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Critical review of integrated water resources management: Moving beyond polarised discourse

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Abstract

IWRM has emerged as a popular ideology in the water sector since the 20th century. From a highly techno-centric approach in the past, it has taken a new turn worldwide, following a Habermasian communicative rationality, as a place-based nexus for multiple actors to consensually and communicatively take decisions in a hydrological unit. This communicative practice expects to be consensual, stable and static in integration of water management. This how IWRM should be approach had a remarkable appeal worldwide as promoting authentic participation of all stakeholders in integrating water management. Its Foucauldian critiques argue how IWRM cannot be achieved given the power dynamics in social interactions. The critiques reveal that the domain of water resources management is a discursive terrain of collective action, contestation and negotiation, making water management a socio-political process, where there are multiple forms and meanings of integration. The emphasis is on complexities, contextuality, power dynamics and importance of analysing real world situations, but without proposing any concrete actions. These apparently contradictory discourses depict a polarised world of water management, without offering any insights for future water resource management. On one hand, the Habermasian communicative practice emphasises on 'ideal speech situations', in which no affected party is excluded from discourse or by asymmetries of power for collective decisions. On the other hand, the Foucauldian theory argues for analysing the real world situation of integration and the power dynamics. A prospective option to further the integration of water resource management is to consider these apparently contradictory discourses as interdependent by examining how integration actually does take place in a strategic context, notwithstanding the absence of Habermasian conditions and the presence of Foucauldian relations of power.

Keywords

water management, IWRM, policy, power

Introduction

IWRM has emerged as one of the popular development ideologies since the mid-20th century. It aims to integrate management of land and water towards sustainable development in both the developing and the developed world. Many international organizations (Global Water Partnership, International Water Management Institute, Food and Agricultural Organization; World Bank) and regional bodies emphasise the need to realign sectoral organizations along hydrological boundaries to integrate water resource management (for instance the European Union, through its Water Framework Directive on integrated river basin management). This represents a major policy initiative for many nations to protect environmental resources (for example in the US, UK, and Australia) and to alleviate poverty (for example in India, South Africa, Tanzania, and Zimbabwe). From a highly techno-centric approach in the past, in recent decades, it has taken a new turn following Habermasian communicative rationality for a place-based nexus for multiple actors to consensually and communicatively take decision within a hydrological boundaries unit. The paper reviews the experience of integrating water resource management from selected countries to draw lessons for sustainable management of water resources. The outline of the paper is as follows. The following section highlights the history behind integration of water resource management. The third section reviews the shortcomings of the Habermasian approach to integrate water resources in selected nations, representing continents, but at the same time outlines the inability of these critiques to offer a way out of the impasse. The last section highlights a way out of moving beyond this polarized discourse.

HISTORY OF IWRM

IWRM has captured the imagination of researchers, practitioners, government departments and research institutions since the early 20th century. However, in the second half of the 20th century there was a major shift in the focus of water management from single-purpose to multi-purpose storage projects, from river channel engineering to a basin-wide large-scale centrally administered public investment projects as a means for regional economic development (Wescoat, 1984:8-9). The state was considered the most appropriate agent in organising this shift. The rise of this new approach to water management closely relates to the science of ecology, particularly ecological research in Western Europe (for instance in The Netherlands) and North America (experience of the Tennessee Valley Authority) (Adams, 2001:22-25), which made the linkage between environment and development apparent. Integration emerged as an important tool for river basin or watershed planning.

The experience of integrated water resources management generated both problems and controversies in both developed and developing world. The problems were to integrate land and water, integrate natural territorial river basins with administrative organisations, and more importantly, political participation and behavioural consideration in the planning process (Wescoat, 1984:9). The controversies involved contestation of the rational techno-centric approach by various social movements, mainly in developing countries. Social movements (such as Narmada Bachao Andolan in India) began voicing the concerns of the people and, at the same time, contested the established norms of the state machinery. These developments highlighted the politically contested nature of the water management terrain. Such contestation questioned the linear model of water resources management to address poverty in a complex bio-physical environment. More important, the contestations highlighted the existence of local knowledge and their collective role in managing water resources (Ostrom, 1990). These developments, in both developed and developing countries, strongly influenced a consensual and communicative approach in depoliticising resource management by integrating different interest groups through a participatory approach, in addition to integration of land and water management. This communicative turn in IWRM was attractive for researchers and policy makers, as it aimed to involve all stakeholders, creating 'ideal speech situations', in which no affected party is excluded from discourse or by asymmetries of power for

collective decisions. This democratic turn also offered political significance for national and international communities.

The participatory approach gained prominence among practitioners and policy makers by way of advancing IWRM (Grimble & Chan, 1995; Svendsen, 2005). The importance of involving stakeholders to integrate institutions for water resources management was reflected in many of the key note papers at the UN Conference on Water and the Environment (ICWE) in Dublin (see for instance, Koudstaal, et al., 1992). These papers formed the guiding principles¹ highlighted in Agenda 21 recommendations adopted at the United Nations Conference on Environment and Development (UNCED) at Rio de Janeiro in 1992 (GWP, 2000). Chapter 18 of Agenda 21 explicitly referred 'integration' with water resources as an integral part of the ecosystem, natural resources and the socio-economic good (Section 18.8). It went further to elaborate on the fact that implementation should be carried out at the level of catchment or a sub-basin (Section 18.9). Though the section elaborates on 'integration', it falls short of providing a framework for its implementation.

The need for involving all stakeholders is also reflected in the formation of the Global Water Partnership (GWP), which emphasises partnerships among all those involved in sustainable management of their water resources. The consensus on the issue led to a comprehensive definition of IWRM by the GWP (2000:22), as "a process which promotes the coordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems" (emphasis added). The definition addresses water governance in a larger context and, as such, provides a comprehensive approach to build consensus amongst conflicting interests and calls for involvement of stakeholders at all levels (Jonch-Clausen, 2004). Further, it recognises water as a key determinant of the character and health of the ecosystems, and, as such, the hydrological unit, such as the watershed or river basin, as a logical unit for planning and management. This supersedes traditional multi-purpose natural resources management by explicitly encompassing societal goals and ecosystems functions. The GWP set up a tool box for operationalising the process (<http://www.gwpforum.org/servlet/PSP?chStartupName=water>). The tool box consists of an enabling environment (through policies, legislative framework and incentive structures), institutional roles through organisational structure and building institutional capacity, and by introducing various management instruments. The following section examines how various countries have adopted and practiced IWRM, which to a large extent follows this tool-box approach.

CONTEMPORARY ATTEMPTS AT IWRM

The all encompassing concept received wide recognition among national and international organisations, which operationalizes IWRM in different forms and in different meanings. Although the international organisations recognised the integrated nature of land and water, they focused on integrating different sectors of water resources, presuming that land management was an inherent component of water management. The World Bank conceptualizes IWRM as a "comb," in which the "teeth" are the water-using sectors and the "handle" is the resource itself, defined by its location, quantity and quality. This means addressing the following: institutional framework, the development and management of infrastructure, management instruments, and the political economy of water management and reform (World Bank, 2004 – Water Resource Strategy Paper). The United Nations-Water (UN-Water was endorsed as the new official United Nations mechanism for follow-up of the water-related decisions reached at the 2002 World Summit on Sustainable Development and the Millennium Development Goals) encompasses all aspects of freshwater that includes their quality and quantity, their development, assessment, management, monitoring and use (including, for example, domestic uses, agriculture and

¹ The principles highlighted are: (i) the need to consider the finite nature of water resources essential to life and, therefore called for holistic approach; (ii) water development and management to be based on participatory approach; (iii) highlighted the pivotal role of women as providers and users of water and guardians of the living environment; and (iv) emphasized water as an economic good (GWP, 2000).

ecosystems requirements) (UN-Water, <http://www.unwater.org/about.html> accessed 24 October 2007). Another United Nations agency, the United Nations Development Programme (UNDP) emphasises integrated approach to water resource management through effective water governance UNDP, 2007; <http://www.undp.org/water/accessed> 23 October 2007). Water governance here refers to the range of political, social, economic, and administrative systems that are in place to develop and manage water resources and the delivery of water services at different levels of society. It comprises the mechanisms, processes, and institutions through which all involved stakeholders, including citizens and interest groups, articulate their priorities, exercise their legal rights, meet their obligations and mediate their differences. The European Commission's Sixth Framework Program identifies five forms of integration – vertical, horizontal, activity, sectoral and financial (Von Kerkhoff, 2005) to prevent the deterioration of aquatic ecosystem and to restore polluted surface waters and groundwater through river basin management.

While international organizations have focused on utilising IWRM to integrate water-use sectors, national governments have been busy engaging with various international organizations and their discourses in formulating IWRM policies and programmes in their respective nations. Table 1 summarises some of the IWRM initiatives of a few nations. What is interesting is that these nations have embarked on IWRM to address water quality in the developed world, while alleviating poverty is a major concern in the developing world. Framing of statutory policies at the national level has remained to be seen as a precondition for operationalising IWRM – expressing a linear approach in implementing IWRM. Unfortunately, in none of these countries the policies have been adequately supported by legislative measures to implement IWRM. In many countries there is absence of legislation, and even if it exists, like in Mexico it does not sufficiently clearly define what would be the operational function of the basin councils and how they would be integrated with other administrative structures (Tortajada, 2001). Common to the implementation of IWRM has been framing policies at national level, and creating stakeholder-based institutional structures (namely at state, regional and catchment level). However, differences do exist in the way IWRM is implemented beyond this. In countries, like India, South Africa, United States and Zimbabwe statutory policies specified the 'nuts and bolts' for the implementation of IWRM. In contrast, Australia and Brazil being federal states allowed flexibility for state and regional bodies to modify the statutory policies, but controlled them through financial incentives and directives (for instance the National Heritage Trust and National Action Plan for Water Quality and Salinity in Australia and National Water Resources Council in Brazil). Instruments (pricing, conflict resolution measures, information management, and regulatory instruments) to govern the integration were primarily implemented through stakeholder's participation among the institutional structures created at various levels. Broadly, experiences of these nations indicate packaging of IWRM in terms of four components: policy formulation; recognition of hydraulic unit for management; participatory management; and management instruments, which to a large extent followed the GWP Tool box.

Table. 1 INITIATIVES ON IWRM – Experience from Selected Countries

LEVELS	AUSTRALIA	INDIA	ZIMBABWE	SOUTH AFRICA
Main Problem to Address	Environmental management (namely salinity)	Environmental management & Poverty		Environmental management & Poverty
PREAMBLE/ CONSTITUTION	Australia is a federation giving national government limited direct jurisdiction over natural resources. Therefore it has a cooperative or financial programme rather than statutory.	A socially democratic republic, with Constitution recognising management of water at all levels, while the States interprets them as being under their jurisdiction.		
NATIONAL	COAG- Water Reforms-1995 Murray Darling Basin National Action Plan (NAP)/ National Heritage Trust (NHT)/ National Action Plan for Water Quality and Salinity (NAPWQS) Land & Water	National Water Policy, 1987 & 2002. National Authority for Sustainable Development of Rainfed Areas (NASDORA)	Water Act 1998. Department of Water Development transformed into Zimbabwe National Water Agency (ZINWA). Advise policy formulation and planning; provide technical assistance to Catchment Council	National Water Policy 1997. National Water Act-1998, Statutory Body, consists of appointed Governing Board.
STATE	Statutory or non-statutory structures with advisory role, limited powers, no legislative support for coordination and emphases on voluntary cooperation.	Recognises watershed management in various policies: agriculture, forest, land and water. No statutory basis. National level guidelines for implementing the programmes; and distribution of funds. There are no statutory bodies. The state level Watershed Programme Implementation and Review Committee (SWPIRC) primarily advisory role on technical matters, accountability. No legislative support for coordination. Now this will become a Board.		
REGIONAL/DISTRICT	Devolution of power has remained in terms of planning and management. Less on coordination and financial devolution. Skill-based Members are appointed and Voluntary coordination	District Watershed Development Agency (DWDA) through District Watershed Management Team - Responsible for overseeing implementation of the watershed programme in the district	Catchment Council a statutory body to prepare plan, determine grants and permits for water allocation and supervise Sub-Catchment Council.	Catchment management agencies (CMA). Have powers to raise funds through water resources management charges, and from the national government. Voluntary Coordination. Gradual Devolution of power
WATERSHED/ CATCHMENT	Mainly in planning and engaging with stakeholders. No lead role in coordination; overlapping roles with other comparable bodies; inadequate resources (financial and experts); and limited fund raising capacity.	Milli-Watershed Council constitutes Watershed Development Team (WDT) – Responsible for social mobilisation and formation of Village Watershed Committees.	Sub-Catchment Council. Regulate and supervise permits; report to Catchment Council; monitor implementation; provide information for planning; and collect revenue.	Water Users Associations

Note: The table only summarises the general situation present in these nations. This tends to ignore the regional complexity and diversity, such as devolution attempted in the state of Victoria, Australia, and Andhra Pradesh in India.

Table. 1 INSTITUTIONAL ARRANGEMENTS FOR IWRM – Experience from Selected Countries

LEVELS	NETHERLANDS	UNITED STATES (Only Western States)	BRAZIL	MEXICO
Main Problem to Address	Environmental management (namely water pollution)	Environmental management & Poverty		
PREAMBLE/ CONSTITUTION			A Federal Nation	
NATIONAL	Third National Water Policy -1989- IWRM based on systems approach Water Management Act -1989 to coordinate land use planning with environmental planning (this is Act is discussed)	Environmental Protection Act, 1996 The leader to promote watershed development. Other agencies following suit: The National Resources Conservation Service; Forest Service and Bureau of Land Management to name a few Partners for the Environment and Watershed Development Framework	National Water Resources Council – With authority to manage and plan for water resources, approves guidelines, and mediates inter-stage conflicts. The National Water Law - 1998	The Law on National Waters -1992 establishes the broad objectives for the development and implementation of the plans and policies for water resources management. The National Water Commission of Mexico (CNA) establishes basin councils.
STATE	Province - Provincial responsibility for spatial planning and establishment of Water Boards	Western Water Policy Review Advisory Commission. Governors Watershed Enhancement Board	The State Water Resources Law (varied for different states)- Negotiate between state and river basin plans	-
Regional/ District/ River	-	Basin Authority	River Basin Committees at basin level to coordinate stakeholders in the basin.	River Basin Councils – approves and implements the plan, coordinate with departments and establish four territorial committees – COTAS
Watershed/ Catchment level	Water Boards Act -1992 – has the power to enter into contract, acquire property and institute legal proceedings. The board consists of elected stakeholders to manage water levels, control water pollution and protect against flooding. http://www.fao.org/ag/AGL/aglw/waterinstitutions/docs/LegalCSNetherlands.pdf	Water Districts (have number of sub-committees)	-	COTAS operationalizes river basin plans.

Source: Bellamy, et.al., 2002; Farrington et al., 1999; Gol, 2006; Joshi et al., 2004; Kenney, 1997; 2000; Kenney et al., 2000; Mitsi and Nichol, 2004; Tapela, 2002; Tortajada, 2001.

Policy Formulation

GWP recognises 'good policies' as a precondition for IWRM. Such policies consider resources in their entirety; and ensure systems of coordination between the many different institutions active in the water sector to integrate at the highest possible level. However, in practice such 'good policies' are exploited by various stakeholders (ministries, departments, state governments, regional government, NGOs, user groups and village heads) claiming competencies and legitimacy for their existence as a specialised department or in pushing their strategies for survival. In India, water related ministries (ministry of Agriculture, ministry of Rural Development, & ministry of Environment and Forest) push their ministerial objectives and goals to overcome their financial deficits and to proclaim their commitments to IWRM and for democratic decentralisation (Saravanan, 2008). They explicitly mention the 'integrated', 'holistic' and 'participatory' approach for watershed management in their respective ministerial policy statements, to address issues facing each ministry (for agricultural development, wasteland development, afforestation and poverty alleviation) (Table. 2). This has resulted in different plans for the same region under different ministries. In The Netherlands, environmental management and water resources management are institutionally separated, which has resulted in competency conflicts between the two in claiming or defending authority (Mostert, 2006). Cardwell et al. (2006) discuss inconsistencies in the concept among the ministries in the public water resources management sector within the United States of America.

Table 2 IWRM under Various Ministries in India – Claiming Competencies and Legitimacy

S. No	Ministry	Sectoral Policies	Incorporation of IWRM Principles
1	Ministry of Agriculture	Agricultural Development Policy	Aim: Address wide range of problems in the agricultural sector. Instrument: "Integrated and holistic development of rainfed areas will be promoted by conservation of rainwater by vegetative measures on watershed basis and with the involvement of the watershed community." (Gol, 2000:2)
2	Ministry of Water Resources	Water Policy	Aim: Planning and development of water resources. Instrument: "water resources development and management will have to be planned for a hydrological unit" and through a "participatory approach." (Gol, 2002:2-5)
3	Ministry of Rural Development	Land Policy	Though there have not been any policy, most of the watershed programmes have been carried under the Common Guidelines (Gol, 1994; Gol, 2003b) that adopt participatory approach to integrate watershed management for wasteland development.
4	Ministry of Environment and Forest	National Forest Policy 1988	The policy makes an implicit mention of watershed development as a strategy for enhancing land cover (Joshi et al, 2004).

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Further, policies are not always the domain of the government; rather diverse actors negotiate across levels through their perceived visions, goals and cultural-cognitive frameworks in shaping water policies (Jennings and Moore, 2000). Ninan (1998) and Saravanan (2002) demonstrate how various international agencies financing IWRM projects shape and reshape watershed landscapes to meet their own visions and goals. Schulze et al., (2004) revealed how the South African National Water Act-1998 embraces IWRM but emphasises on commercialization of agriculture. Unfortunately it threatens the livelihood of black smallholder farmers.

Watershed or river basin may be a physical landscape, but stakeholders come up with different perspectives (depending on the knowledge, familiarity, awareness and comprehension in place) to IWRM. These diverse perspectives shape the statutory policies, programmes, visions and values that stakeholders negotiate to manage water resources. In this 'ebb and flow' regime, stakeholders 'scramble for responsibilities and control' thereby 'ensuing conflict and power struggles' making development of the

critical (water) resources more complex (Lelo, et al, 2005; Mitsi and Nicol, 2003:12). Elites exploit this opportunity to dominate the discourse of watershed development in Andhra Pradesh (Mollinga, 2001; Chhotray, 2004; Reddy and Reddy, 2005). In this form of contestation, actors negotiate and integrate diverse policies to create a new space for themselves.

Recognition of Hydrological unit for Management

There are two crucial aspects that underpin the dominant understanding for operationalising IWRM: (i) the river basin as a management unit and (ii) involving stakeholders in the management of river basins.

A river basin may be a physical landscape, but water, unlike land, does not have clear physical boundaries. In the Indo-Gangetic basin, though surface streams have distinct hydrological boundaries, ground water streams rarely confine to these boundaries (Moench, et al., 2003). This is further complicated with (i) variation and uncertainty over its availability (Mehta, 2002; Rodriguez-Iturbe, 2003); (ii) pollution (especially non-point sources), (iii) the transboundary nature of environmental problems (Singleton, 2002), (iv) the effect of globalization, and (v) the role of markets (Moench et al., 2003). Reconciling these diverse boundaries in a physical landscape rarely reflects the “wealth and complexity of local networks of resource use, decision-making and social interaction” (Cleaver, 1999:603). A river basin may be hydrological region, but it is the cultural, political and historical context that integrates institutions within which water resources are managed (Ludden, 1978). Moss (2006) investigating the spatial organisation of water management in EU argues that a spatial ‘fit’ of river basin units along the political-administrative territories only exacerbates the problems of ‘interplay’ between water and other its relevant institutions, thereby creating different territorial units for water management.

There is an overwhelming assumption among contemporary approaches that stakeholders can be easily identified and through their participation, possible agreeable solutions can be foreseen (Bellamy and Johnson, 2000; Innes, 1996; Leach et al, 1997; Margerum, 1996). In this process, IWRM implementers painstakingly attempt to identify diverse stakeholders and their role (see Wester et al., 2005 for exhaustive attempts) to promote synergy among various stakeholders through a communicative rationality approach (Evans, 1996; Innes, 1996). Often the national government takes responsibility for spearheading stakeholder’s involvement through a number of institutional structures, such as water user groups or a watershed group within a short time span. In Zimbabwe, after promulgation of the Water Act (1998), institutional structures were established across the country within six months (Manzungu, 2004). There has been a tenfold increase in watershed initiatives and similar groups during the 1990s in the Western United States (Kenney, 2000:1). Such a process of spearheading institutional structures may help the government to achieve its target of democratic governance, but it fails to understand and manage the complex and dynamic behaviour of stakeholders who attempt to achieve IWRM.

Saravanan (1998; 2002) observes that stakeholders involved in managing water are numerous, and have overlapping roles that create competition (to establish supremacy) and sometimes conflicts. In the Western United States, stakeholders’ identification, though it might appear to be clearly identifiable, is complicated by different interests within a group (Blomquist & Schlager, 2005). Drawing from the study of social learning for the integrated management of Europe’s catchments, the SLIM research team (see the special issue of Environmental Science and Policy, Vol 10, Issue 6, 2007) concludes that though stakeholders are concerned with issues of quality, quantity and sustainability, ‘they do not all hold the same social position with regard to measures proposed or taken to resolve the issues involved and they do not necessarily share the same view about what is desirable or what constitutes the purposes of resources’. Stakeholder analysis (SA) in the start-up phase provides only a static view of stakeholders, but their findings demonstrate “the dynamic interest and positions involved over time” (Steyaert & Jiggins, 2007). In the United States of America, integration has been complicated due to diverse and competing interests among stakeholders (Haro et al., 2005; Nygren, 2004; Schulze et al, 2004). Further, selective involvement of direct and easily identifiable stakeholders in various watershed programmes only legitimises the existing resource use pattern, depriving the poor and creating conflicts (Mosse, 1997; Saravanan, 1998). Stakeholders have a history and are linked to the socio-political context of their

existence (Mosse, 1998:2), which creates disparities in perception, knowledge and beliefs, and presents barriers to effective communication between actors in the management of resources (Adams, et al., 2002). The involvement of these stakeholders depends on their rights and entitlements. Such synergies do not evolve naturally; rather they require multi-scalar institutional arrangements that shape the incentives and constraints in resource management (Barrett et al., 2005; Haughton and Counsell, 2004). Stakeholders play an important role in shaping and reshaping IWRM using prevailing rules, but their differential roles are context specific.

Participation

Users of water resources are widely distributed. Participation of these stakeholders is expected to reduce transaction cost associated with institutionalising and implementing IWRM. Transaction costs are associated with time, effort and resources involved in obtaining information necessary for negotiation to make and enforce change (Saleth and Dinar, 2004). The ability of actors to reduce transaction cost depends on their ability (attributes, goods and services) to participate, ability to make and sustain collective decisions (Kolavalli and Kerr, 2002).

Participatory methods and participatory consensus-based approaches have emerged as an important tool to simplify complex and multiple institutional arrangements. Ross and Jakeman (1999) demonstrate the constraining effect of political culture and power relations in promoting participation in the Mekong basin countries - what works at local level may not be applicable for a larger basin. In The Netherlands, participation is hindered by the limited role of any government body to steer the process of coordination. Mostert (2006) identifies several contextual factors hindering IWRM in Netherlands: formal institutional structure, rewarding individual initiatives rather than collective initiatives in Dutch politics, resistance against truly interactive approaches, and budget cuts. Saravanan (2002) shows that participation of stakeholders is a top-down approach in India, where the national government defines the 'nuts and bolts' of who the actors are, how much funds are to be allocated and dimension of watershed structures. Moreover, government departments often use these initiatives as projects that are temporary in nature. In Australia, Margerum (2002) reveals fraudulent activity in the stakeholder's selection in New South Wales, Australia, where stakeholders opposing the state ruling party were excluded in the catchment management. Bellamy and Johnson (2000:278) demonstrated, how, despite the rich rhetoric of consultative participation in ensuring cooperation, credibility, trust and equity in Herbert River Catchment in Australia, there have been conflicts and contestation among different actors'. Participation, in the form of consultation, has become the hurrah word that brings a 'warm glow to its users and hearers', but masks the fact that participation takes many forms and serves many different interests. It is a highly political process both within itself and in relation to other actors (Adams, 2001:337).

Lane et al., (2003), Mollinga (2001), Baviskar (2004) and Chhotray (2004) argue that the consultative form of deliberation is characterised by interest group politics. In addition, Walker and Hurley (2004) demonstrated that actors in Nevada Country intentionally undermined, de-legitimated or stopped altogether the consultative form of participatory process. Margerum (2002), examining cases from IWRM practices in Australia and United States revealed that actors evolve diverse forms of action that are distinct from the collaborative approach. Often actions, other than the collaborative approach, are considered as a 'systemic problem' (Cooke and Kothari, 2001), rather than a 'systemic process' by which actors are adaptive. Recognising the existence and interrelationship among these forms of participative action is important for IWRM.

Management Instruments

The ability of local institutions to integrate diverse concerns depends on the functional attributes governing the implementation of the management instruments – such as conflict resolution, pricing,

distribution of water and so on: how actors take responsibility; how they are accountable to each other; how they coordinate and how the benefits are shared among them. These are crucial for IWRM.

Responsibility: In general, attempts at decentralization across nations have remained in de-concentration of national governments' responsibilities to subordinate government agencies. However, government agencies tend to retain control over rules that determine coordination and financial allocation. National level structures set statutory policies and guidelines, without any regulatory mechanism to facilitate or constrain the implementation of these guidelines. Regional or district institutional structures implement these national and state level concerns by planning for the region and forming user groups at watershed level to implement the regional plans (or catchment management strategies in South Africa) prepared on a watershed basis. A few nations, like India, have plans for micro-watersheds, rather than on a regional basis. At the watershed level, the user groups are formed as watershed management committees to prepare plans, to implement and maintain resources with no significant involvement and authority to coordinate with other agencies or even in making decisions on planning components. Devolution of responsibility has largely stopped at assigning the management role to various actors. However, responsibility to manage natural resources like water remains tacit and emerges spontaneously based on the consensus of opinion of those around the assumed leader. Sometimes responsibilities are assigned and sometimes they are assumed. The context in which they need to be assigned and assumed is important in IWRM.

Accountability: Accountability is a main concern in sustaining IWRM. The effectiveness of the decentralized governance hinges on accountability. Accountability is a measure whereby counter powers are exercised to balance arbitrary action (Agrawal and Ribot, 1999). Counter powers can be both downward or upwards. However, some authors have argued that "it is downward accountability that broadens participation" (Agrawal and Ribot, 1999:478). Examining cases from West Africa and South Asia, Agrawal and Ribot (1999) argue that although in these countries there is devolution of powers to local bodies, accountability has remained upwards thereby retaining central governments control. Assessing accountability is often done through, regular and well attended meetings, maintaining account books, and reporting practices. These forms of accountability only remain superficial (Mosse, 1997; Saravanan, 1998; 2002) creating an instant record of participation (Baviskar, 2004). Effective accountability rests on historical, political, and on socio-economic conditions prevailing in the region (Mody, 2004). While accountability for the central government rests on formal mechanisms of fair elections, maintaining records and gaining public opinion, for local institutions it rests on power dynamics of the local elites and social cultural norms.

Coordination: Lack of coordination and consultation is proving to be a major challenge in operationalising IWRM. Tapela (2002) reviewing IWRM experience in Zimbabwe identifies several factors contributing to lack of coordination: the fast tracking approach of government, inadequate knowledge of the social and environmental conditions, lack of synergy among various policies, overlapping institutional jurisdictions and power relations among institutional structures. Though actors reach consensus on the problem and objectives, there are significant differences among them in operationalising (Margerum, 2002). Coordination is a social process that involves mobilizing a sufficient number of people for enterprising activities. This includes pooling the knowledge base (technical and managerial) of actors in designing, enforcing and sanctioning rules and take consensual decision. Given the changing social structure and physical environment, there is constant flux in the social position of a coordinator. Diverse institutional arrangements are involved in coordinating individual claims over access to resources. The choice of institutions by individuals to legitimate their claims depends on the wider representation of the local interest for securing local co-operation and rule conformity, which often confronts a stable and static functioning of the state.

Equity: Complementarities between resource conservation and productivity objectives makes IWRM especially attractive in developing nations. The logic being that IWRM can address equity in the developing world by focusing the programme on the weaker section of the society - the poor, the landless and women. Evaluation of IWRM (see Chopra, 1999; Kerr, et al., 2000; Ninnan and Lakshmikanthama, 2001; Shah, 2001a; Kolavalli & Kerr, 2002a; Lubell, 2002; Reddy et al., 2004) highlighted the increased rate of return and intensity of cropping pattern, thereby promising to address poverty in developing world. However, Vaidyanathan (2001) questions the validity of these studies. He

argues that most of these studies undervalue or overestimate the impact, especially when assessing the economic impact (that is complicated with multiple costs and benefits associated with the programme) over a period of time. For instance, there is recurring maintenance cost to rehabilitate watershed structures, which nevertheless gets ignored. The benefits accruing from these interventions in the upstream might result in increased moisture/ water availability in the downstream or, sometimes, might affect the quality of water in the downstream. Many of these costs and benefits remain uncertain and unreliable. In addition, environmental complexities and uncertainties further complicate evaluation. Skewed distribution of benefits favouring rich households and male members are illustrated in a number of studies (Cleaver, 1999; Seeley, et al, 2000; Kerr, 2002; Shah, 2000; Mitsi and Nichol, 2004; Reddy et al., 2004). Proponents call for pro-poor programmes (Reddy, et.al, 2004) and re-distributing the benefits through economic incentives, cost sharing and cross subsidisation (Shah, 2001), but rarely attempt to understand the complex relationship that exists between water and poverty (See Saleth et al., 2003).

Moving Beyond Polarised Discourse

This review questions the Habermasian normative and idealistic logic for integrating water management. This idealistic approach embodies an image of how IWRM should be or what Francois Molle (2007) calls a 'nirvana' approach. The approach believes that 1) all water resources flow along the physical river basins and are therefore apt for management, 2) water management (also natural resources in general) are disintegrated or fragmented; 3) various actors (ministries, departments, community groups, private groups and individuals) involved are mismanaging the resources, 4) actors do not collectively participate in resource management, 5) interventions treat upstream-downstream and quantity-quality issues discretely, and 6) making 'good policies' and creating institutional structures will achieve IWRM. The Foucauldian critiques demonstrate how IWRM cannot be achieved in the normative, Habermasian sense. They emphasise that integration is diverse and is a political process (Hofwegen and Jaspers, 1999; Allan, 2006), and a concept in search of constituency (Mollinga, 2006). These forms of integration are not always tangible, but at any given time, are only realised through linkages between pre-existing activities across decision-making arenas (Morrison, 2004). This requires replacing ideological approaches with 'strategic action' approaches that acknowledges the inherent political character and plurality of actors, institutions and objectives of water management (Mollinga, et al., 2007). The Foucauldian critiques call for contextual analysis of power dynamics, emphasise on examining 'strategic action', more so, call for realistic analysis of the existing situation.

The debate between advocates of idealistic Habermasian communicative practice and its Foucauldian critiques places IWRM research and practice in a polarised discourse, highlighting the neglect of integration as a process. Habermasians have a strong case for democratic practice in water resource management, prescribing consensus-based participation of stakeholders in resource management. The perspective assumes an 'ideal speech situation' in which no affected party is excluded from discourse or inhibited by power asymmetries or resources (Alexander, 2001:313). It is this philanthropic logic and ability to inform precisely what policy makers should do that attracts water resource managers, policy makers and research communities. This is in contrast to Foucauldian power analysis, which emphasises complexities, contextuality, power dynamics and real world analysis, without offering any concrete and practical solutions. As Alexander (2001) argues, the Habermasians have a strong base in prescriptive ethics, and a powerful mode for normative analysis of decision situations. But its high level of abstraction gives space for the Foucauldians who call for more realistic and situation-specific analysis. These apparently conflicting forms of discourse offer potential through an interdependence approach that links aspiration and goals with discourse and action (Alexander, 2001).

The interdependence between the Habermasian communicative rationality and Foucauldian 'strategic action' provides a pragmatic approach to understand the integrative nature of water resource management by examining - how integration actually takes place, notwithstanding the absence of Habermasian free speech, and Foucauldian power relations. The recognition of this interdependence calls for understanding the interaction between people (Alexander, 2001). But people or their organisations do not interact on their own, rather they interact using rules and resources existing at various levels across

space and time (Giddens, 1984; Ostrom, 1990). These are a main subject of contestation in integrating water resources management (Saravanan, 2006). Understanding this contestation requires a system-based approach to unravel the interactive nature of actors and rules in constraining and facilitating water resource management (Genskow & Born, 2006; Saravanan, forthcoming). This can enable analysts to improve their competency to recognise how institutional factors affect water management planning and how they can manage the opportunities and barriers presented by institutional factors (Ingram et al., 1984). More importantly, such analysis will help in understanding how socio-economic, ecological and institutional factors are concretely integrated by diverse sets of actors towards managing water resources management.

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