Abstract
The focus on IWRM discourse in India has shifted from supply driven to a demand responsive approach. The mainstream definition of IWRM has been critiqued for being ambiguous and imprecise undermining it to be a process and people oriented approach for sustainable development. The debate so far has been polarized between rejecting the approach as neo-liberal agenda, questioning its relevance to developing countries and accepting the notion of IWRM as politically benign and multilayered. This paper supports the third approach while trying to move towards a constructive engagement with IWRM in the Indian context. This has been done by exploring a perspective based on comprehensive and multi-layered sub-basin development, which blends formal and informal mechanisms of governance for promoting livelihood of the people. There is of course no readymade blue print on this perspective; rather these are ideas based on field experiences that are still in the formative stage. It is therefore imperative the different perspectives are projected within the boundary concept of IWRM and this paper is an attempt in this direction.

1. Introduction
Integrated Water Resource Management (IWRM) is increasingly gaining currency in the contemporary discourse on water. The discourse however, is influenced mainly by the two popular perspectives on water viz; scarcity and crisis management. Therefore focus of the discourse has shifted from development of water resources for its productive use and thereby poverty reduction, to demand management through pricing and centralized formal structures for governing water use and sectoral allocations using river basin as a unit.

Originated as a response to ensure and also further promote developmental as well as ecological functions performed by water, IWRM as defined by the Global Water Forum (GWP) has brought into its fold a number of noble ideas such as coordinated efforts for water and land resources; maximization of welfare along with equity; and ecological sustainability (GWP, 2000:22). The definition though, acclaimed for pooling together a bunch of well-intended and uncontestable ideas, has been criticized for being ambiguous and imprecise and amenable to significant distortions leading to undermining the very spirit of IWRM as a process oriented, people focused, and sustainable development of land and water resources.

Much of the criticism is based on the specific variant of IWRM, developed and implemented by the World Bank in some of the countries in Asia and Africa. This variant, recognised as the 'mainstream' approach of IWRM (notwithstanding the scope for alternative interpretation of the very broad and least precise definition),

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4 After the GWP released its Background Paper No. 4 on IWRM in March 2000, Bradford Centre for International Development set up an Alternative Water Forum in 2003, which initiated a series of seminars challenging what was claimed to be a global water consensus by the GWP (For details see, www.bradford.ac.uk/acad/dppc/seminar/water/).
consists of features like: declaring water as state property; instituting water withdrawal permits; pricing of water except for drinking and domestic use; and setting up river basin organization for deciding allocation of water.\(^5\) The central thrust of the approach seems to be on centralized governance and pricing with nationalization of ownership and adoption of larger unit for management such as river basins. The features that are important from the viewpoint of equity and sustainability are seen more as playing instrumental roles.

The contemporary discourse therefore, is divided into three broad streams\(^6\): one, rejecting the approach for being politically maligned and using IWRM as a pretext for pushing the neo-liberal agenda [Jairath, 2008]; second, questioning the suitability in the context of developing countries predominated by informal water economies while accepting its relevance to the developing countries [Shah and Koppen, 2006]; and third, accepting the notion of IWRM as politically benign hence, trying to explore alternative variants, particularly by trying to integrate formal and informal mechanisms that are multi-layered and pluralistic in nature [Saravanan, 2006].

Since most of the critiques have recognized IWRM as an ideal goal or an ideology worth exploring, it is imperative to ensure that the baby (i.e. the concept itself) is not be thrown out with the bath water. In this context, Peter Mollinga’s suggestion for adopting IWRM as a ‘boundary concept’ appears quite relevant. According to Mollinga (2006), the boundary concept would create a common ground and will allow different interest groups to interact more constructively.\(^7\) While there may not be any monolithic perspective on what could be the constituent features of IWRM, a common ground could be built by drawing from the three important aspects on which global consensus seems to have been achieved. These are river basin unit; stake holder involvement, and privatization. These elements may work as useful starting points for triggering processes of informed dialogue, which could then help attaining and the three important goals viz; (i) eco-system based units for integrated land and water management with multi-layered planning and governance; (ii) people’s participation leading to efficiency and accountability; and (iii) blending of markets and institutions that are formal as well as informal.

A number of initiatives have already been undertaken in India and the developing countries by incorporating some or most of the features of IWRM noted above. Initiatives such as watershed development, sub-basin management, rain water harvesting and ground water markets are some of the examples in this context. However, much of these have remained scattered, smaller in scale, and have generated impact at local/micro setting as borne out by experiences of a large number of watershed projects in the country.\(^8\) Notwithstanding the limitations, these initiatives could work as building blocks for evolving a new perspective for integrated development of natural resources with centrality of water across different agro-

\(^{5}\) For details see, Shah, et al; 2006a; Shah and Koppen, 2006.

\(^{6}\) Much of the debate has taken place through articles published in Economic and Political Weekly during 2006. For details see, Shah and Koppen, 2006; Iyer, 2006; Saravanan, 2006).

\(^{7}\) It is however noted that ‘whether the IWRM concept will operate as boundary concept does not depend on the words themselves, but whether concrete resource governance and management issues or conflicts require and force amore ‘integrated’ perspective and whether integrated groups involved in these processes wil actively call upon the idea of an integrated approach’ [Mollinga, 2006; p.33].

\(^{8}\) For a brief review of the impact of watershed development projects in India, see Joy, et al; 2006; Kerr, 2002; Shah, 2004].
ecological regions in the country. Unfortunately, such initiatives though well documented, have remained outside the mainframe of the discourse on IWRM at national and international levels.

It is in this backdrop, this paper tries to move towards a constrictive engagement with IWRM in the Indian context. This has been done by exploring a perspective based on comprehensive and multi-layered sub-basin development, which blends formal and informal mechanisms of governance for promoting livelihood of the people. There is of course no readymade blue print on this perspective; rather these are ideas based on field experiences that are still in the formative stage. It is therefore imperative the different perspectives are projected within the boundary concept of IWRM as mentioned earlier. This paper is an attempt in this direction. The analysis is divided in five sections. The next section critiques the ‘mainstream’ IWRM. Sections three and four look at IWRM from the lens of watershed management and presents an alternative middle path through multi-layer approach using sub-river basin as a unit for planning and management. The last section presents a summary of the analyses.

2. Conceptualization of IWRM: Recapitulating the Debate

Global Water Partnership (GWP) defines IWRM as 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). The definition, as noted earlier, neither has universal applicability, nor is binding under varying situations pertaining to resource endowment, stages of economic growth, and socio-political structures across countries. In fact the need is to explore multiple approaches with a view to arrive at a broad notion of IWRM, which suits the context specific requirements as well as challenges of water resource management in each country.

The mainstream IWRM thinking looks at IWRM as one of the means to move away from the earlier sub-sector based approach to a more holistic or integrated approach, which prima facie, could address the emerging challenges of water resource management such as increasing scarcity (water stress), inter-sectoral conflicts, pollution and lack of technical understanding on issues of water catchments. In this sense, IWRM is being viewed as a tool to mitigate the past abuse and to ensure the sustainability of water resources in the future (Iyer, 1994).

The main opponents of the ‘mainstream’9 concept however, treat IWRM as narrowly defined, underpinned by neo-liberal principles, dominated by technical and managerial concerns and informed by limited methodology and empirical data. It is also point out the constraints such as (a) difficulties in collection and use of social data corresponding the hydrological units; (b) limited technical capacity; (c) lack of integration between cultural aspects of water; and (d) non-congruence with the concept of decentralized governance gaining ground in a number of developing economies. It is further alleged that using hydrological unit for implementation of an integrative planning may not be feasible as it does not necessarily coincide with the political or administrative unit (Pangare, 2006).

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Apparently the contemporary debate on IWRM in India oscillates between two extremes positions. One stream accepts the broad concept but, opposes that on the ground of operational feasibility, whereas the other stream opposes the very concept as being a part of the larger phenomenon of global imperialism. There is however, a third stream, which treats IWRM as an independent phenomenon from the debate on compliance and efficacy of the existing regulations etc. In what follows we recapitulate the important facets of the ongoing debate on IWRM in the country.

Shah and Kuppen, 2006 summarizes the ‘IWRM package’ that includes a clutch of (i) a national water policy so that there is cohesive normative framework; (ii) water law and regulatory framework for coordinated action; (iii) recognition of river basin as a unit for planning and management; (iv) treating water as an economic good to reflect its scarcity value; (v) creation of water rights; and (vi) participatory water resource management and inclusion of women. However, critiquing IWRM on non feasibility and irrelevance of the concept for developing economies, Shah and Kuppen argues that IWRM is a transformational process from ungoverned water economies which does not have demand management systems at place to intensively manage water economies where direct and proactive demand management is a key. The pathways of improved governance is to treat water as an economic good, declare water a state property and create property rights, having appropriate water policies and laws in place. Further it also involves creating participatory structure and processes for water management at the basin level. There are examples from developing countries where these changes have been made; despite these changes the water sectors of these countries are neither better governed nor are their people enjoying higher water-welfare.

According to the authors, every country can transform from informal to formal water economies but this transformation is mediated though iron laws of economic development. Shah and Kuppen’s model of the evolution of a water economy is based on the stage of its formalisation which in turn depends upon the overall economic evolution of the economy. According to them, regardless of its water endowments, as a low-income economy climbs up the economic ladder, the organisation of its water economy undergoes a transformation in tandem with the transformation of the society. They argue that IWRM paradigm will not work in India because it is governed by large informal water economy and hence does not have a formal class of intermediaries i.e. water service providers for meaningful water demand management. According to them, water management goals can be addressed only through indirect policy instruments in India at the moment to entice or compel private institutional arrangements and therefore it is better to focus on supply side manament of more water infrastructure promotion. Further, as India urbanizes and gets richer, highly formalised segments will emerge especially in cities and hence direct demand management options will emerge which is an ideal framework of IWRM to operate effectively.

Shah and Kuppen’s argument that India is not ripe for IWRM have been questioned on many counts. Iyer (2006) questions the basic understanding and approval of the popular IWRM approach, which essentially is an ‘attempt to widen the hitherto dominant engineering perspective by including and internalizing environmental, social and human concerns, and enlarge the planning horizon from isolated projects to a larger hydrological framework such as river basin’ [p. 4623]. While this is an
improvement over the earlier framework, the approach continues to remain merely as a refinement of the engineering tradition and has an in-built tendency towards centralization and gigantism. He further points out that the issues of water as an economic good and pricing as the tool of regulation are derived from neo-liberal economics and are part of the economic reform and structural adjustment programmes, not necessarily linked to IWRM. Therefore, he asserts that pro-poor water policy should be independent of both IWRM and neo-liberal ‘economic reform’ programmes. According to him, IWRM, neo-liberal market fundamentalism, and an advocacy of a national water policy and law are separate entities; they may overlap but are conceptually distinct. Hence the question of whether to adopt IWRM or not, should be discussed separately on its own merit. He also asserts the need for exploring effective ways for making water management system work rather than shrugging the shoulder and saying that policies, laws, regulation and pricing do not or will not work.10

Saravnan (2006), while critiquing the understanding of IWRM by Shah and Kuppen, argues that IWRM in its current package has been dismal worldwide. Giving examples from the US, Australia, South Africa and India, Saravanan, shows that any economy is a mix of formal and informal mechanisms and both have their advantages and disadvantages. According to him it is the combination of these that contributes towards integrated water resource management. The way forward is to understand the process of integration of both formal and informal instruments of the water economy and that in the complex adaptive economy, diverse actors ranging from international agencies to individuals have evolved both formal and informal mechanisms to govern the water economy, Therefore no one instrument of management is superior to other as each of these will have advantages and disadvantages. For instance, formal economies are better positioned to bring in macro social and physical changes and values but they are rigid, have high transaction cost, low pay-offs and bring in commonly prevailing rules in a particular jurisdiction. The informal economies are better positioned to reflect social values that cut across administrative jurisdictions, have less transaction cost, high pay-off and are easily adaptable to growing uncertainty in water economies. Therefore it is a myth to presume that it is only a formalised water economy that can be externally catalysed, while informal economies are not “ripe” for IWRM. According to Saravanan, the answer lies in evolving adequate conceptual and analytical tools to understand the complex process of integration rather than succumb to ideological and normative presumptions.

The discourse on IWRM in India has more or less come to a stand still, not making much headway from the highly contested positions taken by the proponents of large scale, centralized mechanisms for water management and transfer on the one hand, and those advocating small scale initiatives for augmenting and regenerating water resources, mainly ground water resources through watershed projects at micro level. The dichotomous view on water resources management however, is entirely unwarranted in the light of the various initiatives, undergoing at micro and meso

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10 In a similar vein, Kapur (2006) argues that the correlation between water poverty and economic poverty is not at the core of the issues in IWRM debate. Economically developed capitalist countries have a lower dependence on agriculture as source of income and employment. Lower economic poverty in these countries may not be necessarily due to lower water poverty in these countries. In that sense, the statistically significant correlation between the two may not be very meaningful.
levels, A more meaningful discourse may thus, call for a constructive engagement that addresses the basic tenets of IWRM discussed earlier.

There is probably a middle path of adopting watershed-based approach, at sub-river basin level, for integrated management of natural resources (I-NRM). The single most important feature of this approach is that it seeks to simultaneously address the objectives of resource conservation, use-efficiency, livelihood sustainability and decentralised planning and management. There are however, certain inherent constraints in the manner in which micro watershed projects are presently being implemented in the country. The major constraints pertain to issues like upstream-downstream conflicts, emphasis on in-situ management, scale dis-advantage, reinforcement of present property rights regime, and individual stakeholders. Notwithstanding these limitations, watershed development programme (WDP) could perhaps, be treated as closest to the approach of a boundary concept of IWRM suggested by Mollinga (2006) though much of these interventions are too microscopic, without upward linkages to management at sub-basin or basin levels. How far this could help evolving context specific approach to IWRM in India? This issue has been discussed in the next section.

3. IWRM and Watershed Development: Is there a Meeting Point?
In spite of being one of the most important policy initiatives in the recent past, watershed development programmes in India have remained isolated from the mainstream thinking on water resources management in the country. Strangely one finds a complete dis-juncture between watershed development and the irrigation projects of various scales. In fact the two are viewed as alternative approaches meant to serve different areas within each agro-climatic zone. The areas with potential for development of surface irrigation are expected to be outside the ambit of watershed projects, which in turn, are expected to focus mainly on dry land regions with a special mandate on replenishing ground water resources.11

It is plausible that IWRM, taking river basin as a unit of management, could create conditions for a well-syncronised approach where development of surface irrigation and recharging of ground water through watershed development are integrated. In turn, this may also help striking a balance between economic and ecological functions of water within a geo-hydrological unit. Unfortunately, a coordinated approach such as this is neither clearly worked out nor has been implemented on a larger scale. This is evidenced by the compartmentalized approaches adopted for sustainable management of natural resources (especially water), economic growth and poverty reduction, and water governance at different levels. This is a serious problem in so far as it perpetuates irrigation centric, engineering oriented, and bureaucracy driven approach for water resource development with limited concerns for equitable

11 It is envisaged that water is a critical input for agriculture and this calls for effective utilization of irrigation potential, expansion of irrigation potential where it is possible and an economic cost, and better water management in rain fed areas where assured irrigation is not possible. This is clearly an area where past policies have been inadequate’ [Planning Commission, 2006] p. 22]. It is further noted that ‘watershed development, rain water harvesting, and ground water recharge can help augment water availability in rainfed areas. Micro irrigation is also important to improve water use efficiency’ [ibid, 2006 p. 23). What is thus evident is a dis-jointed approach for irrigation and watershed development.
distribution and sustainability of the use. Some of these features appear glaringly in the recent Water Policy, 2002 in India (Bandopadhyay, 2006).

Breaking this dead wall though difficult, is still feasible, if IWRM as a boundary concept is accepted for synchronizing the two major programmes for water resources management viz; irrigation and watershed development. This, essentially, would imply changing the composition of both, rather than merely building an administrative link between the two. In the crudest sense, this would imply pushing up micro watershed projects to a higher scale of say, sub-basin level and at the same time, introducing and/or refining important features of WDPs such as decentralization and multi-layered planning, multi-stake holder institutional arrangements for governance and market development.

In what follows we present a broad outline of an alternative perspective that seeks to link watershed and irrigation development in the Indian context. The outline draws upon the wide ranging experiences of watershed development in different parts of the country.

4. Linking Watershed and Irrigation Development at Sub-basin Level: An Outline

There are several advantages of watershed development, which at least at a conceptual level, make it more suitable for adapting to IWRM. These are: (i) interacted view of natural resources; (ii) emphasis of regeneration and conservation of water; (iii) focus on water scarcity and use-efficiency; (iv) direct link with livelihood promotion; and (v) decentralized management through local institutions. While all these make watershed development projects, a good candidate as a main vehicle for attaining the main concerns of IWRM, there are certain inherent limitations in the form in which the programme is being presently operationalised in the country. These include: (a) scale disadvantage limiting the potential for resource use and livelihood support; (b) excessive emphasis on in-situ conservation with limited scope for water transfer in the times of scarcity; (cii) neglect of upstream-downstream conflicts; (d) reinforces the existing property rights regime that leads to inequitable access and non-sustainable use; and (e) focuses more on individual benefits rather than societal/ecological benefits.

It is thus imperative that the watershed development out-grows its present limited scope and scale so as to be able to embrace the goals of IWRM on a larger scale. In the process, it may also trigger corresponding changes in the manner in which irrigation projects are designed and managed.

4.1 Bottom-up approach:
The proposed approach for linking watershed and irrigation development at sub-basin level represents a bottom-up scenario for planning and management of water and other natural resources in an integrated manner. This implies mapping of resources and livelihood needs of the primary stake holders at micro watershed level as a starting point, which would provide base for a multi-layered planning at the levels of milli watershed and sub-basin. The multi-layered planning would involve two-way flow of information, starting from the bottom level. At the same time, the bottom-up approach may imply assigning top priority to the needs of the primary stake holders. The needs however, have to be defined within the ecological limits of sustainable
resource use with built-in mechanism for attaining equity at least in distribution of the incremental water resources.\textsuperscript{12}

The requirements at micro and macro levels however, should be negotiated through iterative processes in the light of the costs and benefits of different scenarios of sectoral allocations. This would not only help arriving at socially contextualized and informed choices, but will also help evolving a rationale for pricing and differential rates of subsidies including cross-subsidisation. This may include zero pricing for the very poor. A decentralized approach may also help in creating incentives/disincentives for promoting right kinds of crop-mix, dissemination of information, and inputs or technology-mix suitable to the agro-ecological and socio-economic conditions in the region. On the other hand, a relatively larger size of management unit may help developing markets and other infrastructure for processing farm produce for value addition.

**Need to Modify Institutional and Markets based Solutions:** The iterative processes of negotiations and decision making noted above, appear to be fairly complex. But, the complexity is not insurmountable as indicated by experiences from management of tanks and other water bodies especially in the southern parts of India. This is not to suggest that the experiences could be replicated in the case of ground water management where the resource is privately owned or controlled by the landowners. Regulating the access and use of ground water, thus pose a much more difficult challenge; development of water markets hence emerges as an effective solution given the property rights regime and the large magnitude of private operators of ground water across the country.\textsuperscript{13}

While these are important developments, and also amenable to modifications within the existing political economy framework, it is essential that the traditional institutional arrangements (in the case of surface water) and newly emerging water markets (in the case of ground water) are made more responsive to the larger concerns of productivity, sustainability, and equity. The contemporary discourse on water management in India suggests economic pricing along with reforms in power sector ensuring dependable supply at a given price and promotion of value addition of the farm produce as an effective mechanism for addressing the concerns noted above. In this case market rather than the state or local institutions become effective regulator of access and use of water.

The approach though valid, may not work under the situations of limited capacity of the state for reforming the power sector. Also, it may leave out of its preview, many poor farmers in marginal areas who may find it difficult to participate in the market by paying the economic price of water. It is likely that many of these farmers may be pushed into further distress if the present levels of subsidies and/or lapses in collection of the power charges are withdrawn. In this scenario depending mainly on markets may hurt the interest of the poor. At the same time, it may not help reducing depletion of ground water since the poor, given their limited land holdings and financial wherewithal for purchasing capital equipments or irrigation water, are not likely to draw lot more water than their resource rich counter parts in the region. Similarly the traditional institutions governing tanks and other water bodies are also

\textsuperscript{12} Shah, 2007

\textsuperscript{13} For details see, Shah, 1993; Prakash, 2005.
facing new challenges under the changing scenarios of resource augmentation and management in the upstream.

We do not intend to get into the details of these otherwise well researched issues in this paper. Nevertheless it is plausible that both market as well as institutions led approaches noted above may gain additional leverage if these mechanisms work in a mutually reinforcing manner, constituting part of a larger and multi-layered management of sub-basin.

**Upstream-downstream conflicts and intra-sub basin transfer:** Adopting sub-basin as a unit may also facilitate monitoring of water balance in an upstream-downstream context. Currently this is neither appropriate nor desirable to monitor such effects given the small size as well as scattered spatial distribution of micro watersheds in most parts of the country. On the other hand, information base on critical parameters of water and hydrology is far from desirable. What makes it worse is non-availability of the existing data-base in public domain [Bandopadhyaya, 2006]. In absence of these, it is difficult to even explore alternative perspectives and mechanisms for operationalising IWRM. In this context, a multi-layered approach at sub-basin level may open up avenues for creating the requisite data base, given the smaller scale and decentralized structure of governance as compared to the mainstream IWRM approach at the level of river basin.

A systematic analysis of water balance in upstream-downstream as well as inter-temporal contexts may pave way for transfer of water within sub-basin and at the same time create a base for assessing appropriate compensation and the intuitional mechanisms for operationalising that.

### 4.2 Implications for Changing the Irrigation Projects

The perspective on upward movement of the present approach for watershed development may call for simultaneous changes in the way in which irrigation projects are designed and managed. One of the important features of the corresponding changes in the planning process is – adopting a comprehensive approach for water resource management in tandem with the watershed treatments for soil-moisture conservation and harvesting of rainwater for recharging of ground water. At present, planning of irrigation projects, especially minor and medium irrigation schemes is undertaken independent of the watershed treatments, which by and large, caters to the local needs at micro-watershed village level.

In the changed scenario, the two should merge in a manner that maximizes overall resource augmentation without compromising needs of the primary stakeholders and sustainability of the ecology. A comprehensive planning for the sub-basin may be able to address the issue of checking soil-erosion in the upstream, thereby enhancing the effective storage capacity of irrigation structures in the downstream. This may imply revival and integration of river valley projects. This however, creates trade-offs

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14 A study presently undertaken by the Forum for Watershed Research and Policy Dialogue in Karnataka, Maharashtra, and Madhya Pradesh, among other aspects, tries to understand the impact on hydrology in the downstream of fairly well treated milli-watersheds-one each in the three states. For details see, the concept note on Multi Locational, Multi-disciplinary Research, Capacity Building and Advocacy on watershed Development in Dry and Semi-Arid Regions in India, [www.forward.org](http://www.forward.org).
between increased access to water across upstream and downstream, calling for well-negotiated choices and compensatory mechanisms that were discussed earlier.

A recent policy initiative for promoting recharging of wells for enhancing the capacity of ground water irrigation deserves special mention in this context. The initiative addresses one of the most crucial challenges facing water (irrigation) management, where ground water is emerging as the single most important source of incremental irrigation capacity in the country [Planning Commission, 2007]. The critical issue however, is that of adopting a coordinated approach by taking up larger watersheds as units for planning and management for ground water recharge. This is pertinent since ground water recharge is very much at the centre of the ongoing programme for watershed development across large parts of the country.

Another important feature is minimizing the role of large dams/reservoirs, especially for irrigation purposes. A recent World Bank study by Briscoe and Malik (2006) reasserts the need for regulating ground water use through a stronger presence of the state, which should not only own but, also invest substantially in public goods such as sewer and wastewater treatment plants. More importantly, it advocates participatory aquifer development associations with rights to decide the pattern of water use along with corresponding responsibilities to maintain the resource. A strategy for ground water development such as this may go well with the sub-basin level approach discussed here. In turn, it may reduce the need for large dams, especially in the ecologically fragile regions in the Himalayas.

Of course much of the argument for big dams in this region emanates from its large potential for generating hydropower. However, there is a need to reassess the role of big dams for meeting the demand of water for irrigation and domestic use in the light of the environmental consequences. It has been argued that location specific mechanisms for conserving water and economizing its use such that it helps regenerating the ecosystem. This would mitigate risk to external shocks that may go a long way in supporting agriculture in large tracts of dry land regions in the country. Much of these dry regions are characterized by hard rock and hence having little potential for ground water development [Shah, M. 2006].

To a large extent, revival of emphasis on big dams and inter-linking of rivers is part of the same ideologue, which promotes centralized, market oriented structure for water governance at the level of river-basin. This is reflected by the critical emphasis on pricing of water and electricity, to be preceded by assured increase in service delivery, most probably by the private operators – at large scale. Obviously there is little space for safe guarding interests of the poor and marginal areas if, the efficiency and sustainability is brought mainly through markets and large players in private sector. Thus, a comprehensive, multi-layered approach for integrating watershed and irrigation development may help overcoming some of the damaging impacts of large dams and predominance of market in water governance.

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15 The official estimates suggest that there has been a six fold increase in the net area irrigated through wells; the area irrigated through wells increased from 6.0 million hectares in 1950-51 to 35.3 million ha. in 2003-04. Compared to this the increase in area under major and medium irrigation project was from 8.3 million hectares in 1950-51 to 15.1 million hectares in 2003-04 (Source: Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India, http://dacnet.nic.in/eands/slus/2003-04/lus-yr-table-2.1.htm).
4.3 Where to Begin From?

Adopting watershed based IWRM offers a bottom up approach whose main features are sub-river basin approach, planning and sectoral allocation through iterative processes between macro-meso-micro levels, more of demand based verses supply based planning, scope for intra-basin transfer of water (including virtual water), larger unit of planning provides greater space for negotiations among stakeholder (across sectors and upstream-downstream regimes) and multi-layer institutions offering equal platform for negotiations. Markets may also assume special regulatory role in this framework. This may involve:

- Allocation of Water by Sectors and households would necessitate Well Negotiated Differential Pricing Structure (*with possibility of zero price for the weaker sections*)
- Built-in Incentives for Water–Use efficiency (*land use, crop-choice, technology*)
- Compensatory Mechanism for Upstream-Downstream Conflicts
- Greater Role for CBOs for Ensuring Compliance
- Better Linkages with Input-Output Markets (*Scale advantage*)

The question is where to begin in improving and up-scaling WDPs? The answer lies in going beyond milli watersheds, integrating WDPs with medium and minor irrigation schemes, strengthening of WDP based federations, if and where they exist, building capacity for negotiations and legal status of multilayered institutions. Some of the pertinent questions are - does this interface with the ongoing debate on IWRM? How to break the dichotomy of Irrigation verses WDPs among experts, policy makers and even parishioners resigning to the duality and misplaced emphasis on decentralization *per se*? Further, how do we evolve a holistic perspective on WRM and I-NRM irrespective of the contemporary debate on IWRM?

The most important challenge facing the proposed approach, is the institutional vacuum and non-performance of participatory institutions – in both watershed as well as irrigation management scenarios. Building multi-layered structures of institutions, and making them work beyond the project interventions would not only require continuous financial support, but also in intervening at the larger scenarios of local governance. If water is so critical for human existence, economic development, and mitigation of future conflicts, it is essential to widen the base of the reform process, going beyond markets, rhetoric’s of participation, and the existing structures of local governance.

In this context there has been a strong plea for moving away from the ‘reductionist paradigm’ of the earlier regime [Iyer, 2007]. Similarly, stressing the need for a holistic paradigm for water management in the country, Bandopadhyay {2006] calls for water systems to be viewed as integrally linked hydrological cycle, de-linking of linear relations of economic growth with the availability of larger water supply. It is further restructuring institutional framework and widening the social and economic perspective of water management to an ecological perspective are critical elements in moving towards holistic paradigm\(^\text{16}\).

\(^\text{16}\) One of these NGOs, Tarun Bharat Sangh, which has been working on water conservation and the promotion and revival of traditional indigenous water harvesting systems in the state of Rajasthan, perceived a threat to its work from the National Water Policy. Representatives of Tarun Bharat Sangh
Presently, there are no readymade models of institutional structures that can combine efficiency of markets and institutional mechanisms for conflict resolution. The need therefore, is to change the mindset on water resources management and bring that into the center stage of social economic and political arena influencing the large, scattered and diverse agrarian economy in India.

5.0 Way Forward
The foregoing discussion highlighted the fluid and inconclusive discourse on IWRM in the world over. While the concept has been criticized being too advanced and not suitable for the contemporary scenarios of water resources and their management in developing economies like India, others have objected to the political economy pushing neo-liberal agenda though a backdoor entry into the large agrarian economies. A case is also being made for adapting the existing approach for watershed development, to a higher level of sub-basin, which is large enough to allow economies of scale and scope, yet not too big like a river basin, which may cut across fairly divergent agro-ecological and socio-economic scenarios hence difficult to regulate and manage.

The sub-river basin approach, though not fully developed, is yet to create its legitimate place in the current discourses on IWRM in India. This paper has tried to define at least broad contours of an alternative approach, which seems to have better roots in the diagnosis as well as the present policy scenario in India. The outline presented here however, needs to be taken forward with respect to discussing the feasibility as well as its relevance to the debate on IWRM, which is far more centralised, uniform, and market oriented to address the concerns of small farmers, water scarce areas, and poor consumers.

The next step therefore, is to engage with alternative perspectives to IWRM, which is more suitable, workable, welfare generating and hence desirable. In fact it may not really matter whether an alternative perspective such as the one discussed above, could be called IWRM or not so far as it has three basic features viz; process oriented, people focused, and sustainable. What is essential therefore is to initiate a constructive dialogue on what is being suggested as boundary concept, lest the otherwise promising idea may loose out for the want of a clearly defined and universally applicable notion of IWRM.

In this context the National Water Policy may assume special significance in so far as it may set the tone for an informed debate on IWRM among various stake holders in different parts of the country, facing differential constraints and challenges.

Some of the important steps at this stage are to work towards a more integrated and holistic understanding on natural resources in general and water in particular. This would necessitate going beyond the departmental boundaries. This would necessitate comprehensive understanding of the ecological, socio-economic, and political realities by adopting inter-disciplinary approached, so as to define lower as well as upper

had been involved in the drafting process of the national policy, but not all of their recommendations had been adopted, in particular those regarding the section on private sector participation in the planning, development and management of water resources [Sourced at http://www.righttowater.org.uk/code/advocacy_4.asp on August 29, 2007]
boundaries of what IWRM could achieve in medium and long run. This in turn, may call for simultaneously reviewing the major policy documents and initiatives that deal with natural resources, growth and human welfare, ecological sustainability, local governance and fiscal instruments in place.

The next stage therefore, should be to initiate a public debate in the light of the received wisdom on the status of the natural resources and alternative perspectives for their management focusing on the three basic elements of an integrated approach noted above. It is high time that such a process of constructive engagement is triggered through local initiative so as to attain at least a national consensus on IWRM.

References:


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