Interdisciplinarity & Participation in IWRM

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IWRM

The Integrated Water Resource Management (IWRM) paradigm of water management is a participatory, inclusive, integrated approach which includes consultation and inclusion of political institutions to enable the mediation of the conflicting interests of water users and the agencies which manage water.
The Global Water partnership IWRM defines as follows:

IWRM is a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystem (GWP 2000; 22).

As the definition shows, IWRM is not a stand-alone activity but a process which involves evolution over a period of time and hence the stages of development vary across space and time. Consequently, there are differences in the understanding and implementation across different countries; generally, there are marked variations between the North and the South, variation in the purposes or focus of IWRM and difference in the methods of implementation. However, there are some basic features which are identified as common universally. These are:

a. holistic approaches to water management rather than sectoral approach;
b. integrated planning and coordination among different sectors/uses/users group;
c. integrated utilization of water resources towards achieving both social and economic welfare of society;
d. equity in the distribution of water;
e. sustainable development and use without affecting ecological foundation of the resources; and
f. involvement of both state and community (stakeholders) as equal partners in the prioritization of water uses and implementation.

The IWRM concept underlines certain institutional and socio-economic principles. The institutional principles are:

- Management at the lowest appropriate level;
- Participation of all stakeholders and users;
- Inclusion of vulnerable and marginalised sections of society, including women.

The socio-economic principles are:

- Consideration of the both the Social and economic aspects of water;
- Needs of all users in a sustainable manner should be considered.

Thus IWRM goes beyond the efficiency paradigm as it is not just about more efficient management of physical resources (land, water, forests, fisheries, livestock but also about reforming human systems to enable people—women as well as men—to reap sustainable and equitable benefits from those resources.
Apart from al these, there is also the critical issue of allocation, which is unavoidably a political process due to the competing claims for water, the competing interests over water management and the need for negotiations and optimal outcomes. In practice the political pressures associated with contentious allocation overwhelm the information provided by the technical professionals.

Therefore, this whole paradigm goes beyond a secotral and/or uni-disciplinary approach.

Thus, when we look a the features or characteristics of this paradigm, we find the main procedures followed are:
(i) interdisciplinarity and, (ii) participation/stakeholder involvement.

(i) Interdisciplinarity: Interdisciplinarity is a crucial feature because natural resource management problems are generally complex problems. These problems have multiple dimensions and no single discipline can capture that complexity. In relation to water, for example, a problem will have not only a technical dimension but have environmental, social/gender, political, economic dimensions too and these may sometimes even be conflicting among the various users. Therefore, unless the problem is approached in an interdisciplinary manner the solution will be either not be practical/effective or be of a very temporary nature. Thus, the process must take into consideration all dimensions. This is specially so because in the water sector, in most cases, the technological interventions are responses to real or perceived problems.

Technical disciplines and technology are not and cannot be stand alone and in isolation from other disciplines and dimensions. Technology cannot be seen as 'equipment' alone. Social processes, interests and goals influence technology – its innovation, form and practice. In addition to these social dimensions, institutional, economic and cultural factors too play a crucial role in shaping the form of technology: the content and practices; the direction and rate of innovation and, the outcomes of technological change for different groups in society (Williams and Edge, (1996). Thus, the development of technology is preceded by interaction of various social and technical elements. These different components cannot be separated from one another, or treated as distinct variables; they are in constant mutual tension.

There is also the view that technologies are not neutral, but are fostered by groups to preserve or alter social relations (Hard, 1993).

A whole social matrix exists where technology is introduced and these social matrix are impacted differently by the technology, so technologists also have to be more aware of all these. Once a technology is introduced it can and will have different impact for different people, it may even change the relationship between different people. (craft knowledge,

caste relations, gender relations, political monopolies, information monopolies) (Democratisation), and may also change our relationship with the environment. (Sustainability)

Thus, once a technology is introduced it has necessary and determinate 'impact' upon work, upon economic life and upon society as a whole: technological change thus produces social and organizational change. (Edge1988).
There is also the view that technology, once developed and implemented, not only react back upon their environments to generate new forms of technology, but also generate new environment (Fleck, 1993).

Thus, technologies are conditioned by social factors and the technologies in turn have diverse effects on society. In both cases the relationship and effects are non-linear and not a simple one-way process.

Interdisciplinarity is entwined not only with different disciplinary knowledge, but identity of individuals too. People coming from specific disciplines (technical/natural science or social sciences) come from different socio-cultural groups and setting, etc. and have different values, notions, assumptions (about the 'other'), etc. all of which gets reflected in their individual identities and thus in their behavior.

(ii) Participation/Stakeholder involvement: It is well recognized in all water policies that sectoral approach cannot be effective in addressing the water competition issue and hence there is need for an integrated approach. Therefore, for water policies to be more effective the involvement of stakeholders is vital during different phases of design and implementation. Participation and stakeholder involvement meaning from centrally administered to user-based management institutions is an important feature of IWR(A)M. It aims for participation not only at the local level (in the village or the local water users' group) but at the higher policy and regional level too where decisions are taken regarding the allocation and utilization of water resources for different purposes. The instruments are dialogues, multi stakeholder platforms/institutions and multi layered systems of resource governance.

Very often participation of the local communities or resource users is seen as a means to achieve certain goals, which is often set by the state or an outside agency. For example water users associations are being formed with the preliminary aim of increasing cost recovery in terms of collection of water charges and water use efficiency.

However, there is also the counter viewpoint, which values participation for its own sake irrespective of what outcomes it leads to, and utilizes participatory mechanisms and tools to increase the participation of local communities or users of resources. In this framework we see participation both as a goal of developmental (decentralized) process in that it helps communities make an informed choice and also as a means of more equitable access, sustainable and efficient outcomes.

Therefore, participation here does not take account of just the functional/efficiency aspect but also important aspect of bringing about decentralised, democratic governance in order to attain more equitable access and ecologically sustainable use of natural resources (water). Furthermore, since equitable access (and sustainable outcome/use too) does not emerge spontaneously unless conscious attempts are made to address them as issues and this often requires the intervention and support of outside agencies (of the experts, government agencies, ngos). Hence outside agencies should ensure that transfer of decision making and mobilization of public funds to the community are contingent on the disadvantaged getting a fair share and equable access of the resources and benefits, on their getting a greater voice in the decision making and on the community ensuring sustainable and regenerative us of the water resources.

Furthermore, the outside agencies also have a definite role: that of capability building of the community for informed choice and of raising issues related to equity and sustainability. However, it must be emphasized that capacity building is not a one way process. It is a two way process whereby the outside agencies too learn from the communities about the knowledge that already exists within the community and not have preconceived mindsets and notions.

The instruments are dialogues, multi stakeholder platforms/institutions and multi layered systems of resource governance**.**

This type of participation/stakeholder involvement has certain fundamentals:
(a) What type/ level/degree of participation:

- Active self-organisation of the community, not simply response to outside intervention;
- role not only in planning and implementation, but more importantly, in the governance of resource use and management in the long run (allocation, regulation);
- reverse accountability of outsiders (government, ngos, etc.)

(b) Who are included:- All stakeholders and users should be involved and participate.

(c) How? (methods):- Need to understand the constraints that might exist or factors that might influence people's capacity and willingness to carry out long-term NR governance:

- Socio-economic and cultural factors:
- Institutional factors:
- Knowledge and technological factors
- Bio-physical & Social Characteristics of Water

Crossing Boundaries
This approach with interdisciplinarity and participation/stakeholder involvement as the main features means the crossing of various types of boundaries. The boundaries are both horizontal and vertical:
Horizontal: across disciplines - those of technical/natural sciences vs. social science (Klien 2004); and across sectors.

Vertical: between experts, policy makers, practitioners, public - Research vs. practice, policy vs. practice. (Klien 2004).

In addition to these are *societal boundaries.*
Societal boundaries: between different groups and categories of people based on ethnicity, gender, class, caste, religion, etc. Societal boundaries can be both horizontal (communities, religion, gender) and vertical (class, wealth, gender).

The indisciplinarity approach involves and considers the both natural/technical science and social sciences and issues equally while addressing the concerns in the water sector, thus crossing the horizontal boundary. Similarly, this approach cuts across all sectors.

Participation and stakeholder involvement crosses the vertical boundaries as all the stakeholders are involved as the experts, policy makers, practitioners, public come together to find solutions for management of water resources.

Societal boundaries are also crossed by theses approaches as it needs the involvement of all categories and groups of people in the society irrespective of their power, social or economic differences.

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