

**GOVERNMENT OF INDIA
PLANNING
LOK SABHA**

UNSTARRED QUESTION NO:2854
ANSWERED ON:29.08.2012
MANAGING INDIA'S WATER RESOURCES
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Will the Minister of PLANNING be pleased to state:

- (a) whether "Managing India's Water Resources" was the agenda for consideration in the 55th meeting of the National Development Council held on 24th July, 2010;
- (b) if so, the details thereof;
- (c) whether any discussion for reforms related to use of ground-water rural domestic requirement, floods and flood management, etc. took place during the meeting;
- (d) if so, the outcome of the meeting; and
- (e) the reforms carried out so far in the above fields in view of the discussion held during the said meeting?

Answer

MINISTER OF STATE FOR PLANNING, SCIENCE & TECHNOLOGY AND EARTH SCIENCES (DR. ASHWANI KUMAR)

(a) and (b): Yes, sir. The agenda "Managing India's Water Resources" considered in the 55th meeting of National Development Council (NDC) held on 24th July, 2010 is at the Annexure.

(c): The Chief Ministers of States made suggestions/observations regarding encouraging scientific water management, watershed management, investment in maintenance of canal, de-silting of storage dams, plantation in catchment area, checking over-drawal of sub-soil water, rain water harvesting etc.

(d) and (e): The NDC decided that the Planning Commission would prepare an integrated policy for water resources management that would be discussed in future NDC meeting. Subsequently, Member (Water Resources), Planning Commission made a presentation to the Prime Minister in a meeting held on 6th April 2011 on the topic "Integrated Action Plan for Sustainable Water Management", wherein it was decided that:

(i) Ministry of Water Resources in consultation with the Planning Commission should prepare a comprehensive document on water related issues for consideration of the NDC; and

(ii) Development of State-specific action plans in consultation with the States on the lines indicated in the meeting.

On the points (i) and (ii) above Ministry of Water Resources informed that they are in broad agreement with the views presented by the Planning Commission in the meeting taken by Prime Minister and accordingly initiated action to address these issues in the revised National Water Policy.

ANNEXURE

(Annexure to Lok Sabha Unstarred Question No. 2854 for Reply on 29.08.2012)

AGENDA ITEM: MANAGING INDIA'S WATER RESOURCES Management of India's water resources poses a major challenge and one that will increase in urgency and complexity over time because the total availability of fresh water is finite and rising population and expanding agricultural and industrial production have led to rapidly expanding demand for water.

Agriculture accounts for 78% of national water use and in recent years there has been a steady increase in the dependence on groundwater for irrigation. Unfortunately the dependence on groundwater has taken the form of unsustainable over-extraction, resulting in lowering the water table and adversely impacting rural drinking water supply, both in terms of availability and also quality as extracting water from ever lower levels is leading to arsenic and fluoride contamination. Energy consumption and efficiency of water lifting devices is a major concern. Our rivers also suffer from increasing pollution by chemical effluents associated with industrialisation and by untreated sewerage dumped in cities

The Complexity of the Problem

There are four aspects of the challenge of water management that have to be kept in mind in devising an integrated water strategy.

(i) First, the solution cannot be found simply through supply side measures. Although drinking water needs account for only 3% of available supply and can easily be met, the demand for water from agriculture and industry can be expected to rise sharply as the country transitions to rapid growth. There is scope for expanding supply, including through construction of storage dams, but a large part of the solution has to come from management of demand, i.e., increased efficiency in water use. While supply side solutions - the construction of large dams - have many proponents there is little support for measures aimed at reducing water use.

(ii) The scope for demand management in the agriculture is particularly important since agriculture currently consumes 78% of total water use and current irrigation practices are extremely wasteful. Poorly maintained canal systems (reflecting the low user charges) are reflected in reduced irrigation capacity and seepage, which in many parts of the country is leading to water logging and increased salinity. Furthermore, our agricultural practices are not geared to maximising water use efficiency. Extensive use of flood irrigation of paddy wastes a great deal of water compared to the alternative System of Rice Intensification (SRI).

(iii) Supply side solutions vary greatly in relative costs. Construction of large dams has the advantage of increasing storage, which is relatively low in India on a per capita basis, but it is also very much more expensive. Besides the effective storage achieved by large dams and also the area irrigated is much less than asserted during the design stage. Greater attention therefore needs to be paid to other lower cost methods of improving water availability through watershed management and rehabilitation of traditional water harvesting structures. These low cost methods may often be just as good for agricultural productivity when combined with a shift to more water efficient agricultural practices. Similarly, treating water and recycling it for certain types of industrial use may be much more cost effective than relying on expanding fresh water sources. Since resources are scarce their allocation across different methods of managing supply has to be determined on the basis of relative cost effectiveness.

(iv) A general message emerging from the MTA is that water resource management cannot be tackled holistically unless we get out of silos which currently deal with various aspects of water. For example, responsibility for ensuring adequate availability of water for agricultural use is divided between the Ministry of Water Resources, which is responsible for major, medium and minor irrigation, the Department of Land Resources which is responsible for watershed management, the Department of Rural Development which is responsible for MGNREGA that gives priority to water conservation, and the Department of Agriculture which deals with water use efficiency. At times, the action of one part of the system undermines the objectives being pursued by the other. Rural drinking water is dealt with by the Department of Drinking Water supply (DDWS) within the Ministry of Rural Development, but since it relies on groundwater, the sustainability of its efforts is threatened by the growing dependence of irrigation on groundwater.

Reforms in Major and Medium Irrigation

We need to urgently put in place an agenda for reforming the way we implement irrigation projects in India., This should cover issues related to project design and implementation, command area development and stakeholder participation:

(i) Water charges are at present grossly inadequate covering only about 15 percent of the operation and maintenance cost. They should be raised progressively so that the financial position of the irrigation sector is made viable at least on operation and maintenance.

(ii) The present system of expanding the number of projects when resources are not available to complete ongoing projects is wasteful. No new projects should be taken up until resources are found to complete the ongoing schemes. Benefit Cost ratios must be accurately calculated for each new project to ensure that only worthwhile projects are taken up.

(iii) Creation of irrigation potential should be recognized only when there are no gaps in the main branch canals, and water is capable of flowing through sections recognized for creation of IP; and not just the main branch canals, but also all associated minors and distributaries have been completed. Except for preliminary expenditure, no major investment on a project should be made unless the issues of land acquisition, relief and rehabilitation, and forest clearance are sorted.

(v) It should not happen that the dam is constructed but the distribution system is not making headway making the investment idle and at times infructuous. Command area development should occur *pari passu* with the creation of infrastructure. CAD must carefully integrate traditional water harvesting systems already existing in the command. 10% of the AIBP command must mandatorily be provided with water saving micro-irrigation techniques.

(vi) An agricultural improvement programme focused on improving water use efficiency and agricultural productivity must be dovetailed into the AIBP. Revision of water charges is an important instrument for promoting water use efficiency.

(vii) For command area development to be effective the participation of farmers as stakeholders in the process must occur right from the planning and implementation to monitoring and maintenance. For this, WUAs need to be set up within the framework of the PRIs and provided with autonomy, incentives and powers.

(viii) The profile of irrigation department officials needs to be broadened to include not only engineers (who provide technical inputs) but also social mobilisers (including social workers and anthropologists) who would understand social dynamics of farmer stakeholders and their motivational structure.

(ix) All of this must occur within a new institutional, legal and regulatory framework. The establishment of a Water Resources Regulatory Authority by Maharashtra points the way to new regulatory structures for managing irrigation systems, and States would be well advised to draw lessons from this experience.

Reforms Related to Ground Water Use

The present excessive use of groundwater in Punjab and Haryana and also in some of the Southern States is causing serious damage to the long term health of the agricultural economy in these States. The Model Groundwater Control Bill (2005) circulated by the Government of India does not address the central problem of limiting exploitation of ground water to appropriate levels. It only restricts the sinking new tube-wells in areas with falling water tables, effectively conferring monopoly powers on existing tube wells which are simply used to sell water to other farmers. The model bill does not clearly prioritize uses of groundwater, nor does it differentiate between commercial and non-commercial uses. The following corrective steps are needed:

(i) There is need for a much more comprehensive legislation which would have to take into account the need to involve all stakeholders, including those not owning lands but have a legitimate claim on groundwater for domestic use.

(ii) As a means of containing groundwater use, States should move away from the widespread practice of underpricing power for agriculture. If it is difficult to raise power rates, consideration should be given to imposing a cess on electricity for agricultural use to be earmarked in ground water recharge.

(iii) Legislative changes will need to be backed up by action on the ground, involving partnerships between stakeholders at the village level on the one hand, and hydro-geologists along with social mobilisers, on the other. Such a group could guide in collective sharing and sequential use of groundwater, based on a careful understanding of the storage and transmission characteristics of different aquifers in the diverse hydro-geological settings of the country. Promising work on a reasonable scale has started in this direction in seven drought-prone districts of Andhra Pradesh. The project employs participatory hydrological monitoring, by engaging farmers in data collection and analysis, and building their understanding of the dynamics and status of groundwater in local aquifers. This is complemented with crop water budgeting, whereby the quantity of water required for dry crops is assessed at the aquifer level and compared with the amount of groundwater actually available. Crop water budgeting is conducted in aquifer-wide meetings at which the water budget is produced with thousands of farmers in attendance. The total outreach of the program is estimated at about one million farmers.

Rural Domestic Water

An innovative approach is needed to tackle the problem of rural drinking water which is increasingly posing a major challenge. Closely, co-ordinated action is required in several inter-related areas. The details have been elaborated in the MTA document but the main points are summarized below:

(i) Create essential data and knowledge-base to enable water appropriators to make informed decisions.

(ii) Develop aquifer management plans to that holistic management of groundwater becomes possible with a clear sense of priorities.

(iii) Provide the necessary framework and resources for awareness generation and capacity building among stakeholders to help them make high-quality informed decisions.

(iv) Create the supportive legal regulatory framework to facilitate stakeholders' action.

(v) Set up multiple layers of nested institutions within which appropriation, provision, monitoring, regulation, enforcement, conflict resolution and governance activities can be organized.

(vi) Deploy adequate human resources at the cutting edge level of implementation at the block-level and below.

(vii) Address water quality issues on a high priority.

Floods and Flood Management,

The following steps are needed to tackle the problem of flood management:

i) Structural measures for flood management involve construction of barrages and storage upstream. However in the Indo-Gangetic Plain, such measures require collaboration with Nepal.

ii) Non-structural measures like rainfall-runoff modelling, flood forecasting and warning, flood-proofing and flood plain zoning also need to be promoted. Protection measures must be based on the recurrence interval of the flood.

iii) The issue of flooding of the lower riparian States by sudden release of water from the dams in upper riparian States is emerging in some of the inter-state river basins. We need to have a re-look at the reservoir operational rules for all the major reservoirs in such basins for addressing this issue.

iv) Related to the flood problem is the issue of water logging. The most urgent task for waterlogged areas is to make a comprehensive drainage plan linking the waterlogged lowland with the nearest watercourse. The low land slopes in the flood plain- pose a serious problem here, requiring careful planning and coordination across several villages/ panchayats. In many places, existing drainage channels have either got obstructed due to cultivation or encroachment or are wrongly constructed so that water does not drain out. Corrective steps would involve clearing blocked channels and also correcting location in some cases. Natural drainage also gets disturbed due to construction of railway lines, roads, embankments and irrigation canals. Part of the waterlogged area could be used for construction of small multi-purpose farm ponds. Experiments have shown that in waterlogged areas, cultivation of water chestnut (*Trapabispinosa*) can be quite profitable. Research and field level trials should proceed towards identification of extra-tall varieties of paddy that can grow fast and can tolerate water-logging. In situ rainwater conservation in the upper catchment and intensification of

the use of groundwater through shallow tube-wells are possible interventions to mitigate the problem.

Urban and Industrial Water Supply

Reform of the urban water sector must follow international practices, which is committed to reducing dependence on fresh water and focused on treatment and recycling of waste-water, which also reduces pollution. A key element of this has to be planning for safe disposal of waste. Today our installed capacity to treat waste is less than 20 per cent of what we generate. The investments we are making in cleaning rivers will not yield results unless we have better plans in place for safe disposal of waste, which continues to pollute our rivers.

The Planning Commission is currently engaged in preparing an Action Plan for Comprehensive Water Security Management for consideration of Government. This paper will carry forward ideas for taking a unitary view of the hydrologic cycle and moving beyond the silos into which we have divided our approach to water. It will outline the contours of the new legal, institutional and regulatory framework within which we need to reform our water sector, drawing upon the best examples from international experience.