WATER MANAGEMENTIN 21ST CENTURY: PRIORITY ISSUES

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The sharp increase lately in the demand of water is attributed to the unabated population growth and industrial development. Giving rise to serious neglect of traditional institutional laws of ethical management of water resources and neglect of arrangements resulting in increased pollution and dwindling of water supplies. This has brought the issue of policies and institutional management at the centre of water management issues in India.

IMPORTANCE OF WATER INSTITUTION

The sharp increase in the demand of water lately is giving rise to serious neglect of traditional institutional laws of ethical management of water resources and neglect of arrangements, resulting in pollution and dwindling of water supplies. This has brought the issue of policies and institutional management aspects at the centre of

Basic approaches to meet demand

Supply Side: Develop more infrastructures and more rainfed and irrigated land to supply more water for more agriculture.

Conservation: Reduce wastage and loss of water by agriculture and other sectors.

Unit Productivity of Water: Increase the productivity of water for each drop consumed by agriculture.

BASIC APPROACHES TO INSTITUTIONALISE WATER SECTOR WATER

Approaches to overcome the water sector problem in India has been under deliberation and in operation for a long time through centralized planning commission led institutional arrangement as the problem is daunting. The arrangements work at central,state,district level earlier recently local bodies,PRI,NGOs and other s are also involved


India
AGRO-ECOLOGICAL SUBREGIONS
Km 100 10 100 300 500 Km
CHINA
TIBET
NEPAL
PAKISTAN
BAY OF BENGAL
ARABIAN SEA
INDIAN OCEAN
JAMMU & KASHMIR
PUNJAB
HARYANA
RAJASTHAN
UTTAR PRADESH
BIHAR
GUJARAT
MADHYA PRADESH
MAHARASHTRA
ORISSA
W.B.
ASSAM
MEGHALAYA
MANIPUR
ARUNACHAL PRADESH
ANDHRA PRADESH
KARNATAKA
KERALA
TAMIL NADU
LAKSHADWEEP (IND IA)
ANDAMAN & NICOBAR ISLANDS (IND IA)
1.2 A13E12
1.1 A13Eh1
14.2 A15Cd(cm)6
14.1 A15Dd(cd)3
14.3 A15B(A)9
14.5 A10A9
9.1 N8Dm(cd)4
13.2 B10Cm6
16.3 C1A10
16.2 C11A10
16.1 C10A9
15.4 Q8A10
15.2 Q8B8
17.1 D2A9
15.3 Q8A9
17.2 D3A10
13.1 Q8Cd(cm)6
2.1 M9Eh1
2.3 M9E12
4.1 N8Dd3
4.3 N8Dm4
4.2 P14Dd8
4.4 I6Dm4
9.2 N8Cd5
2.2 L12Eh1
10.3 I6Cd5
10.1 I5Cd5
5.2 I5Dm4
10.4 K6Cm6
11.0 J3Cd(cm)5
12.3 J2Cd5
15.5 Q8Cm7
12.2 H20m6
18.5 S7Cm7
10.2 K4Dm4
6.3 K5Dm4
5.3 L7Dm4
19.1 E6B8
12.2 H20m6
12.1 J2Cm6
18.4 S7Cd6
6.2 K4Dd4
6.1 K4Dd3
7.2 K6Dm4
7.3 H6Dm/Cd5
6.4 K4Cd5
7.1 K6Dd3
18.3 S7Cd5
19.3 R7A(B) 8(7)
19.2 E2Cm/B7(8)
8.2 K1Dm4
8.3 H1Dm4
18.2 S7Cm4
8.1 H6Dd3
20.2 U16B8
18.1 S7Dd3
20.1 T3A10
REFERENCE
D DELHI
S SIKKIM
N NAGALAND
M MIZORAM
T TRIPURA

RAINFED SYSTEM MANAGEMENT

Community based watershed development approach has become the guiding principle for rejuvenation of natural resources for poverty alleviation, income distribution and socio-economic development.

The new institutional initiative Hariyali launched by the Prime Minister of India is a major step in this direction. Adoption of such institutional practices on the basis of community and watershed has produced more spectacular results, by including technologies for enhancing the productivity of water in rainfed production system, rainwater harvesting and supplemental irrigation than

efforts at the individual level.

2001 onwards, harmonization in the implementation of various watershed development projects (under Ministry of Rural Development, Agriculture and Environment and Forests) was being done through major changes in policies (guidelines) and institutional arrangement for smooth functioning. The major projects/programmes, namely, NWDPRA, WDSCA, RVP, FPR,DPAP,DDP,IWDP,EAS implemented with more or less common policies(guidelines) and uniform institutional arrangements for financial and physical process management.

Reliable irrigation is the prominent input essential for green revolution technologies to realize high productivity and synergize the benefits of high yielding varieties, fertilizers, other production,mechanization,institutional, human and management inputs

- Due to steep rise in population, the per capita availability of foodgrain area during the period declined steeply from 0.23 ha to 0.12 ha
- The improved technology has contributed in improving the foodgrain productivity from 8.71 q/ha to 16.36 q/ha
- Availability of efficient irrigation recognized as a pre-requisite for the adoption of other yield enhancing technological inputs.

Groundwater Management

Groundwater is accessible to a large number of users, cheap, convenient, individual supplies, & less capital intensive to develop, and does not depend upon mega water projects. It is important to realize that groundwater development has had an 'equalizing' influence unlike canal irrigation, access to groundwater irrigation is more egalitarian. Between 1970-95, the rapid growth of G W irrigation in S Asia (India, Pakistan, Bangladesh) and North China plains was at the heart of an agrarian boom. This placed Asia's groundwater socio-ecology under siege (Debroy and Shah, 2002).

Groundwater depletion, pollution and water quality now cause concerns about their environmental consequences as the number of regions that have sustainable groundwater balance in India is shrinking gradually.

Three problems dominate groundwater use:

(1) depletion due to overdraft;

(2) waterlogging and salinization due mostly to inadequate drainage and insufficient conjunctive use, and

(3) pollution due to agricultural, industrial and other human activities.

Declining water tables raise the energy and capital costs of accessing groundwater to prohibitive levels.

upply-Side Management: Popularise mass based inwater harvesting and groundwater recharge, nproving incentives for conservation and tificial recharge,regulation for protection gainst pollution.

roundwater Management in the River Basin ontext: Planning and managing groundwater for aximum basin-level efficiency, using aquifers as ter year water storage systems, trans basin ovement or surface water systems

formation Systems and Resource Planning: round water monitoring, planning use of the source & scientific research on augmenting and anaging the resource.

Crisis of Irrigation Sector

- Inadequate budgetary allocations
- Low irrigation water rates and their poor recovery
- Inadequate maintenance of irrigation works
- Meager financial resources available for organization and management
- Highly subsidized electricity for irrigation pumping
- absence of any groundwater extraction charges and regulation policies

Alternative strategy

- The only alternative available to reduce the investment requirements is through improving the water productivity through its multiple uses. Several studies, demonstrations and the experiments at the cultivators fields have shown that considerable potential exists between the actual and potential yields.

We need a **Blue Revolution** in agriculture that focuses on increasing productivity per unit of water - **"more crop per drop" -**

"World Summit on Sustainable Agriculture - 2002"

ICAR - Vision 2020

Promotion and Think Tank role rather than implementation of programme