**Lecture 48. National Water Policy and Participatory Irrigation Management**

**48.1 National Water Policy (NWP)**

India has more than 17 percent of the world’s population, but has only 4% of world’s renewable water resources with 2.6% of world’s land area. There are further limits on utilizable quantities of water owing to uneven distribution over time and space. In addition, there are challenges of frequent floods and droughts in one or the other part of the country.

Lack of understanding about scarcity of water, its life sustaining and economic value results in its mismanagement, pollution, wastage, reduction of flows below minimum ecological needs and inefficient use. In addition, there are inequities in distribution and lack of a unified perspective in planning, management and use of water resources.

The objective of the NWP is to take cognizance of the existing situation and create a system of laws and institutions, for plan of action in national perspective.

The main emphasis in the Draft of National Water Policy 2012 is conservation and efficient use of water. The policy also does away with the priorities for water allocation mentioned in 1987 and 2002 versions of the policy (Table 48.1). The other major recommendations are:

i) to ensure access to a minimum quantity of potable water for essential health and hygiene to all citizens, available within easy reach of the household,

ii) to curtail subsidy to agricultural electricity users,

iii) setting up of water regulatory authority,

iv) to keep aside a portion of the river flow to meet the ecological needs and to ensure that the low and high flow releases correspond in time closely to the natural flow regime,

v) to give statutory powers to Water Users Associations to maintain the distribution system,

vi) project benefited families to bear part of the cost of resettlement & rehabilitation of project affected families,

vii) to remove the large disparity between stipulations for water supply in urban areas and in rural areas. (Source: Michael, 2010)

Planning, development and management of water resources need to be governed by common integrated perspective considering local, regional, State and national context, having an environmentally sound basis, keeping in view the human, social and economic needs. Water needs to be managed as a common pool community resource held, by the state, under public trust doctrine to achieve food security, support livelihood, and ensure equitable and sustainable development for all.

Water is essential for sustenance of eco-system, and therefore, minimum ecological needs should be given due consideration. Water, after meeting the pre-emptive needs for safe drinking water, sanitation and high priority allocation for other domestic needs (including needs of animals), achieving food security, supporting sustenance agriculture and minimum eco-system needs may be treated as economic good so as to promote its conservation and efficient use. Availability of utilizable water resources and increased variability in supplies due to climate change, meeting the future needs will depend more on demand management, and hence, this needs to be given priority, especially through:

Table 48.1. National Water Policy during 1987 and 2002

|  |  |  |
| --- | --- | --- |
| Issue | National Water Policy (1987) | National Water Policy (2002) |
| Allocation priority | 1. Drinking water  2. Irrigation  3. Hydro-power  4. Navigation  5. Industrial and other uses   “However these priorities might   be modified if necessary in   particular regions with reference   to area specific considerations.” | 1. Drinking water  2. Irrigation  3. Hydro-power  4. Ecology  5. Agro-industries and non- agricultural industries  6. Navigation and other uses |
| Service   provision | No mention. | Private sector participation   should be encouraged in   planning, development and   management of water   resource projects for diverse   uses, wherever feasible.   Depending upon the specific   situations, various combinations of private sector participation, in building, owning, operating, leasing and transferring of water resources facilities, may be considered. |

(Source: <http://www.downtoearth.org.in/content/national-water-policy-2012-silent-priorities>).

(a) evolving an agricultural system which economizes on water use and maximizes value from water,

(b) bringing in maximum efficiency in use of water and avoiding wastages,

**48.2 Water Distribution in Canal Irrigation Systems**

Different methods of water distribution are following in canal irrigation. These distribution systems are being practiced in India to ensure and to meet the crop demand.  The commonly used distribution systems in irrigation canal are:

i) Warabandi or Osrabandi

ii) Shejpali

iii) Zonal irrigation

iv) Localized system

**i) Warabandi or Osrabandi:** It is a rotational method for distribution of irrigation water, with fixed time allocations based on the size of landholdings of individual water users within a water course command area. It presupposes an overall shortage of the water supply. The primary objective of the method is to distribute this restricted supply in an equitable manner over a large command area. This system has been successfully adopted in Indo-Gangetic plains.

**ii) Shejpali:** In this system estimate of expected water availability are made. Water is then sanctioned taking into account the total demand and the water availability. This system is practiced in Maharashtra, parts of Gujarat, and Karnataka.

**iii) Zonal irrigation:** In this system command area is divided into two halves. Water is made available continuously in one half of the area for one season for a period of four months in a year. The other half gets irrigation water sufficient for wet land crops the next year. This system is being practice in Tamilnadu.

**iv) Localized system:** This system is applicable in paddy grown areas in which irrigation flow below the canal outlet is allowed from one field to another through surface flooding. This practice usually results insufficient water distribution and low fertilizer use efficiency.

**48.3 Participatory Irrigation Management (PIM)**

As the name (PIM) indicates it is co-operation and involvement of farmers in operation, management, and maintenance of the irrigation systems at secondary and tertiary levels through forming  “Water User’s Associations” (WUAs). It is a tool for improving irrigation management along with sustainability of the system. Participatory Irrigation Management (PIM) is conceived as panacea (remedy) for the ills of irrigated farming.

**48.3.1 Objectives of PIM**

Major objectives of PIM are stated below

1. To initiate participation of the farmers in water management, irrigation scheduling, distribution and maintenance of system at micro level.

2. To create a sense of ownership of water resources and the irrigation system among the users, so as to promote economy in water use and preservation of the system.

3. To achieve optimum utilization of available resources through sophisticated deliveries, precisely as per the crop needs.

4. To achieve equity in water distribution.

5. To increase production per unit of water, under both the circumstances of water scarce and adequate availability.

6. To make best use of natural precipitation and ground water in conjunction with flow irrigation for increasing irrigation and cropping intensity.

7. To facilitate a choice of better crops, cropping sequence, timing of water supply, and period of supply and frequency of supply depending on soil, climate and other infrastructure facilities available in commands such as roads, transportation, markets cold storages, etc., so as to maximize the incomes and returns.

8. To encourage collective and community responsibility on the farmers to collect water charges and payment to Irrigation Agency.

9. To create healthy atmosphere between the Irrigation Agency personnel and the users.

10. Coordinating post-harvest activities (grading, packaging, storage, marketing etc.) so as to derive maximum benefits.

**48.3.2 Necessity of PIM**

**a) Need of Increase in Agricultural Production**

The human as well as cattle population has been increasing all over the world and more so in India. As such the need for food, fiber, fuel, fodder etc. has also been increasing with growing demand. Aside from providing more food, increasing the productivity of farms affects the region's prospects for growth and competitiveness on the agricultural market, [income distribution](http://en.wikipedia.org/wiki/Income_distribution) and savings, and labour migration. It is, hence, imperative to increase the agricultural production to match with the requirement.

Irrigation being lifeline of agriculture, its development and efficient management is the necessity of the day. Increasing the existing reservoirs capacity and taking up of new projects is causing serious financial and social problems. So far as ground water development is concerned, it has its own limitations and the most important being over exploitation of this resource at many places particularly in many parts of India. Hence proper management of already created water resources development structures is extremely essential at this juncture, in order to maintain the balance between need and the agricultural production. Since farmers are the real stakeholders, they have to come forward through their associations to look after their interest so that they get water from the system according to the predetermined time and space for planning their crops. It also helps in cost management.

**b) Problem of Fiscal Availability**

There is a severe budgetary competition at the government level under different sectors. The ratio of financial outlay for the irrigation sector to the total outlay is coming down year after year. Moreover there are many incomplete irrigation projects, where work is going on and there is demand of meeting the regional balance to provide irrigation facility almost all over. Under such circumstances, investment of more money by the Government on operation and maintenance of the old system appears difficult. Thus, farmers have to take up this responsibility themselves in order to avoid over burdening of the Government exchequer and to become self-dependent.

**c) Recovery of operation and maintenance cost and recovery of irrigation charge**

The Operation &Maintenance cost is much higher than the recoverable irrigation charges as per the present rate. Even these low rates are not being recovered in full. Often the cost of recovery of water charges by the Government is more than the amount recovered. This is causing severe budget constraints to Government and consequently O&M could not be properly carried out resulting in system deficiency and unreliability of irrigation water to farmers. The Water Users’ Associations could play this role in a better way.

 Besides above aspects, there are other compulsions like non availability of water when it is needed, taking immediate problems like leakages, adopting flexibility in water distribution and taking many more initiatives by farmers’ group to make their farm economy a sustainable proposition, PIM appears extremely necessary and worthwhile.

(Source:http://wrmin.nic.in/writereaddata/mainlinkFile/File421.pdf)

**48.4 People’s Participation in Managing Irrigation System in India**

Public participation is needed at the planning, project concept, design, implementation and operation stage. Although decision making is the key part of management. However participation also involves a major role to play. People’s participation in irrigation systems management can enhance agricultural production. People directly involved in irrigation fall into two categories:

**Farmers:** Peoples who make use of irrigation water for agricultural purposes on their own land.

**System Managers:**People who are employed to manage and make the irrigation system function work.

The Rajasthan Farmers Participation in Management of Irrigation Systems Act (2000) provides farmers participation in the Management of Irrigation System and for matters connected with or incidental to. The act provides to draw or trace the outline of water users' area and territorial constituencies. The Project Authority, by notification delineates every command area under each of the irrigation systems on a hydraulic basis which may be administratively viable and declare it to be a water user’s area for the purpose of this Act. Every water users' area shall be divided into territorial constituencies which shall not be vary from four to ten, as may be prescribed.

The Andhra Pradesh Farmers Management of Irrigation Systems (APFMIS) Act, enacted in 1997 (Government of Andhra Pradesh, 1997), provides the basis for the take-over of the management and maintenance of irrigation systems by Water Users Associations (WUAs). This Act aims at reforms of irrigation management at both system and agency levels, and devolves powers to the water users.

The Water Users' Association shall perform the following functions, namely:

1. To prepare and implement a warabandi schedule for each irrigation season,

2. consistent with the operational plan, based upon the entitlement, area, soil and

3. cropping pattern;

4. To prepare a plan for the maintenance, extension, improvements, renovation and

5. modernization of irrigation system in the area of its operation and carry out

6. such works of both distributary system and field drains in its area of operation

7. with the funds of the association from time to time;

8. To regulate the use of water among the various outlets under its area of

9. operation according to the warabandi schedule of the system;

10. To promote economy in the use of water allocated;

11. To prepare demand and collect water charges;

12. To maintain a register of land owners as published by the revenue department;

13. To prepare and maintain an inventory of the irrigation system within the area of operation;

14. To monitor flow of water for irrigation;

16. To resolve the disputes, if any, between its Members and water users in  its area of operation;

17. To raise resources;

18. To maintain accounts;

19. To cause annual audit of its accounts;

20. To assist in the conduct of elections to the Managing Committee;

21. To maintain such other records, as may be prescribed;

22. To abide by the decisions of the distributary and Project Committee;

23. To conduct General Body meeting in the manner, as may be prescribed;

24. To encourage avenue plantation on canal bunds and tank bunds by leasing

25. such bunds, and

26. To conduct regular water budgeting and also to conduct periodical social

27. audit in the manner, as may be prescribed.