irrigation, drinking and other uses, basin wise, and finally, the need for improving the water policy and planning in the State, it is desired necessary that the State should reaffirm the 'National Water Policy' and formulate a 'State Water Policy' of its own, befitting the framework of the national Policy.

The National Water Policy is, accordingly, reaffirmed hereby and the following Water Policy is laid down for the State within the overall framework of the National Water Policy and the river basin plans of the State.

DATA COLLECTION AND INFORMATION SYSTEM

Long term hydrological and agro meteorological data are of utmost importance for realistic, economical and result-oriented project formulation for water resource development. Sufficient hydro meteorological stations shall be established in all river basins irrespective of the fact whether any project is coming up in the basin in near future or not.

A well-developed information system is a must for resource planning. It is, therefore, necessary to establish a standardized State information system with a network of data banks and data bases, integrating and strengthening the existing central and State-level agencies and improving the quality of data and the processing capabilities. There will have to be a free exchange of data among the various agencies. Duplication in data collection shall be avoided. Apart from collection and

processing, the data regarding water availability and actual water use. The system should also include comprehensive and reasonably reliable projections of future demands for water for diverse purposes.

The Planning organisation shall be strengthened with suitable, experienced and trained qualified personnel for observation, collection and processing of hydrological, meteorological and agronomical data. This organisation will publish water year books of each river basin annually. Data observed by other agencies in the basin should be incorporated in the water year Book.

MAXIMIZING AVAILABILITY

The water resources available to the State shall be brought within the category of utilizable resources to the maximum possible extent. The resources shall be conserved and their availability augmented by appropriate measures for maximizing retention and minimizing losses.

Water resource planning shall be done for a hydrological unit, such as a drainage basin in its totality or for a sub-basin. All individual projects should be formulated and considered within the framework of such an overall plan for a basin or sub-basin and the best possible options should be selected for execution and development of the available water resources that are utilizable.

Where water resources are being utilized in isolated patches in a basin or sub-basin by individual schemes, and overall comprehensive master plan for the optimum use of water of hydrological unit as a whole shall be formulate in such a manner that the existing, ongoing and new planned schemes are suitably integrated and developed in the best possible manner as far as practicable.

Suitable appropriate organisation shall be established for the planned development and management of a river basin as a whole. Special multi-disciplinary team should be associated with such organisation 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 keeping in view the existing interstate agreements.

Water shall be first used in the river basin/sub-basin itself in which it is available and water which is surplus to the requirements of the basin/sub-basin may be made available to the water short of drought prone areas of the other basin.

Recycling and re-use of water should be considered as an integral part of water use strategy while formulating the water resource development projects.

PROJECT PLANNING

The water resources development projects shall, as far as possible, be planned and developed as multipurpose projects. Provision of drinking water shall receive topmost priority. Next to come in order of priority would be the conjunctive use of surface and ground water for irrigation, flood mitigation, hydropower generation, navigation, pisciculture and recreation and so on wherever possible.

The Study of the impact of project during the construction phase, as also later to it, on human lives, settlements, occupations, economic and other activities shall be an essential component of project planning.

Preservation of the quality of the environment and the ecological balance shall be a primary consideration in the planning, implementation and operation of the projects. It shall be ensured that the adverse impact, if any, on the environment, is minimized and is offset by means of adequate compensatory measures.

There should be an integrated and multidisciplinary approach to the planning, formulation, clearance and implementation of the projects, including catchments treatment and management, environmental and ecological aspects, rehabilitation of the affected people and command area development. For this purpose the Master Planning Organisation and project Preparation Cell of the State Water Resources Department, which formulate and examine the projects for clearance before implementation, shall be restructured to provide for experts from all the relevant disciplines.

Investigation and formulation of projects in or, for the benefit of, areas inhabited by the scheduled Castes and the Scheduled Tribes shall be given topmost priority. Careful attention shall be given to the needs of the weaker sections of the society while planning projects in other areas also.

The need to provide assured drinking water and possibilities of hydropower development with due approach to irrigation in the hilly area will be duly considered in the planning of projects in such area, keeping in view the steep slopes, repaid runoff and the incidence of soil erosion.

It is generally observed that most of the irrigation/multipurpose projects are affected by cost overruns

either due to lack of proper and detailed investigation before taking them up for execution or for want of adequate fund for their timely completion. It is also observed that the benefits as envisaged while formulation the projects are not achieved on their completion. These deficiencies shall be overcome by upgrading the quality of project preparation by ensuring proper and detailed investigation, preparation of detailed design and working drawing of structures before taking up their execution, provision of adequate funds according to the targeted schedule of completion and proper management. Adequate funds will be provided according to the requirements for the completion of all ongoing projects as well as for such special projects which are considered most essential to reduce regional imbalances.

MAINTENANCE AND MODERISATION

The assets, such as river structures and canal systems, created through massive investments, shall be maintained properly to derive maximum benefit out of them during their expected lifetime. Adequate funds for maintenance of completed projects will be provided in the annual budget and it will be ensured that such assets are properly maintained in good health.

Conditions and functioning of the systems and structures of all the completed schemes shall be monitored regularly both at the Chief Engineer's level and at the secretarial level and a necessary rehabilitation and modernisation programme will be undertaken and implemented wherever necessary at the earliest to avoid their deterioration.

SAFETY OF STRUCTURES

There shall be proper organisation and arrangement for ensuring the safety of the storage dams and other water-related structures in the State. Suitable guidelines for inspection and suitable measures to ensure the safety of such structures will be prepared and issued to all concerned. Such guidelines will be constantly reviewed and updated periodically and reformulated, if necessary. Continuous surveillance and regular visits by experts will be arranged according to the demand of the situation.

GROUND WATER DEVELOPMENT

The Ground water potential of the State will be periodically reassessed on a scientific basis, taking into account the quality of water available and the economic viability of its exploitation.

Ground water exploitation shall not be allowed to exceed the recharging possibilities. If deemed necessary for ensuring social equity of any other reason, the ground water recharge projects will be developed and implemented for augmenting the available supplies. Overexploitation of ground water will be prevented by appropriate measures, including legislation.

It will be ensured while formulating a project that the integrated and coordinated development of surface and ground waters and their conjunctive use are duly incorporated as part of the project, subject to its technical and economic viability.

Private tube wells shall be encouraged and given priority over public tube wells.

WATER ALLOCATION PRIORITIES

In the planning and operation of the irrigation systems. The following water allocation priorities as laid down in the National Water Policy, will be broadly enforced, except as modification in item

Drinking Water

Irrigation

Hydropower

Navigation

Industrial and other uses.

The above priorities may, however, be modified, if necessary, in particular regions with reference to area-specific considerations, as suggested in the following paragraph:

Bihar has three distinct geographical zones with widely varying status of soil and water. North Bihar is a vast fertile plain, thickly populated, situated north of the Ganga and extending up to the Tarai area of Nepal at the foot hills of the Himalayas. It is subjected to heavy floods almost every year.

There is no large industry in the area. Central Bihar, lying south of the river Ganga, extending upto the plateau of Chotanagpur, has also vast stretch of fertile agricultural land interspersed with patches of hilly outcrops. South Bihar is completely hilly with extensive deposits of minerals having a large

scope for mining and industrialisation. The area has some agricultural fields on the hill slopes and in the valleys. There is scope for generation of hydropower but practically no scope for navigation. While the water use priorities as indicated in the National Water Policy, and mentioned in item 1, suit quite well North and Central Bihar, they have to be modified for the south Bihar plateau region, as below, for reasons mentioned in item 2 above:

Drinking water

Industrial/mining and other uses

Hydropower

Irrigation

Navigation

DRINKING WATER

The drinking water needs of human beings and animals shall be the first charge on any available water.

It shall be ensured that adequate drinking water facilities are provided to the entire population both in urban and rural areas at the earliest. Wherever there is no alternative source of drinking water, such provision will invariably be made in the irrigation and multipurpose projects.

IRRIGATION

The irrigability of land and the cost-effective irrigation options feasible from all available sources of water and appropriate irrigation techniques will be duly considered while planning for irrigation from either an individual project or in a basin as a whole. Consistent with the view favouring maximising of production, the intensity of irrigation will be planned in such a manner as to extend the benefits to the target possible number of farm families.

The Water use and Land use policies shall be closely integrated in order to reap optimal benefits from the available land water resources.

Water shall be allocated in an irrigation system with due consideration of equity and social justice. It has to be ensured that there is no disparity in the supply of water between the head-reach farm and the tail-end farm. In order to ensure this, the rotational system of water supply may be adopted. If necessary and practicable, water may be supplied on the volumetric basis, subject to a number of ceilings.

Construction maintenance and operation of the minors, water courses and field channels will be entrusted to the beneficiaries of the water user's associations by making them actual owners of the micro-system. Farmers will be involved progressively in various aspects of management of the irrigation systems, particularly in operation, water distribution, maintenance and collection of the water rates, Voluntary agencies will be encouraged to educate the farmers in efficient water use and water management.

All attempts shall be made to bridge the gap between the irrigation potential created and its actual utilization on a priority basis so that full use is made of the investments made. The command area development approach will be adopted in all projects, taking advantage of the experience gained so far in the existing organisations.

WATER RATES

The water rates will be fixed in such a manner as to convey the scarcity value of the resource to the user and to foster on their part the motivation for economy in water use. Water rates, in principle, should be adequate to cover the annual maintenance and operation charges together with a part of the fixed costs, Such an ideal condition would be made effective over a suitable period, while ensuring adequate and timely supplies of irrigation water in accordance with the adopted crop pattern. Before this ideal condition is achieved, the water rates should be such as to cover at least the maintenance and operation charges of the irrigation system, including their collection charges. The Water rates for surface and lift irrigation will be rationalised with due regard to the interests of small and marginal farmers.

With rising costs of operation and maintenance of irrigation systems the water rates may be reviewed and revised at suitable intervals as frequently as possible.

Procedure of assessment and collection of water rates will have to be simple and less expensive. involvement of the water users association will be encouraged in assessment and collection of water

charges.

WATER QUALITY

Both surface and ground water will be monitored regularly to improve quality and a phased programme will be undertaken for the purpose, as and when necessary. Water quality observations at some suitable sites on the rivers will be undertaken and the results coordinated with the results of such observations by other organization in the State. Such results would be incorporated in the water year books.

WATER ZONING

Economic, agricultural, industrial and urban development activities will be planned with due regard to the constraints imposed by the configuration of water availability. The State may be divided into various water zones as considered necessary and the economic activities would be guided and regulated in accordance with such zones.

CONSERVATION OF WATER

People will be made aware of water as a scarce resource and the efficiency of utilization in all the diverse uses of water will be tried to be improved. Conservation consciousness will be promoted through education, seminars, regulations, incentives and disincentives. The Water Resource Day will be celebrated upto the district level during the month of April every year (when the water availability is minimum) to arouse awareness of scarcity of water amongst the people and to emphasis the need for conservation of such precious resource.

FLOOD CONTROL AND MANAGEMENT

A comprehensive master plan for flood and management alongwith removal of drainage congestion of each of the flood-prone basins shall be prepared and schemes taken up for implementation after detailed and though investigation in accordance with the priority assigned in such a comprehensive master plan. All endeavors will be made to facilitate constriction of storage reservoirs, for flood control and moderation, on the flood-causing rivers originating in Nepal and flowing through Bihar, with the co-operation of the Govt. of Nepal. In order to reduce the intensity of floods, sound watershed management through extensive soil conservation, catchment area treatment, preservation of forests and increased forest cover and construction of check dams, will be sought to be promoted. An extensive network for flood forecasting and warning shall be established in the State in co-ordination with the existing forecasting sites of the Central Water Commission for timely warning to the settlements in the flood plains alongwith the regulation of settlements and economic activities in the flood Zones, so as to minimise the loss of life and property on account of floods.

All effort will be made to remove the drainage congestion from the flood plains and for this purpose the antiflood sluices provided in the existing embankment will be kept under effective functioning and more of such sluices will be provided, if found necessary.

Anti-flood sluices provided at the mouths of offtaking channels to reduce pressure on marginal embankments during higher floods will also be operated for dispersal of flood wherever possible. The drainage channels will be renovated to carry releases with in their bankful capacities, or for controlled flooding wherever desirable.

While physical flood protection works like embankments and dykes will continue because they are necessary, the emphasis will shift to non-structural measures for minimizing the losses. Such as flood forecasting and warning, flood plain zoning, flood proofing and the like so as to reduce the recurring expenditure on flood relief.

BANK STABILISATION AND ANTI-EROSION MEASURES

Bank stabilization and anti-erosion measures are adopted to train the rivers so as to check their tendency to erode and damage new area. Most of the rivers in the northern and central regions of the State are alluvial which by usual meandering create problems of erosion and shifting at various locations. This process is a natural phenomenon and results in loss of land at one location and gain at some other.

Anti-erosion works on rivers are expensive both in construction and maintenance. Such works change the direction and place of attack upstream of downstream that may affect either bank. These aspects should be carefully considered before taking up such anti-erosion works.

Erosion of land at one place and rebuilding at another being a normal phenomenon, anti-erosion works will be considered justified only for the protection of important industrial and commercial centers. Towns or groups of highly dense population communication like railway lines and roads, technically feasible or much too expensive. These can also be justified for protecting substantial length of embankments, thereby protecting large areas which are threatened by river erosion. For smaller lengths of embankment, retirement will be more economical. On account of high cost of construction and maintenance of massive anti-erosion works, these would be uneconomical for protection of agricultural lands. Hence massive anti-erosion works will be undertaken for protection of agricultural land only in very special cases by adopting suitable cost-effective measures.

DROUGHT MANAGEMENT

The needs of drought-prone areas shall be given priority in planning the water resource development projects. Such areas will be tried to be made less vulnerable to drought-associated problems through soil-moisture conservation measures, water harvesting practices, minimisation of evaporation losses, development of the ground water potential and transfer of surface water from surplus areas where found feasible and appropriate, other modes of development, such as development of pastures, forestry, etc., which consume less water.

Relief works undertaken for providing employment to drought-stricken populations will be for drought/flood proofing, such as digging of tanks and raising villages, etc. A number of such schemes would be investigated and kept ready on shelf to be undertaken during drought.

SCIENCE AND TECHNOLOGY

All endeavors will be made to intensify the research efforts in various areas, including the items indicated below to push forward the frontiers of existing knowledge in several directions for effective and economical management of the available water resources of the State.

Hydrometeorology

Assessment of water resources

Ground water hydrology and recharge

Water harvesting

Evaporation and seepage losses

Economical designs for water resources projects

Crops and cropping systems

Sedimentation of reservoirs

Safety of water related structures

River morphology and hydraulic

Soils and materials research

Use of underground reservoir for flood mitigation

Better water management practices and improvement in operational technology

Recycling and reuse of water

Economical design of anti-erosion measures for protection of national assets, towns and villages, etc.

RESEARCH AND DESIGN

Optimum use of water resources within the limits of economic viability calls for steps to investigate alternative options, plans, determine techno-economic feasibility. Develop economical construction materials and construct selected structures with built-in safety, durability and economy in shortest possible time. Research and design is the hub of this cycle. It helps one unravel the unknowns, provides a cause-effect relationship and helps remove the causes of inadequate performance.

Research and design can open up unheard and undreamt-of opportunities for the have-nots to try and become front liners. Research, design and standardization shall therefore be given priority they deserve in the water sector.

TRAINING

Training constantly helps in upgrading the methodology by introspection, by self appraisal and by studying the feed back. Full advantage of the revolution brought about by communication, computers space-science and new materials the world over should be taken. For this a perspective plan for standardising training should be an integral part of water resources development. It should cover training in the information system, sectoral planning, project planning and formulation, project management, operation and maintenance of projects and their physical structures and systems and the management of the water distribution system. The training shall, therefore, be extended to all categories of personnel involved in these activities as also water users.

ACTION PROGRAMME

The Following activities should be taken up immediately and completed within the fixed time-frame
The expenditure focus be reexamined and new priorities based on economic viability and impact be developed.

An interim action plan to halt staff growth, provide adequate maintenance funding, curb leakages and introduce cost accounting be prepared and implemented.

A water management programme be prepared and implemented.

Monitoring and annual reporting of financial expenditure and cost accounting, a maintenance plan, budget review and a cost recovery status report be regularly carried out.

Periodical monitoring of the water resource projects with regard to both financial and physical targets vis-à-vis achievements be carried out.

Restructuring of the Water Resources Department by inducting multi-disciplinary experts, establishing the Management Information System(MIS), upgrading project preparation capabilities and funding research and training be considered and implemented.

A uniform policy for the entire State may be deliberated and notified .

Areas for private sector involvement be identified

Specific commands where management can devolve to autonomous units be identified

An extension programme to assist farmers to form the water user associations, participate in scheme management, and construct, maintain and operate micro-networks of water distribution system be worked out and implemented