INTEGRATED USE OF WATER RESOURCES AT RIVER BASIN LEVEL

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Introduction

Though the topic given to me was "Conjunctive Use of Water Resources at River Basin Level" I have substituted the word "Conjunctive" with "Integrated" on purpose because the word "conjunctive" is used in a very restricted manner in irrigation parlance to mean use of surface water together with ground water. However, I think there is a need to go beyond the conventional ideas of "conjunctive use of surface water and ground water" and broaden its purview to mean integrated use of both local and exogenous water and surface and ground water. In other words integrated use of water resources at basin scale should be seen at different scales (micro watersheds, sub-basins to basins) and across different sources (mainly surface water and ground water).

Though the various water policy documents have been talking about the need for planning and utilisation of water resources at basin scale, the emphasis so far has been on project centric planning and utilisation of water. This has given rise to various problems including polarized discourse on water and different types of binaries: irrigated versus rain-fed, small versus large, local versus exogenous, surface water versus ground water, abstraction for different uses versus environmental flows, head-enders versus tail-enders, upstream versus downstream, so far and so forth. True integrated water resource planning and utilization at different scales and sources has the potential to go beyond the polarized discourse and different types of binaries (as mentioned above) and restructure the water sector in more sustainable, equitable and democratic lines.

Core concerns Underpinning Integrated Water Use

The first issue that needs to be sorted out is why should we go for integrated water resource planning and use. My proposition is that the main objectives underpinning the integration should be to achieve greater equity, sustainability, efficiency, assurance of livelihoods and participatory decision mining and management (governance). In the session I would try to discuss what all these concepts and how they would give a direction to the integrated basin planning and water use.

Matching Needs and Availability

The first step is to assess what are the water requirements/needs and how we prioritise them. Some of the important needs are: 1) domestic water needs (drinking water, cooking and allied uses, bathing and sanitation needs, water for livestock, etc.), 2) livelihood water needs, 3) environmental water needs, 4) water for commercial uses (industrial water use, commercial agriculture, etc.). Keeping equity and sustainability and livelihood assurance the

session would try to arrive at optimum water use prioritisation. The session would also discuss the difference between sequential water use prioritisation and sequential water use prioritisation and argues that the critical needs like domestic water, livelihood water and environmental flows need to be seen in terms of sequential water use prioritisation and only after meeting these needs water should be allocated for commercial use.

Methodology to Assess Water Requirements

There are certain standard ways of estimating domestic water needs. For example WHO has a norm of 100 liters per person per day. There could be different ways to estimate the water requirements for livelihoods and it is important to understand the livelihood pattern of the area (micro watershed, sub-basin, basin). In the session taking agriculture as the dominant livelihood activity an attempt would be made to work out the water requirement. One of the methods that could be used is the biomass based water requirement and in the session this method would be used to work out the water requirements.

Water availability

The next step is to work out the water availability. The session would discuss some of the important principles and assumptions like 1) if the water requirements can be met from water from a lower hydrological unit then water should not be brought from a larger unit (or what is called exogenous water), 2) environmental flows to be ensured, 3) water availability to be estimated at higher dependability, say 80%.

A simple water balance can be worked to see how much water is available.

Then we can see whether the available water is enough to meet the various requirements, if not what is the gap and to fill the gap how to get water from exogenous sources.

Building a Basin Level Plan: Micro Watershed as the Starting Point

The micro watershed plans that take into account the water needs and water availability to higher units like sub-basins and basins. Of course the pan cannot be simple summation as there could be certain pockets which would require special attention like urban concentrations, etc.

Nested institutions: Key to Integrated Basin Planning and Water Use

Institutions are the key for the integrated planning and water use. Though participation has become the key word in water management it is often restricted to either water users associations or Pani Samitis or Watershed Development Committees with very limited powers. They are also basically seen as management instruments for efficiency than genuine water governance institutions. So the first step is to develop institutions at the lowest level for integrated water use.

The second step is to federate the micro level institutions at different scales finally ending with a genuine, democratic basin level institution (which can be the river basin organisation). Presently the river basin organisations are being talked about or being set up as a top down, bureaucratic set ups and we need to move away from them. These institutions should have representations from all important stakeholders and could function

as multi-stakeholder platforms. These would be the forums that would approve the integrated water sue plans, decide on water use prioritisation and allocations, solve different types of conflicts, etc.

Data: Quality and Access

Another important pre-requisite is availability of reliable, good quality data and its access to different stakeholders. In India one of the biggest problems has been absence of good quality data. The meteorological stations and gauging stations are very few and also there is a need to broad base the process of data collection and also need to ensure quality. The data should be available on the public domain.

Examples of Integrated Planning and Use

If time permits the session would also discuss two examples of integrated planning and use with the hope that these examples would further illustrate the concepts that we discussed above. The first one is the Ozar example in Nashik district in Maharashtra. Here the local NGO Samaj Parivartan Kendra (SPK) with support from Society for Promoting Participative Ecosystem Management (SOPPECOM) initially set up three WUAs in the command area of Waghad Medium Irrigation Project which went beyond the conventional mandate of WUAs and brought in integrated use of local and exogenous water and surface and ground water. They also monitored the wells in the command area and also started charging the well owners for using the well water. Within a few years they set up WUAs all over the command area and federated them. Now the entire command is managed by the federation of the WUAs.

The second example is from the Narmada basin. Many major and medium projects are built/being built in the basin as part of the Narmada basin development plan. However there have been no efforts to develop an integrated basin plan; instead they went for a project based strategy to utilise the water share of each of the riparian states. These projects have been very controversial right from the beginning leading to conflicts. Narmada Bachao Andolan (NBA) has been spearheading the opposition to these dams. One such dam is the Sardar Sarovar Project (SSP). There has been an effort to develop an alternative to the present SSP by applying some of the principles of integrated water resource planning and use that we discussed above. It has come out as a book titled “Sustainable Technology: Making the Sardar Sarovar Project Viable – A Comprehensive Proposal to Modify the Project for Greater Equity and Ecological Sustainability” (Suhas Paranjape and K. J. Joy).