

The Forum and its Work

The Forum (Forum for Policy Dialogue on Water Conflicts in India) is an effort to bring together all those interested in working on issues related to water conflicts in India into a loose network for action and interaction. The Forum began its work towards the end of 2004 as a collaborative effort of a few organisations and independent researchers and was supported by World Wide Fund for Nature (WWF). Presently the Forum has more than 150 organisations and individuals and the present phase of Forum's work is primarily supported by Arghyam Trust, Bangalore. The Forum's work covers the four broad areas of conflict documentation, conflict resolution, conflict prevention and network and outreach.

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WATER CONFLICTS IN INDIA

Towards a New Legal and Institutional Framework

Philippe Cullet, Suhas Paranjape, Himanshu Thakkar,
M. S. Vani, K. J. Joy, M. K. Ramesh

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March 2012

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K. J. Joy and Suhas Paranjape

Forum for Policy Dialogue on Water Conflicts in India

Executive Summary

Context

The work of the Forum during the last five to six years has very clearly led to an understanding that the existing legal framework around water does not have much to offer in terms of resolution and prevention of water conflicts. There is a need to change this framework so that it becomes an instrument of conflict resolution and prevention.

This concern about the inadequacy of the legal regime around water stems from many quarters. For example, it is widely believed that the present legal system is not informed of its bio-physical and socio-cultural peculiarities as a resource. Similarly, the laws do not recognise water as a common pool and ecosystem resource. The laws are mostly based on the premise that water is classical private property, which it is not.

The water sector is also confronted with new issues and challenges, especially after the 1990s. There is an increasing awareness of the multifaceted crisis surrounding water in the sector, including the fear that our water resources may not be able to meet the needs of our growing population. This is also giving rise to different types of conflicts, especially around the issues of access and allocation. The demand to make the right to water a constitutional right is also gaining ground, especially because there is a fear that the resource poor might get priced out of the system with the type of reforms taking place in the water sector, especially privatisation of different types. The preoccupation with an 8 to 9% growth rate with industrialisation as its main engine is also taking a toll on water. Increasing levels of pollution and inter-sectoral water conflicts mainly because of the diversion of water from agriculture to industry are symptoms of this trend. The changing role of the state from that of service provider to regulator, and the institutional changes in the form of Water Users' Associations (WUAs) and independent regulatory mechanisms, are also part of this new set of issues and concerns.

Such issues have contributed to the widespread belief that the legal and institutional regimes governing the water sector need to be overhauled. What should be the broad direction of this change? What can the Forum do in this regard? This prompted the Forum to decide to engage with these issues on a long term basis, and as a first step, to constitute a small working group to go into these issues and come up with a report that would indicate the broad direction of the required changes.

The main insights from the different chapters of the report are presented below.

Rivers

The existing legal and institutional structures that affect rivers in India have proved to be ineffective in protecting rivers from being polluted. When rivers have been protected in rare instances, it has been achieved through social and community initiatives that have often bypassed these established structures. In the decision

making processes, there is no attempt at valuing the services provided by a river, either in qualitative or quantitative terms. Rivers face many existential threats, including due to dams (including run of river and other hydropower projects), pollution, diversions, encroachments, and excessive use of groundwater and catchment degradation. The newer threats that rivers face include privatisation, climate change and river linking plans. The current National Water Policy (2002) and its revision under consideration the Draft National Water Policy 2012, as well as the various state water policies have very few river-friendly elements, and are also marked by a complete absence of legal and institutional mechanisms to ensure implementation of river-friendly aspects of the policy. What is needed is an enabling legal and institutional framework conducive to an equitable, sustainable and just resolution of water conflicts in the context of rivers. Some of its key elements may be enumerated as follows: a national rivers policy, river zone regulation, floodplain protection, catchment management, protection of local water systems, wetland and forests, ensuring freshwater flow in perennial rivers even from existing dams, hydropower projects and diversions and also from such future projects, a credible community managed pollution control regime, ensuring natural flow in selected rivers, and credible redressal and compliance mechanisms, among others.

Groundwater

The role of groundwater in water provisioning has been increasing and, more importantly, has now come to play a crucial role in drinking water provision. Groundwater regulation has been governed since colonial times through principles that give individual landowners exclusive control over water. There has been no comprehensive regulation of groundwater that could either take into account the inherent inequality of this framework or regulate the use of groundwater at an aquifer level. There are different laws specifically relating to groundwater and various groundwater bills are being considered at both the states and the union level. However, all of them are based on the old, outdated models of governance and do not address the basic structure of groundwater rules, but simply add a layer of centralised control with a view to control further overexploitation of groundwater.

What is needed is a new legal framework for groundwater use, and such a framework needs to take cognisance among other things of: the right to water, especially important for groundwater since it has become a crucial source of drinking water for the population; principles of public trust and common heritage; decentralisation principles embodied in the 73rd and 74th Constitutional amendments; and lastly, considerations of equity and equality before the law. It has to be based squarely on an understanding of groundwater as the primary source of drinking and livelihood water and on an understanding of groundwater at an aquifer level. Finally, it should be noted that while reform is necessary, reform without safeguarding of rights could lead to a situation of insidious privatisation and loss of rights.

Surface water bodies

Though courts in India tend to use the term surface water bodies, we need to see them as part of the wider concept of wetlands. Wetlands are integral to a healthy

environment, to sustain all forms of life, including human. In addition to their critical ecological function, they are of immense importance to human society - economically, culturally, and physically. Wetlands are internationally and nationally recognised to be a threatened resource, and an estimated one-third of all wetlands have been either wiped out or severely damaged.

The legal and institutional structure relating to wetlands, as also to all other natural resources in India, does not constitute a single paradigm, but is a mosaic of legal pluralism in which customary law has played and should play an important part. Pre-colonial law in India was based on the concept of dharma that had proper respect for natural resources going beyond even the 'wise use' concept of the Ramsar convention.

One of the other sources of law on surface water bodies is rooted in a multiplicity of land, forest and water statutes at the state and central levels that originate in the colonial era and assert the power of eminent domain and ownership by the state of all standing and flowing water, sustain an unnatural separation of land, water and forest resources – a source of conflict and dispossession due to which courts have had to step in in the interests of public trust, fundamental right to water, environmental sustainability and livelihood rights.

The most visible, but not the most operational laws relating to wetlands are statutes that emanate from national obligations under international environmental law enacted by the central government. While these laws backed by courts of law have created national awareness about and action towards addressing environmental issues, and in a few cases, have helped halt destruction of some important wetlands, they have not contributed substantially to protection of wetlands and other natural resources, nor have they put into place sustainable management frameworks for these resources. A last category of laws that directly or indirectly impact wetlands are those that have been enacted in furtherance of liberalisation and globalisation of the Indian economy, including sector reforms programmes inspired by the Alma Ata Declaration. These have serious implications for wetlands use and management.

In conclusion, it may be said that the prevailing formal legal and institutional framework for governance of wetlands is not only inappropriate for, but detrimental to, and may be the prime cause of the steady decline of this important resource. It is important that we learn from the single exception to this general trend, the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act (2006) that addresses the integrity of all natural resources, environmental sustainability, human rights and livelihood rights simultaneously, and recognises the rights of local communities of ownership as well as management.

Dams

Dams in the widest sense are structural interventions modifying stream flow and evolved from the traditional systems of historic times to the large dams of today. In India, the number of large dams or the so called medium and major irrigation (MMI) projects has risen rapidly after independence, and now constitute an important component of the water sector, though its importance is often exaggerated by their

proponents. In the planning and implementation cycle of projects, the social and environmental impact analysis in general, and in particular of MMI projects, where they are conducted at all, are post- facto shoddy add-ons rather than instruments of option assessments, including no-dam options. The planning process is completely top-down with no participation from the project affected people. Though recent attempts at participative irrigation management provide some room for participation, reservoir operation, where water policy actually becomes operative in respect of dams, has no participation from the people nor linkages with any integrated policy.

The way forward is through a change in the nature of planning and implementation of dams. Social and environmental considerations now need to be treated on an equal footing with technical and economic considerations; reservoir planning and operation needs to be part of a multi- stakeholder process that rests on nested institutions based on the subsidiarity principle, with the lowest rung comprising a best blend of village, micro- watershed and aquifer units. Most importantly, we need to move away from a mindset based on a heavy emphasis on large dams, an overemphasis on technical and so called economic factors to the detriment of all other aspects of life, and top-down strategies based on a belief in a paternalistic/authoritarian state as the major social agency, and subject our institutional and legal arrangements around water to a radical scrutiny.

Some common issues

Besides the issues focussed on the different sources/aspects of water, a few common issues are touched upon that also need to be considered separately. The first such issue is that of the bio-physical and socio-economic peculiarities of water as a resource and their implications for the legal and institutional framework. The fact that water is an ecosystem resource, that it has the nature of a common pool resource, that it is both a local and a non-local resource, that it is both a social and an economic good, that the costs of excluding people from natural access are very high, and that so called ownership is a time and space restricted entitlement to a share of a common pool resource, all drive it farther and farther away from classical property concepts. This makes for a strong case for explicitly incorporating the public trust and reasonable use doctrines into the legal and institutional framework around water.

Another issue is that of a rights based approach to water issues. There is a strong argument for a minimum assurance that water be considered part of a right to water, and as part of human rights. However, there is no unanimity on how far this right extends. A very useful discussion in this regard is the Forum's publication 'Life, Livelihoods, Ecosystems, Culture: Entitlements and Allocation of Water for Competing Uses' which summarises the issue of what should be considered rightful entitlements for basic, livelihood, ecosystem and cultural needs. Since the present body of law does not guarantee an explicit right to water, it is argued that a formal legal and constitutional recognition of a right to water would go a long way towards holding the state accountable for the basic provisions of water.

An overarching issue concerns the legal changes that are following the wave of globalisation and privatisation. Also, a related question is whether water is a social or an economic good. Here, a rights perspective has even more relevance, and it is important

to see that none of the developments infringe upon human rights or encroach upon rightful entitlements for other vital uses. Even if it is conceded that privatisation of service delivery is not a new thing, it cannot be ignored that privatisation of rights is taking place under its guise. Similarly, the new wave of regulation, especially in its practice, is proving to be a means of raising tariffs and shifting the burden of doing it off the backs of the political establishment, rather than making them an instrument of restructuring the water sector along equitable and sustainable lines.

It is difficult to determine where to start unravelling the tangled mass of legal and institutional issues that plague the water sector. It is suggested that a good beginning would be a two pronged initiative; one towards formalisation of the right to water and second the enactment of a water framework law at the national level. The formalisation of the right to water could first take place around the issue of water for basic needs or water for life, which has the largest potential for a social consensus. The right could then be progressively enhanced to include rightful entitlements to water for livelihood, environmental and cultural needs. There is already an initiative in this direction. There is also a good initiative in the direction of enacting a national water framework law. A good draft has been prepared by the Sub-Group on such a law set up by the Planning Commission. The law is a succinct statement of the necessary principles, which can be seen as an enabling rather than a restrictive legislation by the states, and also provides for a progressive process by which it comes into force only after the states adopt it.

What becomes obvious is that merely tinkering with the existing water related laws may not suffice. We need a legal framework that takes into account the bio-physical and socio- cultural peculiarities of water, the emerging concerns of seeing water both as an ecosystem and common pool resource, the discourse around the right to water and equity, principles and doctrines of decentralised and participatory forms of governance and management, subsidiarity and trusteeship. It is heartening to note the emerging sensitivity to these issues and the core values of sustainability, equity and democratisation. This report only brings out the broader contours of such legal reform; the details need to be worked out through a much wider process involving water users, civil society activists, academics and the political class. The Forum is committed to taking this process forward.

The context

The work of the Forum during the last five to six years, especially the extensive documentation of different types of water conflicts it undertook, has very clearly brought out the understanding that the existing legal framework around water does not have much to offer in terms of resolution of water conflicts and their prevention. There is a need to change it if it has to become an instrument of conflict resolution and prevention.

This concern about the inadequacy of the legal regime around water stems from many quarters. For example, it is widely believed that the present legal system is not informed of the bio-physical and socio-cultural peculiarities as a resource. Similarly, the laws do not recognise water as a common pool and ecosystem resource. The laws are mostly based on the premise that water is classical private property, which it is not. This issue is discussed in detail in the concluding chapter of this report.

The water sector is also confronted with new issues and challenges, especially after the 1990s¹. There is an increasing awareness of the multifaceted crisis surrounding water in the sector, including the fear that our water resources may not be able to meet the needs of our growing population. This is also giving rise to different types of conflicts, especially around the issues of access and allocation. The demand to make the right to water a constitutional right is also gaining ground, especially because there is a fear that the resource poor might get priced out of the system with the type of reforms taking place in the water sector, especially privatisation of different types.

The preoccupation of an 8 to 9 per cent growth rate with industrialisation as its main engine is also taking a toll on water. Increasing levels of pollution and inter-sectoral water conflicts mainly because of the diversion of water from agriculture to industry are symptoms of this trend. The changing role of the state from that of service provider to regulator, and the institutional changes in the form of Water Users' Associations (WUAs) and independent regulatory mechanisms, are also part of this new set of issues and concerns.

Such issues have contributed to the widespread belief that the legal and institutional regimes governing the water sector need to be overhauled. What should be the broad direction of this change? What can the Forum do in this regard? These were some of the questions that were posed in the national workshop held in March 2009 on 'Water Entitlements and Allocations for Livelihoods and Ecosystem Needs and the Legal-

¹ For a detailed discussion on the emerging issues and concerns, see Chapter One: Introduction of the Report 'Life, Livelihoods, Ecosystems, Culture: Entitlements and Allocation of Water for Competing Uses', which is available at <http://conflicts.india.waterportal.org>.

Institutional Framework for Conflict Resolution'.² The broad consensus in the meeting was that the Forum should engage with these issues on a long term basis, and as a first step, it was decided to constitute a small working group to go into these issues and come up with a report that would indicate the broad direction of the required changes³.

The process and structure

National consultative meeting

The national consultative meeting convened by the Forum in July 2007 at Pune had, among other things, pointed out that the type of conflict resolution required to address water conflicts received very little support from the legal system, and that it was important to critically look at the present legal and institutional structures in the light of water conflicts.

At the same time, there is a need to take a critical look at the constitutional and legal framework (including customary law) pertaining to water and other related sectors and institutions at different levels and of various types. Water is a state subject, and it has a close association with property. The law has so far considered the interest of the propertied class, and hence in reality, especially in issues involving water conflicts, water has been treated as an economic asset for economic prosperity, or as a matter of ownership rights in the sense of who has the right of ownership of water. This is far removed from treating water as a regulated 'natural resource' in the fullest sense.

² The two day national workshop on 'Water Entitlements and Allocations for Livelihoods and Ecosystem Needs and the Legal-Institutional Framework for Conflict Resolution' held on 30-31 March, 2009 in Pune.

³ The Forum also set up another working group to look into the issue of entitlements and allocations for livelihoods and ecosystem needs. The report of this group titled 'Life, Livelihoods, Ecosystems, Culture: Entitlements and Allocation of Water for Competing Uses' is available at <http://conflicts.indiawaterportal.org>.

It is critical that we bring in three important perspectives - namely, a human rights perspective (including that of food security), a right to livelihood perspective, and an environmental rights perspective - to bear on the present constitutional and legal framework, and identify how we should proceed in building an enabling legal and institutional framework conducive to an equitable, sustainable and just resolution of water conflicts. It is also important to engage with the debate surrounding the rapidly changing context around us. Some of these developments are as follows: the efforts at decentralisation through the 73rd and 74th constitutional amendments; the emergence of independent regulatory bodies (for example the Maharashtra Water Resources Regulatory Authority Act, 2005) in the water sector; a growing emphasis on user participation in the form of WUAs; and the recent clamour for removing water from the state list and making it part of the 'concurrent list'.

Setting up of the working group

It is in this context that the two day national workshop on 'Water Entitlements and Allocations for Livelihoods and Ecosystem Needs and the Legal-Institutional Framework for Conflict Resolution' organised by the Forum in March 2009 in Pune decided to set up a working group to come up with a 'position paper' suggesting an alternative legal and institutional framework for water.

The broad mandate of the working group was to focus on determining the kind of responses in legal terms that would be needed to incorporate the above three elements or perspectives, namely, a human rights perspective including that of food security, a right to livelihood perspective, and an environmental rights perspective, in

decisions concerning allocation, and also to examine more generally the principles that should constitute the basic legal framework for allocation and reallocation of water.

Following the two day workshop in March 2009, the Forum constituted a working group with Philippe Cullet, Suhas Paranjape, Himanshu Thakkar, M. S. Vani and M. K. Ramesh as members. The working group worked closely with the other working group on the theme of minimum livelihood and environmental entitlements.

The working group first met on 2 July, 2009 in Delhi for a brainstorming session, with the main purpose of setting the broader contours of the issues to be tackled, and to decide on specific responsibilities of the members. In this meeting, it was decided to focus on specific sites/sectors like rivers, surface water bodies, groundwater, dams and pollution, as most of the existing laws are around these sites/sectors and conflicts often take place around them. Thus it was decided to work on the following five core chapters as part of a comprehensive report (the names of the persons who were responsible for writing the chapters are in brackets): Rivers (Himanshu Thakkar, surface water bodies (M. S. Vani), Groundwater (Philippe Cullet), Pollution (M. K. Ramesh) and Dams (Suhas Paranjape). During subsequent discussions, it was decided to include an introductory chapter that would set the context and background of this report, and a concluding chapter that would bring together the insights from the five core chapters, address some of the residual issues not tackled by these chapters, and also try to engage with the issues thrown up by the report of the working group on entitlements and allocations for livelihoods and ecosystem needs. K. J. Joy and Suhas Paranjape took up the responsibility of writing the introductory and concluding chapters. Unfortunately, M. K. Ramesh could not complete the chapter on pollution on time, and hence it could not be made part of this report. The issue of pollution has been partly tackled in the chapter on rivers.

The members prepared a detailed outline of their respective chapters and circulated it to all the members for comments and suggestions. Later, the Forum organised a meeting of the two working groups⁴ in November 2009 in Delhi to present and discuss both draft reports (and outlines⁵). The draft chapters and/or outline of chapters were presented and discussed in the two-day national workshop held on 25-26 February 2010 at Pune. The report has been finalised taking into account the feedback received in this workshop.

We have included the names of the authors of the different chapters to indicate that the views expressed in the respective chapters are primarily owned by them. Though there is a general agreement on the broader direction that is suggested in each of the chapters, there could be differences of opinion about some of the details or the way certain issues are articulated.

Purpose of this document

We are aware that there may be more comprehensive academic treatises on all these issues. This document is not meant to be purely academic, but has been prepared with the idea that the Forum, and all those who have been connected with the Forum

⁴ The first working group on the issue of entitlements and allocations for livelihoods and ecosystem needs consisted of K. J. Joy, Priya Sangameswaran, A. Latha, Shripad Dharmadhikary, M. K. Prasad and K. P. Soma.

⁵ Though the first working group had their first draft of its report ready in November 2009, the working group on legal and institutional issues had only the outlines ready by then

and its work, would own this document and use it in different ways - in their work with the communities, and for campaigns and advocacy, especially legal advocacy - to usher in a change, first in the many ways that we think about water, and second, in the many ways that we manage it.

We also know that the document has to be broad enough - not too rigid and narrow - to accommodate the concerns and viewpoints of different groups and individuals within the Forum. It also needs to be flexible enough to adapt itself to different situations and contexts within the normative concerns or foundational principles of sustainability, equity and democratisation that guide the work of the Forum, the concerns that bind us all together. Thus, this document should not be treated as a rigid “party manifesto” or a particular prescription for legal and institutional reforms. Instead, the document aims to set a direction for the type of changes required in the legal and institutional regime around water.

The Forum would use this document for wider dissemination and advocacy work within both the practitioner community as well policy makers. One of the immediate tasks of the Forum would be to use this report to intervene in some of the legal-institutional reforms that are currently underway, most importantly, those initiated by the Planning Commission in its preparations for the Twelfth Plan (the proposed National Water Framework Act, the Model Bill for State Water Regulatory System Act, and the Model Bill for the Protection, Conservation, Management and Regulation of Groundwater) and the initiatives for formalisation of the right to water.

Introduction

What is a river? A river is not just a channel carrying freshwater, but a hydrological, geomorphic, ecological, biodiversity-rich, landscape level system that serves as a key part of the freshwater cycle, balancing dynamic equilibrium between snowfall, rainfall, surface water and groundwater, and provides a large number of social and economic services to the people and ecosystems all through its watershed ¹. This does sound a bit complex, but then, a river is a complex and beautiful system which does many things along its course!

Moreover, as ecological systems:

- Rivers have a large-scale directional organisation (upstream-downstream), which leads to their accumulating water and material loads as they flow downstream.
- Rivers are dominated by active rather than diffusive material transport.
- Rivers have exceptionally high rates of energy and material throughput.
- Rivers always 'contain' many other embedded ecosystems (both terrestrial and aquatic²)

The report of the World Commission on Dams notes, "*Rivers, watersheds and aquatic ecosystems are the biological engines of the planet.*"³ The Strahler Stream Order ranks rivers based on the connectivity and hierarchy of contributing tributaries. Headwaters are first order while the river at delta is the last order.

Current legal and institutional infrastructure

Some of the relevant Acts and provisions in this regard include the following:

- State Irrigation and Drainage Acts
- Interstate River Water Disputes Act, 1956
- River Boards Act, 1956
- Interstate Water Dispute Tribunal awards
- The efforts at decentralisation through the 73rd and 74th constitutional constitutional amendments
- The Panchayats Extension to Schedule Areas Act, 1996

Interestingly, in British period, there was an act called River Conservancy Act (Madras Act IV of 1884) ⁴. However, on reading it, it seems more like an act to regulate the use of land within the river banks rather than the river itself. In the following section, some specific laws that could be used for protection of rivers have been reviewed in brief.

¹ This is my attempt at definition of Rivers, first published in Threat to Rivers in Mint Newspaper on June 5, 2010

² An Introduction to Rivers – the Conceptual Basis for the Michigan Rivers Inventory (MRI) Project, Michael J. Wiley and Paul W. Seelbach, Dec 1997, page 7

³ Executive Summary of the WCD report, "Dams and Development: A New Framework for Decision-Making"

⁴ [http://demo.cgg.gov.in/apwater/downloads/acts/River%20Conservancy%20Act\(River%20Conservation%20Act%20%20\).pdf](http://demo.cgg.gov.in/apwater/downloads/acts/River%20Conservancy%20Act(River%20Conservation%20Act%20%20).pdf), accessed on February 12, 2010

The Water (Prevention and Control of Pollution) Act, 1974

The water quality management in India is performed under the provision of Water Pollution Control Act of 1974 along with the Water Pollution Cess Act of 1977. The basic objective of this Act is to maintain and restore the wholesomeness of rivers by prevention and control of pollution. However, the Act does not define the level of wholesomeness to be maintained or restored in rivers of the country. Through the Act, the Central Pollution Control Board (CPCB) at the Centre and State Pollution Control Boards (PCBs) in various states of India were established. Functions and powers of the PCBs include:

- Comprehensive programmes for the prevention, control or abatement of water pollution
- Collecting, analysing and disseminating water pollution information, to inspect sewage and effluents generated
- Evolving economical methods of sewage treatment, utilization and disposal of sewage
- Prohibition of the use of rivers or aquifers for effluent disposal
- Using the powers of withdrawal of Consent

⁵ India turns into a green pasture for pollution insurers, *Mint*, February 17, 2010

⁶ Shut down polluting tirupur dyeing units in Feb 2011 issue of Dams, Rivers & People, page 24

⁷ See for example: http://kvina.niva.no/striver/Portals/0/documents/STRIVER_D7_1_Part1.pdf, accessed on March 9, 2012

⁸ For an analysis of recent CWC report on Water Quality Hot spots in Rivers of India, see: http://sandrp.in/rivers/Crisis_of_Water_Quality_in_India.pdf

⁹ The report of the Central Empowered Committee of the Supreme Court in the 2005 report in the Keoladeo National Park (Bharatpur Bird Sanctuary) case

Unfortunately, the Act and the institutional system under it has been complete failure. 37 years since the system was put in place, there is not a single successful example of functioning of the State PCB or a single case where one can say that a river has been cleaned up due to the efforts under this Act. The polluters are happy since they have never, except in some rare cases, been penalised for the damage they cause. One exception is when the tanneries in Vellore, Tamil Nadu were held responsible for widespread contamination. Damages of Rs 26.82 crores were awarded in 2001 to 29,193 families owning 15,164 ha of agricultural land in 186 villages.⁵ In another recent case, the dyeing industry of Tirupur (CHECK SPELLING) in Tamil Nadu was ordered to close down following a High Court order.⁶ There is also the example from Tungabhadra river where civil society seems to have used the provisions of the Act and the civil society action resulted in the setting up of Citizens' Watchdog Committee with a view to reduce the pollution in the river⁷.

Unfortunately, there is little coordination between different pollution monitoring and controlling institutions. Also all the indicators of pollution are in terms of BOD, COD, TDS, TS and such other chemical or physical parameters. However, no holistic parameters that would indicate overall health of river (or water bodies) is used. The existence and health of certain species of flora, fauna could be one such option.⁸

The Wild Life (Protection) Act, 1972

The provisions of Section 35(6) of the Wild Life (Protection) Act, 1972 prohibit anybody from stopping or enhancing the flow of water into or outside a National Park except by permission from the Chief Wild Life Warden. It further states that no such permit shall be granted unless the State Government in consultation with the National Board is satisfied that the change in the flow of water into or outside the National Park is necessary for the improvement and better management of wildlife therein.⁹ That important provision of the 1972 Act which could have come to the rescue of some of the rivers has rarely been used. of any water regulatory authority. The only state where a fully functional water

In a welcome decision in February 2008, the proposal for survey for the Chambal Development Scheme involving four Hydropower Projects (Rahu Ka Gaon, Gujjapura, Jaitpura & Barsala) on Chambal river in Rajasthan was not granted clearance by the Standing Committee of National Board for Wildlife, that was supposed to protect the river and wildlife therein. Similarly after a long agitation, the Union Government in Oct 2010 decided to abandon the plans to construct hydropower projects on Bhagirathi river upstream of Uttarkashi in Uttarakhand and declared the 135 km of the river as an ecological zone.

The Forest Conservation Act, 1980

The Act is supposed to help protect rivers that pass through the forests, including putting restrictions on mining of minor minerals from the beds of such rivers. Section 4.6 of the Act says, “Extraction of minor minerals shall be from the middle of the river bed after leaving one fourth of the river bed on each bank untouched.” However, the Act has not been used specifically for the protection of rivers.

The Environment Protection Act, 1986

This is indeed a very powerful Act which gives the Union Ministry of Environment and Forests substantial powers and could have been used to protect India’s rivers directly and indirectly, including when projects are sanctioned under the Act. Unfortunately, the Act has not been used for that purpose even in most deserving cases.

The Electricity Act, 2003

Section 8(2) of the Act states, “*The (Central Electricity) Authority shall, before concurring in any (hydropower) scheme submitted to it under sub-section (1) have particular regard to, whether or not in its opinion,- (a) the proposed river-works will prejudice the prospects for the best ultimate development of the river or its tributaries for power generation, consistent with the requirements of drinking water, irrigation, navigation, flood-control, or other public purposes, and for this purpose the Authority shall satisfy itself, after consultation with the State Government, the Central Government, or such other agencies as it may deem appropriate, that an adequate study has been made of the optimum location of dams and other river-works*”.

This provision could have been used for the protection of rivers, since it requires the Central Electricity Authority (CEA) to give concurrence to hydro projects only after satisfying that the proposal is optimum with respect to all other uses of the rivers. Unfortunately, as the South Asia Network on Dams, Rivers and People (SANDRP) found out through applications under the Right to Information Act, while giving concurrence to hydropower schemes under this Act, the CEA consults only two organisations, namely the Geological Society of India (GSI) and the Central Water Commission (CWC). GSI and CWC evaluate the scheme from specific parameters of geology and hydrology, but do not look at basin wide issues as required under the Act. The CEA itself is not capable of ensuring basin wide optimisation that the Act requires,

nor does it consult the concerned stakeholders. Thus the Act is not being followed. In February 2012 the author met the Ministry of Environment and Forests (MoEF) officials and the MoEF's Expert Appraisal Committee (EAC) on River Valley Projects and suggested that the MoEF/ EAC could be tasked to ensure such optimisation.

Maharashtra Water Resources Regulatory Authority Act (2005)

The Act provides for formulation of river basin plans and state water plan through river basin agencies and state water board. One of the important criteria of State Water Plans under the Act is, "*Low flow from ecological considerations is usually unavailable in peninsular rivers. The present low flow (minimum flow in summer months) may be indicated at various parts in the system along with the required flow recommended by Pollution Control Board.*" (Technical Manual for preparation of State Water Plans for basins, MWRRA, 2007)¹⁰ A number of other states, including Uttar Pradesh (Aug 2008) and Andhra Pradesh (2009) have come out with such acts. Both the Acts do not explicitly mention protection of rivers or environment flows.

¹⁰Analyzing the enabling environment for effluents in India and the state of Maharashtra, *Parineeta Deshpande-Dandekar*, thesis submitted to Asian Institute of Technology, August 2009

¹¹ *Parambikulam Aliyar Project Assn. v. State of Tamil Nadu AIR 1999 SC 3092.*

¹² Legal Aspects of Water Resource Management, *A. Vaidyanathan and Bharath Jairaj*, updated from "*Role of Law in Water Resource Management*", *Indian Jurid. Rev.*, Vol 1, National University of Juridical Sciences, 2004

¹³ *M.C. Mehta v. Kamal Nath 1997 (1) SCC 388*

¹⁴ *National Audobon Society v. Superior Court of Alpine County*, 33 Cal 3d 419 referred to in *M.C. Mehta v. Kamal Nath 1997 (1) SCC 388*

¹⁵ *Intellectuals Forum, Tirupathi v. State of Andhra Pradesh, AIR 2006 SC 1350*

Relevant judicial pronouncements

There is no formal basis to determine water allocations between different segments of a river basin and between different uses and users either in the Constitutional Directive in respect of inter-state or intra-state rivers or the Central or State legislations. Tribunal awards on sharing of river waters stop at the State level and all entitlements within the state is left to be determined entirely by its government. Since there are no laws, norms or principles on how this is to be done, decisions are generally ad-hoc and political. The absolute power of the States to regulate appropriation and use, and to change entitlements and rules of allocation at its discretion was confirmed by the Supreme Court, while dismissing a plea by the petitioners (who were the prior appropriators and original beneficiaries) that they did *not* have a pre-existing "*right to get a particular quantum of water*" and "*even if they had such a right, it can be restricted to a reasonable extent by an appropriate legislation*"¹¹ suggesting that the State had an absolute right.¹² Such absolute right of the state is supposed to include right to decide about use of rivers. However, without clearly defined guidelines or legal and institutional checks and balances against arbitrary use of such powers, this does not help protection of rivers.

As against such absolute power under eminent domain doctrine a notable alternative is the Public Trust doctrine, first seen in India in the *Span Motels* case¹³ where the Supreme Court came down heavily on the Central Government for 'validating' the act of a private hotelier who had diverted a river to protect his illegal hotel constructed on the banks of the Beas river in Himachal Pradesh. The Supreme Court while formulating the Public Trust doctrine reviewed several decisions of Courts in the United States, in particular the California Supreme Court order in the *Mono Lake Case* which stated, "*The public trust is more than an affirmation of State power to use public property for public purposes. It is an affirmation of the State's duty to protect the people's common heritage streams, lakes, marshlands and tidelands, surrendering that right of protection only in rare cases when the abandonment of that right is consistent with the purposes of the trust.*"¹⁴

In the recent *Intellectual Forums* case¹⁵ that further expanded the doctrine of Public

Trust in India, the Supreme Court was called on to protect two lakes in Andhra Pradesh that were sought to be closed and filled, to enable the construction of houses by the State Government. The State argued that the tanks had long stopped functioning as tanks and that it was State policy to build more houses for the people while the appellants argued that the tanks were not just alive, but currently used for irrigation and also helped improve the ground water table, thus serving the needs of the people around these tanks. The Supreme Court did not buy the eminent domain argument and chose instead to state that *“the tank is a communal property and the State authorities are trustees to hold and manage such properties for the benefits of the community.”* The Court went on to confirm that the State *“cannot be allowed to commit any act or omission which will infringe the right of the Community and alienate the property to any other person or body.”*

In another recent case, the Madurai Bench of the Tamil Nadu High Court, ordering the eviction of 500 poor families, who had encroached upon an irrigation tank at Dindigul district, has observed that the need to preserve water bodies would gain priority over the right of landless poor to housing, when there was a conflict between the two. Disposing a batch of petitions the Bench said, *“Landless poor have a fundamental right under Article 21 (Right to life) of the Constitution to demand residence. But such right cannot be extended to the level of encroaching water sources”*.¹⁶

The eminent domain and the public trust doctrines can work in opposite directions and in absence of any legal or institutional mechanisms to define the powers of the state in either case, the state has been using the powers rather arbitrarily and the rivers are one of the many casualties in the process. In an order in January 2011, the Supreme Court has laid stress on preservation of water bodies as common property resources.¹⁷

The ongoing case in the highest court of the land, the Supreme Court, started in 1994 with the Apex Court taking *suo moto* cognizance of the newspaper report on the dirty Yamuna; yet, it has not led to any effective action or change in the state of Yamuna river passing through the national capital. Delhi, the national capital, is the biggest culprit responsible for this state of affairs, as noted by the Supreme Court, the CPCB and MoEF. Eighteen years later, after spending hundreds of crores for cleaning up the river, after setting up numerous committees, the state of Yamuna has deteriorated, rather than improved. This is a very good example of the combined failure of our executive, judiciary and the society at large. On Feb 27, 2012 the Supreme Court again said it wants to take action, but as *the Hindustan Times* reported, *“the bench was not clear about the background of the case and the directions needed to be issued to various authorities”*.¹⁸

National Ganga River Basin Authority

Deforestation in the catchment areas leading to high silt loads, floods and reduced navigational possibilities, drainage of pesticides and fertilizers and industrial and municipal waste are among other major areas of concern. It is necessary to take measures for preventing irreversible damage and restoring the water quality of this unique riverine system. While a holistic long term programme covering all aspects needs to be planned and implemented in phases, the pollution problem calls for immediate action... Resolution of the MEF, 1985, setting up the Central Ganga Authority

¹⁶ See Dec 2009-Jan 2010 issue of Dams, Rivers & People, page 9

¹⁷ Jaspal Singh and others Vs State of Punjab and others, see Feb 2011 issue of Dams, Rivers & People page 24.

¹⁸ www.hindustantimes.com/India-news/NewDelhi/SC-Want-to-take-action-on-Yamuna-pollution-now/Article1-818119.aspx

National River Conservation Directorate To oversee the implementation of the GAP (Ganga Action Plan) and to lay down policies and programmes, Government of India constituted the CGA (Central Ganga Authority) in February 1985, renamed as the NRCA (National River Conservation Authority) in September 1995, under the chairmanship of the Prime Minister. The Government also established the GPD (Ganga Project Directorate) in June 1985 as a wing of Department of Environment, to execute the projects under the guidance and supervision of the CGA. The Government renamed the GPD as the NRCD (National River Conservation Directorate) in June 1994.¹⁹

Proposal for River Regulation Zone

During the National workshop on conservation of rivers and floodplains in Jawaharlal Nehru University (Delhi) on 23-24 Nov 2001, it emerged that MoEF should take immediate necessary action to formulate the requirements for issuing notification for River Regulation Zone (RRZ) under the Environment Protection Act on lines similar to those of Coastal Regulation Zone (CRZ) notification. Meetings were called by NRCD on Jan 8, 2002 and Sept 26, 2002 to discuss this further. A few experts met, but as per the RTI response from NRCD in April 2007, no further progress could be made. The meeting discussed the need to regulate the various activities affecting the rivers and floodplains. In January 2011 the Union Environment Minister spoke about a RRZ notification to protect riverbeds from encroachments in the future²⁰. The Ministry set up an Expert Group to formulate RRZ, which is now (in March 2012) in the process of drafting a notification for RRZ on the lines of CRZ notification.

Relevant Institutions that affect the fate of the rivers

At Central level

- Ministry of Environment and Forests
- Expert Appraisal Committee on River Valley and Hydropower projects
- Central Pollution Control Board
- Water Quality Assessment Authority
 - Water Resources Ministry
- Central Water Commission
- River basin specific organisations: Upper Yamuna River Board, Narmada Control Authority, Ganga Flood Control Commission, Brahmaputra Board, Bansagar Control Board, Betwa River Board, Ghaggar Standing Committee, Damodar Valley Corporation, Tungabhadra Board
 - Power Ministry: Promoting Hydropower projects
- Central Electricity Authority: Sanctioning authority for Hydropower projects.
- Government Hydropower development organisations: Bhakra Beas Management Board, NHPC, NEEPCO, THDC, Sutlej Jal Vidyut Nigam Limited, state level organisations/ departments
 - Planning Commission

¹⁹ http://www.cag.gov.in/reports/scientific/2000_book2/gangaactionplan.htm, accessed on February 17, 2010

²⁰ <http://www.hindu.com/2011/01/08/stories/2011010865321700.htm>, accessed on March 8, 2011

At States level

- Environment, Water Resources (or Irrigation), Power Departments
- River Basin specific organisations: Bhagirathi River Valley Development Authority, Irrigation Corporations in Maharashtra
- Water Resources Regulatory Authority (Maharashtra, Andhra Pradesh, Arunachal Pradesh)
- State Pollution Control Boards

Water policy and rivers

The latest (2002) National Water Policy (NWP) gives fourth priority to ecology after drinking water, irrigation and hydropower. However, the policy does not say what this priority would mean. The section under Water Quality in the NWP2002 has some relevant provisions for rivers:

- Effluents should be treated to acceptable levels and standards before discharging them into natural streams.
- Minimum flow should be ensured in the perennial streams for maintaining ecology and social considerations.
- Necessary legislation is to be made for preservation of existing water bodies (which can include rivers) by preventing encroachment and for deterioration of water quality.

However, credible action, will or intention of following any of these is awaited. The state of rivers in India during the NWP 2002 has only gone from bad to worse.

Draft NWP 2012 and redrafting process

Now there is a process underway to redraft the National Water Policy. SANDRP wrote to the Union Water Resources Ministry on January 20, 2012 requesting that the policy should be formulated in participation with the gramsabhas in rural areas and ward committees in urban areas and the draft should be translated in all Indian languages and sent to them for their comments. However, that is yet to happen. The draft²¹ provides second highest priority for ecological needs of rivers; it says in section 3.2, “*A portion of river flows should be kept aside to meet ecological needs ensuring that the low and high flow releases are proportional to the natural flow regime, including base flow contribution in the low flow season through regulated ground water use.*” But there is no mechanism or plan, mentioned or in place either in the NWP draft or otherwise to ensure that this will be achieved. The draft also has a section (Section 8) on *Preservation of river corridors, water bodies and infrastructure*, which is indeed a welcome sign. However, in the absence of any credible process or mechanism in place to achieve this, it may end up paying lip service to this. The section 13.1 of the draft opens with the sentence, “*A Water Regulatory Authority should be established in each State.*” This is unwarranted as we do not have positive experience of functioning of any water regulatory authority. The only state where a fully functional water regulatory authority is functioning is in Maharashtra, where experience is far from welcome. The draft has many other worrying provisions: no clear priority for rain-fed or other farmers in water allocations, proposal to consider water as an economic good,

²¹See <http://mowr.gov.in/index1.asp?linkid=201&langid=1> to see the drafts in English and Hindi.

no clear legal provision for right to water, proposal for privatisation of water services, no clear mention of sections of society that are vulnerable in changing climate, no attempt to learn lessons from the past, no recognition of the reality that groundwater is India's water lifeline, among many others.

Rivers in decision making process

India has no law that requires that perennial rivers have freshwater flow all round the year when any dam, diversion or hydropower project is built. No cost or benefit from rivers are accounted for in the cost benefit analysis or decision making process in matters concerning rivers or environment impact assessments or environment management plans.

The Government perspective

The Government unfortunately looks at rivers as a resource to be exploited for various water services, and not as a resource that has certain basic economic, social, environmental and cultural value. Thus when the governments take decision to build a dam to store water, build a structure to divert water or build a hydropower project that either has huge storage capacity or diverts the river through long distance underground tunnels, it does not see that these projects actually destroy an existing important resource. There is no law in India that requires that when such projects are taken up the projects must ensure that rivers continue to flow with perennial freshwater flow. Moreover there is no legal or institutional mechanism to ensure that the assessment process, the planning process, the decision making process, the cost benefit analysis or the environment impact assessments include the cost of the destruction of the existing resource of rivers and destruction of the services provided by that resource. What this thus implies is that the official system has absolutely no value for the river as a resource.

The only state in India that has a clear policy on this is Himachal Pradesh (HP). In September 2005, the HP government came out with a notification that said that all (existing, under construction and planned) hydro projects should release at least 15% of the minimum observed flow in the river, at all times. This was far from adequate, since to preserve the rivers for its social and environmental flows, much larger flows are required, but this was certainly a step in the right direction. That notification was challenged in the Himachal Pradesh High Court by a Government of India (GoI) body, the NHPC Ltd. and by the Punjab State Electricity Board. The petition in the High Court, in fact said, among other things, that no law of India requires that rivers should have freshwater flows. And GoI's MoEF supposed to be guardian of environment, including rivers supported NHPC in its response in the petition. The MoEF is supposed to have a policy for preservation of rivers, since rivers are also one of the largest repositories of biodiversity. Unfortunately, MoEF has no policy that the rivers should have freshwater flow at all times.

The rivers also face adverse consequences of construction of embankments, channelization schemes and dumping of effluents and pollutants from industrial,

municipal, domestic and agriculture sources. Here again the agencies that propose, sanction, build, monitor or operate these schemes do not have to include the value of existing resource of river and the value of the existing services that river provides and the impact of their schemes on such resources and the services. So here again, it seems that the value of the river as a resource and the value of the services provided by that resource is zero in the government calculus.

This mindset has not changed in the 21st century, as is evident from some of the recent official documents such as the 11th Five Year Plan, the working group reports on water resources for the 11th Five year Plan and now the 12th Five Year Plan²², the midterm appraisal of the 11th Plan, the Integrated Water Resources Policy document prepared by the Planning Commission, the current and draft new National Water Policy, the state water sector restructuring plans, the attempts towards the state water sector regulatory authorities in states like Maharashtra, Andhra Pradesh, Uttar Pradesh and some of the recent state legislations in the water sector. The World Bank's 2006 report on state of India's Water Sector or the more recent report from the 2030 Water Resources Group, which has taken India as a special focus case study, is no different in this respect. The agencies keep referring to the increasing demand, needs for cities, agriculture, power generation, industries etc, giving an impression that if we want freshwater in rivers, none of this is possible, in fact no development is possible. This mindset is the biggest hindrance to freshwater flow in the rivers.

The CPCB said over 25 years ago that there is no river in the plains area of the country that has bathing quality water. Today the situation has only worsened. The World Bank describes India's rivers as fetid sewers. Every major and medium river has been dammed many times over, which in every instance means that the rivers would have no freshwater flow downstream from those dams in most of the non-monsoon months. Even in the mountain ranges, the rivers like the Sutlej, Beas, Ravi, Chenab, Jhelum, Bhagirathi, Alaknanda, Gauri Ganga, Mandakini, the Teesta and so on are disappearing at most of the locations as hydropower projects divert them into underground tunnels. Not a single small, medium, large or metro city of India has operating sewage treatment plants of capacity sufficient to treat the waste water created by them. Most industries are happy to discharge the untreated effluents into the lands, rivers or aquifers. The principles of Integrated Water Resources Management have been championed for over a decade by the Global Water Partnership, established by the World Bank, the United Nations Development Programme, and the Swedish International Development Agency, among others, without having impact on the manner in which rivers are treated.

State of rivers in India

The CPCB had also declared in 1985 that no river in plains area of India has water that can be used directly for drinking water. The report of the National Commission for Integrated Water Resources Development (1999) noted that almost 80% of the river stretches in India fall in class C or lower, signifying that the water can be used neither for drinking nor for bathing. The situation thereafter has been only deteriorating with increase in population, urbanization, industrialization, damming of rivers and increased consumptive use of water. The climate change impacts are and will be

²² See for 12th Plan working group reports: <http://planningcommission.nic.in/aboutus/committee/index.php?about=12strindx.htm#wr>

making things worse. The latest report from the CPCB, namely, *Status of Water Quality in India 2007*, published in July 2008 shows that indeed, more stretches of the rivers are falling in class C or worse. The CPCB report *Status of Water Supply, Wastewater Generation and Treatment in Class-I Cities & Class-II Towns of India* released in January 2010 describes how cities are impacting India's Rivers. SANDRP colleagues recently (November 2011 and February 2011) made presentations on state of Maharashtra and Gujarat rivers at public meetings in Delhi.²³ Similarly in January 2012, SANDRP colleagues made a presentation on ecological management of rivers at Indian Institute of Technology, Kanpur.²⁴

In this regard, following paragraph from a study²⁵ on *Environmental Compliance and Enforcement in India: Rapid Assessment* by OECD in Dec 2006 provides useful overview, "(In India) Untreated sewage and non-industrial wastes account for four times as much pollution as industrial effluents. While it is estimated that 75 percent of the wastewater generated is from municipal sources, industrial waste from large and medium-sized plants contributes to over 50 percent of the total pollution loads. In major cities, less than five percent of the total waste is collected and less than 25 percent of this treated."

Minimum flow stipulations

Since around 2007-08, while giving clearances for run-of-the-river hydropower projects, the MoEF has started stipulating that certain minimum flow must be allowed in the rivers at all times. However, the stipulated flows are ad hoc and inconsistent, and at the most 10% of the observed minimum flow in the river on which the project is proposed. In mid 2010, the stipulated minimum flow of water to be released went up to 20% of average flow observed in four lean months at 90% dependability. In late 2011, the Expert Appraisal Committee of MoEF on River Valley Projects started stipulating higher monsoon flows in addition to the minimum flows.

Importantly, there is no credible mechanism to ensure that the stipulated indeed flows are released at all times. For example, in case of the NHPC's 510 MW Teesta V hydropower project on Teesta River in Sikkim, the stipulation was that the project will ensure release of 1 cubic metre per second at all times. When SANDRP asked MoEF through an application under the RTI as to who is ensuring this flow, the answer was amusing, "A regular monitoring is being done by the project itself". So the agency that stipulates the norm for freshwater flow has neither the capacity nor the will, nor the intention, it seems, to ensure that its stipulations are implemented. The regulator depends on the developer to ensure that the regulations are followed. This cannot be considered credible. In late 2011 the EAC started asking for recording meters for environment flows to ensure that the flow stipulations are followed, but it is still unclear how this will function since the area where the flow meters exist are out of bounds for the people. In Feb 2012, this author met the EAC and suggested that there should be an empowered monitoring committee for this which should include people from local area to ensure that such stipulations are indeed followed.

²³ See: http://sandrp.in/rivers/Rivers_of_Maharashtra_Dec_2011.PDF and http://sandrp.in/rivers/Rivers_of_Gujarat_March_2012.pdf

²⁴ See: http://sandrp.in/rivers/Ecological_Management_of_Rivers_in_India_Jan_2012.PDF

²⁵ <http://www.oecd.org/dataoecd/39/27/37838061.pdf>

Sawai Madhopur districts in Rajasthan, the Supreme Court stipulated that flow of minimum of 4.78 cusecs (cubic feet per second) of water will be maintained at all times, downstream from the pumping point²⁶. This was the minimum observed flow in the river in the last twenty years. So now the river will possibly have no more than that amount (provided the norm is adhered to, this time there is a monitoring committee involving forest department) for most of the non monsoon months, in most of the years. And what impact such low flows will have on the river, the downstream biodiversity and so on is not even assessed; it is assumed, without any study, that this once in 20 years flow should be sufficient for all those purposes downstream!!

That takes us to the basic question. Why have freshwater flows in river? Briefly, it is helpful for social, including cultural and religious needs, fisheries, groundwater recharge, biodiversity, pollution dilution, stopping salinity ingress, navigation and so on. In fact the first criterion for a healthy river is to have freshwater flowing in the rivers at all times. The perennial rivers need to have freshwater flow all round the year also to preserve the cultural and natural heritage value of the rivers. In addition, rivers also need to have high volume flushing flows at least once every year, sufficient to wash down the annually accumulated pollutants, debris, etc.

Fortunately, in recent years, there is increasing awareness and agitations to ensure that we indeed have some healthy rivers. Such agitations have been seen for Alaknanda, Arvari, Bhagirathi, Brahmaputra, Chalakudy, Damodar, Ganga, Kali Bein, Narmada, Sastri (Maharashtra), Teesta and Yamuna among other rivers. While there have been some successes in some of these campaigns, unfortunately, these campaigns have not yet yielded effective or policy wide results.

Perennial riverine length in India

One of the parameters of ensuring sustainable existence of rivers in India would be to ensure that perennial rivers remain perennial when a dam, diversion or hydropower project is built on the river. According to the latest report from the Central Pollution Control Board²⁷, the perennial riverine lengths in different states and river basins in India are as given in the Tables 1 and 2.

These figures include a total of 113 rivers, including 14 major rivers (with about 38000 km of perennial river length), 44 medium²⁸ and 55 minor rivers. The CPCB has in its report of 1984²⁹ defined a major river as one with catchment area above 20,000 sq km, a medium river with a catchment between 2,000 and 20,000 sq km and a minor river with a catchment below 2,000 sq km. Some of the preliminary parameters of such river basins are given in Table 3.

²⁶ <http://www.forestcaseindia.org/updates2008/FCUpdate.%20Issue%2048,%20September%20and%20October%202008.pdf>

²⁷ Status of Water Quality in India- 2007"- CPCB, July 2008

²⁸ KL Rao, *India's Water Wealth: Its assessment, Uses and Projects* 1975, p 54

²⁹ *Water Quality Monitoring: the Indian Experience*, Nov 1984

Table 1. Lengths of Perennial Rivers, state-wise

State	Perennial River Length (in Km)
Jammu and Kashmir	2,290
Himachal Pradesh	1,094
Punjab	1,071
Haryana	348
Uttar Pradesh (including Uttarakhand)	5,618
Rajasthan	841
Madhya Pradesh (includes Chhattisgarh)	6,090
Bihar (including Jharkhand)	2,525
West Bengal	1,163
Orissa	2,250
Andhra Pradesh	4,017
Maharashtra	4,612
Gujarat	1,155
Karnataka	2,868
Kerala	1,407
Tamil Nadu	2,028
Assam	2,042
Meghalaya	556
Manipur	758
Arunachal Pradesh	706
Sikkim	753
Nagaland	502
Mizoram	234
Goa	65
Delhi	48
TOTAL	45,041

Table 2. Lengths of perennial rivers, basin-wise

River Basin	Length of Perennial River, km
Indus	4,119
Ganga	12,690
Brahmaputra	5,013
Sabarmati	325
Mahi	522
Narmada	1,382
Tapi	977
Subarnarekha	289
Brahmini	585
Mahanadi	1,973
Godavari	4,492
Krishna	3,784
Pennar	520
Cauvery	1,318
Ghaggar	358
MEDIUM RIVERS	5,034
MINOR RIVERS	1,662
TOTAL	45,043

Source: Central Pollution Control Board, Water Quality in India: Status and Trends (1990-2001), 2002

Table 3. Basic parameters of rivers in India

Basins	Catchment, m sq km	% of total catchment	Runoff, BCM	% of total run off	% of population in the basin
Major	2.58	83	1406	85	80
Medium	0.24	8	112	7	20
Minor	0.20	6	117	7.4	
Desert	0.10	3	10	0.6	
TOTAL	3.12 ¹ ₃₀	100	1645	100	100

SANDRP filed an application with CPCB under the RTI Act to get to know when and how CPCB arrived at these figures. However, we did not get any useful response from CPCB. Then we had written to Dr Ramesh Trivedi, who was credited to be one of the authors of the relevant CPCB report. Dr Trivedi's response did throw some light here:

"CPCB carried out a detailed study on Classification and Zoning of Rivers in India in collaboration with concerned State Pollution Control Boards during late seventies and early eighties. The study resulted in a Water Use Atlas of India, wherein all the river basins were presented along with their 'Designated Best Use'. The intention was to super-impose this water use map on water quality map to identify the rivers or their parts in need of restoration (polluted stretches of rivers). As CPCB's mandate was to maintain and restore the 'wholesomeness' of aquatic resources, this was a pre-requisite. During this exercise, Survey of India, Ministry of Water Resources, Govt. of India and concerned water resources departments of different states were consulted. During this study CPCB estimated perennial riverine length of about 45000 km. This was published in one of the CPCB's report. The perennial riverine length might have significantly changed since early eighties due to over-abstraction of surface and ground waters. However, we do not have better information than this. It was important to give impression about the polluted stretches in the country for the planners and decision makers. The information is more indicative than precise." (Email communication dated March 13, 2009).³⁰

Sheonath river privatised for water supply project: Background

In 2001, Radius Water, a local private company was given a concession to build a dam across Sheonath river, for supplying water to the industrial estate of Borai, near Durg city in Chhattisgarh on build-own-operate basis. Once the contract was signed, the owner asserted his rights to the 23.6 km water reservoir, banned the locals from using the waters, and was supported by the state in this. The villagers who used to fish in the river, who used the river ghats for bathing, who took water from the river for growing vegetables and depended on the river for other needs lost access to the river. Intense local struggles, supported by nation-wide campaigns challenged this. The Public Accounts Committee (2006-07) of the Chhattisgarh Assembly, in its 64th report, tabled on March 16, 2007 recommended that the Agreement and Lease Deed between MP Audhyogik Kendra Vikas Nigam (MPAKVN), now Chhattisgarh Rajya Audhyogik Vikas Nigam (CRAVN), and Radius Water Ltd for the Sheonath Water Supply project must be cancelled, and that all the assets and the ownership of the project must be taken back by CRAVN. It has recommended initiation of criminal proceedings against the then Managing Directors of MPAKVN (Raipur) and MP State Industrial

³⁰ The report says that the difference with the geographical area of 3.29 million sq km is because there are remote areas for which details are not available.

Development Corp Ltd and the Chief Engineer of MPSIDC for conspiracy to damage the interests of the government and transferring government properties to a private agency through manipulation and forgery of documents. It has recommended registration of an offence against the CEO of Radius Water Ltd for participation in this criminal conspiracy and gaining profit by causing harm to govt. properties. So far, there is no action on these recommendations.³¹

River basin management

With the constitution of the Ganga River Basin Authority by the Government of India under the Environment Protection Act (1986), the issue of River Basin Management has again come into focus. However, governments' in India have failed in achieving credible river basin management. Since the country's independence, river basin management has been tried out in several different ways.

Acts of Parliament

The first attempt at river basin management was through an act of parliament when the Damodar Valley Corporation Act was passed in 1948 and had the most comprehensive mandate among all such organisations. The first Chief Executive Officer of the Damodar Valley Corporation (DVC) has acknowledged that the DVC has failed in achieving its objectives. In 1956, the Parliament passed the River Boards Act, but no River Boards under the act have been formed till date. In 1976 Betwa River Board was set up through an act of Parliament. In 1980, Brahmaputra Board was set up under an act of the Parliament, under the Ministry of Water Resources, covering the Brahmaputra and the Barak Valleys for planning, investigation and implementation of water resources projects in these valleys.

Tribunal Orders

An example in this regard is the Narmada Control Authority, which was formed following the order of Narmada Water Disputes Tribunal Award of 1979. Similarly the Cauvery Tribunal and the Second Krishna Tribunal have recommended formation of basin wide authorities.

Statutory Orders

Several basin management-like entities have been created through statutory orders, as is also case of Ganga River Basin Authority. The Water Quality Assessment Authority of 2002 has mandate wider than a single basin. However, it is of comparable nature and its mandate included ensuring water quality and environment flows in rivers.

The tripartite (Centre, Andhra Pradesh and Karnataka) Tungabhadra Board (with very limited mandate) was constituted by the President of India in exercise of the powers vested under sub section 4, section 66 of Andhra State Act 1953. The Bhakra Beas

³¹ Dams, Rivers & People
, April 2007

Management Board was constituted through an executive order as per the section 79 of the Punjab Reorganisation Act 1966 to regulate supply of the Sutlej, Ravi and Beas rivers and to distribute power from the Bhakra Nangal and Beas projects.

Supreme Court orders

An important instance in this regard is the Central Ground Water Authority, constituted through an order of the Supreme Court in 1996, under the EPA (1986). This authority had mandate wider than a single river basin, but this is also an attempt at water management over large area.

Inter-State agreements

The Bansagar Control Board was set up in 1976 following agreement between Madhya Pradesh, Uttar Pradesh and Bihar in 1973 for sharing the waters of river Sone. The Upper Yamuna River Board was set up by the Union Ministry of Water Resources in 1995 as its subordinate office following signing of a Memorandum of Understanding between the basin states in May 1994. The Mahi Control Board and Chambal River Board were set up on similar lines.

Union Government Organisations

The Union government has set up a number of organisations with basin level mandates. The Ganga Flood Control Commission was set up in 1972 through a Government of India resolution for planning, phasing, monitoring, performance evaluation etc of flood management in the Ganga basin. Similarly the Ganga Action Plan, the Yamuna Action Plan and river action plans for a number of rivers have been taken up by the Union government under the National River Conservation Plan of Ministry of Environment and Forests.

Basin level corporate entities by set up by the States

Some States have created basin level or large area based corporate entities for some specific water management functions. Some organisations on these lines are the Krishna Bhagya Jal Nigam, Irrigation Corporations in Maharashtra, and the Narmada Valley Development Authority in Madhya Pradesh.

Basin authority set up under environment clearance conditions

As per the conditions of the Environmental Clearance to Tehri dam project given by Ministry of Environment and Forest on July 19, 1990, it was required of Ministry of Power to ensure constitution of a Bhagirathi River Basin Authority on statutory basis through legislative action before March 31, 1991. In compliance of this directive of the Ministry of Environment and Forests, Government of India, Uttar Pradesh River Valley

(Development & Management) Act, 1999 was passed by the state Legislature of Uttar Pradesh. The then Uttaranchal (now Uttarakhand) Legislative Assembly passed an act, which was given assent by the Governor on January 27, 2005, called *The Uttaranchal River Valley (Development and Management) Act, 2005*, "For the sustainable development and proper management of River Valley with special reference to the Bhagirathi River Valley up and downstream of Tehri Dam including its Catchment and Command Area in the State of Uttaranchal." The jurisdiction of the Bhagirathi River Valley Development Authority, formed under this act, was limited as per the act, "in the First Instance it shall apply to the Bhagirathi River Valley in Tehri and Uttarkashi Districts of Uttaranchal".

Voluntary corporate body

In case of Sutlej basin, at one stage the various corporations (both public and private) having the hydropower projects in that basin in Himachal Pradesh realized that due to lack of basin level management, problems are faced and there is huge scope of optimization through cooperation. These organisations hence came together voluntarily and attempted to form a basin level organisation.

Community efforts

The example of the formation of the Arvari River Parliament in Alwar district in Rajasthan (see Box 1) to manage the almost perennial flow of the river (made possible due to the community efforts in creating and rejuvenating local water systems) is notable. In this case, the communities came together to take decisions about the management of the river. Baba Balbir Singh Seechewal's success in transforming the 160 km long sacred river Kali Bein (Box 2), in Hoshiarpur district in Punjab, from a filthy drain to a picnic spot has won him a place of honour among *Time* magazine's 30 environment heroes from around the world. This was entirely a community effort.

Box 1. Arvari Parliament: When communities come together to manage a river basin

The Arvari Sansad, or Arvari Parliament, is an example of community ownership and management of natural resources. In late 1998, people of the 70 villages in the Arvari basin were quite concerned as the monsoon had failed. Over-extraction of water would have created a situation similar to the 1980s, when the area was declared a dark zone. The villages also had to contend with the government. Once the river had been revived and fish were seen in its water, the government issued a contract to a Jaipur-based contractor to fish in the Arvari waters. This got the people thinking. Who owned the river?

To discuss this matter, the villagers met on December 18, 1998 in Hamirpur village. A suggestion came up at the meeting, "Why don't you people form a parliament and manage the river yourselves?" The idea appealed to the meeting and a parliament was formed. The Arvari Sansad met for the first time in Hamirpur on Republic Day, January 26, 1999. It represents all the 70 villages in the Arvari basin. It has 142 members nominated by the respective village assemblies. Every village up to 500 hectares in size appoints one member. Villages of about 1,000 hectares appoint two. The maximum limit for a village is three members. A coordination committee comprising members selected by the parliament handles the operations and ensures that the rules are observed.

The parliament met for second time on June 5-7, 1999 in village Samra. The villagers were determined to carry out all that they had planned. A liquor company was interested in setting up a brewery in the region as barley is the main crop here and water was now available in plenty. "The villagers got together to ensure that no industrial concern exploited the river's resources," says Rajendra Singh, the then secretary of Tarun Bharat Sangh (TBS). The greatest threat to the Arvari, however, was from within. If the farmers had resorted to uncontrolled extraction of the river water, all the good work would have come to nought, especially in years with low rainfall. The parliament adopted an elaborate set of rules. They were to be executed through existing village institutions. A study was conducted to estimate the observance of the decisions taken during the first session. The compliance level was about 70 per cent. "The Arvari Sansad has forged a new bond among the people. They are joined not only by the river but also by their sweat," says Anupam Mishra, secretary of the Gandhi Peace Foundation, New Delhi. He was also the chairperson of TBS.

In the third session held in village Bhaonta on December 28-29, 1999, the parliament reviewed implementation of the rules. The fourth meeting was held on June 10, 2000 in Devka-Devra village. The relationship between the members of the parliament and the village assemblies was discussed. It was decided that the parliament members would assist the village assemblies in implementing the rules. It was laid down that the young members in the village assemblies would be informed and trained in traditional methods of common property resource management.³² The experiment is now over a decade old. The Rajasthan government has refused to recognize the river parliament, but the parliament continues to manage the basin for the benefit of the residents of the basin. The President of India did go to the community to honour them, but the government has found no lessons worth learning from this success story.

Lessons from basin management experience

It is noteworthy that in the successful cases cited above, the common theme was that they were all bottom-up efforts, starting at the community level. They were attempts in which the people staying on the banks of the river had the central role. As against this, all the attempts at the river basin management by the governments have been top-down, lacking accountability, non-transparent and non-participatory. The local people who have the greatest stake in ensuring proper management of the rivers had absolutely no role in these authorities, whereas the lives or livelihoods of the people who were sitting on these authorities had no bearing on proper management of these rivers.

This disconnect is at the heart of the failures at river basin management attempted by the government. The recently constituted National Ganga River Basin Authority is no different in this regard.

³² Down to Earth, Nov 29, 2000, among others

Box 2. The case of Kali Bein in Punjab: communities join to clean up a river:

In Punjab, India, there is a seasonal rivulet flowing between Beas and Sutlej rivers, called Kali Bein. The 160 km long rivulet originates from Wadhya village in Hoshiarpur district, passes through Mukerian through Dasuya to Sultanpur, and joins the Beas River near the Harike Lake. It had been reduced to a dirty drain because of neglect, misuse of water and pollution. The untreated effluents of six towns and around 40 villages poured into it, along with industrial waste and pollutants from factories upstream. Kali Bein has significance in the Sikh history. It is along this rivulet, at a place called Sultanpur Lodhi that Guru Nanak Dev Ji, the founder of Sikhism, spent his younger days and also attained 'enlightenment'.

On July 16, 2000, the cleaning of river itself was started. The task involved clearing the rivulet's bed, preparing roads, planting trees, construction of dykes, and removal of hyacinths and silt-deposits. There were numerous hitches - lack of official records, farmers' opposition and the constant flow of polluted water. "When the kar seva began at Sultanpur Lodhi, the Bein was nowhere in sight. Instead, there were heaps of garbage and decaying carcasses of cattle. But the sangat did not lose heart. They continued the cleaning work. Their years of toil have borne fruit. Silt-deposits have been cleared. Beautiful ghats have been constructed. Instead of stinking garbage, it's a riot of colourful flowers on both sides of the Bein," says Sant Balbir Singh. Old trees have also been preserved.

"It's the community participation that is making this task successful", says the sant. When the work was started, there was initial mistrust among people. Many felt that the task of cleaning the rivulet was too difficult to be undertaken at the community level. However, Sant Balbir Singh's commitment to the cause soon made kar seva at Bein popular. The project started from Budho Barkat-Gallowal Bridge upward to Mukerian Hydrel Channel to Dhanoa. Later, the downward cleaning was initiated. People from Gallowal, Budho Barkat, Dhanoa, Terkiana, Begpur, Saidowal, Passi Bet, Kaire, Bhushan, Gilzian, Miani, Pul Pukhta, and Bahadur Pur Awana villages participated in the kar seva. Thousands of people living along the Bein joined him in this work, with money and materials and it became almost a movement. The Government then woke up and joined the effort. The then President of India, Dr Abdul Kalam noticed all this and came specially to visit the river in 2002. The name of the Kali Bein has now been changed to the Holy Bein. In 2008, Time magazine named Sant Seechewal as one of the activist "Heroes of the Environment".³³

It is clear that it is possible to clean up some of the most polluted stretches of long rivers in a time bound manner, provided there is strong community involvement.

Rivers and Dams

The dams are the single biggest impediment to ensuring continuous freshwater flow in rivers. Most of India's major, medium and minor rivers have been dammed at several places, thus affecting the freshwater flows downstream from such dams, particularly in the non monsoon months, and also affecting the character of floods in the monsoon. India had less than 350 dams in 1947 when the country became independent. Today, as per the latest figures from the Central Water Commission, India has over 5100 large dams. The pace of dam construction in recent years has only gone up. However, as noted earlier, the services provided by the rivers have zero value in the planning, decision making, construction, operations and other processes of dam building.

³³ *The Tribune* Feb 11, 2005, Oct 19, 2008 and many other sources

³⁴ For SANDRP comments see: www.sandrp.in/hydropower/Pathetic_Cumulative_Impact_Assessment_of_Ganga_Hydro_projects.pdf

Today Union Ministry of Environment and Forests does not even require the assessment of comprehensive downstream impacts of dam proposals, including how the dam would change the downstream flood characteristics, how it would change the downstream silt flows and their impact, what would be the downstream flows in the non-monsoon months and what would be their impacts, and also how the peaking power generation would change the downstream flows and their impacts. When some of us met the Union Environment Ministry officials and its Expert Appraisal Committee on River Valley Projects in Feb 2012, we suggested that all such studies should be required for each dam and also the downstream affected should be included in the resettlement and rehabilitation measures. In just one state of Assam, we learn there are about 40-45 lakh people who depend on the fisheries in the Brahmaputra and

tributaries. This is just one among many aspects of how the people depend on rivers. But such aspects are not included in the impact assessment, in livelihood protection measures, in resettlement and rehabilitation measures nor are they taken account of at policy level or in legal and institutional mechanisms. India's biggest anti dam movement is underway in North East India, raising these and other related issues.

Basin studies: Cumulative impacts, carrying capacity

As mentioned earlier, most rivers in India have been dammed multiple times. The cumulative impacts of more than one dam is not the same as sum of impacts of individual dams, it could be more than the sum in case of many impacts. But no credible cumulative impact assessment is done for any basin. Cumulative impact assessment is also relevant in the context of carrying capacity of a basin and ensuring that cumulative impacts do not go beyond the carrying capacity. The first known case where basin carrying capacity study was attempted was in case of Teesta basin. This happened because of the condition included in the environment clearance letter for the Teesta V project in 1995. The study left a lot to be desired, but recommendations of even this incomplete study have not been followed and the MoEF itself is violating them. The cumulative impact studies done in case of Bhagirathi-Alaknanda³⁴ Lohit³⁵ Bichom and Sutlej are plagued by serious problems: inadequate terms of reference and highly inadequate scope and ground surveys, lack of involvement of local communities, among others.. WAPCOS, the agency assigned to do the study, has carried out a number of them but has a very poor track record and there are serious issues of conflict of interest. AHEC, an IIT-Roorkee centre that did the Bhagirathi-Alaknanda basin study has similar problems.

SANDRP has put together maps of most of India's river basins with the location and some features of the existing projects indicated on them. (In some basins projects under construction and planned hydropower projects are also indicated). See: http://sandrp.in/basin_maps/.

Environmental flows

Definition³⁶ *The flows required for the maintenance of the ecological integrity of the rivers and their associated ecosystems, and of the goods and services provided by them*". The working group set up by the Government of India (June 2005 report, see below) adopted a methodology wherein "certain percentages of the annual flows are prescribed as minimum flows as well as flushing flows during the monsoon".

WCD on how EFRs can help

The report of the WCD has noted that Environment Flow Releases (EFR) can help minimize the impact of large dams on the river downstream from the dams.³⁷

"At least twenty nine countries seek to minimize ecosystem impacts from large dams by using the EFR to meet predetermined ecosystem maintenance objectives. The practice of EFRs began as a commitment to ensuring a 'minimum flow' in the river

³⁵ For SANDRP comments see: www.sandrp.in/rivers/Lohit_Basin_Study_by_WAPCOS_A_mockery_of_e-flows_and_cumulative_impacts.pdf

³⁶ Workshop Resolution from the Indian National Workshop on Environment Flows, held at New Delhi on 23-24 March, 2005, see April 2005 (Vol. 2, issue 1) issue of Environmental Flows, published by International Water Management Institute.

³⁷ *Dams and Development: A New Framework for Decision-Making*, The Report of the World Commission Dams, Nov 2000, p 81

(often arbitrarily fixed at 10% of the mean annual runoff). It has since grown to include a definition of ecosystem requirements and a planned flow release programme, which may vary annually or seasonally, to meet downstream needs for both the environment and people. The level of EFR required is determined by the need to maintain particular ecosystem components downstream, often with reference to national legislation. The countries that use this method have recognized that a short term reduction in financial returns from a project often leads to improved long term sustainability and attainment of broader societal objectives for a healthier environment. Still, this represents a re-distribution of the benefits of a dam project and thus existing beneficiaries such as irrigators and operators of hydropower facilities may resist EFRs.”

1992 CWC Guidelines

The Guidelines for sustainable water resources development and management prepared by the Central Water Commission (CWC) of the Government of India in 1992³⁸ suggested that the minimum flow in the river should not be less than the average of 10 days minimum flow of the river in its natural state.

September 1999 NCIWRD report

In the report of the Government of India’s National Commission for Integrated Water Resources Development (NCIWRD)³⁹, a provisional projection of the environmental needs has been given as 5 billion cubic meters (BCM), 10 BCM and 20 BCM in the years 2010, 2025 and 2050 respectively. However, no basis is given for these figures. The report accepts, “*Estimation of fresh quantity of water needed for managing ecological standards for all water bodies including lakes and rivers on sustainable basis is not possible at present.*”

³⁸ See page 49 of the report of the working group report on minimum flows set up by the WQAA, see below for details.

³⁹ Published by Ministry of Water Resources, Govt of India, Sept 1999, see Vol. 1, page 68

⁴⁰ <http://wrmin.nic.in/index3.asp?subsublinkid=718&langid=1&ssid=708> as seen on December 21, 2008

⁴¹As per MWR letter dated Feb 10, 2009, in response to an RTI application from SANDRP.

May 2001: WQAA Created

The MoEF constituted the Water Quality Assessment Authority (WQAA) (under the section 3 (1) (3) of the Environment Protection Act, 1986) with effect from May 29, 2001 through a notification in the Gazette of India. The authority was constituted ‘on the advice of Ministry of Water Resources’⁴⁰. One of the terms of reference of this authority is, “*To maintain minimum discharges for sustenance of aquatic life forms in riverine system.*” As per an MoEF order dated May 25, 2005, the mandate of the authority included, “*to draw scheme for imposition of restriction in surface water abstraction and discharge of treated sewage/ trade effluent on land, rivers and other water bodies with a view to mitigate crisis of water quality.*” The authority was created for an initial period of three years; the tenure has been extended up to 31st March, 2012 as per the latest extension order. The 12 member authority has no non-government members.⁴¹ However, it has taken no effective action for ensuring minimum flows in the rivers and on imposition of restriction in surface water abstraction and discharge of effluents. It set up the working group, whose report WQAA has not accepted. The WQAA has completely failed in its mandate.

NWP 2002

Section 1.3 of the NWP says, “*Water is part of a larger ecological system. Realising the importance and scarcity attached to fresh water, it has to be treated as an essential environment for sustaining all life forms.*” While giving priorities for water use, the NWP puts ecology at fourth priority after drinking water, irrigation and hydropower, but before industrial and navigation use. Further, in section 14.3 the NWP states, “*minimum flow should be ensured in the perennial streams for maintaining ecology and social considerations*”. However, when SANDRP asked the Union Ministry of Water Resources (MWR) through RTI application as to what the MWR has done to ensure continuous flow of freshwater in perennial rivers, the ministry essentially, by implication said they have done nothing. Most of the major water resources projects in states are funded through central grants. Through this and various other ways, centre could have played a role to ensure that the rivers continue to have freshwater flows.

The Maharashtra Water Policy (2003) does not mention the need for environmental flows or minimum flows in rivers.⁴²

May 2003 WQAA Working Group

During the second meeting of the WQAA on May 14, 2003 the WQAA constituted a Working Group to advise the authority on the *minimum flows in the Rivers to conserve the ecosystem*⁴³. The 9 member working group had one non-government member, namely Prof Brij Gopal of Jawaharlal Nehru University.

Dec 2004 WQRC

To fulfil its mandate, the WQAA set up Water Quality Management Committee at the national level and directed that in state a Water Quality Review Committee (WQRC) be set up. The minutes of the third meeting of WQAA held in Dec 2004 noted, “*The Member (RM), CWC also suggested that proposal regarding restriction in water abstraction should emanate from respective WQRCs towards criteria for imposition of restriction on abstraction and discharge of treated sewage... States have to prepare water quality management plans for the respective river stretches and the concerned central authority will have to act for peer reviews for the management plans. The state must ensure that a decided criterion on water quality is followed when the river leaves a state.*” However, there is no evidence of state management plans, its peer review or action thereof to ensure that rivers maintain the designated water quality when they leave the state.

The minutes of the fifth meeting of WQAA noted, “*CPCB is already monitoring the quality of Inter-State river water at state boundaries.*” The meeting also noted that “*presently there is no agreement on water quality*” for international rivers.

June 2005 11th Plan Working Group

The Report of the Working Group on Water Resources for the 11th Five Year plan

⁴² Dandekar, August 2009

⁴³ TOR dated Sept 9, 2003, for constitution of the working group, signed by member secretary (WQAA & Commissioner (GW & MI), MWR).

says, “In 2004-05, the Ministry of Environment and Forests appointed a committee headed by Member (RM), CWC to develop guidelines for determining the EFR (Environment Flows in Rivers). The committee submitted its report in 2005.” This is in reference to the Working Group to advise WQAA on the Minimum flows in the rivers. In a response dated August 14, 2007, Director (WP & P, CWC) informed SANDRP, “The report has not yet been approved by WQAA.”

It is interesting to note that while the TOR of the working group was to advise the WQAA on the *minimum* flows in the rivers, the report of the working group title used the term environmental flows. Some of the main recommendations of the working group are:

- **Himalayan Rivers** Minimum flow to be not less than 2.5% of 75% dependable annual flow, all flows expressed in cubic meters per second. One flushing flow during monsoon with peak not less than 250% of 75% dependable Annual Flow.
- **Other Rivers** Minimum flow in any ten daily periods to be not less than observed ten daily flow with 99% exceedance. Where ten daily flow data is not available this may be taken as 0.5% of 75% dependable annual flow. One flushing flow during monsoon with peak not less than 600% of 75% dependable annual flow.

Unfortunately, the WQAA or the MoEF has not taken up even these recommendations for implementation.

July 2005 WQAA meeting

The minutes of the fourth meeting of the WQAA held on July 19, 2005 decided that “Water Quality Management Plans for polluted areas are required to be submitted by the states to the National River Conservation Directorate” and “It should be targeted that from 11th Plan onwards, funding through NRCD would be subjected to such management plans.” On the important issue of *Report of the Working Group on minimum discharge in rivers* the minutes noted, “Secretary (MoEF) suggested that the effect on legal and institutional aspect on the findings of the group should also be looked into by it (the Working Group on minimum discharge in rivers).”

Nov 2007 Meeting preided by the Prime Minister

A meeting was held under the chairmanship of Prime Minister and it was decided to revamp the National River Conservation Plan (NRCP) to cover the following issues: a) Focus on quantity and quality of river waters, b) Limiting the scope of NRCP to selected river basins, c) Holistic plan for treatment of point and non point sources of pollution, d) Protection of flood plains through regulatory measures, e) Estimation of ecological flows and maintenance of minimum flow, f) Bio-monitoring using indicator species approach and g) conservation of aquatic resources. This was noted in the minutes of the 6th meeting of the WQAA, but the conclusions of the meeting Chaired by the Prime Minister remain unimplemented.

May 2008 Meeting of the WQAA

The minutes of the sixth meeting of the WQAA held on May 23, 2008 noted, *“The power projects, especially the run-of-river schemes are planned in a manner to release the water through a tunnel at a large distance downstream of diversion dam. This results in negligible flow just below the structure up to the point at which the releases are made from the tunnel. There is a need to ensure minimum flows below diversion structures.”* The minutes also noted that *“the Working Group submitted its modified report on minimum flows incorporating Water Quality aspects in August 2007... a committee was constituted on October 5, 2007 under the Chairmanship of Chief Engineer (EMO), CWC, to advise WQAA on the legal and institutional implications of the recommendations of the report. The meeting of the said Committee could not be held so far due to some preoccupations of some of the members.”* So a working group that was supposed to submit report within three months did not find time to meet for *nine months!*

Specifically on the issue of minimum flow in Yamuna in Delhi, the minutes noted, *“It was stated by Director NRCD, MoEF that the figure of minimum flows of 10 cumecs to be ensured in river Yamuna does not have sound scientific/ engineering basis... However, after detailed discussions, it was considered that looking at the present polluted condition of the river Yamuna in the stretch between Wazirabad and Okhla and below, there is need to have the minimum flows in the river Yamuna of the order higher than 10 cumecs. Accordingly, it was decided that CWC would take up a study for assessment of minimum flows required in river Yamuna... and submit the detailed report to WQAA by Nov 30, 2008 in this regard.”* It is not known if CWC has submitted this report and what has been done about it.

The minutes also noted, *“During discussions it was mentioned that not much progress has been made by the WQRCs in identifying the hot spots for surveillance monitoring and in reviewing/ assessing schemes launched/ to be launched to improve quality of the water resources of the state.”*

Dec 2008 CWC order

Through a CWC order dated Dec 4, 2008, a committee was formed *“to carry out studies on assessment of environment flows in rivers of India with reference to recommendations of report on the determination of minimum flows in rivers of India submitted by Working Group under the chairmanship of Member (RM), CWC”* as per recommendation of the 6th meeting of WQAA. That committee was asked to submit report in two months, nothing is known beyond this.

Tirthan River: the Only Example of Protected River in India?

Tirthan river, (a tributary of Larji river, which in turn is a tributary of the Beas river) in Himachal Pradesh, is possibly the only river of India, which has been, by a government decision, protected from development of Hydropower project. The

decision was taken by the state government to protect this river basin in Kulu-Mandi districts, on May 31, 2004, in the interest of brown trout fish⁴⁴. However, in 2007, when the Himachal Pradesh government started awarding some small hydro power projects in Upper Seraj (Jibhi-Hirab) Valley, the southwest part of the Tirthan valley, the decision of awarding such projects in Tirthan Valley was challenged by some of the local people in the High Court and the case is still going on.

Recent studies

The International Water Management Institute has been doing several studies and estimations of environment flow requirements in India, including their papers of 2006 and 2007. However, some IWMI papers have also been saying that excessive groundwater use, rainwater harvesting and watershed development in the upstream catchments also have impacts on the downstream river flows and availability of water at the downstream reservoirs. In fact some of the IWMI authors have been advocating restrictions on such upstream uses so that downstream reservoirs are filled. Such advocacies go against the rights of the people in the upstream areas and can have dangerous and unacceptable implications of giving priority to existing big reservoirs over decentralized and local water systems.

International Norms

The Helsinki Rules (1966, these rules have no legal status in international law) on the Uses of the Waters of International Rivers and the 1997 UN General Assembly adoption of the Convention on the Law of the Non-Navigational Uses of International Watercourses (not yet ratified by the required number of countries) are relevant here. The Berlin Rules of 2004 are supposed to replace the Helsinki Rules, as noted by the Preface of the Berlin Rules, "*Berlin rules are the result of revision of the Helsinki and other International Law Association rules on international water resources*".⁴⁵ The principle of equitable sharing for beneficial uses (in the Helsinki language) or of utilization in an equitable and reasonable manner (UN Convention) are noteworthy. There is agreement that the upper riparian must not cause harm to the lower riparian, though the wording has changed from 'substantial harm' in the Helsinki Rules to 'significant' adverse effects in the UN Convention.

The World Commission on Dams report (2000) goes further and says⁴⁶ under the strategic priority *Sharing Rivers for Peace, Development and Security* that any projects on Transboundary Rivers have to be taken up only after agreement conducted in good faith and with prior information to all concerned. The report gives detailed guidelines for implementation of this strategic priority, which are useful for river management at all levels.

The Ramsar Convention for management of wetlands, for conserving their biodiversity and wise use extending its scope to a wide variety of habitats is supposed to apply to rivers, and India is a signatory to the Ramsar Convention. But India has not taken any steps for conserving the biodiversity and wise use of rivers. On December 2, 2010 the Union Ministry of Environment and Forests notified the Wetlands (Conservation and

⁴⁴ See <http://himachalpr.gov.in/cabinetdes1.htm> and <http://www.tribuneindia.com/2007/20070415/himachal.htm#4>, for example.

⁴⁵ http://www.cawater-info.net/library/eng/ll/berlin_rules.pdf, accessed on February 10, 2010

⁴⁶ WCD report, page 251

Management) Rules 2010, but the definition of the wetlands in that notification excludes main river channels⁴⁷.

International examples

South Africa has already set ecological standards for its rivers. It allocates, through a law, 20 percent of flows as a minimum for the environmental sustainability of a river.

Sweden has had a long history of agitations against large hydropower projects. The agitations, ultimately, lead to the Swedish govt declaring in its Natural Resources Act of 1987 that explicitly prohibits construction of new hydropower dams on “those rivers that had been designated for protection in the Physical Plan for Sweden, including the last four large free flowing rivers: The Torne, Kalix, Pite and Vindel rivers. In fact, not only is construction of dams in new sites prohibited, but so is enlargement of existing dams that can cause negative environmental effects. For most of the streams and rivers that are out of bounds for hydro exploitations, this protection extends to both the mainstream and all the tributaries, writes Ann Danaiya Usher⁴⁸.

Free flowing rivers

While many countries have put in place policies and laws for maintaining environmental flows in their rivers, there is also a rarer category: Rivers which have not been dammed yet, rivers which retain their connection from the source to the sea, nurturing myriad ecosystems and communities in their wake! These are known by many names like Free flowing rivers, Wild rivers, Pristine/ Virgin rivers, Heritage rivers, etc., each indicating their rare character and value. In ecological and cultural terms, the value of these rivers is immense and as more and more rivers are being dammed the world over, this value is increasing steeply. Unfortunately, in today's economic terms, these rivers are still waiting to get their due recognition, but as human systems evolve, they will surely be seen as ‘invaluable’ service providers with phenomenal use and non use values. As Parineeta Dandekar has written about this⁴⁹, “Such free flowing rivers are, as is evident, dwindling fast throughout. Of the 177 large rivers of the world only one third are free flowing and a mere 21 rivers, more than 1000 kms long retain a direct connection to the sea.” There is a strong case for identifying and ensuring some rivers of India in their natural undammed state, particularly in areas like the Western Ghats, North East and Himalayan states.

Decommissioning of dams for river restoration

Many countries in the world, including US, Spain, France have decommissioned hundreds of dams over the years. In the United States alone, the WCD report said, a total of 467 dams were removed by the year 2000, of which at least 28 were large dams. Among the many reasons for taking up dam removal, restoration of the river was an important objective. In each case a study was done that established that it was economically more beneficial to remove the dam rather than let it continue to exist. This shows that if right value is given to the flowing rivers and the benefits it gives, many of the dams may not be taken up or built dams could be decommissioned.

⁴⁷ For detailed critique of the Wetland Rules, see cover story in Dec 2010-Jan 2011 issue of *Dams, Rivers & People*.

⁴⁸ *Dams as Aid: A political anatomy of Nordic development Thinking*, Routledge, 1997, p 29

⁴⁹ *Free flowing rivers around the world in* June July 2010 issue of *Dams, Rivers & People*.

Way forward

This chapter largely takes stock and analyses the prevailing legal and institutional situation around rivers in India. Through the analysis the paper also provides suggestions for changes in the legal and institutional set up for better management of rivers from the point of view of their sustained existence, while minimizing conflicts and ensuring protection of access to water and livelihoods. The Forum needs to identify how we should proceed further in building an enabling legal and institutional framework conducive to an equitable, sustainable and just resolution of water conflicts in the context of rivers.

Some of the key elements for this would include National Rivers Policy, river zone regulation, flood plain protection, catchment management, protection of local water systems, wetland and forests, ensuring freshwater flow in perennial rivers even from existing dams, hydropower projects and diversions and also from future such projects, credible community managed pollution control regime, ensuring natural flow in selected rivers in Western Ghats, North East India and Himalayan states, credible redressal mechanisms, ensuring compliance, among other elements. Some additional areas where urgent action is required include: Documentation of successes; Survey of international successes/ trends; Assessment of river basin wide potential of local water systems for a small river basin; Documentation of benefits of a river flowing all round the year and how that should be part of the decision making process.

Hydrologically all waters are so integrated that it would be impossible to separate one from the others. However, for the expediency of this research initiative on “Water entitlements and allocations for livelihoods and ecosystem needs and the legal-institutional framework for conflict resolution”, Surface water bodies have been distinguished from other forms of water bodies such as rivers and groundwater. Equally impossible is the separation of land, water and forest resources, as “All life and the geological processes that shape the Earth are driven by the hydrological cycle”.¹ Thus, land surface, vegetation, climate and water resources - surface and ground - are intimately connected to each other.

This paper reviews the legal and institutional framework specifically with respect to surface water bodies, to assess whether an integrated, holistic, participatory and sustainable approach is reflected or provided for. A historical perspective has been taken as there have been several significant changes over time in the philosophy, approaches and strategies of surface water bodies.

Definition of surface water bodies

Surface water bodies are both natural and man-made water retaining bodies, or depressions on the land surface, or land areas covered with water, and have been in existence in India since antiquity. The indigenous terms for such bodies across the different regions of India include Jheel, Tanka, Khadin, Johad, Baoli, Bavadi, Ahar-Pyne, Cheruvu, Kohli tanks, Bhandara, Phad, Kere, Zing, Eri, and Oorani .

Over the last 160 years, official (state) understanding of and attention to ‘surface water bodies’ in India have been derived, not from indigenous consciousness, but primarily from external sources - from the West - in specific politico-economic contexts:

- From the British colonial experience
- From western neo-liberal structural adjustment policies of international financial institutions
- From legal obligations arising from international treaties and agreements

Current law and policy frameworks on surface water bodies in India reflect almost complete adherence to such exogenous influences. Of the three influences identified above, only the last one recognises the environment as a central concern in the ordering of human affairs. From this source has emerged a term more universally accepted to describe surface water bodies - “wetlands”.

¹ T.N.Narasimhan, “Water Law for India: Science and Philosophy Perspectives”, in R.Ramaswamy Iyer edited “Water and the Laws in India”, Sage Publications India Pvt.Ltd., New Delhi India, 2009, p.537.

The Ramsar Convention of 1975 defines wetlands as, “areas of marsh, fen, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salty, including areas of marine water, the depth of which at low tide does not exceed six metres” (www.ramsar.org). Thus, this definition is inclusive of both man-made and natural water bodies, and inland as well as coastal water bodies.

Wetlands can be found all over the world, in all climatic conditions from the tundra region to the tropics. The UNEP World Conservation Monitoring Centre has estimated that roughly 6% of the Earth’s land surface is made up of wetlands, (of which 2% are lakes, 30% bogs, 26% fens, 20% swamps and 15% floodplains). but; other studies have found a higher percentage of wetland cover on Earth.

The Wetlands Conservation and Management Rules, 2010 in India adopts the same definition from the Ramsar Convention, but adds “*all inland waters such as lakes, reservoirs, tanks, backwaters, lagoons, creeks, estuaries and manmade wetlands, and the zone of direct influence of wetlands, that is to say the drainage area or catchment region of the wetlands as determined by the designated authority, but does not include main river channels, paddy fields and the coastal wetlands (which are covered by another notification)*”.

Wetlands are generally understood to be ‘transition zones’ between land and aquatic systems where the water table is usually near or at the surface or the land is covered by shallow water. Natural wetlands can take many forms, some may be covered with water, but some may appear more like dry land and may be wet only during certain seasons of the year, or once in a few years.

Wetlands are not just of the freshwater variety. The Indian subcontinent has a large variety of freshwater, saline and marine wetlands. Whereas the mangroves are relatively well documented, very little is known about the other wetlands, with few exceptions.²

Wetlands or surface water bodies, whether natural or man-made, are intimately and integrally connected to groundwater and the land surface. Local climate, landscape and hydrology are the primary determinants of wetlands. These factors can cause groundwater to discharge to the land surface or prevent rapid drainage from the land surface so that soils are saturated for some time. Wetlands can receive groundwater inflow, recharge groundwater, or experience both inflow and outflow at different locations.³

Functions of wetlands

The Ramsar Convention acknowledges that wetlands constitute a “resource of great economic, cultural, scientific, and recreational value, the loss of which would be irreparable”.

Wetlands are integral to a healthy environment, to sustain all forms of life, including human. They are critical at times of drought - by retaining water and keeping the water table high and relatively stable - and during floods - by reducing their intensity and trapping suspended solids and nutrients. In addition, wetlands serve as feeding,

²B. Gopal and M. Sah, “*Inventory and classification of wetlands in India*” Plant Ecology, Springer Netherlands, ISSN, 1385-0237 (Print) 1573-5052 (Online), Issue, Volume 118, Numbers 1-2 / June, 1995.

³ www.libraryindex.com/pages/2625/Wetlands-WHAT-ARE-WETLANDS.html#ixzz1Puj5Q46a

breeding and drinking areas for wildlife, and are seasonal homes to avian visitors or permanent homes for waterfowl. Wetlands support biodiversity and are a source of food for a range of species.⁴ Wetlands also store genetic material such as rice, which is the staple food for a large part of the population, and wetland fauna and flora has been extensively used in the medical industry. It is estimated that over 20,000 medicinal plant species are currently in use, some of them from wetlands, and over 80% of the world's population depends on traditional medicine for their primary health care needs. In addition to flood control, sediment and nutrient retention and export, and groundwater replenishment, wetlands also serve in shoreline stabilisation and storm protection (mangroves), water purification, recreation and tourism, and climate change mitigation and adaptation.

Needless to say, wetlands not only fulfil an ecological function, but are of immense importance to human society - economically, culturally and physically. They serve human populations around them at different levels. For some, such as the resource poor populations, they are even more important, providing them with means of livelihoods, food and water for sustenance. The United Nations Millennium Ecosystem Assessment recognises the enormous global economic importance of wetlands, which it valued at up to US\$15 trillion dollars in 1997.⁵

Thus both from an environmental perspective as well as from survival and livelihood perspectives wetlands are an integral part of our lives.

Inventory of Wetlands in India

Prior to colonial occupation and rule in India, there was no necessity for a centralised inventory, assessment, and legal, policy or institutional framework regarding these resources. They were part of the local political economy and culture, and were irrelevant outside their own contexts. The technology, design, form and feature, institutions, rules norms and conventions of Eris in South India held no relevance to the Khadins of Rajasthan or Zings of the Himalayan region. Each had their own functions determined by their local conditions.

Under colonial rule, for the first time, wetlands - more rightly surface water bodies at that time - were inventoried as they were important from a political economy point of view as sources of irrigation that could serve to strengthen agriculture, the primary source of state revenue earnings. These bodies were ubiquitously known as "Minor Irrigation Systems" - systems that irrigated less than 2000 ha. While these water bodies actually fulfilled a range of functions, only their role in irrigation was officially acknowledged.⁶

Inventories of minor irrigation systems were made at provincial level⁷ as water resources were under the legislative control of provincial governments during larger part of colonial rule. The information that was gathered about these systems focused mostly on the physical features related to irrigation functions - water spread area, sluices, distributaries, area irrigated etc. It is a matter of great significance that this practice and policy continues to date. 'Surface water bodies' that are inventoried at the State level are still recorded as Minor Irrigation Systems.

⁴ For example freshwater wetlands hold more than 40% of the world's species and 12% of all animal species

⁵ http://www.ramsar.org/pdf/info/services_00_e.pdf

⁶ "The history of the development of water resources in British India was an irrigation history, and that history has established a state monopoly over water resources". Whitcombe, Elizabeth. *"Irrigation and Railways: Irrigation."* c. 1757-c. 1970. Eds. Dharma Kumar and Meghnad Desai. Cambridge University Press, 1983.

⁷ Their importance can be gauged from the fact that right up to the 1970's, MI systems [surface water bodies and wells which were dependent on them] accounted for 60 -65 % of the total area irrigated.

A centralised data base at the national level materialised only in the seventh Five-Year Plan period, through a scheme of “Rationalisation of Minor Irrigation Statistics (RMS)” in 1986-87, and implemented in all the States / Union Territories except Rajasthan. The Census Report was published six years later in November 1993. This was followed by a second Census Report in March 2001 and a third Census Report in 2005. As per this Census, 642013 “surface flow systems” and 606918 “surface lift systems” were identified across 33 States and Union Territories, making a total of 12,48,931 total “surface water schemes”.

Compared to the first Census, the last provided a little more information. But, the process of gathering data was flawed by lack of public participation, and the parameters continued to reflect the narrower concept of ‘irrigation systems’ rather than the broader concept of ‘wetlands’ with their multidimensional environmental functions.

As a consequence of the Ramsar convention, to which India became a contracting party from 1st February 1982, national level inventories of wetlands by different central agencies began to take place including assessing the types and extent of these bodies, their uses, and the threats facing them. (At present, 25 wetlands in 14 states have been notified as Ramsar sites).

A national inventory of wetlands, entitled the All India Wetland Survey, was initiated by the Government of India in the late 1960s.⁸ A large number of sites were listed, and the data updated over the years. A Wetland Working Group was established by the Department of Environment in the early 1980s. A total of 1,193 wetlands, covering an area of 3,904,543 ha, were recorded in the first survey, which was co-ordinated by the Department of Science and Technology.⁹ Data from 274 districts identified 1,193 wetlands covering an area of 3904543 ha. The inventory distinguished natural and man-made wetlands, the nature of the water body - freshwater, brackish and coastal, the size of the water bodies, and the multiple uses of these resources - irrigation, fishing, fish culture, grazing, waste disposal and reed-gathering. Infestation with aquatic plants was reported to be a problem at many sites. This initial study formed the basis for further more comprehensive national surveys of wetlands.

⁸ James A. Woistencroft, S.A. Hussain and C.K. Varshney, India- Introduction, ramsar.wetlands.org/Portals/15/India.pdf

⁹ Ibid

¹⁰ National Wetland Inventory and Assessment, Space Application Centre, ISRO, Ahmedabad, India, sponsored by MoEF, Gov.t of India, 2011.

¹¹ See Note 8 above.

The first scientific national inventory of wetlands in India was carried out at 1:250,000 scale by Space Applications Centre (SAC) , Ahmedabad, one of the major centres of the Indian Space Research Organisation (ISRO), at the behest of the Ministry of Environment and Forests (MoEF), Government of India, using IRS satellite data (1992-93 timeframe). It put the total wetland extent at about 8.26 million ha.¹⁰ The study covered the entire country including the mainland and islands territories. The total wetland area estimated is 15.260 million ha, which is around 4.63 per cent of the geographical area of the country. The categories of wetlands covered included inland natural, inland man-made; coastal natural, coastal man made, and wetlands below 2.25 ha.

According to another inventory prepared for the India country report under the Ramsar Convention.¹¹, the total wetland area in the country is 58.28 Mha, the increase in extent being accounted for by the inclusion of area under paddy cultivation, rivers, canals and irrigation channels. A point of significance in both the above estimates is that the man-made impoundments make up about 30-33% of the area of total wetlands - between 3 and 5 million ha.

A contextual categorisation of types of wetlands and estimates of the area covered is also provided by the Ramsar report.

The following eight basic categories are listed.

1. The tanks and reservoirs of the Deccan plateau together with the lagoons and other remaining wetlands of the west coast of the peninsula
2. The vast saline expanses of Rajasthan, Gujarat and the Gulf of Kutch
3. The freshwater lakes and reservoirs in Gujarat, Rajasthan and Madhya Pradesh
4. The deltaic wetlands and lagoons of the east coast of India
5. The marshes, jheels, terai swamps and chaur lands of the Gangetic Plain
6. The flood plain of the Brahmaputra and the marshes and swamps in the hills of northeast India and the Himalayan foothills
7. The lakes and rivers of the montane (primarily Palearctic) region of Kashmir and Ladakh
8. The wetlands (primarily mangrove associations) of India's island arcs

In addition to these early estimates, other official and non-official surveys of wetlands have been carried out with a combination of biodiversity, economic utilisation and conservation perspectives.¹²

The understanding and awareness of these bodies has certainly improved through the National level initiatives on wetlands assessment prompted by international legal obligations. However, there is a long way to go in integrating ecological, social, economic and political concerns surrounding wetlands. More importantly, this understanding and awareness generated at the National level has yet to trickle down sufficiently to the regional official levels. On the ground, at the States' level, the earlier paradigm of irrigation-oriented perspective of surface water bodies still continues.

Issues of concern

The recent millennium assessment of ecosystems puts freshwater biodiversity as the most threatened of all types of biodiversity.¹³ A range of problems are being faced with respect to wetlands, which cumulatively contribute to their disappearance or degradation. The threats faced by wetlands - almost all of which are due to human intervention - may be broadly classified as those resulting in reduction of water retention capacity, and those causing or contributing to deterioration in water quality, impacting the health and well being of the environment, and humans.

Cumulatively, some of the human actions contributing to wetland degradation are:

- Encroachment in the catchment area and the wetland itself for 'developmental' purpose
- Deforestation and overgrazing in catchment areas
- Diversion or damming of rivers and streams feeding wetlands
- Diversion of sewage and sullage from the catchment area into the water bodies
- Discharge of industrial effluents either directly into water bodies or over the catchment lands

¹²Wetland Census by SACON - [Salim Ali Centre for Ornithology and Natural History covering 7 Mha with the wetland size of 2ha.; MoEnF efforts to map and identify areas for conservation of wetland(1990)- 4.1 Mha (above 100ha in size) covering 67,429 wetlands; WWF- India - AWB (1993) - 10.8 Mha (excluding paddy fields and fisheries); SAC Ahmedabad (1998)- 7.58 Mha (all types of wetlands), 3.56 Mha (freshwater wetlands)

¹³ See Note 2 above; Upon notification of the Wetlands Conservation and Management Rules 2010 under the EPA Act, 1986, PM Dr Manmohan Singh acknowledged that over-exploitation of fish resources, discharge of industrial effluents, fertilisers and pesticides and uncontrolled siltation and weed infestation, among other reasons, have wiped out or severely damaged over 1/3rd of India's wetlands [<http://www.facebook.com/notes/dr-manmohan-singh/indias-wetlands-rules-2010-notified/470848250635>]

¹⁴ James A. Woistencroft, S.A. Hussain and C.K. Varshney, India-Introduction, ramsar.wetlands.org/Portals/15/India.pdf

¹⁵ M.S.Vani, "Community Engagement in Water Governance", in R. Ramaswamy Iyer ed. 'Water and the Laws in India', Sage Publications, New Delhi India, 2009, p.172-176.; Also, M.S.Vani, "Customary Law and Modern Governance of Natural Resources in India - Conflicts, Prospects for Accord and Strategies", in Rajendra Pradhan (ed) *Legal Pluralism and Unofficial Law in Social, Economic and Political Development*, Papers of the XII-th International Congress, 7-10 April, Chiang Mai, Thailand, ICNEC Kathmandu, Volume I, pp. 409-446.

¹⁶ Land Acquisition Act of 1894, Land Revenue Acts of the states, Indian Forest Act of 1927, Irrigation Acts of the states[for Major and Minor Irrigation] and, Indian Fisheries Act, 1897, River Boards Acts, Indian Electricity Act 2003, Indian Easement Act of 1882, Embankments Act at state level [eg. West Bengal, Orissa], Tank Preservation and Management Acts, Compulsory Labour Act, [eg. Karnataka, Tamilnadu, Kerala], Private Irrigation Works Acts [eg. Uttar Pradesh, Bihar], Municipalities Acts, even the Panchayat Raj Acts are colonial era statutes reflecting the management paradigm of a colonial government.

- Use of chemical fertilisers and pesticides in agriculture, which leak into wetlands either through direct inflow or via groundwater inflows to surface water. This causes eutrophication due to unabated growth of aquatic plants.
- Immersion of idols and tajias during festivals
- Domestic washing activities that contribute to water pollution
- Dumping of solid wastes in and around wetlands
- Competing uses of water from wetlands for drinking, irrigation and industry
- Hunting of birds, aquatic animals and reptiles in wetlands
- Unregulated fishing with nets that disturbs water birds and water fowl

Environmentally, these unregulated human interventions are deleterious to the local and the larger ecosystems with a concomitant impact on the economic and social well-being of populations dependent on them, particularly the rural and urban poor, who depend on the commons for their food, earnings and basic necessities.

The above list indicates threats to wetlands from multiple directions. The solution also, therefore, lies in a multidimensional but co-ordinated approach. However, the current governance framework reveals a total institutional and legal chaos with respect to the use of natural resources. This is ironic in a country, which boasts of more than two hundred environmental legislations¹⁴, countless judicial decisions upholding environmental and human rights and duties, and a large body of customary law in the use and management of natural resources.

The following section reviews the legal and institutional framework on wetlands to assess their appropriateness and efficacy in fulfilling and meeting basic human rights, protecting livelihoods and sustaining the environment and ecosystems.

Legal and institutional framework on wetlands in India

As stated in the earlier part of this paper, the legal and institutional structure relating to wetlands, as also to all other natural resources in India, does not constitute a single paradigm, but is a mosaic of legal pluralism. From an integrated natural resources perspective and from a political economic timeline point of view, the following categorisation of statutes may be made:

- The customs and traditions, collectively termed customary law, followed by local communities and still to be found in all regions of India, derive from a pre-colonial legal and jurisprudential system that recognised the law-making authority of local communities.¹⁵
- The land, forest and water (surface flow, surface bodies, groundwater) legislation at State and Central level that originates in the colonial era.¹⁶
- Legislation emerging from the sectoral reform in the Drinking Water Supply and Sanitation sector in most States as an outcome of the influence and obligations of Alma Ata Declaration of 1978.

■ Statutes that emanate from National obligations under international environmental law.¹⁷

■ Legislation introduced in furtherance of the new economic policy of the 1990's.¹⁸

This mosaic of laws promotes different norms and principles, set up by different institutions and procedures and yield different impacts. They are briefly analysed in terms of issues arising from human rights, livelihood and environment perspectives.

It is impossible to ignore the fact that statutory laws on land and forest resources have a direct bearing on water, particularly in a monsoon-dependent country such as India, where these resources are critical for the purpose of harvesting and conserving water for the rainless months of the year. While a detailed review of their provisions is beyond the scope of this study, they are discussed in brief, in order to acknowledge and respect the integrity of natural resources.

Indigenous Legal Traditions

The classical legal traditions of India that prevailed in the sub-continent prior to the adoption of the Anglo-Saxon legal system by which we are governed today, are relevant to the subject of wetlands and associated natural resources for two reasons and in two important ways.

The first of the reasons is that wetlands in India - natural or man-made - have existed for centuries, under different politico-legal, jurisprudential systems. It is well acknowledged that in India the degradation and decline of wetlands and other natural resources have been significantly higher under modern governance processes than earlier ones; natural systems such as wetlands or forests that have sustained for many centuries were destroyed or degraded within a short period of history. As such, earlier legal traditions could yield useful lessons for managing wetlands today. The second of the reasons is that current international laws and conventions on natural resources recognise the central role played by local communities in conserving biological resources over long periods of history. The conservation and management guidelines of Biosphere Reserves of India, for instance, acknowledges that "*the high degree of diversity and endemism and associated traditional farming systems and knowledge held by the people in these (biosphere) reserves are the product of centuries of human innovation and experimentation*". Since the classical legal tradition in India had a direct role in enabling and empowering people in the governance of their resources, and since the remnants of this tradition are still to be found in all parts of India, and since the 'participation' of people is still required and sought for the sustainable governance of wetlands and other natural resources, it warrants a review.

The two perspectives in which classical Indian legal traditions can be reviewed, which are relevant to the subject under study are firstly, the understanding and philosophy regarding the relationship of human society with nature, and secondly with respect to the role of local communities in the governance of natural resources.

¹⁷Environmental Protection Act 1972 [the various Rules and Notifications under it, particularly the Wetlands Conservation and Management Rules 2010], Water [Prevention and Control of Pollution] Act 1974, Wildlife Protection Act 1972, Forest Conservation Act 1980, Biological Diversity Act 2002, Environmental Tribunal Act 1995, National Disaster Management Act 2005.

¹⁸Special Economic Zones Act in the States, Farmers' Participation in Irrigation Management Acts [Tamilnadu, Andhra Pradesh, Maharashtra, Madhya Pradesh, Orissa], Water Resources Development Corporation Acts [Andhra Pradesh, Arunachal Pradesh], River Valley Development Corporation Acts [Maharashtra], Water Resources Regulatory Authority Act [Maharashtra] - are all World Bank sponsored legislation aimed at state de-control over water resources for the purpose of promoting market economy in water.

“Wise Use” concept

From the Ramsar philosophy has emerged the “wise use” concept. The wise use of wetlands is defined as “*the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development*”. “Wise use” therefore, has at its heart the conservation and sustainable use of wetlands and their resources, for the benefit of humankind.¹⁹ The concept applies to all wetlands and water resources in a Contracting Party’s territory - not only to Ramsar Sites.

¹⁹ www.ramsar.org

²⁰ James A. Woistencroft, S.A. Hussain and C.K. Varshney, India-Introduction, ramsar.wetlands.org/Portals/15/India.pdf

²¹ Ibid

²² This secularity goes beyond the ‘religious-secular’ controversy that emerged from Western philosophy and historical experience. It is not a religious term - it was corrupted into a term embodying the western concept of ‘religion’ Just as there is no religion as such called ‘Hinduism’ which was a created term by Arabs in 8th century A D, similarly, *dharma* is not a religious concept but was created as such, and attached to the different religions. As a result, ‘secularity’ has been understood to be ‘anti-religious’. See: Chaturvedi Badrinath in ‘Dharma India and the World Order’, Pahl-Rugenstein and Saint Andrew Press, 1993, Bonn and Edinburgh.

²³ Chaturvedi Badrinath, *ibid*.

The concept is not new to India. India has had hundreds of thousands of man-made and natural wetlands, which have been created or used and managed “wisely” for centuries before the disruption and displacement of this practice during colonial rule. Maintained over hundreds of years for a variety of purposes, these wetlands are a “*lasting tribute to the enlightened attitudes to wildlife enshrined within the Hindu philosophical tradition*”²⁰, and demonstrate quite clearly how wildlife can co-exist with mankind even at high population densities and in areas of intensive agriculture.²¹

A core concept in Indian philosophical traditions that links human society to nature is ‘*Dharma*’. It is derived from the Sanskrit word *dhr* - ‘to support’, to ‘sustain’. It is ‘order’, not positive order (as enforced by state or society), but that which sustains life and order in all their forms - *cosmic, human, animal and divine*. *Dharma* does not distinguish between man and nature but sees all living forms as interrelated.

The concept of *Dharma* is not religious or anti-religious; it is secular.²² Being a secular concept, it cuts across all polarities - majority, minority etc. In contrast to Western philosophy, *Dharmic* thought has no pre-suppositions. It ‘analyses the empirical facts and draws conclusions’. It is ‘rational, but not rationalistic, empirical but not empiricist’.²³ Ahimsa (non-violence) is the essential condition of order or *dharma* - every being has the right to live according to its given temperament, capacity and circumstances. Disorder or violence occurs when this condition is disregarded or violated.

Dharma is itself not ‘duty’ but there is a duty to observe *dharma*. For instance, there is a human duty to not disturb the hydrological principle, which is the *dharma* of water, or to not disturb the natural laws of an ecosystem where each component exists by its *dharma*. Only the human species has the choice of following this duty of observing *dharma* - all natural species automatically live by their *dharma*. We have a choice not to observe this duty and, and face the consequences - *adharma*, disorder, or violence.

A central Indian legal tradition is that all authority be subject to *dharma* as law. The State is as much obliged to observe *Dharma* as is the individual.

Dharma provides a method for resolution of conflicts arising in the human condition - conflicts within oneself and conflicts with others. *Dharma* not being a ‘mental construct’ but an order inherent in all life, favours reconciliation among contesting ideas, concepts and theories. Being empirical and rational, it enables the resolution of conflicts on the basis of universally observable facts, and not any pre-suppositions or a-priori thought. This, in turn, enables the continuous investigation and discovery of

‘truth’, which is relative to time, place and situations. Since contextual facts and meanings keep changing constantly, justice may be sought afresh relative to each situation without being subjected to the ‘tyranny’ of ‘precedent’. It also allows for the development of a code of living for human species that is violence-free and disorder-free.

Dharma thus provides an opportunity to evolve a law, collectively and individually, that is based on continuous scientific observation and understanding of the natural world - thus making it a living law.

The second subject of significance relating to India's indigenous legal tradition is that the body of law is variously defined as customary law, traditional law or local law-ways. Distinguished from actual behaviour or practices (to which ‘custom’ has been reduced by Anglo-Saxon statutory law), the term refers to *norms* and *rules* underlying or determining behaviour, as well as *procedures* that enable their application. Custom is generally understood to be that body of *law*, which is predominantly oral rather than written, and which derives its authority from sources other than the State.²⁴

India has traditionally been a culturally and ethnically pluralistic society, with diverse occupational groups such as farmers, fisher folk, pastoralists, rural artisans, agriculturists, agricultural labour, and forest dwellers, following a range of land, water and forest related occupations. Diverse cultures and ethnicity in tandem with diverse ecological conditions has resulted in a significant knowledge base on ecosystem functions in India that are critical in determining the rules of human conduct in relation to such natural resources. Frameworks of customary law, in fact, include a range of resource use and management rules that are embedded in the cultural norms and practices.

Under customary law, the observance of ‘duties’ with respect to products of nature, enjoined by social and environmental conditions, was co-terminus with the exercise of ‘rights’. In a context of diverse occupational groups exercising their rights to resources within their territorial jurisdiction, ‘duty’ to accommodate, to practice self-restraint, to respect mutual access rights would have been an economic necessity to ensure the survival of all. ‘Duties’ were prescribed not only in human relationships, but also with respect to other species - flora and fauna - as well as with respect to the natural resources of land, forest and water.²⁵

The defining feature of classical Indian legal tradition is with respect to sources of law and the interrelationship between these sources. The Indian legal tradition (as opposed to the Anglo-Saxon Legal system that we follow) gave a place to *dharma* as a source of law, in tandem with the State law and the people's law. The State's ‘duty’ was to follow *dharma* - the State law was thus to be animated by *dharma*. The people's duty is also to follow *dharma* - and develop their law accordingly (customary law - a distinguishing feature of which is that it is a continuously evolving system). Thus ‘duty’ rather than ‘power’ and ‘right’ is the priority principle under this system. (Thus, we have had a ‘wise duty’ concept rather than a “wise ‘use’” concept). In addition to *dharma*, the State law and custom were recognised as independent sources of law. The latter was an independent body of law, subject only to *dharma*. The State had only ‘administrative’ and not ‘legislative’ powers over custom.²⁶ The

²⁴ Snyder, 1981b:49 cited in “*Legal Pluralism*”, Sally Engle Merry, Law and Society Review, Volume 22, Number 5 (1988), p.875.

²⁵ M.S.Vani, Note 15 above; Such a framework of rights and duties, while it may have been supportive to the sustainable use of natural resources, did not pre-empt the development and sustenance of unequal and exploitative social relationships, which later colonial and post-colonial legal [Constitutional and statutory] frameworks have tried to address.

²⁶ Robert Lingat, “*The Classical Law of India*”, The Thompson Press (India) Ltd., 1975.

²⁷ Custom as law was devalued, in Austinian jurisprudence, as merely “positive morality”
A Digest of Customary Law in the Punjab <http://punjabrevenue.nic.in/cust2.htm>

²⁸ M.S.vani, note 15 above.

²⁹ However, custom, due to its inherent resilience, and also due to the failure of the reach and efficacy of formal law, may still be found in all regions of India, particularly with respect to the use and management of natural resources. See for instance, “*Dhan Foundation, “Indian Laws and Acts on Traditional Tank Irrigation Systems”*”, in “*Water in India: Constitutional Perspectives*” in Ramaswamy R. Iyer edited *Water and the Laws in India*, Sage Publications, 2009

³⁰ See for instance, ‘List of selected Water and Related Statutes in India: Farhana Z Khan, in Ramaswamy R. Iyer edited *Water and the Laws in India*, Sage Publications, 2009.

³¹ For instance, Madhya Pradesh Land Revenue Code [Section 57] “all lands belong to the State Government. All such lands, including standing and flowing water, mines, quarries, minerals and forests reserved or not, and all rights in the subsoil of

State could not enact laws in violation of the custom. Thus, *dharma*, State law and Local law - the three sources of law in the Indian legal tradition, had a symbiotic relationship in contrast to the three sources of law recognised under the Anglo-Saxon legal system that prevails in India. Under this system, statute, doctrine (borrowed from Anglo-Saxon common law) and precedent are the three sources of law in a hierarchical relationship wherein statute has precedence over doctrine and precedent, however older the latter.

The introduction of English law through colonial rule removed *Dharma* as a source of law, and as a check to the powers of the State. Custom has lost its authority as an independent body and source of law.²⁷ Under the influence of Anglo-Saxon legal administration, custom became a fixed body of law, indistinguishable from statute and case-law; opinions and evidence given by villagers on custom in courts or in the process of land settlement were isolated from their contexts and utilised to describe single transactions or offences. This gave rise to “*a sense of individual right not dependant on community opinion or usage, actively enforced by court even in opposition to community opinion*”. Specifically, dispute management was abstracted from the totality of customary law, with the compulsory introduction of formal judicial institutions of the western model.

The colonial natural resources law - statutes on land, forest and water - disrupted the ‘rights-duties’ dynamics of customary group behaviour through the introduction of private and State property rights, while ignoring common property rights and related practices.²⁸ The removal of local control and management of natural resources was detrimental to both local law-making authority as well as to the resources themselves. Decentralised law-making traditions have been constitutionally erased.²⁹

By applying the principle of subsidiarity in law-making and enforcement, within the overarching umbrella of the Constitution, the genius of the Indian people in this regard may be provided scope to flourish to the betterment of both the environment and the society.

Post Constitutional Central and State laws on wetlands and their associated resources - land and forest - eminent domain, centralised management and regulation, lack of integrated approach

Land and water resources being primarily a state subject, there are hundreds of statutes enacted at the States level on these resources.³⁰ There are however, some common features underlying these statutes that have a critical significance to the sustainable use and management of wetlands and other natural resources in tandem.

Most of them are colonial era statutes devoid of environmental perspectives and the concept of environmentally sustainable development. They are ‘command and control’ laws with concentration of management and regulation powers with the Central and State agencies.

Instead of an integrated approach to natural resources, there are separate, multiple laws for each resource of land, water and forest, creating a normative and institutional chaos on the ground.

They vest ownership of all natural resources, including wetlands, with the state (Land Revenue laws, Land Acquisition Law, Forest Law and Irrigation Laws).³¹

The state exercises monopoly powers to define, allocate and regulate rights legally. Private legal rights - whether to land or water - are generally defined on an individual basis, without any corresponding 'duties' of sustainable use.

The vesting of ownership of water bodies on the state is based on the principle of eminent domain, which originates from English common law. The power of eminent domain exercised over land resources by the state in India, under powers derived from Article 31 A of the Constitution, has been exercised extensively to the detriment of surface water bodies, as land has never been viewed as necessary catchments for rain water harvesting in a monsoon-dependent country such as India, but generally as 'waste land' (a term introduced by the revenue-conscious British administration) and always available for diversion to other uses. In the case of forest resources that are critical to the harvesting and management of rainwater, which directly serves wetlands, the same principle of eminent domain is exercised to its extreme limits through the Indian Forest Act 1927. In this case, even the obligation of payment of just compensation has been done away by legally abolishing all "pre-existing" rights.

After Independence, through a similar act of "legal plunder"³² all water sources, except groundwater, are declared to be the property of the state or 'vest' in the state and thereby the question of just compensation in cases of state destruction of such rights does not arise.

The vast extent of powers over water bodies that have been usurped by the state are not commensurate with the state's duties of efficient management of these structures. Centralised, bureaucratic institutions have been no match for the lakhs of water bodies across the nation. The concept of 'public participation' in the management of these resources in formal law and policy-making was absent in the first five decades after Independence (and in the nearly two centuries of British administration prior to that event). The inevitable result was the degradation and disappearance of these important resources.

The recording of 'customary rights', particularly to water and water based usufructs - was a practice in the period of colonial revenue administration; provisions for this purpose may be found in post-Constitutional revenue laws, but the actual practice of record of rights has been allowed to decline almost completely.

Conflicts arising from Eminent Domain

India has recently seen a spate of society-state conflicts in the matter of compulsory land acquisition for the promotion of industry and infrastructural projects. In addition to acute human distress due to displacement, valuable natural resources - forest, water bodies, wildlife and biodiversity - are sacrificed at the altar of eminent domain, to serve the private interests of institutional investors - foreign and domestic.

any land are the property of the State Government" [emphasis added]. M. P. Irrigation Act declares that *all rights* in the water of any river, natural stream or natural drainage channel, natural lake, or other natural collection of water shall *vest* in the Government [sec. 26] [emphasis added] In Uttarakhand, the Kumaun & Garhwal Water [Collection, Retention and Distribution] Act of 1975 abolished all *individual and community customary rights to water and all water sources, including collections of rain water, explicitly brought under the control of the State*. Other examples are Sec 20, Maharashtra Land Revenue Code; Mah. Irrigation Act, 1976, the Maharashtra Drinking Water Supply Requisition Act, 1983, the Mah. Groundwater (Regulation for Drinking water Purposes) Act, 1993., the Mah. Water Supply and Sewerage Board Act, 1976; Section 2 of the Tamil Nadu Land Encroachments Act III of 1905.

³² "Thus, in order to make plunder appear just and sacred to many consciences, it is only necessary for the law to decree and sanction it" - Frederic Bastiat, "*The Law*" [1850], translated by Dean Russell, The Foundation for Economic Education, New York 10533, USA.

The drastic change of land use from its original natural resources based functions (forest, agriculture, pastures, water retention, fishing, wildlife, biodiversity) amounts to a loss of not only the immediate area under conversion but all contiguous areas, which constitute a continuum of ecosystems.

As has been pointed out by the Ramsar Secretariat in its studies, the '*economic worth of the ecosystem services provided to society by intact, naturally functioning wetlands is frequently much greater than the perceived benefits of converting them to 'more valuable' intensive land use (often along with substantial state subsidies for the conversion) - particularly as the profits from unsustainable use often go to relatively few individuals or corporations, rather than being shared by society as a whole*'.³³, thus, bringing into question the whole issue of 'public purpose'. The private sector - driven by large scale conversion of land use - promoted and aided in India by powers of eminent domain has resulted in the wetland ecosystem being lost at a higher rate than other ecosystem types.³⁴

In some cases where conflicts have taken place, and where the legal framework has failed to adequately address and redress the grievances, the judiciary in India has had to step in to provide relief. For instance, in *M. C. Mehta versus Union of India and Ors.*, reported in 1996 (8) SCC 462, the Supreme Court having regard to the opinion of the two expert bodies, held that the mining activities in the vicinity of the tourist resorts were bound to cause severe impact on the local ecology, and therefore, mining activity should be stopped within three kilometres of Badkal lake and Surajkund.

In *Shailesh R. Shah versus State of Gujarat* [2 August (2002) 3 GLR 447], the court in its judgement stated that "*constitutional and statutory provisions clearly bring to fore the paramount duty of the State Government, Municipal and Panchayat authorities, the Area Development Authorities and other legal authorities, to protect and improve water bodies as a part of environment and to ensure supply of safe water to the public. The State as the trustee of all natural resources meant for public use, including lakes and ponds, is under a legal duty to protect them. This duty is of a positive nature requiring the State including the Area Development Authorities and the Local Bodies not only to protect the peoples' common heritage of lakes, ponds, reservoirs and streams, but to prevent them from becoming extinct and to rejuvenate and preserve them quantitatively by harvesting rainwater and qualitatively by prescribing and enforcing standards of their water*". The judgement in this case clearly states that no water body can be given for industry purposes.

The necessity to limit the construction activities in the close vicinity of the two lakes and the duty of the State in this regard is also clearly spelt out by the Apex Court in *M.C. Mehta versus Kamal Nath*, [1997 (1) SCC 388], and that of every citizen to protect the natural environment including lakes in *M. C. Mehta versus Union of India*, reported in 1997 (3) SCC 715.

In another case³⁵, *Nirma Group*, the Gujarat-based detergent giant, was allotted land near Mahuva town in Saurashtra (Gujarat) to build a 1.91 million tonne cement plant, a coal-based thermal power plant, and a coke plant. Around 268 ha of land was allotted to Nirma, which affected farming activities of 5,000 families in more than 15 villages. Also, the land allotted to Nirma largely consisted of water bodies known as *bandharo* in the local language.

³³ www.ramsar.org; For instance in the Arrow City Manhattan project near Vadkhal, Mumbai, the government gave farmers Rs 15 lakh (Rs 1.5 million) per acre on which private apartments were built by builders, who sold flats for as much as Rs 1.67 crore (Rs 16.7 million) each! <http://www.rediff.com/business/slide-show/slide-show-1-farmers-versus-gujarat-government-and-nirma/20110104.htm>

³⁴ Ibid

³⁵ Sheela Bhatt, "It's poor farmers vs Gujarat government and Nirma!" <http://www.rediff.com/business/slide-show/slide-show-1-farmers-versus-gujarat-government-and-nirma/20110104.htm>

The petitioner farmers moved the High Court against forcible acquisition and were able to prove through satellite photos that the Gujarat government gave away 222 acres of 'land' to Nirma, hiding the fact that the so called land was actually a water reservoir built at a very high cost by the Gujarat government itself to fight the serious environment-related issue of salinity in the coastal area and to help farmers get a source of water for irrigation. The government's Rs 200-crore (Rs 2 billion) scheme, to curb salinity in coastal areas, was part of its environment disaster management plan. The reservoir that was created to control environment damage and help farmers was now being given to Nirma.

On April 26, however, in the final judgment, the High Court acknowledged the presence of the water body, but also accepted Nirma's offer to return 100 acres, and compensate for the loss of water by helping create a new reservoir on the 'returned land'. The farmers rejected the argument, fearing that Nirma would do excavation to get limestone and that would eat away land. Not being ready to accept the High Court's logic, they have gone on appeal before the Supreme Court.

In summary, the land, water and forest laws in the country have not only failed in protecting basic human rights, livelihood rights and environmental sustainability, but also have contributed to their erosion. Relief, if any, has come from courts in India.

Drinking Water - Welfare statism, international legal obligations and beginnings of commercialisation of water for global trade

The practice of 'supply' of water for drinking and domestic purposes by the State started in British India. In this period, water supply was legally declared as an obligatory function of municipalities in most of the country.³⁶ However, as the law developed in post-Constitutional India, drinking water supply came to be regarded as a contractual rather than a statutory obligation, made contingent on various factors such as proximity of the source, reasonableness of the cost, etc.³⁷

The source of water for drinking and domestic use has been surface streams and rivers, springs and lakes in hill areas, and predominantly groundwater. Dams or large reservoirs have become an important source of drinking water only in the last three or four decades.³⁸ This allocation is not governed by any law, but continues to be determined by negotiations and contractual arrangements.³⁹

A shift in institutional framework for drinking water supply from Municipal Institutions to parastatals or State Corporations could be seen as a result of the Alma -Ata Declaration of 1978, which declared the goal of "Health for all by 2000 A.D".⁴⁰ The responsibility of providing water supply was transferred to water supply agencies from local elected bodies. For this purpose, wherever required, individual or community rights to surface water sources were taken over by the State,⁴¹ thereafter limiting the role of local communities in the governance of these resources, through their elected institutions. While the 73rd and 74th Constitutional Amendments recognise the role of panchayat raj institutions (PRIs) and urban elected bodies in provision of drinking water and sanitation, the State water supply agencies continue to function in most of the States.

³⁶ K. C. Sivaramakrishnan, 'Drinking Water Supply: right and Obligation', in Ramaswamy R. Iyer edited *Water and the Laws in India*, Sage Publications, 2009.

³⁷ Ibid

³⁸ Ibid.

³⁹ Ibid

⁴⁰ Primary health care was declared as the key to attaining this target 'as part of development in the spirit of social justice', which among other things was to be ensured by an adequate supply of safe water and basic sanitation

⁴¹ In 1975, in Uttar Pradesh, financial assistance from World Bank became available for water supply programmes. In its hill region [non Uttarakhand], it was necessary to enact a law in order to give powers to government to abstract water from any source for the supply of drinking water. The prevalence of customary rights of individuals and village communities over water sources was a legal hindrance to Government. Therefore legal reform was undertaken to give effect to the drinking water supply policy of the Government by abolishing all individual and community rights over water sources that had been legally recognised previously.

⁴² Wetland (Conservation and Management) Rules 2010: Welcome, but a lost opportunity: This cannot help protect the wetlands, Sir” http://www.sandrp.in/rivers/wetlands_in_peril_Feb_2011.pdf

⁴³ For instance, the Madhya Pradesh Land Revenue Code, 1959 recognises a range of use rights in water bodies - including customary. In many states, provisions exist for record of rights for every village, but rarely are such records maintained.

⁴⁴ Ramsar Convention on Wetlands of International Importance, especially as Waterfowl Habitat, Ramsar, 1971, the United Nations Declaration on the Human Environment at Stockholm in 1972, CITES Convention on the International Trade in Endangered Species of Wild Flora and Fauna 1973, Convention on Biological Diversity (CBD), Nairobi, 1992, UN Conference on Environment and Development (UNCED), 1992, Convention to Combat Desertification (CCD), 1994. Man and Biosphere (MAB) Programme of UNESCO in 1972 etc -

⁴⁵ The basic provisions of the Constitution of India relating to the central government’s legislative jurisdiction on international laws are; (1) Article 51 (2) Article 73 (3)

Wetlands are relevant to drinking water in the sense that they are part of the surface flow-surface storage- groundwater continuum. Wetlands contribute to surface flows as well as groundwater, which are primarily tapped by State agencies for supply of water to urban and rural areas.

However, in countless instances in rural and urban areas, populations, particularly the poor, directly access wetlands for drinking water and domestic use - washing and bathing - and for watering cattle. Therefore, the condition of wetlands is a direct determinant of the successful fulfilment of the basic human right to water.

Wetlands are also relevant for treatment of urban sewage, as recognised by National Water Mission (Vol.II, page IV/30, “*an integrated wetland system, for wastewater treatment and resource recovery through aquaculture and agriculture has been developed in three municipalities within the Kolkata Metropolitan area.*” That report also notes (page IV/53), “*Decentralized wetland systems have been used largely for institutional and residential complexes in several parts of India and other countries across Asia*”.⁴²

Current laws on wetlands focus on their irrigation uses. Other use rights are recognised through revenue laws⁴³, but very little is done in ensuring or regulating such rights. Pollution control is ineffective due to inefficient institutional framework and regulatory regime, and absence of land use policies. All this, combined with the absence of a constitutionally-declared human right to basic water for life, the right to equitable and safe drinking water is denied to a large part of the population.

Era of environmental law

A spate of international laws and treaties⁴⁴ spawned a series of national environmental laws in India, all of which were enacted by the Central government, under its legislative jurisdiction on international law.⁴⁵

Constitutional ‘duties’ towards the environment have also been enjoined on the State - Article 48A - to protect and improve the environment and to safeguard the forests and wildlife of the country. Every citizen likewise has a duty under Article 51A(g), inter alia, to protect and improve the natural environment including forests, lakes and rivers. Judging by the current status of wetlands in the country⁴⁶, these Constitutional duties have remained mostly on the paper they were written on.

Even though a spate of statutes at the Central and State level⁴⁷ have created a significant extent of national awareness and action on environmental issues - environmental resource management and pollution abatement and mitigation - they have unfortunately not contributed substantially to the saving of wetlands or other natural resources, nor have they put into place sustainable management frameworks for these resources.

The primary reason is the continuation of the same governance structure that characterised earlier legislation on natural resources based on eminent domain rather than public trust, centralisation rather than inclusive governance, command and

control rather than participatory, and sectoral rather than integrated forms of governance.

Internationally derived environmental concepts, approaches and strategies were sought to be superimposed on this underlying structure, with predictably poor results. Some small successes, wherever they occurred, could be attributed to enlightened and active citizens and an active judiciary.

Central Environmental Laws

Several acts and notifications issued by the Ministry of Environment and Forests (MoEF) provide the legal framework for protection of lakes and reservoirs (wetlands) directly or indirectly. These deal with environmental protection, pollution control, specific natural resources protection Acts, hazardous waste management and the National Environment Tribunal.

One of these is the ***The Wild Life (Protection) Act, 1972*** (WLPA). In this statute, wetlands are not defined as a separate category of ecologically important areas but generally form a part of protected areas. They are included in protected areas only when wetlands are the habitat of endangered wildlife (and exist within sanctuaries or national parks).⁴⁸ Wetlands are thus indirectly protected by the provisions of this statute, which focuses on the protection of wildlife.

An important category of biodiversity-sensitive areas with direct relevance and concern to the livelihoods, culture and survival of small-scale and traditional fishing and coastal communities - Marine Protected Areas (MPA)⁴⁹ - finds no specific mention in the WLPA, nor is it included in any of the above five categories of Protected Areas (PAs). Currently, existing MPAs are either declared as sanctuaries or national parks.⁵⁰

Wildlife law places a strict ban on grazing within a national park and hence prohibits the human impact, and influences on the wetland ecosystem once this is declared as a National Park. This restriction in national parks (which are zones of highest protection in protected area categories) makes 'wise use' of the wetland virtually impossible.

⁴⁸ Devaki Panini, "*The Ramsar Convention and National Laws and Policies for Wetlands in India*", Technical Consultation on Designing Methodologies to Review Laws and Institutions Relevant to Wetlands, RAMSAR Secretariat, Gland, Switzerland, 1998

⁴⁹ Most MPAs are located in coastal areas of great biodiversity. From the perspective of wetlands specifically, currently, there are 31 MPAs along India's coastline (including the islands) that have been officially declared for conserving and protecting coastal and marine biodiversity (SCBD, 2006). There are another 100 PAs that have terrestrial or freshwater components, which partly contain marine environment. Most of the MPAs were designated during the 1980s and early 1990s. and notified as 'national parks' or 'wildlife sanctuaries', under the Wild Life (Protection) Act (WLPA) 1972, where, in most cases, no extractive activity is allowed.

⁵⁰ Ramya Rajagopalan, '*Marine Protected Areas in India*', Samudra Monograph, Internaitonal Collective in Support of Fishworkers, Chennai India 2008

Article 245 & 246 (4)
Article 253 (5) Article
260 (6) Article 363 (7)
Article 372 and (8) VII
schedule - entries 10 to
21.

⁴⁶ Upon notification of the Wetlands Conservation and Management Rules 2010 under the EPA Act, 1986, PM Dr Manmohan Singh acknowledged that over-exploitation of fish resources, discharge of industrial effluents, fertilizers and pesticides and uncontrolled siltation and weed infestation, among other reasons, have wiped out or severely damaged over 1/3rd of India's wetlands . <http://www.facebook.com/notes/dr-manmohan-singh/indias-wetlands-rules-2010-notified/470848250635>

⁴⁷ See for instance 'List of selected Water and Related Statutes in India: Farhana Z Khan, in Ramaswamy R. Iyer edited Water and the Laws in India, Sage Publications, 2009.

The basic approach to management of PAs has been 'isolationist', protecting the PAs from people living in surrounding areas and shielding wildlife and other natural resources from exploitation.⁵¹ The regulatory framework attempts to keep people out, by declaring their normal activities as 'illegal'. This has led to 'hostile attitudes of local people towards wildlife management and forestry staff, and sometimes to open conflict'. In establishing protected areas, it has been found that there have been clear costs to communities in terms of lost livelihood options, expulsion from traditional fishing grounds and living spaces, and violation of human/community rights.⁵²

While some scope has been provided through an amendment of WLPA in 2002 for community participation through locally elected bodies, a uniform management structure has been imposed along with the compulsory membership of a government official in the management committee, which displays a lack of trust in the local skills proven over centuries, as well as the State's conventional need to hold on to its powers.

An illustration of the ineffectiveness of the wildlife law in achieving the objectives of wetlands (such as 'wise use') is the Keoladeo National Park, which has had a history of conflicts amongst the park management and local people whose traditional (and evidently sustainable) relationship with the wetland had been disrupted following the designation of the area as a National Park in 1981. Grazing and fuel-wood collection from the wetland were stopped following the designation of the area as a protected area.⁵³

A ten year study of the Park by Bombay Natural History Society revealed that grazing in a regulated way was needed to control the profusion of aquatic macrophytes, which were colonising the wetland. The creation of a boundary wall, which both physically and emotionally distanced the villagers living around the wetland from what was now a national park led to the rapid degradation of the wetland. This happened because the critical function of grazing had been stopped. Subsequently the control over weeds exercised by grazing was also lost, causing widespread weed proliferation in the wetland. This case illustrates the contradictions in ensuring the 'wise use' obligation under the Ramsar Convention and the National Wildlife (Protection) Act, which is designed for strict protection within a national park. Wildlife law, in tandem with forest law, being based on eminent domain concept, is merely another vehicle for increasing State control over forested land areas, including water bodies.

There is a long way to go in achieving the full and effective participation of local communities in protected area management - including wetlands - (for instance, as outlined in Programme Element 2 of the Programme of Work on Protected Areas of the Convention on Biological Diversity). Till such time, neither human rights, nor livelihood rights nor environmental protection can be said to be ensured.

⁵¹ <http://www.fao.org/docrep/x3030e/x3030e05.htm>

⁵² Ibid.

⁵³ Devaki Panini, See Note 48 above.

The Environment (Protection) Act, 1986 is a direct outcome of the Stockholm Convention and was enacted with the objective of protecting and improving the environment and for matters connected therewith. 'Environment' as defined includes '*water, air and land, and the interrelationship which exists between water, air and land, and human beings and other living creatures, plants and micro-organisms and property*'.

The Act authorises the Central Government to protect and improve environmental quality, control and reduce pollution from all sources, and prohibit or restrict the setting and /or operation of any industrial facility on environmental grounds. The Act enables the establishment of the Central and State Pollution Control Boards and the issuance of pollution control norms.

Several significant regulations and notifications have been passed under this broad Act for monitoring pollution and safeguarding the environment, including wetlands - The Wetlands Conservation and Management Rules, 2010, The Environment Impact Assessment Notification of 1994 and the Coastal Regulation Zone Notification, 2011.

Under the Environment (Protection) Act, a number of wetland ecosystems in the country are being notified for protection as ecologically fragile areas. This Act has been useful in checking mushrooming aquaculture in the coastal areas, protecting threatened wetlands such as the Dahanu wetlands in the State of Maharashtra from environmentally harmful industries and projects. In fact, in a landmark case (the Dahanu Taluka Environmental Welfare Association versus the Union of India), the Supreme Court gave a decision to conserve the biodiversity-rich network of wetlands and limited industrialisation to 500 acres in Dahanu. Furthermore the Court ruled that the MoEF should designate and notify Dahanu as an 'ecologically sensitive' area permitting only certain types of industries in this area. Thus the Environment (Protection) Act can be used to notify certain ecologically harmful industries, operations and processes, particularly in cases of wetlands, which are on the brink of extinction.⁵⁴

The ***Coastal Regulation Zone (CRZ) Notification, 1991*** declared the coastal stretches of seas, bays, estuaries, creeks, rivers and backwaters, which are influenced by tidal action in the landward side up to 500 meters from the high tide line, and the land between the low tide line and the high tide line as coastal zone where restrictions are imposed on setting up and expansion of industries and such other operations and processes. This notification is important for conservation of coastal lakes such as Chilika, Kolleru, Kuttanad, Pulicat, Sasthamkotta, Vembanad, etc. The Government of India has advised all the State Governments to formulate integrated coastal zone management plans for conservation of wetlands, mangroves and coral reefs, which are designated as ecologically fragile areas. The Supreme Court of India has also made implementation of Coastal Zone Management Plans mandatory for the State Governments.

On January 07, 2011 MoEF released CRZ Notification 2011 to replace CRZ Notification of 1991. It retains the same categories of CRZ. The only change is the inclusion of CRZ-IV, which includes the water areas up to the territorial waters and the tidal influenced water bodies.

The new notification has taken into account the fact that 250 million people live in the coastal areas (roughly 25% of the population).

The stated objectives in the new notification reflect livelihood concerns and environmental sustainability. While the term 'wetlands' has not been used, categories of wetlands, which have been included are mangroves, mudflats that are biologically

⁵⁵ Sand mining in beaches and riverbeds of Kerala coast; Ship wreck industry; cement industries, limestone mining, and infrastructure development like construction of jetties and ports in Gujarat; In order to facilitate the sudden spurt of investment in the industrial sector, the State is going to the extent of de-regularising the already notified areas of forest reserves. Even the protected areas like the sanctuaries are in the process of de-regularising - the most recent being the de-reservation of West Mangrove Reserve Forest of Gujarat; Reclamation activities suburbs of the Mumbai Metropolitan City and in the Thane creek- both areas being tidal marshes with mangroves, as well as Aquaculture and related activities in Maharashtra; Tourism related; Industrial activity and aquaculture in Karnataka; Industrial related activities [Naptha based power projects] and tourism; reclamation along the back water systems, from the water bodies or in the mangrove marshes; Mining; new infrastructure in the beaches and in the river beds in the coastal stretch in Kerala; Tourism and infrastructural development;

active; national parks, marine parks, sanctuaries, reserve forests, wildlife habitats and other protected areas under the provisions of Wild Life (Protection) Act, 1972 (53 of 1972), the Forest (Conservation) Act, 1980 (69 of 1980) or Environment (Protection) Act, 1986 (29 of 1986); including Biosphere Reserves.

The notification contains provisions for the preparation of Coastal Zone Management Plans in a participatory manner, involving a range of stakeholders. How these guidelines actually operate on the ground remains to be seen.

The threats to marine ecosystem including marine wetlands and the security and future of millions of traditional fishing families are many - industrial pollution, oil pollution, sewage pollution and other destructions due to dredging and reclamations (reclamation of tidal water bodies, mangroves, marsh and even agricultural wetlands).⁵⁵

There is a multiplicity of agencies operating with respect to wetlands in coastal areas. Different ministries, departments and enforcement agencies are mandated to protect different aspects of the coastal environment such as erosion, pollution control and infrastructure development including ports and harbours, which often leads to jurisdictional overlaps, conflicts, and confusion.⁵⁶ This inevitably impacts human and environmental rights.

The Wetlands Conservation and Management Rules 2010 The precursors to the Wetlands Rules 2010 were the National Environmental Policy of 2006, which mooted the need for such a regulatory mechanism, the 2008 and May 2010 Draft Regulatory Framework for Wetlands Conservation.⁵⁷

The Rules recognises the need to conserve and protect wetlands for the wide ranging services they provide to mankind and to the environment, and to address the various threats that they face. These, however, are not the only reasons for the enactment of the Rules. The motive force, as stated in the Rules, is constituted by India's obligations under the Ramsar Convention, and the fact that the Government of India has identified a number of wetlands for conservation and management under its national conservation programme and provides financial and technical assistance to the State Governments or Union Territory Administration for various conservation activities through approval of the Management Action Plans. This reveals a top-down approach in the very purpose of the Rules.

As stated in the earlier part of this report, the definition of wetlands in the Rules is wide ranging, but excludes main river channels, paddy fields and coastal wetlands. The definition of wetlands also includes "*the zone of direct influence on wetland that is to say the drainage area or catchment region of the wetlands*", without which the protection of wetlands would be impossible.

The Rules are intended to regulate a certain category of wetlands:

- Ramsar Wetlands
- Wetlands in areas that are ecologically sensitive and important, such as national parks, marine parks sanctuaries, reserved forests, wildlife habitats, mangroves,

corals, coral reefs, areas of outstanding natural beauty or historical or heritage areas or areas rich in genetic diversity

- Wetlands recognised as or lying within UNESCO sites
- Wetlands above the elevation of 2500 m with area above 5 ha
- Wetlands or wetland complexes below the elevation of 2500 m, but with an area more than 500 ha
- Any other wetlands suggested by the Central Wetland Regulatory Authority

The rules completely prohibit a set of certain activities that are detrimental to wetlands, such as:

- Reclamation
- Setting up new industries or expansion of existing industries in vicinity
- Solid waste dumping
- Manufacture or storage of hazardous substances
- Discharge of untreated effluents from industries, cities, towns or human settlements
- Any permanent construction, etc.

Other activities such as withdrawal of water or the impoundment, diversion or interruption of water sources within the local catchment area of the wetlands system, grazing, harvesting of resources, releasing treated effluents, aquaculture, agriculture, and horticulture activities, dredging, etc. are allowed, subject to permission of the concerned regulatory authorities.

The Rules apply directly to Ramsar Sites. With respect to the other categories of wetlands, a notification process has been prescribed.

The institutional framework prescribed by the Rules includes the National Wetland Regulatory Authority, the Central Government, the State Government, Research Institutes or Universities, the National Green Tribunal (for hearing appeals against the decisions of the Authority), and finally the general public *whose only role is to submit objections and suggestions*.

The process of notification of other-than-Ramsar wetlands involves the preparation of a 'Brief Document' about the wetlands by the State Governments. The Authority may then refer the Document to a Research Institution or University having the required expertise, and then arrive at a decision in consultation with the State Government. Upon receiving such a decision, the Central Government will notify the wetlands and invite objections, comments and suggestions from the public, which will then be considered by the Authority, which will then submit *its* comments on the comments. The Central Government will then notify the wetland, its area, and its category for regulation.

The Authority may, *suo motu*, or on application made to it, review any decision under the Rules or issue direction for inclusion of wetland under these rules. Any appeals against the decision of the Authority can be made to the National Green Tribunal.

construction of East Coast Highway in Tamil Nadu; Extensive aquaculture in Andhra Pradesh; Tourism, urbanisation, developmental activities and aquaculture in Orissa - D. Nandakumar & M. Muralikrishna, "Mapping the Extent of Coastal Regulation Zone Violations of the Indian Coast". *For National Fishworkers Forum* Valiathura, Thiruvananthapuram Kerala, 1998.

⁵⁶ Devaki Panini, Note 48 above.

⁵⁷ Wetland (Conservation and Management) Rules 2010: Welcome, but a lost opportunity: This cannot help protect the wetlands, Sir" http://www.sandrp.in/rivers/Indias_wetlands_in_peril_Feb_2011.pdf

Comments on the Rules

The new regulatory framework for wetlands proposes the establishment of regulatory authorities at Central level (whereas the earlier Draft Rules provided for State and District level authorities also) for the purpose of conservation and management of these water bodies. As expected, the Regulatory Authority is dominated by Government representatives; the provision in the Draft Rules setting up Appraisal Committees at Central, State and District level to assist the Regulatory Authorities to receive and assess proposals for notification of wetlands, has also been omitted in the notified Rules.

Other significant changes have been made in comparison to the May 2010 draft. The categorisation of wetlands into 'A', 'B', and 'C', according to size, geographical location, and importance; the vesting of their management with regulatory authorities at different levels; the inclusion of Non-Government organisations at the State level authority, the inclusion of (if only token) Village Panchayat representatives in District level authorities; provisions to convert wetlands to non-wetland use by the different Authorities - all these have been removed.

The Rules have maintained to some extent the legislative jurisdiction of State Governments on water resources by removing many such detailed provisions for management of wetlands of all size categories. Earlier, the Kerala Government had raised objections to the Draft Regulatory Framework, stating that it infringed upon the rights of States to manage their own water resources.⁵⁸ Further, the Kerala Government also pointed out that while it accepts the need for a regulatory mechanism for wetlands, it is the States' prerogative to legislate on wetlands, "*taking into account the local environment and other factors*". The Kerala Government said that many provisions in the proposed framework were cause for concern - Water being a State subject, the proposal to bring wetlands listed in category A under a Central Wetlands Conservation Committee was questionable. It would force the State to relinquish administrative control over major water bodies. Further, the complex nature of wetlands in Kerala would make their management a difficult proposition under the system proposed by the Centre. The Kerala Government recommended as an alternative, a State-level management system based on a decentralised and participatory approach, and was already working on an action plan for wetland conservation involving various departments.

The new Rules reflect a respect for the legitimate stand of States by making them applicable only to Ramsar sites, and requiring consultation with State Governments before notifying any other type of wetlands.

However, there are several other lacunae as discussed below:

■ Once more, a completely top-down approach to regulation has been put forward by the Government. The very concept of a centralised regulatory authority is a contradiction of the principle of subsidiarity, and is a new and additional effort to maintain centralised control of resources. The foundational issue of ownership and control over wetlands and the relative role of the State and the people who are the primary users and de facto managers, has not changed by virtue of these new Rules.

⁵⁸ The Hindu, February 9, 2009.

■ The task of management and regulation is retained in the hands of an 11 member group at the central level. The bureaucratic approach to resource management has been retained in totality. A token gesture of involving a handful of subject matter specialists does not detract from the bureaucratisation of the regulatory function.

■ That the rules have been confined to only certain types of wetlands does help to protect the lakhs of smaller wetlands across the country from a centralised regulatory regime. At the same time, there is a lack of guiding principles for the management of these water bodies critical for the basic and livelihood needs of millions of urban and rural people.

■ A case-by-case approach to wetlands has been adopted for notifying wetlands including survey, appraisal, recommendations, decision making on notification, followed by management and regulation, thereby providing a convenient strategy for the 'project mode' of governance. The Rules support policy approaches rather than governance by law.

■ There is no mention of institutions, powers or functions at people level.

■ In the use of wetlands, activities that require the prior approval of the concerned regulatory authority include grazing, harvesting of resources and water use for agriculture, which are primary livelihood activities for the vast majority of rural populations as well as urban poor. How such prior permission would be feasible in the case of the millions of rural and urban people, who are engaged in such activity, remains to be seen!

■ The Rules as they are have little scope for participatory governance of wetlands, and the fulfilment of basic human rights, livelihood rights and sustenance of the resource itself, as without equal participation of local communities, none of this is possible.

What is required is the transfer of legal control and management of wetlands to local elected bodies at village, intermediate and district level, depending on size, under a broad policy and overarching legal framework that sets out the principles and strategies for wetland conservation and management at local levels, with the support of resource agencies, rather than the current approach of State control and management with the support of local people.

Special Purpose Vehicles (SPVs) - Lake Development Authorities

Another type of legal-institutional framework for wetlands conservation and management has been lake-specific 'Authorities' set up for individual water bodies. Examples are the Bhoj Wetland Authority in Bhopal (Madhya Pradesh), the Chilika Development Authority (CDA) in Orissa, the Loktak Development Authority (LDA) in Manipur, Lake Development Authority in Bangalore (Karnataka), J&K Lakes and Waterways Development Authority in Jammu and Kashmir, Hyderabad Urban Development Authority in Andhra Pradesh, and Jal Vikas Samiti in Udaipur,

Rajasthan, the Nainital Jheel Parikshetra Vishesh Kshetra Vikas Pradhikaran, the Lake Development Authority notified under U.P. Special Area Development Act 1986, etc.

Conservation and Management Plans are drawn up by these authorities according to guidelines prescribed by the MoEF. Substantial grants are received from the Central Government for the implementation of such plans under the National Lake Conservation Plan. There begins the story of corruption, competition and failure.⁵⁹ There are several other agencies and departments also involved- Municipalities, Irrigation Department, Power Corporation, Forest Department, Fisheries Department, Revenue Department, etc. - all of whom want a share. There is only token public participation in the lake conservation and development, with no real role in decision making.

A few specific Acts have also been formulated to protect important wetlands like Chilika and Loktak. However, both these acts have resulted in huge protests from local fishermen. Chilika (Regulation of Fisheries) Bill, 2010, is still to be passed. Local fishermen have been protesting against this Act for more than ten years now (The Hindu 260810). Similarly, the fishermen in Loktak lake are opposing the Manipur Loktak Lake (Protection) Act, 2006 under which, fishing in the lake can be banned (Imphal Free Press 221210).⁶⁰

⁵⁹ SANDRP reports that Loktak Lake Development Authority has faced massive charges of corruption in 2009, when it was found that the agency which has been given a Rs 25 Crore contract and Rs 16.5 Crore advance for cleaning up the Loktak Lake is a fake entity, owned by a powerful politician in Manipur. The Planning Commission has earmarked Rs 224 Crores for Loktak clean up. Ibid

Biological Diversity Act 2002; Biosphere Reserves, Government of India Guidelines, 2007

Biosphere Reserve (BR) is an international designation by UNESCO for representative parts of natural and cultural landscapes extending over large area of terrestrial or coastal/marine ecosystems or a combination thereof. While wetlands are no doubt an important component of BR, the 'sectoral' approach to ecosystems inherent in this policy results in more emphasis on plants and animals. This is no doubt due to the fact that the processes of globalisation form an influential backdrop to the Government of India's initiative on BR, as revealed by the statement that "*these sites have Global importance, having tremendous potential for future economic development, especially as a result of emerging new trends in Biotechnology*". (Emphasis added).

The same approach is reflected in the **Biological Diversity Act, 2002**. The Biodiversity Act, 2002, and the Biodiversity Rules, 2004, are aimed at safeguarding the floral and faunal biodiversity, and regulating their flow from India to other countries for research and commercial use. Thus, their provisions also contribute towards conserving, maintaining and augmenting the floral, faunal and avifaunal biodiversity of the country's aquatic bodies. However, the Act mainly deals with access to genetic resources by foreign companies, individuals or organisations. The National Biodiversity Authority (NBA) was set up under the Act to deal with requests to transfer the results of any related research out of India. The Authority will also decide how benefits of the research are to be shared with local communities.⁶¹

⁶⁰ Ibid

⁶¹ Source: 'Looking after India's Biodiversity', interview with NBA Secretary, Supplement IP Focus, 2005 (Also included in 'Understanding the Biological Diversity Act: A Dossier' compiled by Kanchi Kohli, 2006).

What is conspicuously absent is the articulation of the rights of the people on the resources that they have, over generations and centuries, laboured hard to maintain and develop. The only rights that are mentioned are 'sovereign' rights of the State, and intellectual property rights, which may be granted. Responsibilities vested on local communities and their elected bodies for promoting conservation, sustainable use and documentation of biological diversity including preservation of habitats, conservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals and micro organisms and chronicling of knowledge relating to biological diversity, are without any corresponding powers of control and management over the basic resources such as water bodies, land or forest.

There is a clear bias towards commercialisation of biological resources and promoting private, outside access, while denying the rights of local custodians of the resources their rights to life, livelihood and environmental sustainability.

Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act (2006) and Rules (2008)

The purpose of the Act is *“to recognise and vest the forest rights and occupation in forest land in forest dwelling Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for generations but whose rights could not be recorded; to provide for a framework for recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forest land”*. The Act is relevant in terms of water bodies as the Act applies to all resources - land, water and forest integrally.

This statute reflects the most appropriate governance approach to a natural resource such as wetlands for the following reasons:

- It is primarily addressed to local communities (forest dwelling)
- It recognises and provides for both rights and duties simultaneously
- It simultaneously addresses environmental sustainability, human rights and livelihood rights
- It addresses and seeks to correct the inequities established during colonial rule, as well as injustices meted out to forest dwelling communities due to state intervention since Independence. (correction of inappropriate laws)
- It applies to all resources - land, water and forest - integrally
- It recognises both individual and common property rights of local communities over land, which is critical for the sustenance and management of water bodies
- It recognises the rights of local communities to protect, regenerate or conserve or manage any community forest resource

Era of globalisation and privatisation

Special Economic Zones Act in the States, Farmers' Participation in Irrigation Management Acts (Tamilnadu, Andhra Pradesh, Maharashtra, Madhya Pradesh,

Orissa), Water Resources Development Corporation Acts(Andhra Pradesh, Arunachal Pradesh), Water Resources Regulatory Authority Act (Maharashtra) - are all World Bank sponsored legislations aimed purely at State de-control over water resources for the purpose of promoting market economy in water. These have serious implications for wetlands use and management.

The concept of Participatory Irrigation Management (PIM) emerged from the problems confronted in major and medium irrigation projects in the country:

- Emerging large gap between irrigation potential created and the potential utilised
- Inequitable supply of water, especially at the tail-end of distributaries
- Improper operation and maintenance of the systems
- Poor recovery of water rates
- Indiscipline in the distribution of water
- Problem of water-logging due to seepage from canal network on the one hand and over irrigation on the other

The need for active co-operation of farmers began to be felt. Participatory irrigation management was experimented upon since the mid-seventies, to address these problems as part of the Command Area Development Programmes. The definition of 'participation', however, was a question of political economy - not merely administrative. The 'tsunami of turbo-capitalism' had already left the shores of the United State of America, since the late 1970's and was spreading globally.⁶² In India, the first experiments with PIM were supported by the USAID, commencing the era of water sector reforms.

⁶² Jarmo J Hukka, and Tapio S.Katko, "Refuting the Paradigm of water services privatisation", Natural Resources Forum 27 [2003], 142-155. <http://www.ce.utexas.edu/prof/mckinney/ce397/Topics/Privatization/Privatization-Refuting.pdf>

The basic principles underlying the reforms are that firstly water is an economic good and not just a natural resource, and therefore is a tradable commodity. There is a shift from the rights of the State over water. Rights are now shifted to water users, not in terms of basic human rights or rights to livelihoods, which are in the nature of fundamental rights to life, but rights as tradable entitlements.⁶³ These rights are the necessary premise for participation in the management of water resources, for the setting up of water user associations and for the introduction of trading in entitlements.⁶⁴ The participation of the users is not in policy planning or at system level, but only at the tail-end level, in operation and maintenance.

⁶³ Philippe Cullet, "Water Law Reforms: Analysis of Recent Developments", 48/2 *Journal of the Indian Law Institute* (2006), p. 206-231.

The PIM policy and law has implications for wetlands, as it has been extended to 'minor' irrigation works across the country (surface water as well as tube wells), bringing under the ambit of privatisation, formerly farmer-managed, commonly held surface water bodies, which were governed under an entirely different paradigm.

Legal enactments reflecting these principles have been introduced in every State where a World Bank supported Water Sector Reforms is in place in India. Some examples are:

⁶⁴ The World Bank sponsored Maharashtra Water Resources Regulatory Authority Act, 2003 is a case in point. See Philippe Cullet, *ibid*

- Andhra Pradesh Farmers Management of Irrigation Systems (APFMIS) Act 1997
- Bihar Irrigation Act 1997
- Karnataka Irrigation and Certain Other Laws (Amendment) Act 2000
- Madhya Pradesh Farmers Management of Irrigation Systems Act 2002

- Maharashtra Management of Irrigation Systems by Farmers (MMISF) Act 2005
- Orissa Pani Panchayat Act 2002
- Rajasthan Farmers Management of Irrigation Systems Act 2000
- Tamilnadu Farmers Management of Irrigation Systems Act 2000

The privatisation policy poses a threat to human rights to basic water and livelihoods by an allocation framework based on only the economic value of water.

A more important threat to human rights comes from the neglect of larger environmental issues in the face of a narrower agenda of divesting State control over water in favour of private or market controls. Water efficiency or conservation is envisaged only with respect to water use - not in terms of managing land resources for water harvesting and management. The World Bank sponsored 'Water' Act carries the old colonial 'divide and rule' approach towards natural resources of land, forest and water.

Another area of threat to wetlands comes from the Special Economic Zone (SEZ) policy, whereby lands are set apart by the State exclusively for the promotion of industrial development. Where government does not have land of its own to reserve for such activities, lands are acquired compulsorily.⁶⁵ Very often such lands are agricultural lands, or forest or water bodies/ wetlands. Within the first 16 months after the SEZ rules were established in 2006, 464 SEZs had been approved and the figure now stands at 600. While the government claims that the currently proposed SEZs will require over a half million acres of land, a more realistic estimate of total acres would easily be in the several millions of acres.⁶⁶ The trend of development induced displacement has shown a substantial increase post-liberalisation.⁶⁷ The Indian state uses its power of eminent domain to compulsorily acquire land for all kinds of private initiatives, including those with commercial, residential, and even recreational components - luxury housing, golf courses, hotels and shopping malls.

Conclusion - Legal pluralism and scope for decentralised governance of wetlands

Wetlands are by definition an integration of land and water resources, which are in turn integrally connected with forest resources as well. To continue sectoral approaches to wetland management amounts to flying in the face of stark reality. The continuance of sectoral and centralised approaches is purely a politico-economic choice that militates against the interest of both the resource and the citizens.

Centralised top-down approaches are inappropriate to natural resources management, particularly wetlands, which are products of local topography and local climate and are part of local ecosystems. Existing as they do in hundreds of thousands in numbers, no centralised regime would be able to take sufficient and timely note of the changes that these systems undergo on a constant basis, and devise human rules to adapt to such changes, while at the same time, sustaining the resources themselves. Only certain broad principles and strategies on sustainable and equitable resource management and pollution abatement need to be formulated at a central or regional level, rather than an exhaustive managerial and regulatory framework that is imposed as a single-

⁶⁵ www.ramsar.org; For instance in the Arrow City Manhattan project near Vadkhal, Mumbai, the government gave farmers Rs 15 lakh (Rs 1.5 million) per acre on which private apartments were built by builders, who sold flats for as much as Rs 1.67 crore (Rs 16.7 million) each! <http://www.rediff.com/business/slide-show/slide-show-1-farmers-versus-gujarat-government-and-nirma/20110104.htm>

⁶⁶ Michael Levian, "The Land Question: Special Economic Zones and the Political Economy of Dispossession in India", Land Deal Politics Initiative, April 2011, University of Sussex, U.K.

⁶⁷ Ibid.

⁶⁸ Provisions in relation to powers to legislate is not confined to Article 246, but is scattered in many places in the Constitution. Further, such powers are not vested exclusively on Central and State Legislatures, but are shared by the executive and the governor [in case of autonomous district councils]. Most importantly, "Custom" is recognised as a source of law [Article 13]; religious personal laws are also given recognition by Article 25: See Kamala Sankaran, "*Water in India: Constitutional Perspectives*" in Ramaswamy Iyer edited *Water and the Laws in India*, Sage Publications, 2009

⁶⁹ In one exercise of mapping these differentiations, the National Bureau of Soil Survey and Land Use Planning in 1992 identified - 4 major physiographic regions of the country such as the Himalayas, Indo-Gangetic plains, peninsular Deccan Plateau and coastal plains ; 19 landform units; 16 broad soil units ; 49 soil-scape units; 5 ranges of Length of Growth period of plants; 5 Bio-climate units -arid, semi-arid, sub-humid, humid and per humid; 18 moisture availability regions; 20 generalised Agro-Ecological regions

model-to-fit-all. Natural Resource systems need micro-management first, and then a larger consolidation of regulatory and managerial actions, in a bottom-up approach.

The globalisation-privatisation agenda of international financial institutions does favour decentralisation of powers and functions from the State to Non-State entities - and increased managerial role for decentralised but privatised bodies such as resource users. However, this route consciously bypasses constitutionally sanctioned local government bodies such as municipalities and rural Panchayats.

The 73rd and 74th Constitutional Amendments contain a framework for decentralisation of administrative powers and functions in favour of local elected bodies in urban and rural India with respect to natural resources. However, these powers could be extended to legislative, executive and judicial authorities as well, which would be very relevant in the context of ecosystem approaches to wetland and other resource governance. Contrary to popular understanding, there is no exclusivity of law making vested in the Central and State legislatures in the Indian Constitution.⁶⁸

These provisions recognise the principle of law making at several levels of society, which is precisely required for the governance of natural resources such as water.

However, though the Constitution provides space for devolution of legislative powers, these have never been put into operation by the Centre and States. There has been no experiment with the legislative lists.

India is a country with vast and significant variedness of topography, climate and ecology in its different regions and sub-regions.⁶⁹ More scientific observations and studies are bound to reveal more differentiations at micro-levels. Co-existing in a mutually beneficial and sustainable manner with natural resources (including wetlands) requires decision making - legislative, executive and judicial - at levels that are appropriate to achieve these goals. Concentration of such powers at Central and State levels alone is inappropriate for governance of natural resources that are part of highly localised ecosystems. 'Wise use' of wetlands, and wetland management obviously requires a concomitant management and regulation of surrounding land as well, in order to prevent threats such as siltation, loss of catchments, pollution etc.

India can follow the example of countries such as United States, where local bodies are empowered to legislate on a range of subjects related to natural resources.⁷⁰ The broad range of issues relating to both pollution abatement and resource management that are being taken up by local governments in the United States are helping to establish a greater connectivity between local land use laws and environmental protection and controls that was missing in the decades of the emergence of federal environmental laws.⁷¹

In India, by contrast, though the right to property as a fundamental right is not an absolute right; the powers of the state under the principle of eminent domain and the perceived exclusivity of legislative powers of the Central and State governments has prevented the application of the principle of subsidiarity.

The Eleventh Schedule provides a list of subjects with respect to which such executive functions “may” be transferred. Of the 29 matters listed in the Eleventh Schedule, as many as 14 are relevant to natural resources management.

The current Constitutional provisions on powers and functions of local governments are insufficient to empower these institutions in governance of natural resources, as they are not mandatory in the first place, and secondly, they are merely administrative, whereas legislative and judicial powers are required.

The hoary tradition of customary law in India is proof of the law making and law enforcement skills of local populations. These traditional skills need Constitutional and legal recognition, endorsement and activation. This can be achieved if the Indian Constitution is amended to confer law making powers on local governments through an appropriate “Local List” in addition to State, Central and Concurrent lists. Within such an enabling legal framework and a policy of facilitation and capacity building, as well as legal and constitutional remedies to enforce and uphold equity between individuals, communities, institutions and States, local communities, with their elected bodies, will be able to govern natural resources in a more efficient and sustainable manner.

⁷⁰These subjects include clean-up of hazardous waste fields; Groundwater regulation; Reduction of industrial use of toxic substances; Non-point source pollution; Cluster development; environmentally sensitive area protection; Erosion and sedimentation control; Standards for grading, filling, and excavations; Floodplains control; Groundwater/ aquifer resource protection; Soil removal; Solid waste disposal; Landscaping; Ridgeline protection; Scenic resource protection; Stream and watercourse protection; Steep slopes; Stormwater management; Timber harvesting; Tree protection; Vegetation removal; Wetlands. See M.S.Vani and Rohit Asthana, “*Local Self Governance and Environmental Decision Making: Potentials and Practices in United States Law and Law in India*”, DCAP 2004].

⁷¹ Patricia E. Salkin. State Enabling Statutes that Move Beyond Traditional Zoning p. 171-72 in John Nolon Ed. *New Ground: The Advent of Local Environmental Law*, supra note 74.

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Chapter 4 Groundwater

¹ P.S. Vijay Shankar, Himanshu Kulkarni & Sunderrajan Krishnan, *'India's Groundwater Challenge and the Way Forward'*, 46/2 EPW37 (2011).

² Planning Commission, *An Approach to the Twelfth Five Year Plan* (2012-2017).

³ Perumatty Grama Panchayat v State of Kerala 2004(1) KLT 731 (High Court of Kerala, 2003) and Hindustan Coca-Cola Beverages v Perumatty Grama Panchayat 2005(2) KLT 554 (High Court of Kerala, 2005).

⁴ eg Georgina Drew, *'From the Groundwater Up: Asserting Water Rights in India'*, 51 Development 37 (2008).

⁵ Planning Commission, *An Approach to the Twelfth Five Year Plan* (2012-2017).

⁶ Planning Commission, *Ground Water Management and Ownership - Report of the Expert Group* (2007).

⁷ Planning Commission, *Mid-Term Appraisal - Eleventh Five Year Plan 2007-2012* (New Delhi: Oxford University Press, 2011).

Introduction

Groundwater use in India has drastically increased over the last few decades. It is now the backbone of agriculture and drinking water security in India. Since 1970, an overwhelming majority (80 percent) of the total addition to the net irrigated area has come from groundwater, ensuring that it accounts for around 60 percent of irrigation water use.¹ As for drinking water, about 80 percent of drinking water needs come from groundwater.² Further, groundwater remains the only source of drinking water for most rural households and forms an important complement to the municipal water supply in most towns and cities.

Today, many industries also depend upon groundwater. Its over-exploitation by industries can cause drinking water shortages and shortages of water for other purposes, including irrigation. This has already triggered conflicts on access to and use of groundwater. This is illustrated by the high profile dispute currently on appeal with the Supreme Court involving the Perumatty Grama Panchayat and the Coca Cola Company in Plachimada Kerala,³ as well as similar disputes that have not reached the highest court, as in the case of another Coca Cola bottling plant in Mehdiganj.⁴

The rapidly increasing number of groundwater extraction structures (estimated at 30 million) coupled with their increasing extraction power is creating a situation where groundwater overuse is growing fast in alluvial as well as crystalline, volcanic and mountainous regions.⁵ Already in 2004, 28 percent of the country's blocks were showing alarmingly high levels of groundwater use.⁶

In addition to quantitative depletion, many parts of India report severe water quality problems, causing drinking water vulnerability. Critical issues include arsenic contamination in the Ganga basin, higher levels of fluoride in many states - in particular in Punjab, Tamil Nadu, Rajasthan and Haryana, and salinity in coastal states such as Gujarat, Kerala and Odisha. In addition, groundwater is affected where rivers are used as municipal or industrial conduit for raw wastewater and where contaminated water is pumped into the ground.

Overall, nearly 60 percent of all districts in India have problems related either to the quantitative availability or to the quality of groundwater or both.⁷ At the same time, some areas reel under the impacts of rising water tables and waterlogging. This confirms that many areas of the country (or a given State) face significant groundwater-related problems while these groundwater problems may be completely different.

The increasing use of groundwater has significant social consequences. Since the poor rely on less powerful extraction mechanisms, they suffer from lowering water tables much before other users of groundwater who have the financial means to deepen wells or acquire alternative water sources for irrigation. Similarly decreasing groundwater quality affects the poor disproportionately.

In short, groundwater is of central importance for the overwhelming majority of the population and the number of groundwater-related issues is rapidly rising. This raises questions concerning the effectiveness of existing groundwater regulations in ensuring environmentally sustainable and socially equitable outcomes. The limitations of the existing regulatory framework have been recognised for several decades but on the whole little substantive action has been taken to address perceived problems.

The existing legal framework is still based on an iniquitous and unsustainable principle that essentially links control over groundwater to land ownership. The reform attempts proposed by the Central Government since 1970 have, firstly, not been followed vigorously by the States and secondly, fail to provide a comprehensive framework for reforming groundwater law.

This chapter examines the old rules linking land ownership and control over groundwater. It then analyses in more detail the proposed reform model of the Central Government put forward since 1970 and its partial implementation in some States. Thirdly, it analyses the new principles that should provide the basis for a reformed groundwater legal regime stemming from legal instruments adopted by Parliament or new principles put forward by the higher courts. Finally, on the basis of the analysis carried out, it outlines some of the main issues that need to be addressed in any forthcoming legal reform, like the one being currently mooted by the Planning Commission.

Traditional regulation of groundwater and its shortcomings

The existing legal framework governing groundwater is largely based on principles developed during the second part of the nineteenth century and applied more or less consistently during the twentieth century. Groundwater regulation is characterised by the absence of a clear statutory basis and by the fact that courts have played a leading role in shaping the rules that apply today. This section consequently examines groundwater rules through the case law and its evolution over the past hundred and fifty years.

Basic rules governing access to and use of groundwater

Basic rules governing access to and use of groundwater in India were laid down in English decisions in the second half of the nineteenth century. Since this area of law was developed mostly by judges, this should have given it ample scope for changing over time in line with changing circumstances and understanding of the science underlying the rules in place. Yet, with few exceptions, the case law to date has not moved beyond the basic principles laid down in another country, for different climatic conditions and at a point in time where the connections between surface and groundwater were not well understood.

The first basic principle applying to groundwater is that it should be treated differently

from surface water. This was confirmed in Chasemore versus Richards case where the court determined that groundwater that percolates through underground strata, which has no certain course, no defined limits, but which oozes through the soil in every direction in which the rain penetrates is not subject to the same rules as flowing water in streams or rivers.⁸

Once the distinction between the different bodies of water was made, it became possible for courts to define a different set of rights applicable to groundwater. These were not derived from the existing rules for surface water that imposed significant restrictions on the powers of landowners to appropriate water flowing past their land. The case law quickly moved towards giving landowners virtually limitless control over groundwater. In Acton versus Blundell, the court found that *'the person who owns the surface may dig therein, and apply all that is there found to his own purposes at his free will and pleasure; and that if, in the exercise of such right, he intercepts or drains off the water collected from underground springs in his neighbour's well, this inconvenience to his neighbour falls within the description of damnum absque injuria (damage without injury), which cannot become the ground of an action'*.⁹ This was confirmed in Chasemore versus Richards case, which found that the right of the owner of a mill using spring water had no action against other landowners abstracting groundwater to the extent of affecting his own use of the water. This was because the judges determined that such a right would *'interfere with, if not prevent, the draining of land by the owner'*.¹⁰ One of the few limitations to have been placed on the rights of landowners concerns the case where groundwater cannot be accessed without touching surface water in a defined surface channel. In this case, the landowner is then barred from accessing it.¹¹

⁸ George Chasemore v Henry Richards (1859) VII House of Lords Cases 349 (House of Lords, 27 July 1859).

⁹ Acton v Blundell (1843) 12 Meeson and Welsby 324 (Court of Exchequer Chamber, 1 January 1843).

¹⁰ Chasemore v Richards n 8 above.

¹¹ Grand Junction Canal Company v Shugar (1870-71) L.R. 6 Ch. App. 483 (Court of Appeal in Chancery, 17 January 1871).

¹² B.B. Katiyar, Law of Easements and Licences (New Delhi: Universal Law Publishing, 13th ed 2010).

¹³ Dharnidhar Sahu v Bhagirathi Sahu AIR 1956 Ori 89 (High Court of Orissa, 7 October 1955).

The general rules mentioned above did not apply in all situations. Indeed, the case law of the nineteenth century made a distinction between percolating groundwater and groundwater flowing in defined channels. Where groundwater was found to flow in defined channels, the rules applicable to surface water would also apply. This meant that the right of the landowner was then limited to use and consumption for household and drinking purpose, for watering their cattle and for irrigating their land or for purposes of manufacture, provided that the use was reasonable, that it was required for their purposes as owners of the land and that it did not destroy or render useless or materially diminish or affect the application of the water by riparian owners below the stream in the exercise either of their natural right or right of easement, if any.¹²

A distinction was also made between a natural and artificial channel. Landowners are entitled, in principle, to the unimpeded flow of the water in its natural course and to its reasonable enjoyment as it passes through their land as a natural incident to ownership. In the case of an artificial channel, the right is not 'natural' but only exists where it has been granted through a proved or presumed arrangement.¹³

The application of the concept of defined channel to groundwater proved to be difficult because until the past few decades it was not easy to ascertain the existence of underground defined channels. The necessary characteristics of a natural stream were thus summarised by Justice Seshagiri Aiyar as, *'It must have a fairly defined course. It must move. Its water must be capable of identification. It need not always be confined within banks. It need not have a continuous flow. Its width need not be of*

particular dimensions'.¹⁴ This means, for instance, that '*a flow of excess rain water, though in a body and in one direction, spread over a very large area in width without any bed or having any banks within which the flow is confined*' is not a stream.¹⁵

The concept of defined channel has been applied in several cases related to groundwater. Firstly, in the context of a river running a few inches below its natural bed in the dry season, judges already determined in 1930 that 'it was safe to say' that the water flowing down the river bed had a defined course.¹⁶ Secondly, in a case where a landowner had built an underground trench taking off from a point 14 ft away from the outlet of a spring, it was held that while this was not the actual water of the spring, '*there can be little doubt that there must be a direct channel between the top of the drain and the outlet*' and there was thus no need for the channel to be 'known' through excavation to apply the rules concerning defined channels.¹⁷

The rules highlighted are at the very least outdated. Yet, the surprising element is the very limited evolution that has taken place over the past fifteen decades or so. Indeed, while it was probably reasonable to expect that by the beginning of the twentieth century, a commentary on easements would be based on the cases cited here,¹⁸ it is much more surprising to find that a leading commentary on easements published in 2010 still cites the same cases as being the most authoritative statements of the law today.¹⁹

The latter consideration gives rise to a related comment. Indeed, while groundwater rights are not defined by the Indian Easements Act, 1882, it is indeed commentaries on easements that have often discussed groundwater rights. This is partly due to the fact that in the absence of a statutory framework concerning groundwater rights, the Indian Easements Act, 1882 happened to include one of the few direct references to groundwater and was thus a convenient starting point for lawyers and law researchers. Yet, while the Indian Easements Act, 1882 is relevant with regard to relations between landowners, it does not define the rights of landowners over groundwater found under their parcels of land. This would in fact be impossible since an easement right involves by definition a (dominant) owner claiming the easementary right and a (servient) owner on whose land the easementary right is exercised. Consequently, '*[o]wnership and easement are inconsistent and cannot coexist in the same person*'.²⁰

Shortcomings of the common law rules

The basic groundwater right framework outlined above is not an appropriate framework for the regulation of groundwater in India in the twenty-first century. This is due to several reasons:

1. The existing rules are based on a scientific understanding of groundwater that is now outdated. It fails, for instance, to take into account patterns of aquifer recharge and the interconnectivity between surface and groundwater.²¹
2. The existing legal framework is not adapted to conditions prevailing in large parts of India. This was already noted in 1930 in a groundwater case where Justice Wallace determined that '*my considered view is that conditions in England are so different to those in the district of Bellary that I deprecate calling in aid English law on this subject and confess that I do not myself find it of any assistance here*'.²² This is not a

¹⁴ Unde Rajah Raja Sri Raja Velugoti Sri Rajagopala Krishna Yachendrala Varu Bahadur, K.C.I.E. Maharajah of Venkatagiri v Secretary of State for India in Council (1915) 28 MLJ 98 (High Court of Madras, 19 October 1914).

¹⁵ Watsalbai wife of Kothiram Parate v Shripat Parasram Gaikwad 1987(1) Bom CR 105 (High Court of Bombay (Nagpur Bench), 7 October 1985). See also Narsoo v Madan Lal AIR 1975 MP 185 (High Court of Madhya Pradesh, 25 July 1974).

¹⁶ Malyam Patel Basavana Gowd (dead) v Lakka Narayana Reddi AIR 1931 Mad 284 (High Court of Madras, 23 October 1930).

¹⁷ Babaji Ramling Gurav v Appa Vithavja Sutar AIR 1924 Bom 154 (High Court of Bombay, 23 February 1923).

¹⁸ Frederick Peacock, The Law Relating to Easements in British India (Calcutta: Thacker, 1904).

¹⁹ Katiyar, n 12 above.

²⁰ MS Vani, 'Groundwater Law in India: A New Approach', in Ramaswamy Iyer ed., Water and the Laws in India 435, 444 (New Delhi: Sage, 2009).

²¹ This is an analysis shared eg by N.S. Soman, 'Legal Regime of Underground Water Resources', Cochin University Law Review 147, 150 (2008).

²² Gowd (dead) v Reddi n 16 above.

surprising result since even in the United States, while courts have generally applied the same rules as in India and continue to do so,²³ more than a century ago, an alternative was developed, the doctrine of reasonable use that sought to '*limit the right of others to such amount of water as may be necessary for some useful purpose in connection with the land from which it is taken*'.²⁴ This confirms the need for a different paradigm in climate conditions that differ widely from those in England, as was the case in the Californian decision quoted here.

3. The present legal framework gives landowners overbearing power over groundwater. The absurdity of reliance on such rules is highlighted by a Texan decision that concerned a spring emerging on private land. Given the statutory presumption that groundwater is percolating water, the Court of Appeals found itself unable to restrain a landowner having dug a well 13 ft from the rock wall where a spring emerged, despite the fact that the well ended in a cavity, because the appellants '*failed to demonstrate that the water (...) flowed through a subterranean water course possessing all of the characteristics of a surface water course, such as a bed, banks forming a channel, and a current of water*'.²⁵ More broadly, the existing framework is socially inequitable since it excludes all landless groundwater users from the purview of the rules, even where it is also their main source of drinking and livelihood water.

4. The existing legal regime limits itself to administering the respective claims of different landowners, with no regard for the need to regulate groundwater at an aquifer level. The limitations of the existing rules come up in even much more specific contexts like the division of a single plot of land. In a case involving the division of a piece of land where a single well was found in the part remaining with the original owner, the court found that in the absence of a clear stipulation providing for access to the well, the new owners had not acquired such a right.²⁶ The case focused entirely on the issue of the source of groundwater and landowners' claims to the same, rather than on the resource itself and the uses to which the groundwater might be put.

Legal and institutional reform initiatives to-date

The need for reforms of groundwater law has been felt for decades and at the very least since the widespread introduction of mechanised pumping devices led to rapidly increasing groundwater use and lowering water tables. This led the Government of India to acknowledge the need for a statutory framework governing groundwater. As a result, starting in 1970, the Government of India put forward a Model Bill to Regulate and Control the Development and Management of Ground Water for adoption by the States. This Model Bill has been revised several times (1992, 1996 and 2005) but the basic scheme adopted in 1970 has been retained.

The basic scheme of the Model Bill, 1970/2005 is to provide for the establishment of a groundwater authority under the direct control of the government. The authority is given the right to notify areas where it is deemed necessary to regulate and control the development and management of groundwater. The respective State Government takes the final decision.²⁷ There is no specific provision for public participation in this scheme. In any notified area, every user of groundwater must apply for a permit from the authority unless the user only proposes to use a handpump or a well from which water

²³ AH Denis, III v Kickapoo Land Company 771 S.W.2d 235 (Court of Appeals of Texas, Austin, 24 May 1989).

²⁴ Leah J Katz v Margaret D Walkinshaw 64 L.R.A. 236, 141 Cal. 116, 134 (Supreme Court of California, 28 November 1903).

²⁵ Denis v Kickapoo n 23 above. Note that India a different result was given in a similar case as early as 1923. See Gurav v Sutar n 17 above.

²⁶ Gurubilli Sreeramulu v Joga Verrodu 2001(3) ALD 367 (High Court of Andhra Pradesh at Hyderabad, 24 January 2001).

²⁷ Model Bill to Regulate and Control the Development and Management of Ground Water 2005, s 5.

²⁸ *ibid* s 6.

²⁹ *ibid* s 8.

is drawn manually.²⁸ Wells need to be registered even in non-notified areas.²⁹ Decisions of the authority in granting or denying permits are based on a number of factors, including technical factors such as the availability of groundwater, the quantity and quality of water to be drawn, and the spacing between groundwater structures. The authority is also mandated to take into account the purpose for which groundwater is to be drawn but the Model Bill does not prioritise domestic use of water over other uses.³⁰ Basic drinking water needs are indirectly considered since, even in notified areas, hand-operated devices do not require a permit.³¹

The Model Bill, 1970/2005 introduces a limited regulatory framework to address groundwater depletion that extends the State's control over the use of groundwater through the registration of sources of groundwater and the introduction of permits for groundwater extraction in regions where it is overexploited. In effect, it provides for the grandfathering of existing uses by only requiring the registration of such uses.³² This implies that in situations where there is already existing water scarcity, it does not provide an effective basis for controlling existing overuse of groundwater and will, at most, provide a basis for ensuring that future use is more sustainable.

More broadly, the Model Bill, 1970/2005 fails to tackle the more difficult underlying questions that need to be addressed to provide a comprehensive and effective regulation of groundwater.

1. It fails to address the problems created by the different legal status ascribed to groundwater. This implies, for instance, that it condones the continuing sectoral treatment of surface and groundwater rather than promoting regulation based on the unitary nature of water.
2. It fails to address the problems caused by the link between control over groundwater and land ownership, which create a situation where landless people do not have a stake in the regulation of groundwater.
3. It fails to take into account the need to prioritise groundwater uses in consonance with the recognition of the fundamental right to water and fails to specifically address, in full, the most important issue of domestic use of groundwater.
4. It fails to take into account legal developments having taken place since 1970. For instance, in institutional terms, it ignores the adoption of the 73rd and 74th Amendments to the Constitution of India that mandate institutional decentralisation whereas the Model Bill 1970/2005 relies heavily on a State level structure.

The last point illustrates the twin problem from which the Model Bill 1970/2005 suffers.

1. It generally reflects an understanding of the groundwater challenges of an earlier era, both in terms of a dated scientific understanding of groundwater and a lack of appreciation of the fast increasing importance of groundwater in the water sector as a whole.
2. The problems associated with a framework developed in 1970 and simply restated in 2005 are well illustrated in the context of the institutional provisions. The focus on a top-down State level institutional machinery in 1970 can be explained (though not justified) by

³⁰ *ibid* s 6(5)(a) only provides that the purpose has to be taken into account while Section 6(5)(h) which is the only sub-section referring to drinking water only considers it as an indirect factor.

³¹ *ibid* s 6(1).

³² *ibid* s 7.

the fact that there was then comparatively little discussion on the need for control by Panchayats over natural resources or water. Whereas the Model Bill 1970/2005 reflects mainstream thinking in 1970, it completely fails to reflect mainstream thinking in 2005 by which time dramatic changes had taken place with the adoption of the 73rd and 74th Constitutional Amendments.

³³ Madhya Pradesh peya jal parirakshan adhiniyam, 1986. Other states that adopted drinking water-specific groundwater legislation are: Andhra Pradesh Ground Water (Regulation for Drinking Water Purposes) Act, 1996 (repealed); Karnataka Ground Water (Regulation for Protection of Sources of Drinking Water) Act, 1999 and Maharashtra Ground Water Regulation (Drinking Water Purposes) Act, 1993.

³⁴ The following Union Territories have also adopted groundwater legislation: Chandigarh, Dadra and Nagar Haveli, Lakshadweep and Puducherry.

³⁵ S. Koonan, *Groundwater - Legal Aspects of the Plachimada Dispute*, in P. Cullet, A. Gowlland-Gualtieri, R. Madhav & U. Ramanathan eds, *Water Governance in Motion - Towards Socially and Environmentally Sustainable Water Laws* (New Delhi: Cambridge University Press, 2010) 159.

³⁶ See above n 33.

³⁷ Andhra Pradesh, Act to Promote Water Conservation, and Tree Cover and Regulate the Exploitation and Use of Ground and Surface Water for Protection and Conservation of Water Sources, Land and Environment and Matters, Connected Therewith or Incidental Thereto, 2002.

³⁸ Goa Ground Water Regulation Act, 2002, s3(2).

Adoption and implementation of the Model Bill 1970/2005

States have been slow in heading the call for adopting groundwater legislation. A few States, as in the case of Madhya Pradesh,³³ took a lead in adopting groundwater legislation specifically focused on drinking water, as early as in 1986. The majority of States that have responded to the call for broader groundwater legislation have done so over the past decade. These include Andhra Pradesh, Bihar, Goa, Himachal Pradesh, Karnataka, Kerala, Tamil Nadu and West Bengal.³⁴ In addition, Maharashtra and Uttar Pradesh have groundwater bills that are awaiting adoption by the legislative assembly.

In all the States / Union Territories (UTs) that have adopted groundwater legislation, the basic framework is directly derived from the Model Bill, 1970/2005. While the broad structure is similar, some differences can be noted in the different State Acts:

1. The Acts differ in their coverage since some apply only to notified areas while others apply to all groundwater.³⁵ In addition, some of the earlier legislation focused specifically on the use of groundwater for drinking water.³⁶ Andhra Pradesh has gone further than other States in putting its groundwater legislation in a broader framework that directly links surface and groundwater in a general context of environmental conservation.³⁷ Yet, apart from a conceptually broader framework for groundwater regulation and specific consideration of drinking water issues, the Andhra legislation otherwise addresses groundwater in a similar manner to other groundwater acts.
2. In keeping with the Model Bill, 1970/2005, groundwater Acts focus on the setting up of a new institutional structure. This takes the form of a new authority or cell made of government civil servants and members nominated by the government because of their expertise. There are some differences in the composition of these institutions with, for instance, a varying balance between civil servants and other members. In Goa, the Act simply authorises the government to nominate members without specifying their origin.³⁸ In West Bengal, the majority are civil servants. In Kerala, only four of the thirteen members of the Authority are civil servants while the rest is made up of a combination of people with different expertise.³⁹

The Authority set up under the Act is then tasked with different functions, such as notifying areas of special concern and granting permits to use groundwater in notified areas.⁴⁰ Among the Acts that specifically focus on groundwater, the West Bengal legislation is the only one that gives the Authority a broader mandate that includes the development of a policy to conserve groundwater and organising people's participation and involvement in the planning and use of groundwater.⁴¹

■ Following the Model Bill, 1970/2005, most Acts fail to clearly give priority of use to drinking water, even though most Acts devote specific attention to the issue of

drinking water.⁴² The Himachal Pradesh legislation stands out insofar as it imposes on the Authority to give first priority to drinking water.⁴³ Additionally, some instruments specifically indicate that the use of groundwater as public drinking water source is not affected by any control measures.⁴⁴

Some other measures have been adopted or proposed at different times by individual States/UTs. Puducherry, in 1988, banned the setting up of water based industries within 6 kilometres from the coastline, with an exception being made for small-scale industries withdrawing no more than 10,000 litres per day.⁴⁵ Another pollution-related measure has been proposed in the bill currently before the Maharashtra Legislative Assembly. In the section concerning water quality, in application of the 'polluter pays' principle, it has been proposed that the State Authority should have the power to restore quality of water with the actual polluter being made to pay for the same.⁴⁶

The differences highlighted in the previous paragraphs cannot hide the fact that on the whole, the Acts adopted by the various States are not tailored to their actual needs and particular challenges they face. This explains, in part, the fact that existing Acts are largely noteworthy for their lack of implementation. While comprehensive research concerning the extent to which the Acts are implemented has not been carried out as yet, anecdotal evidence from the field level up to State officials and Central government officials confirms a general apathy with regard to the implementation of existing Acts.

The reasons for this lack of implementation are varied and can only be surmise in the absence of data. The fact that the different Acts do not reflect the priorities and needs of individual States can be ascribed in part to the fact that these Acts were often introduced more at the behest of union policy makers than in reaction to a policy build-up at the State level. The lack of initiative at the State level can itself be ascribed to a variety of factors, among which the increasingly politically sensitive nature of groundwater stands out. The ever greater reliance on groundwater for all uses of water has led to a situation where no government is particularly keen to upset the existing balance, however, skewed it may be. Until recently, State governments often preferred opening up their coffers to ensure that sufficient groundwater could be pumped up in a context of falling water tables rather than tackling the issue upfront by starting to allocate, restrict and take a broader view of groundwater governance. This period of purposeful policy inaction is progressively coming to an end because the existing 'model' is not sustainable either in environmental or economic terms. Yet, there are still States like Punjab who refuse to contemplate groundwater legislation because of the impacts it would have on farmers.⁴⁷ Instead, Punjab is proposing to give incentives for crop diversification, to invest in artificial groundwater recharge, to meter electricity supply in critical areas, and to promote micro-irrigation.

Union-level legal and institutional initiatives

As indicated above, most of the regulatory measures for groundwater have been taken at the State level. Yet, in a few cases, Union level legal instruments are also relevant. These include, for instance, Coastal Regulation Zone Notification, 2011 that prohibits the withdrawal of groundwater within 200 metres of the high tide level.⁴⁸

³⁹ Kerala Ground Water (Control and Regulation) Act, 2002, s 3(3).

⁴⁰ eg Himachal Pradesh Ground Water (Regulation and Control of Development and Management) Act, 2005, s 5, 7.

⁴¹ West Bengal Ground Water Resources (Management, Control And Regulation) Act, 2005, s 6(2).

⁴² eg Goa Ground Water Regulation Act, 2002, s 23.

⁴³ Himachal Pradesh Ground Water (Regulation and Control of Development and Management) Act, 2005, s 7(3).

⁴⁴ Goa Ground Water Regulation Act, 2002, s 9. Also Karnataka Groundwater (Regulation and Control of Development and Management) Act, 2011, s 1(4).

⁴⁵ Government of Pondicherry, Notification of 24 November 1988, G.O. Ms. No. 134/88/F6.

⁴⁶ Maharashtra Groundwater (Development and Management) Bill, 2009, s 6(5).

⁴⁷ Planning Commission, n 6 above at 29.

⁴⁸ Coastal Regulation Zone Notification, 2011, Gazette of India, Extraordinary, Part-II, Section 3, Sub-section (ii), 6 January 2011.

Similarly, in institutional terms, while the States have in principle taken a lead, initiatives have also been taken at the Union level to fill some of the existing gaps. Thus, in 1972, the Ministry of Agriculture created the Central Groundwater Board.⁴⁹ This was followed by the setting up of the Central Groundwater Authority by the Ministry of Environment and Forests to regulate and control the use of groundwater.⁵⁰ Its mandate includes the notification of 'overexploited' and 'critical' areas and the regulation of groundwater withdrawal in such areas. But, it does not have a broad mandate to regulate groundwater in general. For a variety of reasons including the fact that it was not given sufficient resources and prominence, the Authority is not credited with having had much impact.⁵¹

⁴⁹ Vani, n 20 above at 464.

⁵⁰ Ministry of Environment and Forests, Gazette Notifications SO38 and SO1024 of 14 January 1997 and 6 November 2000.

⁵¹ eg T. Shah, 'Groundwater Management and Ownership: Rejoinder', 48/17 EPW 116 (2008).

⁵² Himachal Pradesh Ground Water (Regulation and Control of Development and Management) Act, 2005, s 12(1).

⁵³ *ibid* s 12(2).

⁵⁴ State of West Bengal v Kesoram Industries (2004) 10 SCC 201 (Supreme Court, 2004). This is in consonance with developments in the United States, where states such as Connecticut, Hawaii and New Hampshire have already taken similar steps. See Jack Tuholske, 'Trusting the Public Trust: Application of the Public Trust Doctrine to Groundwater Resources', 9 Vermont Journal of Environmental Law 189 (2008).

Limitations of the existing framework

The Model Bill 1970/2005 and the Acts derived from it share in common that they fail to address the most critical challenges for groundwater conservation and use:

- The question of the legal status of groundwater is avoided altogether and landowners keep their case law-sanctioned entitlements. It fails to propose new bases for the regulation of groundwater, giving all groundwater users (not just landowning users) a say in its regulation.
- It contributes to a new centralisation of power concerning groundwater to the extent that it effects change. Indeed, the Model Bill, 1970/2005 assumes (though does not mention specifically) that the government can intervene in the regulation of groundwater. The Himachal Pradesh legislation goes further and specifies that users of groundwater in notified areas must pay a royalty to the government for its extraction.⁵² The government is not bound to use this royalty for groundwater-related activities, thus reflecting an understanding that groundwater is a resource controlled by the government.⁵³ This assertion of power by the State is possibly not unexpected but yet legally inappropriate at this juncture. Firstly, while there is only one Supreme Court decision confirming that groundwater is a public trust,⁵⁴ the trend over the past few decades in the water sector has been away from condoning State control over water resources. In any case, in a context where the distinction between surface and groundwater is acknowledged as being inappropriate, the first assumption should be that the assertion of the principle of public trust also applies to groundwater. Secondly, this centralising scheme runs exactly contrary to the decentralisation scheme adopted through the 73rd and 74th Amendments to the Constitution further confirmed by legislative amendments in most states.
- The Model Bill, 1970/2005 fails to tackle existing overuse of groundwater with its approach that largely grandfathered existing uses. As a result, the Model Bill, 1970/2005 fails to move beyond the existing atomised regulatory model that only addresses groundwater in terms of the claims of landowners over water found under their land and their claims against other neighbouring landowners. This pre-empts any attempt to regulate groundwater at the aquifer level and the introduction of an environmental dimension to groundwater regulation.
- The institutional framework for groundwater proposed by the Model Bill, 1970/2005 fails either to provide a single institution with a general mandate to look after

groundwater in all its dimensions or to ensure co-ordination between the different institutions that have a mandate or the capacity to address groundwater use and conservation, such as pollution control boards and groundwater authorities. The framework is also intrinsically top-down in its approach and focuses on the establishment of a State level institution. The Model Bill 1970/2005 does not preclude the adoption of legislation that sets up an institutional layer below the State level. This is, for instance, the case in West Bengal that proposes the setting up of District level authorities.⁵⁵ Yet, this does not go beyond Districts and fails to implement decentralisation based on the principle of subsidiarity.

Towards a new legal framework for groundwater use

The analysis so far has highlighted that the existing regime regulating access to and control over groundwater is outdated, socially inequitable and environmentally unsustainable. It needs to be thought afresh to ensure that it complies with constitutional principles and judicial decisions, and fosters socially equitable and environmentally sustainable outcomes.

The need for reform stems, in part from the ever-increasing importance of groundwater in the water sector, and in part from the inability of the existing legal framework to do more than look at groundwater in an atomised manner linked to land rights. The current system is even incapable of giving individual landowners incentives to sustainably use groundwater. Besides, it provides no basis for regulating groundwater as a common resource either in social or environmental terms.

There are various ways in which new groundwater governance may be brought about. In the absence of an effective legal framework, various States have already tried their hands at different instruments. In particular, economic instruments have been used in different ways to promote or dissuade groundwater use. On the one hand, States have used the possibility of subsidising access to groundwater infrastructure or subsidising the energy necessary to pump it as a way to avoid having to regulate existing uses,⁵⁶ whether sustainable or not. This explains, in part, the existing groundwater crisis of falling water tables in various parts of the country. On the other hand, where States have sought to start addressing issues of groundwater, they have used economic incentives to curtail groundwater consumption. This has, for instance, been the case of Gujarat's decision to separate electricity lines for irrigation and domestic consumption. Regardless of the potential of such measures, this does not replace the need for a broader regulation.

A broad regulation can be adopted through different routes. In keeping with the fact that mostly the courts developed groundwater rules over time, leaving future reforms to courts is an option. Relying on courts to bring about changes in the groundwater legal framework is however fraught with difficulty. Indeed, while courts could have taken up the need for reform decades ago since the inadequacy of existing groundwater was noted at least as early as the 1930s by some judges, courts have failed to bring any significant change to existing rules for more than a century. In addition, the only case that could provide an opportunity to address groundwater rules in the near future is unlikely to focus on this aspect. Indeed, in the Plachimada case, the main legal issues to be addressed by the Supreme Court concern the powers of

⁵⁵ West Bengal Ground Water Resources (Management, Control And Regulation) Act, 2005, s 4(1).

⁵⁶ eg Asian Development Bank, Water Operational Plan 2011-20 (2011).

the Panchayat and the question of the legal status of groundwater addressed by the High Court may not be revisited.

Bases for a new framework

The need for a different kind of legal reform in the groundwater sector is being widely acknowledged. Overall, the existing legal framework is inadequate to address the challenges of groundwater use and conservation faced by most of the States in the country.⁵⁷ This has been recently confirmed by the Planning Commission's approach paper for the twelfth Five Year Plan recognising that '[t]here is an urgent need to come out with a clear legal framework governing the use of ground water'.⁵⁸

New groundwater legislation should be built around a framework that takes into account the following issues:

1. The legal regime must recognise that groundwater is the primary source of drinking water for the overwhelming majority of the population. In the context of the fundamental right to water that has been a part of Indian law for the past two decades,⁵⁹ groundwater regulation must focus on ensuring the effective realisation of the fundamental right to water.
2. In a context where the links between surface and groundwater are well established, it is imperative that the same basic principles apply to all waters. Since the principle of public trust has already been applicable to surface water for the past 15 years, this must be specifically extended to groundwater. Ideally, the legal status of groundwater should be further reconceived as a common heritage since availability is not linked only to local conditions but also to global factors given that replenishment is linked in large part to rainfall, itself directly linked to the global water cycle. This calls for a principle based on the idea that water cannot be appropriated by anyone, cannot be alienated and cannot be used for commercial purposes until all life sustaining, livelihood and ecosystems uses have been fulfilled.
3. Following the recognition that groundwater is a public trust or a common heritage, there should be no private property entitlements related to groundwater. This bars both landowners' ownership-like claims to groundwater and non-land based claims, such as tradable entitlements. This is necessary in view of groundwater's central role in ensuring human survival and the need to change a system that gives large landowners a disproportionately larger access to groundwater while landless farmers' access to groundwater is negatively affected, as they are disqualified from acquiring institutional credit for the development of groundwater. The new regime needs to be based on the principle that it is the trustee at all levels, from Panchayats / Municipalities to blocks, Districts and State level institutions, that needs to have control over the resource. This should be based on the principle of subsidiarity.
4. Groundwater law needs to reflect developments in other areas of the legal framework. These include constitutional changes, such as decentralisation principles embodied in the 73rd and 74th Amendments to the Constitution; environmental law principles, such as the precautionary principle that have been integrated in the case law but not in water statutes; and principles from existing water statutes promoting

⁵⁷ cf. Planning Commission of India, Mid-term Appraisal - Eleventh Five Year Plan 2007-2012 (Government of India, 2011), para 21.52.

⁵⁸ Planning Commission, An Approach to the Twelfth Five Year Plan (2012-2017), para 5.18. Similarly, see Department of Drinking Water and Sanitation - Rural Drinking Water, Strategic Plan 2011-2022 - Ensuring Drinking Water Security in Rural India, 5(4)(2).

⁵⁹ eg *Subhash Kumar v State of Bihar* AIR 1991 SC 420 (Supreme Court, 1991).

⁶⁰ eg Andhra Pradesh Farmers' Management of Irrigation Systems Act, 1997; Gujarat Water Users' Participatory Irrigation Management Act, 2007; Maharashtra Management of Irrigation Systems by the Farmers Act, 2005 and Tamil Nadu Farmers Management of Irrigation Systems Act, 2000.

decentralisation, such as Water User Association legislation already in place in several States.⁶⁰

5. Groundwater law must be based on a measure of equity and equality among everyone in the country. Measures must be taken to address the inequalities arising from the fact that some people happen to be living in areas with poor quality of groundwater (for instance, arsenic,) or in areas where groundwater has been contaminated by anthropogenic activity. The legal regime must ensure that no one is disadvantaged because of the conditions arising in their place of residence. This may, for instance, involve regions that have abundant resources subsidising the cost of accessing groundwater in other areas.

Lineament of proposed new framework

A new legislative framework should be built around an understanding that it is the farmers and all persons living in rural areas that are the most directly affected by the existing legal regime. It should be based on the idea that while protection of groundwater is the key to the long-term sustainability of the resource, this must be considered in a framework in which livelihoods and basic drinking water needs are of central importance.

Its objectives should be to:

- Regulate and control iniquitous groundwater use and distribution, based on priority of allocation to ensure in particular that the drinking water / domestic needs of every person and irrigation needs of small and landless farmers can be met⁶¹
- Ensure safe and secure drinking / domestic water for all people, particularly in groundwater dependent regions
- Regulate the over-extraction of groundwater in order to ensure the sustainability of groundwater resources, equity of their use and distribution, and to ensure fulfilment of ecosystem needs
- Promote and protect community-based, participatory mechanisms of groundwater management that is adapted to specific locations considering resource, enhancement and socio-economic set up⁶²
- Prevent and mitigate contamination of groundwater resources
- Promote and protect good conservation, augmentation (recharge) and management practices
- Protect areas of land that are crucial for the sustainable management of groundwater resources and to ensure that high groundwater consuming industries are not located in areas unable to support them⁶³

a) Legal and institutional bases

The new framework should draw on the various developments that have taken place in the legal framework since the Government of India proposed the first Model Bill in 1970. In particular, it should reflect the following:

1. The principle that water and specifically groundwater, is a public trust as put forward by the Supreme Court.⁶⁴ This applies to groundwater as a resource and not to mechanisms for abstracting it.

⁶¹ cf. Ministry of Water Resources, Recommendations of the Symposium on Groundwater Governance: Ownership of Groundwater and its Pricing, 16 November 2006, Recommendation 8, already recognising the need to reflect equity and the protection of weaker sections.

⁶² As called for in Ministry of Water Resources, Recommendations of the Symposium on Groundwater Governance: Ownership of Groundwater and its Pricing, 16 November 2006, Recommendations 7 & 16.

⁶³ As called for in Ministry of Water Resources, Recommendations of the Symposium on Groundwater Governance: Ownership of Groundwater and its Pricing, 16 November 2006, Recommendation 3.

⁶⁴ West Bengal v Kesoram n 54 above.

2. The recognition of the fundamental right to water by the Supreme Court.⁶⁵
3. The principle of subsidiarity, as explicated in the 73rd and 74th Amendments to the Constitution (Articles 243G and 243W).
4. Protection principles, such as the prevention and precautionary principles, most recently statutorily recognised in the National Green Tribunal Act, 2010 (Section 20).

It should also build on existing laws and schemes and contextualise them to groundwater, such as:

1. The Right to Information Act, 2005.
2. The Environmental Impact Assessment Notification, 2006 under the Environment (Protection) Act, 1986.
3. Social audits called for under various schemes and policies of the Government.⁶⁶

b) Institutional framework

The institutional framework should be based on the principle of subsidiarity and framed around existing units of territorial governance. At the same time, in recognition of the fact that aquifer boundaries do not follow administrative boundaries, it should provide mechanisms that ensure that administrative boundaries do not come in the way of effective protection of groundwater aquifers.

It should also recognise that duplication of institutions and mechanisms should be avoided to the greatest possible extent. Thus, it should provide for an institutional framework devoted to groundwater to ensure appropriate management of groundwater from the local to the State level. At the same time, it should provide for collaboration or integration of groundwater to already existing institutions addressing water, such as the Central Groundwater Board. In addition, it should provide for existing institutions to support new local level institutions to ensure that they are not hampered in implementing the legislation by a lack of technical or other expertise.

c) A framework adapted to state-specific circumstances

The new framework should be based on an understanding that it should be adopted at the State level in a form that suits the specific conditions and needs of that particular State. In addition, the actual legislation should be adapted to suit the existing institutional and legal framework of the State to avoid duplication.

Implications of the proposed new legal framework

A new framework would provide that groundwater is a public trust with the State being the custodian of the resource at all levels (from the Panchayat to the State government). The legal status of public trust for groundwater as a resource would not affect in any way the sources used by individuals or communities to access groundwater.

⁶⁵ Subhash Kumar v State of Bihar AIR 1991 SC 420 (Supreme Court, 1991).

⁶⁶ eg Total Sanitation Campaign Guidelines, 2011, s 18.

The new legal framework should ensure effective regulation of large-scale groundwater use. This would have no impact on the overwhelming majority of small farmers' groundwater use whose rights of access will not be affected. Rather, it would contribute to ensuring that all farmers (and more broadly groundwater users) benefit from better groundwater availability in the long run by restricting overexploitation by large users that threatens access by the majority of small users.

The new framework should be built around the need to regulate unreasonable uses of sources of groundwater that threaten the aquifer to ensure that the resource itself is protected and can provide a sustainable basis for meeting the basic needs of every person for decades to come.

Conclusion

Groundwater regulation is outdated and insufficient. It is in need of specific attention in a context where it provides the overwhelming part of water uses to an overwhelming majority of the population.

Reforms need to be built around existing principles of the legal framework, including the Constitution, judicial decisions and principles that have developed over the past few decades. There are some easy starting points like the recognition of the fundamental right to water and the public trust doctrine.

Yet, while the starting points may be relatively well marked, the road towards a framework, which ensures the implementation of groundwater legislation that ensures equitable and environmentally sustainable availability of groundwater for all will be a long one. Indeed, it is not enough to simply introduce the principle of public trust to remedy the ills of a system putting most control over groundwater in the hands of bigger landowners and the State. The principle of public trust is not in itself a magic pill against abuse of power by the State in its exercise of its duties as a trustee. This requires many more safeguards. Further, delinking land rights from control over groundwater may be an immediate necessity to remedy decades of atomised regulation. At the same time, this will only achieve its desired environmental and social goals if the laws adopted ensure that this does not pave the way to another form of privatisation through the setting up of tradable entitlements.

The road to a 'better' framework is narrow. The economic and political environment at a macro level may not be conducive to effectively implementing reforms based on the principle of subsidiarity. Yet, the status quo is untenable because it is a status quo that leads to further deterioration of the resource on a yearly basis. It is thus imperative to introduce reforms but these reforms must include all the necessary safeguards to ensure that delinking access to groundwater from land rights does not lead to another, possibly more insidious form of privatisation in the form of tradable entitlements, that would further affect the overwhelming majority of small users of groundwater.

5

Chapter 5 Dams

Dams, in their widest sense, may be defined as structural interventions that modify stream flow. This is the widest sense in which the word dam is used and would cover all kinds of dams - from earthen dams to composite dams to rockfill dams to concrete dams; from small to big sized dams - right down from gully plugs, check dams, nala bunds, to big dams like the Bhakra dam; dams with different functions and purposes like storage dams, flood control dams, hydropower dams, water supply dams, barrages, diversion structures as well as embankments.

Dams, in this sense, are integral to the water systems that humans have built from very ancient times. They are technical solutions devised to bridge the mismatch between availability and requirement; water is available but not when and where you need it. The earliest account that we have of dam building is possibly the first century AD detailed description of the process of planning and executing the construction of a village tank witnessed by the protagonist Kannagi in the Tamil epic Silapadikkaram. The now so-called traditional water systems are examples of the ingenuity and diversity of such interventions; from the kuhls of Himachal Pradesh in the North, which are mainly diversion systems, to the system of interconnected tanks in Tamil Nadu in the South.

Most of the dams in traditional systems were mainly small dams, capable of being built with community knowledge and efforts. However, there are also examples of fairly large dams like the Grand Anicut built by the Chola king on the Kaveri, which were sponsored by the Kings. The institutional structures in which these dams were embedded had grown up in an evolutionary manner in step with the social and economic structure of the society that had created them. Local control of all these dams rested with the local communities and reflected the local social structure of these communities. Effective operation and maintenance of these was in the hands of the landed castes. The higher castes had a greater share in the decision making, and routine maintenance and upkeep was met from a locally generated fund. However, in many places, the initial construction of the system was sponsored by the King, and the Arthashastra encourages this practice and considers it a duty of the Prince to do so.

A disarticulation set in with colonial rule. The British brought with them their technology as well as their own ideas about dams and their roles. So-called modern irrigation systems were set up by the British with British ideas and were oriented towards revenue generation and maximisation; the drought relief nature of the works was also situated within this framework where it was an instrument to stabilise revenues as much as it was an effort to stabilise livelihoods. Under their influence we have a re-articulation and a restructuring of the entire institutional structure around

water systems. This trend was continued after Independence and under their impact traditional systems were either abandoned, fell into disrepair or continued their existence as small pockets within the overall dominance of the modern irrigation sector.

In what follows, we shall not be dealing with small water bodies and small dams, many of which are themselves traditional structures and the institutional structure around them has close connections with traditional systems. That is a different issue, which needs an independent treatment and is covered in chapter X. We shall therefore be dealing with what could be called large dams or medium and major irrigation projects (see below). Similarly, we shall not be dealing in detail with Rehabilitation and Resettlement (R & R) issues, which have a wider canvas. R & R issues are issues mainly related to displacement of all kinds caused by all kinds of projects, and dam-induced displacement is one part of it. The new R & R bill, which is already in discussion, has a fairly long record of debate and entering into those issues would take us far a field from the issue of dams. Therefore in what follows, though we shall be commenting on R & R issues wherever relevant, we shall not treat the R & R issue in its entirety. Similarly, it should also be pointed out that the material on the institutional and legal processes around the whole life cycle of dams is sparse and we shall therefore have to rely substantially on a discussion of possible options rather than of established research experience.

Large dams and their place

The definitions of large dams are varied and the definition is mostly an administrative matter of demarcating a boundary that is convenient for administrative purposes. Different criteria have been adopted at different times. The height of the dam has been recognised internationally as a criterion for separating large dams from other dams. For example, International Commission of Large Dams ICOLD considers dams above 15 m high as large dams and in India this has also been adopted by the Central Water Commission (CWC) for its National Register of Large Dams. Earlier the size of expenditure has also been considered to demarcate large from small dams. However, irrigation departments in India now follow a three-fold classification of major, medium and minor irrigation projects based on the Culturable Command Area (CCA) of the project - projects with CCA of 10,000 ha or larger are classed as major projects; those with CCA between 2,000 and 10,000 ha are classed as medium projects; and those with CCA less than 2,000 ha are classed as minor projects. Major and medium projects also have to follow CWC norms and procedures and in what follows we shall be using the term large or major dams/projects mainly to refer collectively to medium and major projects, that is, to projects with CCA larger than 2,000 ha.

However, it is also important to start with an awareness of the place of large dams. Traditional systems tend to be minor projects (with CCA less than 2,000 ha) and are much more amenable to community control and to being institutionally rooted in a decentralised community control structure. However, large dams are a product of modern society in two aspects. One, they are made possible by modern technology and it is an essential component of major projects, and secondly they are needed for the two major features that arise with modern society. Modern industry and modern towns and cities rely largely on large dams for their needs; though there is now a trend

of increasing reliance on groundwater, a substantial portion of their needs is still met from large dams and would continue to do so. While it is possible for traditional systems in rural areas to carry their own hinterlands with them, modern industry and modern cities have to draw on water from catchments that they are not part of. These qualitative differences will need to be taken into account while devising/discussing the legal institutional issues surrounding large dams.

India is the third country in the world in terms of the number of large dams it has. Only USA and China have more large dams.

Table 5.1: Top 20 countries by number of large dams				
Country	ICOLD World Register of Dams 1998	Other sources	Percent of total dams	Cumulative percent
China	1855	22000	46.2	46.2
United States	6375	6575	13.8	60.0
India *	4011	4291	9.0	69.0
Japan	1077	2675	5.6	74.6
Spain	1187	1196	2.5	77.1
Canada	793	793	1.7	78.8
South Korea	765	765	1.6	80.4
Turkey	625	625	1.3	81.7
Brazil	594	594	1.2	82.9
France	569	569	1.2	84.1
South Africa	539	539	1.1	85.2
Mexico	537	537	1.1	86.3
Italy	524	524	1.1	87.4
United Kingdom	517	517	1.1	88.5
Australia	486	486	1.0	89.5
Norway	335	335	0.7	90.2
Germany	311	311	0.7	90.9
Albania	306	306	0.6	91.5
Romania	246	246	0.5	92.0
Zimbabwe	213	213	0.4	92.4
Others	3558	3558	7.0	100.0
Total	25423	47655	100.0	
Source: World Commission on Dams (WCD), Dams and Development: A New Framework for Decision-Making, November 2000, Earthscan, London and Sterling, p.370 * : As the WCD notes, there are different estimates for the number of large dams in each country. For India, it additionally notes: ICOLD (1998) has 4011 large dams; WCD India Country Review quotes 4291 according to the National Register for Large Dams (CWC, 1994).				

Major and medium projects (MMI) in India also contribute substantially to the estimated total and surface irrigation potential. As we may see below in Table 5.2, ultimate irrigation potential of MMI is about 42% of total irrigation potential and 77% of the surface water irrigation potential.

Table 5.2: Ultimate Irrigation Potential, Potential Created and Potential Utilised (in MH)					
Sector	Ultimate irrigation Potential	Potential Created		Potential Utilised	
		Till End of Ninth Plan	Anticipated in Tenth Plan	Till end of Ninth Plan	Anticipated in Tenth Plan
MMI	58.47	37.05	5.3	31.01	3.41
MI					
Surface Water	17.38	13.6	0.71	11.44	0.56
Groundwater	64.05	43.3	2.81	38.55	2.26
Subtotal	81.43	56.9	3.52	49.99	2.82
Total	139.9	93.95	8.82	81.00	6.23

CWC estimates that about 44 Mha potential has been created by 2007. This is besides the amount of water that is being used by industry and cities from the MMI projects. A more recent estimate is provided in the Report of the Working Group on Major and Medium Irrigation and Command Area Development for the XII Five Year Plan (2012-2017).¹ According to them, the irrigation potential created in respect of MMI projects increased to 46.24 Mha (tentative) including 4.60 Mha anticipated to be created in XI plan and the potential utilisation to 35.10 Mha (including 1.36 Mha anticipated during XI plan). Actual irrigated area is likely to be less than the so-called potential utilised, though aggregate figures are hard to come by. Nevertheless, one thing is pretty clear, that MMI projects do contribute significantly to irrigation in the country directly and indirectly, even though the magnitude of this contribution may not be as high as the proponents of big dams make it out to be.

In fact, dams have also been classified by purpose - the major purposes are irrigation, flood control, hydro power, navigation, fishing and water supply. Multipurpose projects are projects that have more than one purpose.² However, it is also important to note that most MMIs are now practically multipurpose, even if they may have started out with a single over-riding purpose, especially because the increasing pressure of industrial and urban demands has resulted in practically every MMI having some allocation to these uses.

The life cycle of dams

Dams have a lifecycle of their own. Every dam has to be planned, constructed, commissioned, operated, and finally decommissioned. Though a few dams like the Tajewala barrage, the Lower Ganga barrage at Narora and the Bogda dam in Chattisgarh have been decommissioned, there has been very little experience of systematic decommissioning of large dams in India - many of the traditional systems have been gradually abandoned and fallen into disrepair but none has been properly and systematically decommissioned. In what follows we shall briefly consider the legal and institutional issues surrounding each of the lifecycle phases.

¹ Government of India, Ministry of Water Resources, November 2011, Report of the Working Group On Major & Medium Irrigation and Command Area Development for the XII Five Year Plan (2012-2017), New Delhi, available at http://planningcommission.nic.in/aboutus/committee/wrkgrp12/wr/g_major.pdf, last accessed on 19 March 2012.

² In fact, almost all water systems/dams are practically multipurpose, even the smallest ones. In a study of a few selected small projects in the Tungabhadra basin, it is found that the tanks meet a) direct uses like irrigation, drinking water, water for domestic use and sanitation, water for bathing, drinking water for cattle, water for washing and bathing cattle, washing clothes, fishing, recreation, worship, silt and seasonal tank bed cultivation and b) indirect uses like ecosystem services that regenerate the environment recharge and replenish ecosystem resources and potentials (Paranjape, Suhas, K. J. Joy, S. Manasi, N. Latha, "IWRM and Traditional systems: Tanks in the Tungabhadra basin", STRIVER Policy Brief No. 4, available at <http://kvina.niva.no/striver/Disseminationofresults/STRIVERPolicyBriefs/tabid/78/Default.aspx>, last accessed on 09/03/2012)

Planning and initiation

By 2011, 553 MMI projects (including ERM projects) were still under consideration and 46% of these were projects not approved by the Planning Commission (PC) and hence not eligible for Central assistance. Earlier there had been very few projects dedicated solely to industrial and urban water supply and it was customary to make ad hoc allocations for industry and urban water supply from MMIs, generally in a non-transparent and non-participative manner. However, more and more projects are now coming up in this category and they would need separate consideration as well. MMI projects have to pass through a series of scrutinies that often look formidable on paper but most of the so-called non-technical scrutiny related to environmental and social impacts is treated in a cavalier fashion and would be difficult to stand scrutiny. It is mandatory for them to follow CWC norms and get technical approval from the CWC in the case of MMI that receive Central assistance. And though there is no law that makes it mandatory, it is now an increasing expectation for them to carry out an Environment Impact Assessments EIA. Further, they have to be approved by the PC in order to be eligible for Central assistance, which for approved projects accounts for a lion's share of the investment. However, it is rare that the PC does not approve a project approved by the CWC and the Ministry of Environment and Forests (MoEF).

There are a number of issues related to the planning and initiation phase of MMI projects. First is the issue of seeing these dams as part of basin level plans. Second, is the issue of EIA and the third is the issue of stakeholder involvement. At present, basin level plans based on detailed planning studies at basin level in an integrated manner do not exist. Rather than dams and projects being derived from basin level plans, they are mainly drawn up based on a summation of individual project plans, especially as worked by basin States on their own. Many of the basins cut across different States, and each State has its own views of the basin that depend upon its own interests and is reluctant to be part of a full fledged basin plan or organisation. There are no river basin organisations that can become the vehicle of a full-fledged basin level integrated planning effort. Even within a State, there is hardly any integration at a basin level.

The EIA

The EIAs for dams, like all EIAs, generally are poor in quality and very often so called 'cut and paste' jobs. They are treated as mere formalities to be completed, as providing documents that are required to be filed for project clearance, and then filed away. They rarely give serious consideration to arriving at proper estimates of environmental impact. In fact, there are many instances in which otherwise supposedly reputable institutions are found seriously wanting in professionalism and walking a very thin line between lack of consideration and manipulation of results in favour of project clearance. (See Box 5.1).

³ Himanshu Thakkar, The great Indian EIA Fraud, in Dams, Rivers and People, SANDRP, combined Vol5;12 and 6:1,2. Jan-March 2008.

BOX 5.1 The Great Indian EIA Fraud!

The following is an abridged and edited version of an eponymous article by Himanshu Thakkar.³ The article is a scathing comment on the nature of EIAs occasioned by the exposure of a 'cut and paste' EIA by the Mint, a publication of the Hindustan Times Group in 2007. Written a little more than four years ago, it remains as relevant and topical today as it was then.

It is pretty well known that most EIAs done in India are 'cut paste' jobs, full of wrong information, biases, contradictions, surveys that have never been done and such other frauds. The EIA consultancy is big business and those who do not produce EIAs favourable to the project promoter, are not likely to get another EIA consultancy. So no efforts are spared. The MoEF so long as it has a report to file, is least bothered with its quality and verity, and keeps issuing clearances based on such EIAs.

No wonder then that a front page story in the 27 December 2007 issue of MINT (brought out by the Hindustan Times Group) showed, how the EIA by Yogiraj Industrial Consultant, a Pune based firm, for a mining project in Maharashtra, was basically a 'cut and paste' job of an EIA for mining project in Russia. As the report says, *"unless by some amazing coincidence, mineralisation in the Barja river in India and the Vorykva river in Russia both peak at 452.95 mg/l during the summer months, ... the water quality information in the Indian EIA for the Ashapura project in Ratnagiri is fraudulent."*

This is not the first time that fraudulent EIAs have been exposed. The Mint editorial on the issue three days later noted that earlier, the Environment Support Group, Bangalore had also exposed how the EIA for the Dandeli hydropower project on Kali River in Karnataka was a 'cut and paste' job from the EIA of another project in another State over a hundred kilometre away. When this was exposed, the proponent then hired the Tata Energy Research Institute (TERI) to re-do the EIA. TERI filed "a hurried, inadequate" report, which too was exposed. Thankfully, that project did not get clearance, but not all cases have such happy endings.

South Indian Network on Dams, Rivers and People (SANDRP) has in the past shown how the ERM International, in its EIA of the controversial Allain Duhangan Hydropower project, now under construction in Himachal Pradesh, had lifted passages from other documents without even bothering to put quotation marks or saying that this is taken from another document. ERM had to redo the EIA after many such glaring errors were exposed.

Similarly, in the EIA of the Parbati III hydropower project on Beas river in Himachal Pradesh, the EIA by National Environment Engineering Research Institute (NEERI), while discussing water availability in section 4.4 suddenly discusses the water availability in another (Jhelum) river in another State (Jammu & Kashmir) in detail and recommends availability figures! This was brought to the notice of the MoEF and also published in the 15 September 2005 issue of Down to Earth. This story had a happy ending - for the promoters; in spite of all this, the project received clearance!

This is not the only time when NEERI was caught doing problematic EIAs. In case of its EIA for Karcham Wangtoo hydropower project in Himachal Pradesh, it was asked to redo the EIA after SANDRP exposed the inadequacies and biases in the EIA. There have been many other cases where NEERI EIAs were found to be problematic.

As one of the MoEF Expert Committee members admits, *"The (EIA) reports are apologies even on the paper they are written on. These reports are mostly written at a very junior level... Information on the 10th page will not tally with the 12th page and so on... more often than not, the consultants hardly visit the sites."*

In the end, we can do no better than quote some of the important points the MINT editorial raised:

■ "And if the regulator (MoEF) is so lax as to approve what was a plagiarised version of a Russian mining project, why should the promoters care about any ecological damage from their projects?"

- “Public hearings, mandated officially, mostly continue to be formalities at best.”
- “Of what use is a dedicated ministry if it can neither ensure duly diligent approvals of projects nor genuine monitoring of the mitigating measures that are supposed to arise from honest and explicit EIAs?”
- “Not only is the clearance process largely mechanical - euphemism for a sham, actually - but the regulation too is quite deficient.”

EIAs for dams suffer from some of the generic ills that plague all EIAs in India as well as in the rest of the world. In fact, EIAs should be part of project planning and should provide vital inputs to project design so as to minimise likely environmental impacts. The MoEF and the National Water Policy recommend an Options Assessment including a non-dam option. However, this has never been part of the EIAs conducted. If taken seriously, the options assessment can become a valuable planning tool. Instead EIAs are seen as add-ons after the fact; in most cases they are carried out after the Detailed Project Report (DPR) is ready. At that late stage it is not possible to make modifications without great effort because changing a small portion has a ripple effect that spreads quickly through the whole of the DPR. Consequently, it becomes a matter of accepting or rejecting the DPR, and given the time and effort spent and, in case of dams, the likely political and economic gains to important and influential sections; enormous interests become vested in the DPR. A major consequence of this is that right from its inception, the EIA is shaped by a concern for justifying and approving the present DPR. This is also further strengthened by the fact that the EIA is commissioned by and paid for by the developers who are the very people who have conceived the DPR.

From post-facto add-ons to instruments of options assessment

A change is needed in the EIA practice in the country in at least two ways. First is the change in the whole conception of the EIA. The EIA cannot be looked upon as a post-DPR add-on. It needs to be pro-active than reactive. The EIA should become part of an option assessment component while working out the DPR. For example, assessment of environmental and social impact with different dam designs including non-dam options should be available to the planning team along with the economic cost, benefit and technical feasibility assessment, and it should be part of the information that informs the decision to choose most viable, desirable, option in a participatory, transparent and accountable way. Earlier dams were the natural option to be considered for water and power services. However, there are now many non-dam options that are important to consider. (For a WCD summary see Box 5.2) Without such a change in thinking EIAs will serve only to accept or reject a given project, and this itself is likely to make EIA a mere formal exercise given the political and economic weight that is stacked in favour of proposed dam projects. Today EIA is considered mandatory but it is not seen as providing such inputs. It would help if it becomes mandatory to consider EIA inputs as part of developing the DPR and as part of an options assessment procedure in arriving at the final DPR.

Box 5.2 Options for water and electricity services⁴

Today, a wide range of options for delivering water and electricity services exists, although in particular situations the cost and feasibility of these options will vary in the face of constraints such as natural resource endowments and site location. The Commission found that:

- Many of the non-dam options available today - including demand-side management, supply efficiency and new supply options - can improve or expand water and energy services and meet evolving development needs in all segments of society.
- There is considerable scope for improving performance of both dam projects and other options.
- Demand management, reducing consumption, recycling and supply, and enduse efficiency measures, all have significant potential to reduce pressure on water resources in all the countries and regions of the world.
- A number of supply-side options at all scales (ranging from small, distributed generation sources or localised water collection and water-recovery systems to regional-interconnection of power grids) have emerged that - on their own or collectively - can improve or expand the delivery of water and energy services in a timely, cost-effective and publicly acceptable manner.
- Decentralised, small-scale options (micro hydro, home-scale solar electric systems, wind and biomass systems) based on local renewable sources offer an important near-term, and possibly long-term potential particularly in rural areas far away from centralised supply networks.

Insulating EIAs from proposer influence

A similar change is needed to the different procedures in respect of funding and conducting an EIA. Since EIAs are a special case that deal with negative factors, which are not always liked by the project investors or proponents, it is important that they be funded by mechanisms, which insulate them from project proponent interests and pressures and allow them to exercise an impartial assessment. For this purpose, it is possible to ask project proposers to deposit a certain proportion of a ball park figure for the project into an EIA fund and the organisations conducting the EIA could be funded from this fund. Given, especially with respect to dams, that the government itself is likely to be a major player and project proposer, the fund also needs to be insulated from undue governmental influence and could be administered by a joint body made up of experts in the field along with some representation of the government. For this it is important to see that the EIAs are conducted professionally by competent organisations and individuals, and empanelment of approved EIA practitioners could be considered as an important step in this direction. However, here too the same care needs to be taken to insulate the empanelment procedure from undue government influence for the same reasons. It is also important to ensure proper and transparent participation of affected communities within the process in order to ensure proper impact assessment.

Need for cumulative EIAs

The other important point about the EIAs is the need for cumulative EIAs. All along the Konkan coast a series of power and other projects (for example, mining, ports, ash dumping, etc) totalling almost 12,000 MW are being proposed. Each of these projects is being assessed for environmental impact separately. Each of them will be assessed assuming it is the only project causing impact! However, it is important to note that

⁴ *World Commission on Dams, Dams and Development: A New Framework for Decision-Making*, November 2000, Earthscan, London and Sterling, pp. xxxi-xxxii

since Konkan is a coastal area and there is a variety of projects (including chemical and other processing industry, canning, fishing, trawling and the like) being proposed, the total impact is likely to be a cumulative impact and there is a need for combining these together into a cumulative EIA. The cumulative impact of the project on the livelihoods, fisheries, biodiversity (terrestrial, aquatic and marine), also in the context of carrying capacity and sustainability needs to be looked into.

A similar situation exists in the North East. Throughout the region, literally, hundreds of dams have been proposed. In Arunachal Pradesh itself, more than 135 dams with over 45,000 MW potential are being proposed. Every hydropower dam disconnects a part of the river and creates a bypass flow. In a long river, a short stretch with part flow bypassed may not have a large impact. However, if there are a hundred dams and each dam bypasses even a few kilometres we have a very large proportion of the stream being bypassed, practically destroying the river. This cumulative effect is likely to be much more significant than any single EIA would show. Or take another dimension, that of disaster management. The impact on any one dam breaching is all that is likely to show up in a single separate EIA. But the situation becomes entirely different if we assume there are hundreds of dams upstream. Also given the previous history, since they all lie in a common zone, in case of a spell of excessive rainfall, made even more likely by climate change, it is likely that they all will come under pressure at the same time. It is time that cumulative EIAs are prepared, monitored and revised regionally as projects continue to be proposed. Given the pace at which development is taking place and given that the target growth rate is likely to be around 9%, even though that is not necessary if food, water, energy, environment and livelihood security of the poor are priority, cumulative EIAs should be made mandatory as early as possible.

Lack of stakeholder interaction

The situation with respect to stakeholder involvement is similar to the one with EIAs. Stakeholders are rarely part of the process leading to the DPR. Public hearings, if any, take place after the event. They are usually ornamental, a box to be ticked and the primary stakeholders rarely get an opportunity for full and informed participation. DPRs and EIAs are in English, and are already couched in such technical and lawyerly language that faithful translation hardly makes a difference. There is very little effort to educate and inform the community of the potential impacts in simple understandable language. Moreover, their participation in those rare occasions when they do, hardly makes a difference; there have been instances where in spite of almost unanimous opposition to the project at public hearings, the project gets approval.

In such a situation, the only way for the displaced and the adversely affected is to protest and to oppose the project through whatever political means they can muster. It is only through such protests that they have been able to acquire voice and demand that they be heard. The displaced persons and those affected adversely by the projects have now become at least visible if not very powerful entity. The older a dam or a project the more invisible are the project-affected and their problems. Just to cite a few examples, the Koyna, Bhakra, Pong, Hirakud, and Damodar valley dams –

some of the biggest dams in India — all began to be built in the fifties; however, more than fifty years after they were all completed and commissioned, the rehabilitation of the people affected by those projects is still far from being complete.

There is an urgent need to involve the stakeholders, especially the project-affected in the deliberations right from the beginning of the planning stage. Project planners see this mostly as an inconvenience and fear that the project affected will take an obstructive attitude from the beginning and stall the project. They would rather work away from public exposure and work out the project details 'in peace'. However, what is not so evident is that in most cases, the conflict is not averted, only postponed. In a few projects resistance from the project-affected is resulting in costly over runs, delays and social turmoil. What is so conveniently avoided in the planning stage comes back and exacts its due with a vengeance. However, this is the tip of the iceberg and only in a few cases have the project-affected been able to effectively make themselves heard. In most other cases, the cost over runs and delays have had nothing to do with resistance from the project-affected and the few visible examples are now being used to sidestep even the bare requirements of EIAs and public hearings.

Planners need to think whether they would rather have a planning process devoid of stakeholder interaction, spend enormous amounts of money to prepare the plans, begin to execute them and find that there is resistance adding to delays and rapidly escalating unforeseen costs, or whether they would rather have those costs built into the project right at the start through a process of stakeholder interaction and minimise post initiation delays. Projects will start a little later, but in all probability will be completed faster and with less social conflict and turmoil. The WCD has recommended a detailed process that would provide a good starting point in project planning. (See Box 5.3).

BOX 5.3 WCD recommended project planning cycle

[The Commission] has identified five key decision points. The first two relate to water and energy planning, leading to decisions on a preferred development plan:

- Needs assessment: validating the needs for water and energy services;
- Selecting alternatives: identifying the preferred development plan from among the full range of options

Where a dam emerges from this process as a preferred development alternative, three further critical decision points occur:

- Project preparation: verifying that agreements are in place before tender of the construction contract
- Project implementation: confirming compliance before commissioning
- Project operation: adapting to changing contexts

Social, environmental, governance and compliance aspects have been undervalued in decision-making in the past. It is here that the Commission has developed criteria and guidelines to innovate and improve on the body of knowledge on good practices and add value to guidelines already in common use. Seen in conjunction with existing decision-support instruments, the Commission's criteria and guidelines provide a new direction for appropriate and sustainable development.

Bringing about this change will require:

- Planners to identify stakeholders through a process that recognises rights and assesses risks
- States to invest more at an earlier stage to screen out inappropriate projects and facilitate integration across sectors within the context of the river basin
- Consultants and agencies to ensure that outcomes from feasibility studies are socially and environmentally acceptable
- The promotion of open and meaningful participation at all stages of planning and implementation, leading to negotiated outcomes
- Developers to accept accountability through contractual commitments for effectively mitigating social and environmental impacts
- Improving compliance through independent review
- Dam owners to apply lessons learned from past experiences through regular monitoring and adapting to changing needs and contexts

This will also need mandating the assessment of the social and economic impact as input to project planning and options assessment. This implies making stakeholder representatives a part of the project planning team and part of the decision that frames the project parameters, which can then be the basis for working out the detailed project report. Similarly, it is important to have a stakeholder interaction after the DPR is prepared.

However, so long as the actual process of planning continues to exclude stakeholder participation, this must be supplemented by a strong process of stakeholder scrutiny of the DPR before it is completely frozen. This interaction needs to have the form of a public hearing conducted by a credible independent agency, independent of the government as well as other vested interests, and the authorities must be mandated to reply to the objections in the public hearing clearly stating whether they accept the contentions, if not, what are the reasons for doing so and if accepted how they plan to take care of them. This document then should allow interested parties to approach the judiciary, if needed. At present public hearings is another of the formalities for whom all that is required is that a report be filed.

Reservoir operation

The total potential created for MMI projects is claimed to be more than 40 million ha, which is of the order of 70% of all surface irrigation and almost 40% of the irrigated area in the country. Though actual figures are lower, it still serves a significant portion of agricultural land. Moreover, over the years a significant amount of water has also been diverted to industry and urban supply, mostly in a non-transparent and ad hoc manner, from projects which have not been originally planned for that use. Therefore, it may be seen that dam operation or reservoir operation affects our economy in a big

way and how we operate our reservoirs affects whether and how far we actually bring into practice the policy directions that we profess to follow.

Reservoir operation involves the decisions in respect of releases of water from the reservoir and allocating them to different uses. This involves the decision regarding volumes as well timing of releases. It involves reservoir operation rules regarding dam safety and flood control as well. It has to allocate the released water for different uses - for irrigation, for urban and industry water supply, for hydropower and for releases into the main channel. All these decisions involve technical as well as environmental, social, economic, safety and legal policy dimensions.

Reservoir operation involves a complex set of factors. Many MMIs are bound by requirements of inter-State water arrangements and there is very often a mandated schedule of releases or time table of total releases. Current decisions also depend on expected progress of monsoon and anticipated reservoir status in the remaining part of the season. Dam safety considerations also set definite bounds to how much water can be held in a reservoir. Moreover, reservoir operation decisions have to bear the brunt of the weight of water policy changes on the ground, and old schedules have to be continuously modified in order to accommodate new needs and requirements, including those of the environment, downstream areas and the rivers.

Legal and institutional status of reservoir operation

In spite of the importance of reservoir operations, there are no legal or statutory requirements governing them. There seem to be a number of reasons for this state of affairs. Firstly, reservoir operations tend to be seen as a purely technical matter and its implicit policy dimensions are not often seen. The needs of the environment, downstream rivers and communities are never part of the planning and decision making.

This is also related to the way that dams have developed. Earlier development of dams and irrigation systems has taken place so to say, 'dam by dam'. That is each dam has been seen as an independent entity and with a defined purpose. It has neither evolved as part of integrated basin planning nor as part of a well articulated water policy. Therefore each dam has evolved at inception, and commissioning a schedule of operations that has depended on the original purpose of the dam. This has subsequently been modified as newer and newer pressures have forced most dams to become 'multipurpose' dams. However, this phenomenon too has happened 'dam by dam'. What had thus happened is the creation of baseline dam operation schedule that was based on the original purposes of the individual dam, now modified periodically on an ad hoc basis to accommodate new needs and developments as they have risen.

The net result of this is recurring flood and safety disaster, non optimal use of the capacities created and diminishing returns, though full implications are not very clear as no attempt is made to quantify them. There have not been any in-depth studies that have tried, first of all, to collect and put together the information on reservoir operations, and secondly to interpret this information to see what has been the actual water policy on the ground and how it has compared with the professed water policy for a given State. There is an urgent need to realise the importance of reservoir

⁵ Prayas, 2010, 'Sinchanache Pani Udyogana Va Shaharana Valavinyachya Maharashtra Rajyatil Dhoranancha Va Amalbajavanicha Abhyas', Marathi document for private circulation, Pune: Resources and Livelihood Group, Prayas

operations, and to collect and collate information on it as well as to evolve a set of legal and institutional framework around reservoir operation. There are two levels at which these have to be seen; firstly, in the articulation of reservoir operation with water policy and secondly, in the institutional framework of the individual reservoir operation. There have been increasing number of incidents in recent years when wrong operation of reservoirs have lead to avoidable flood disasters in downstream areas. Even some official reports have acknowledged this. But there is no move towards fixing accountability of the officers responsible for the wrong operations. We need to correct that situation urgently since climate change is likely to increase frequency of such possibilities.

Water policy and reservoir operation

There is a presumption that since reservoir operations are ultimately decided, or can be decided by the government, they conform to and implement the water policy of the government, and since water is a State subject, of the State government. However, this is a presumption and it would not be difficult to imagine a situation in which the operation of a single reservoir or the sum total of reservoir operation in the State is significantly different from what the State water policy and needs advocate. Even where the decisions may be in tune with stated aims of water policy, it is important to do this in a holistic and transparent manner. For example, in Maharashtra, a committee of a few ministers took far reaching decision and made allocations without the public or even the cabinet being aware of the full import. It was only after a public outcry that the government had to hastily review the provisions of its water policy and reverse the priorities it had set, but deviously passing an amendment that retrospectively regularised all the water diversions made by the special committee. (See Box 5.4)

BOX 5.4 Transfer of irrigation water to industries in Maharashtra

The Government of Maharashtra (GoM) has taken a pro-industry policy right from 2003 and this is also reflected in the Maharashtra State Water Policy of 2003 where the second priority has been given to industrial use and agriculture has been pushed to the third place. In 2003 the GoM, through a Government Order, limited the powers of the Irrigation Department to reserve water for non-agricultural use to 25% of the storage in the dams. Through the same Government Order the GoM set up a High Power Committee headed by the Water Resources Minister with the powers to sanction demands for reservations for more than 25% for non-agricultural uses. Though the Maharashtra Water Resources Regulatory Authority (MWRRA) was created in 2005, which has the mandate to issue bulk entitlements, this Government Order is still in force. This issue has not been brought before the Maharashtra Legislature or made a legislative act on this, and the GoM has been coming out with a fresh Government Order every time the previous one lapses and the latest one was promulgated in January 2011. The study by Prayas, Pune on the Maharashtra Government's policy of diverting irrigation water to industries and cities, and its implementation, shows that 2885 TMC (thousand million cubic feet) of water from 43 dams have been diverted over a period of 2003 to 2010 - bulk of this diversion took place between 2007 and 2009 - affecting 357621 ha of irrigated area.⁵ Very recently the GoM has amended certain provisions in the MWRRA Act 2005 and has taken out the water allocation function (across sectors) out of the purview of MWRRA and made it a prerogative of the cabinet. Similarly it also decided to do away with public hearings prior to the re-allocation of water from one sector to the other and that all past diversions, as mentioned above, cannot be challenged.

As they stand today, water policies are vague, are statements of intent and need not be binding on the government and are not justiciable. Consequently water policies tend to become wish lists and pious intentions rather than a guide to decision making in the State. What is needed in this case is a change in the nature of water policy itself and a change in the way it is articulated with reservoir operations.⁶

To begin with, it is important to insist that a water policy must be backed up by an integrated basin-wise water resource plan for the State that is consistent with that policy. Though ideally, basin-wise plans should cut across States and be integrated basin-wise, at least in the near future it seems difficult that such basin planning would be possible, in spite of all the lip service being paid to these ideas at different levels. It may therefore, be better to ask the States to begin the process by preparing basin-wise integrated plans for the State, and to ensure co-ordination of basin plans through a basin level co-ordination mechanism between States. This appears to be a more viable starting point and eventually it may become possible to move on to a basin-wise plan based on river basin organisations cutting across States.

In either case, the important point here is the provision to back up the water policy with a basin-wise water resource plan that is consistent with it, and is shown to be so consistent in a transparent manner through a process that puts the documents relating to the plan and its subsequent execution in the public domain and allows for their systematic scrutiny. The water resource plan then can become the basis of individual reservoir operation. The reservoir operation plan thus evolved will then be rooted in the water resource plan for the State and not necessarily in the original purpose of the individual dam. However, it should also be noted that water users will have expectations from the dams, which are based on the original purpose, and therefore it is important that the water resource plan must be part of a process of building stakeholder consensus around the plan in a transparent and open manner as described above.

Neglected priorities

Water policies have not given adequate attention to some issues of prioritisation. These concern livelihoods of people dependent on water, rivers and flood plains, so-called environmental flows, flood control and dam safety issues. All these issues are important in considering reservoir operations.

There are many differing opinions on what constitutes environmental flows. Advocates of environmental flows generally tend to see the issue in terms of prescribing a minimum flow in the river for environmental purposes. Others tend to see it as a misnomer and insist that it is not possible to separate environmental flow in this manner because all of the flow in a river performs environmental functions, and we should see the issue in terms of maximum allowable extraction, which is related to what is the maximum environmental damage that we may find socially acceptable.

In both cases, the result is minimum flows that must be maintained, though from different standpoints. The issue is of defining a priority for this component and including it in the water resource plan. Environmental flows are now being mentioned in State water policies, but except for Odisha, the order of priority that is accorded to

⁶ For detailed discussion of environmental flows, see chapter 3, *Water for Ecosystem Needs*, in Joy K. J., Priya Sangameswaran, A. Latha, Shripad Dharmadhikary, M. K. Prasad, K. P. Soma, 2011, *Life, Livelihoods, Ecosystems, Culture: Entitlement and Allocations of Water for Competing Uses*, (position paper by the thematic subgroup on Water Entitlements and Allocations for Livelihood Needs and Ecosystem Needs), Pune: Forum for Policy Dialogue on Water Conflicts in India.

them is quite low. It is suggested that environmental flows should have a priority that is just below drinking and domestic water needs, and that the State water resource plan should accordingly take this into account in reformulating reservoir operations.⁶

It is equally important to give flood control and dam safety considerations primacy over all other uses, especially in respect of MMI projects. This implies stricter river zone regulation and this needs to be spelt out. It is not sufficiently appreciated that the protection the dams can offer in normal situations, does not work for truly abnormal situations, and may even have an aggravating effect. This implies making room for the fact that flood control is likely to fail in some years and to plan accordingly. For example, administrations have been relaxing river zone restrictions and are lax in administering whatever regulations exist, resulting in considerable and important human activity and construction in what constitutes the proper flood plain of a river. This is a recipe for disaster, because in abnormal years flood control measures will not work and in some special situations may accentuate flood conditions.

Similarly dam safety is a major issue. Dam safety reviews are not conducted on a systematic basis and in a transparent manner. Dam safety panels need to be formed in each State with adequate presence of independent persons and reviews conducted systematically and in a transparent manner at definite periods. Many dams are old and may need special treatment and rectification measures which need to be specified. The CWC has been urging the States to set up such panels and have a regular review. However, few States have complied. Also there is no dam safety legislation in place. This is important because the disaster potential of MMI projects is quite high.

Lastly, there is a need for issues related to sustainability to be included in the working plan. The water resource plan needs to be based on realistic assumptions about water availability and also needs to review whether and how the plan it proposes will affect sustainability. This implies that it gives attention to how the plan for a given period interacts and affects availability for the next period. Moreover, this needs to be done in terms of both quantity and quality. Only such an analysis will be able to uncover issues related to long term protection of water sources, groundwater levels and pollution levels. Even if it were to be the consensus that certain effects would be acceptable, it is important to know how far we have affected sustainability and in what manner.

Implementing a water resource plan

A water resource plan of the kind that is needed for it to become an effective instrument, has to take into account the modifications to be made in good and bad years, and also has to include reasonable projections of changing and growing water needs. The allocations made within the resource plan need to be based in a methodology of allocation for different uses as detailed, for example, in “Life, Livelihoods, Ecosystems, Culture: Entitlement and Allocations of Water for Competing Uses, Joy et al, 2011.⁷ It needs to be rooted in a rights framework rather than a demand framework.

Implementing such a water resource plan is not a simple matter since it will involve

⁷ Joy K. J., Priya Sangameswaran, A. Latha, Shripad Dharmadhikary, M. K. Prasad, K. P. Soma, 2011, *Life, Livelihoods, Ecosystems, Culture: Entitlement and Allocations of Water for Competing Uses*, (position paper by the thematic subgroup on Water Entitlements and Allocations for Livelihood Needs and Ecosystem Needs), Pune: Forum for Policy Dialogue on Water Conflicts in India.

dynamic assessments of how the season is going to proceed. For this reason it is best to set up a credible panel with adequate independent members that will prepare and monitor an annual plan, which it will monitor continuously throughout the year. It may be preferable to work out the annual basin-wise plans and then translate them into MMI project-wise operation plans that could be then reviewed periodically, say monthly and fortnightly during the monsoon.

Reservoir operation and stakeholder participation

What we have discussed so far has been factors which are related to the place of MMI projects in the larger water resource situation. The other dimension which needs to be discussed is the nexus between the MMI projects and its stakeholders, and more specifically, water users. Since the 1990s, there has been a growing concern about farmer participation in irrigation and many States have now passed various kinds of participative irrigation Acts and others are in the process of following suit. These Acts if followed through do grant farmers a say in reservoir operation to varying degrees. However, there are a number of issues that need to be tackled here.

First is the almost exclusive focus on irrigation. Most participative water management legislations are irrigation focused. The water user is thus identified as an irrigator and legislation is built around this. While it is true that irrigation use remains the largest and most dominant use of the water from MMI projects, it would be wrong to conflate the two. Even at the level of village tanks or Minor Irrigation projects, it is already clear that the water is used for multiple purposes.⁸ Drinking water, water for domestic uses, water for livestock, water for washing clothes, water for hygiene, sanitation and well being, water for recreation and religious purposes are different uses at the village level.

The effect of this narrow focus on irrigation also leads to a narrow demarcation of who can become members of Water User Associations (WUAs). Only those owning canal-served land within the command area become eligible to be members of WUAs. Of course, crafting suitable water user institutions according to the more complex ground reality would lead to a more complex and nuanced set of institutional arrangements. However, by reducing water use to irrigation, and confining irrigation to only land owners within the command areas it becomes administratively simple to handle situations, but at the cost of becoming farther removed from actual users and uses.

For this reason, we need to start from the bottom and widen the scope of water users and their representation at the basic unit of the WUA. The WUA needs to include representation of women, of the local Panchayats and the landless. There could be a number of ways of doing this and it could be different at different levels of the system. For MMIs, the water use to the villages in the command may cover only one portion of the water users of the project. It may include industrial use as well as urban domestic and other uses. It may not be feasible to include these water users in the institutions at a minor level, but they do need to be taken into the participative structure at higher levels, say at canal level and project level, and for some of the larger systems, perhaps even at the distributary level of a project.

It is also important to realise that as we go up the scale from micro-watershed to milli-

⁸ See Paranjape, Suhas, K. J. Joy, S. Manasi, N. Latha, "IWRM and Traditional systems: Tanks in the Tungabhadra basin", STRIVER Policy Brief No. 4, available at <http://kvina.niva.no/striver/Disseminationofresults/STRIVERPolicyBriefs/tabid/78/Default.aspx>, last visited on 09/03/2012

watershed to watershed to sub-basin to basin, there are qualitative changes that take place in governance issues. It is necessary here to avoid a simplistic approach that simply sees the higher level as an aggregation of lower levels, and institutions are crafted to rise upwards through a representative process. Such institutional crafting makes sense only if all the levels are qualitatively uniform. This is unlikely to be the case and we will need to make room for representation of new stakeholder entrants at the appropriate level.

There are two issues here. One is the issue at the higher levels of the MMI project itself. There is a need to integrate users like industry and urban users at the higher levels of an MMI project if those uses are part of the reservoir operation plan according to the State water resource plan. This is where the State water plan becomes an important instrument. At present most industry and urban allocations have been made on an ad hoc basis from projects, which were originally designed for irrigation use and without reference to a commonly agreed transparently evolved water resource plan at the State level. This is a recipe for conflict and it is important to have a resource plan evolved through a transparent consensual process.

However, we are still viewing the MMI as an independent self sufficient project at this point. It is also possible that in the dynamic assessment of the resource plan, it becomes necessary to reallocate priorities across projects. Or take another example. Assume there is an upstream hydro power plant, a run-of-the-river plant to avoid upstream storage complications and the water from this plant flows down into a downstream diversion scheme. As peak load becomes an important issue the plant is converted to a peak-load plant. This creates its own problems. This implies that water is held back for the day and is only let down during peak hours. This changes the flow pattern dramatically and creates difficulties for the diversion scheme because flows are not available during the daytime, and then at night time suddenly there are flows of such size that it cannot handle.

Integrated plans need appropriate institutions to handle them effectively. Therefore, it is important that wider stakeholder bodies/platforms are created at least at the sub-basin levels and upwards to engage with and resolve issues posed at sub-basin level, and upwards. We need a set of nested institutions from the bottom up, which can handle issues at the appropriate levels.

Helping multi-stakeholder processes (MSPs) become meaningful instruments of governance

For MSPs such as the nested basin institutions to become meaningful, stable institutions of water governance, they will need to take proper account of:

- The heterogeneity of stakeholders
- Prior rights and the historical context of MSPs
- The complexity of water as a resource
- An innovative approach to water sector reform that will allow accommodation of different stakeholder interests

- Access to reliable data, information and decision support systems
- The presence of a committed support and resource agency

Heterogeneity includes *both* horizontal and vertical differentiation and exploitation. , and they need to be tackled differently. In the case of heterogeneity that reflects exploitation, the oppressed are likely to have very little voice and very little ability to exert the weight of their interests. In such a case, a process whereby they acquire voice and adequate ability should be seen as an important concomitant requirement of the MSP. There are also other forms of inequality that need attention - informational and spatial asymmetry, differences in closeness to power and the State, different levels of organisation, differing numerical strength, bargaining power and access to resources, to information and to legal or other remedial actions.

The issue is that of creating a level playing field so that the different stakeholders can participate in the process on an equal footing and this involves a conscious and pro-active positive discrimination in favour of the disadvantaged. In the MSP-like processes in South Maharashtra described above, the enlightened self organisation of those sections and their readiness for positive action as well as resistance has played an important role in creating a level field and bringing other stakeholders to the negotiation table. It is therefore important to keep in mind that without processes - within or outside MSPs - that create this positive discrimination, MSPs are unlikely to be level playing fields and may be weighted in favour of those already articulated and dominant sections.

As a first step towards recognising this heterogeneity, a distinction needs to be made between the direct stakeholders and the indirect ones. Those who use the water for life processes, that is for drinking, domestic and sanitation purposes are obviously direct stakeholders. Further all those who depend on the use of that water for their livelihoods, whether directly or indirectly may also be identified as direct stakeholders in a quantum of water; they would include agriculturists, labourers, pastoralists and shepherds, fishing communities, craft persons, women, etc.

There is also a need to explicitly acknowledge two further categories of direct stakeholders - the persons displaced or adversely affected as a consequence of water related projects as well as the ecosystem which also requires a minimum portion of the flows and storages to be kept unbound and 'unutilised' so that the river systems, ponds, lakes, etc., can perform their ecological functions and services. All other sections need to be treated as indirect stakeholders and the process needs to be weighted towards the direct stakeholders.

However, this needs us to have an inclusive outlook towards the project-affected and towards ecology. This can only happen if we move away from a framework that relies exclusively on the economic and technical criteria for its decision, and sees all other social and environmental costs and impacts as impacts to be mitigated, but not as factors internal to the decision making about the project. Thus EIAs are conducted post-facto, non-dam options or even different dam options are rarely assessed, and social and environmental costs are not considered except in the form of rehabilitation and so-called compensatory afforestation.

⁹ Rogers, Peter and Alan W Hall. 2003. "Effective Water Governance", Global Water Partnership Technical Committee (TEC), TEC Background Papers, No. 7.

Such a framework, as pointed out by Rogers and Hall, needs to be '*an inclusive framework (institutional and administrative) within which strangers or people with different interests can practically discuss and agree to co-operate and co-ordinate their actions.*'⁹

Finally, it needs to be said that the legal and institutional arrangements around dams cannot change by themselves. The changes that are needed are related to much wider issues. They require a radical change in the mindset shared by the establishment as well as its major critics in the twentieth century. A heavy emphasis on large dams, indeed on mega projects in general, an overemphasis on technical and so-called economic factors to the detriment of all other aspects of life, belief in a paternalistic/authoritarian State as the major social agency - these are some of its elements. What we need is to start anew, to subject our institutional and legal arrangements to a scrutiny of how far and how well they serve a viewpoint that is radically different, a mindset that is required by the twenty-first century.

In Conclusion: Some Common Issues¹

The chapter on rivers describes the existing legal and institutional structures that affect rivers in India. It shows how those structures have proved to be ineffective in protecting rivers from being polluted. It points out that when rivers have been protected in rare instances, this has been achieved through social and community initiatives that have often bypassed established structures. It also points out that the current National Water Policy (2002), the revision under consideration the Draft National Water Policy 2012, as well as various state water policies have very few river friendly elements and are also marked by a complete absence of legal and institutional mechanisms to ensure the implementation of river friendly aspects of the policy. It concludes by calling for building an enabling legal and institutional framework conducive to an equitable, sustainable and just resolution of water conflicts in the context of rivers, and identifies some of its key elements: a national river policy, river zone regulation, flood plain protection, catchment management, protection of local water systems, wetland and forests, ensuring freshwater flow in perennial rivers even from existing dams, hydropower projects and diversions and also from future such projects, a credible community managed pollution control regime, ensuring natural flow in selected rivers, credible redressal and compliance mechanisms, among others.

The chapter on groundwater emphasises the growing importance of groundwater in general and, more importantly, the crucial role it has come to play in drinking water provision. It then goes on to show how the law surrounding groundwater, unlike that for rivers and surface flows, is based on outdated concepts and a separation of groundwater and surface water that does not take into account how they interact and form part of a single integrated whole. It reviews and brings out the contradictions and problems in the law that bases itself on the conventions that emerged in the mid-nineteenth century based on Western common law. It then goes on to discuss laws specifically relating to groundwater, and analyses the various Groundwater Bills that are being considered at both the states and the union levels, and points out that all of them are still based on the old, outdated insufficient models of governance as well as jurisprudence.

The chapter then calls for a new legal framework for groundwater use and emphasises that such a framework needs to be cognisant, among other things, of: the right to water, especially important for groundwater since it has become a crucial source of drinking water for the population; principles of public trust and common heritage; decentralisation principles embodied in the 73rd and 74th Constitutional amendments; and lastly, a consideration of equity and equality before the law. It then proceeds to describe the lineaments of the new framework, outlining its objectives, the legal and institutional bases it should draw upon, the institutional framework and boundaries that

¹ This chapter is substantially based on Joy K. J., Paranjape Suhas, 2009, *Water Use: Legal and Institutional Framework*, in Iyer Ramaswamy (Ed.), *Water and the Laws in India*, Sage, New Delhi.

it should comprise; and the necessity to adapt to State-specific circumstances. It ends by warning that reform without safeguarding of rights could lead to a situation of insidious privatisation and loss of rights.

The chapter on surface water bodies begins by bringing out the wider concept of wetlands that is important in trying to pin down what surface water bodies are. It then proceeds with a comprehensive review of wetlands and the laws and institutions around them. After a review of wetlands, their extent and status, it turns to the laws that govern them. It shows that the legal and institutional structure relating to wetlands, as also to all other natural resources in India, does not constitute a single paradigm, but is a mosaic of legal pluralism in which customary law has played and should play an important part. It also maintains that pre-colonial law in India was based on the concept of dharma that had proper respect for natural resources. It traces the coming to dominance of the modern legal system based on colonial laws. It then discusses in detail the various laws that pertain to wetlands, their protection, status and governance. It emphasises that it is important to recognise the rights of local communities of ownership as well as management, and the adoption of the principle of subsidiarity, which is appropriate for a decentralised resource such as wetlands.

The chapter on dams defines dams as structural interventions modifying stream flow and briefly traces their evolution from historic times to the large dams of today. It restricts its scope to large dams or to the so called medium and major irrigation (MMI) projects. It points out these constitute an important component of the water sector, though its importance is often exaggerated by the proponents of large dams. It then goes on to describe the planning and implementation cycle, and emphasises the fact that impact analysis of MMI projects in general, and environmental impact analysis in particular, where they are conducted at all, are post-facto shoddy add-ons rather than instruments of option assessments, including no-dam options. It points out that the planning process is completely top-down with no participation from the project affected people. Though recent attempts at participative management make some room for participation, reservoir operation, where water policy actually becomes operative in respect of dams, has no participation nor linkages with any integrated policy. Pointing to a way forward, it argues that social and environmental considerations now need to be treated on equal footing with technical and economic considerations; that reservoir planning and operation need to be part of a multi-stakeholder process that rests on nested institutions based on the subsidiarity principle, with the lowest rung comprising a best blend of village, micro-watershed and aquifer units. Lastly, it emphasises the need to move away from a mindset based on a heavy emphasis on large dams, an overemphasis on technical and so called economic factors to the detriment of all other aspects of life, and top-down strategies based on a belief in a paternalistic/authoritarian state as the major social agency, and subject our institutional and legal arrangements around water to a radical scrutiny.

Though there are differences in emphases and detail among these four chapters, there is a lot that is common. Since the chapters each focus on one of the major sources/aspects of water – rivers, groundwater, surface water bodies and dams – while they do touch upon a number of common issues, they cannot deal with them in adequate detail. This chapter focuses on some of the common overarching issues that underlie water conflicts and ways of conflict resolution.

Taking account of the characteristics of water

Unlike other resources, water is not a simple and static resource. It is a dynamic resource. Most of the law related to water is based on the common law understanding of water which is in turn based on a 'common sense' understanding of property being applied to water. In reality, the sense in which water is a resource, or becomes a resource, is rooted in the bio-physical, social-economic and cultural-spiritual peculiarities of water. It also comprises contradictory characteristics: for example, it cannot be fully denied that water is both a local and a non-local resource, and similarly that it is both a social good and an economic good. It would therefore be useful to start with a discussion of the relevant bio-physical and other characteristics, and how they relate to water as property.

Water is an ecosystem resource

First of all, it needs to be recognised that water is a resource embedded within ecosystems. It is an ecosystem resource in two ways, at the least. It is ecosystems that make water available to us; in that sense they are the providers of water. Secondly, ecosystems also require and use water; they are as much water users as humans. Since ecosystems provide us with the water, we cannot treat it as a freely manipulable resource, nor as a resource to be mined; what we take may affect what becomes available tomorrow. Taking away 100 cusecs from a river flow of 200 cusecs may not leave 100 cusecs in the river; how much it leaves is dependent on what happens within the riparian ecosystem.

Many of our mega projects - such as big dams, diversions or interlinking schemes - treat water as a freely manipulable resource, undermining its long term viability and sustainability and thereby adversely affecting the health of riparian ecosystems and the livelihoods of riparian communities. This is the type of thinking that sees water flowing out to the sea as water going waste or as surplus to be freely transferred to deficient areas or dammed. It has led to a water management strategy exclusively centred on dams.

Secondly, unlike human water users, ecosystems have no voice, no votes, and some important ecosystem issues have never entered the agenda of water governance. The concept of ecological flows, the minimum flow required for the preservation of ecosystem services, is only recently being talked about. Yet, our long term futures will finally be decided by whether we tackle these issues before we poison the well springs of life on this planet.

Since we receive water from ecosystems, we need to think seriously about issues related to water quality in our own interest, that is, in the interests of continued supply of freshwater for our needs. Every water user not only uses water but also returns water, and how much water is returned and in what condition is crucial to the health of the ecosystem. This is unfortunately the aspect of water that does not receive adequate attention. While conflicts over who should receive how much water are visible and clear, there is not much attention given to who is returning how much of that water to the ecosystem and in what condition. As a consequence, our springs of life are being polluted and water quality is deteriorating at an alarming pace, which has been brought out clearly in the chapter on rivers.

Water is a common pool resource; both a local and non-local resource

Since water is made available to us by and through ecosystems, it does not have the character of an individually owned resource, an aspect that is masked by the fact that it is finally utilised in an individual manner. Water therefore is not like a public good that can be used in common, but a common pool resource: available commonly but used separately. Many people may use the same streetlight or road and the use of one does not deny the other of its use, but if someone uses some water, someone else is *denied* use of that water. This remains true irrespective of whether it is in the form of surface water or groundwater; they form an integrated water system, what is surface water at one point becoming groundwater at another, and vice versa. However, though there is an increasing awareness of the common pool character of water, it is clearly accepted only in respect of surface water; groundwater is still treated as private property, as the chapter on groundwater shows.

Water is divisible and amenable to sharing. Water has multiple uses and users and so there are resultant tradeoffs involved. There is the inherent problem of excludability; it is difficult to exclude people from using water which is accessible in the natural course. The exclusion costs involved are usually very high.

Water is present at many scales - from a small watershed to a basin - and they too are nested and interacting with each other, and require some understanding of nested expanding scales and boundaries involved in water governance. And the way water is planned, used and managed causes externalities - both positive and negative - many of which are unidirectional and asymmetric.

Though the localist viewpoint sees water only as a local resource, it is important to recognise that water is both a local and non-local resource. Water flowing down from upstream watersheds is the basis of livelihoods in the downstream regions. Modifying water regimes in the upstream, however little, ultimately, has basin-wide implications. The localist viewpoint ignores interdependence and the downstream effects appear as 'externalities'. And so, while slogans like '*gaonka pani gaonme*' may help conserve water, their localism goes against the grain of collective regulation and control of water resources. Water therefore is as much a shared basin resource as a local resource; it needs an approach that nests different scales - from micro-watershed upwards to basins and further up to states and countries.

² There is a considerable amount of literature available on some of these, especially about common pool resources, their defining characteristics, and the 'fit' between these characteristics and the institutions to manage them. Lele (2004) summarises some of these discussions and debates.

This implicates our view of rights, and for water we cannot say that local communities should have *full* right over it in their areas; it is necessary to put the issue in the perspective of inter-watershed or basin-level equity, and say that every community has a *proportional* right to water as part of a collective right to assured livelihoods. From this perspective, all communities should have a right to utilise as much of the local water resource as they can to fulfil their livelihood needs. But this also means that water use beyond fulfilment of livelihood needs does not form part of this *right*, and moreover cannot be at the cost of other livelihoods. All these characteristics have a bearing on water-related institutions² including law. And if they have the potential to trigger contention and conflict and become an instrument of polarisation and exclusion, they can also become an instrument of equitable and sustainable prosperity for all those who directly or indirectly depend on them for their livelihoods.

Peculiarities of water as 'private property'

Delivered by a piped water system, water appears to be private property, bought, sold and owned like any other commodity. However, 'ownership' of water is basically an entitlement to use water in a certain way at certain points and times. Secondly, it is affected by the action of other actors and other people's entitlements, sometimes unilaterally, causing constant conflicts between upstream and downstream states. Moreover, these entitlements are not volumetric in an absolute sense, but rather are relative or proportionate entitlements; in other words, they are shares in a common pool resource.

Additionally, since water is also a variable resource, the entitled share of the common pool resource may turn out to be very different for different situations because prioritisation of needs may be very different. Take, for example, a rough classification of situations into those of normal availability, of surpluses and of shortages. Shares that accrue for various uses in normal situations may not be the same as those that accrue in surplus and shortage situations. Thus, 'ownership' over water is not only entitlement to a share of a common resource, but a share tied to specified use and affected by the prioritisation of use.

This element and its operational and legal implications are not fully taken into account by our establishment. For example, awards for the allocation of river waters assume availability at some level of dependability of river flow and specify allocations, but barring a few exceptions, do not evolve and lay down norms for modifying those allocations in light of surpluses and shortages, and this absence of commonly accepted norms of sharing shortages and surpluses leads to recurrent, permanent conflicts. Asymmetries and unidirectional relations play their own part in exacerbating or even incubating conflicts.

The last point that needs to be taken into account is what has been identified as the often very high cost of exclusion. It is difficult to exclude someone from natural access (we are not here talking about closely controlled artificial access like the one in a piped supply system). If water flows through a field to reach another field, it is difficult to exclude that field from accessing it for some other use. Since the state can operate only through the threat of exclusion, the high exclusion cost makes it very difficult for the state to enforce or modify natural access entitlements.

The necessity for a doctrine of public trust and reasonable use

Each of these characteristics of ownership of water moves it further and further away from classical private property ownership that is the basis of so much law. In the past, institutions and laws/customs around water have evolved slowly over hundreds of years in the form of customary water rights and institutions that grew around these entitlements, adapting to each other through mutual interaction and adjustment. Water never was a commodity prior to the advent of modernity, which is often a euphemism for the advent and flourishing of capital. As capitalism expanded geographically and socially, it sought to capitalise nature more and more and convert it into private property, at least in form, if not in content. However, the peculiar nature of water as an ecosystem resource should make it clear that water cannot be treated as private property in the classical sense, and it also follows that instruments like classical market mechanisms that are supposed to be efficient instruments for the management

of classical private property also cannot work efficiently because water lacks the reliability, the ready manipulability and the constancy that other private property has. All the features described above impel us towards accepting a public trust doctrine; treating water as a resource which collective agencies at different levels may hold in trust, and the trust needs to be then defined. Similarly, since the use of water by any one person affects the use by other persons because of its common pool characteristics, it must also be governed by reasonable, equitable and sustainable use on part of the user, who then does not have untrammelled private ownership over it, but only has rights of access to a share of the common pool subject to the condition of reasonable, equitable and sustainable use.

Towards participative allocation and governance

Traditionally, in the sense of pre-colonial traditions, water has been treated as a community resource subject to community norms and rules that govern its access and use. It has never been treated as private property, that is, as property with untrammelled rights of use and misuse if the owner so wishes. It has never been treated as mere resource but has taken on many more roles. Civilisations have grown around it, searched for it, and nurtured it as their basis, and there is evidence that those that have failed in nurturing it have also failed as civilisations. It has been as much worshipped as utilised, and the worship has always tempered its use.

The advent of modernity has dissolved this community nexus that regulated affairs between people at various levels, and has left the abstract individual as a property holder standing in opposition to a codified state, with, in theory, no community intervening or mediating this relationship. The concept of freedom includes the untrammelled right to do with one's property as one pleases. This framework simply does not suffice for water as a resource.

Nevertheless, this is the framework that the British brought to bear on land and water in India, and through the system of colonial courts and laws that they set up, they introduced and strengthened modern capitalist property relations. Helped by laws and economic relations conducive to it, the market economy percolated into agrarian relations, dissolving the community relations it replaced. Ironically, the process picked up pace after independence, land reforms creating a double edged process - the tenants they freed could participate more vigorously in markets while they also forced the landlords who retained their lands to turn to wage labour and rich peasant farming to escape land reforms, in both cases extending and strengthening the reach of the market economy.

Water, however, has not followed the same trajectory. Surface water, theoretically, and practically in the case of larger projects, has remained state property, though groundwater has remained largely a private resource. Unlike countries like South Africa where state ownership is asserted as a trusteeship, a trust by the state held on behalf of the community or the people, the post colonial Indian state has asserted complete state property over its water resources, mainly surface water, but by implication, groundwater as well. With the coming of the wave of globalisation and privatisation, there is an increasing clamour for privatisation in view of the evident failure of state ownership as an instrument of water governance. However, as we have

argued above, both state and classical private property are not suited to tackle the special characteristics of water as an ecosystem resource, and we need to go back and learn from the community management forms that have worked so well in the past in respect of water.

Community bindings worked because they were based on consent and consensus. Traditional community bindings worked through traditional caste, tribal or clan obligations that created the consensus, though there is a need to recognise that they also carried within them oppressive relationships and their associated paraphernalia. The consent and consensus were grounded in such oppressive relationships, and were overthrown by those who sought to eliminate the oppression. As Kosambi had warned, we cannot return to a golden age because there never was one; community and unity was always tainted by oppression and division. Nor were the concepts that upheld them free of this taint and it would hardly be right to resurrect them in their original form.

However, that does not mean that the past holds no lessons. Given the high costs of exclusion, and these costs refer to non-consensual enforcement assessed in economic terms, pure economic measures are unlikely to work. We need to find new ways of mediation between the state and individual that can form and support consensual forms of agreement. What is definitely needed is a process that brings together all the stakeholders/rights holders in a process that will bring us as close to a consensus as possible. This needs to be a participative process that joins with administrative measures from the top. But for that we will have to look at water not as private property in the classical sense but, as outlined above, as a share of common pool resource subject to priorities and norms in respect of use; as subject to rights and entitlements that carry with them responsibilities and obligations.

This means looking for new forms that will socially express and mediate these needs. For this it is not sufficient to merely set up river basin authorities with centralised powers, because they are bound to remain ineffective and their mandates unenforceable, or to merely take water out of the state list and place it in the concurrent list. We need to find new forms of participative governance, new ways of evolving consensus; the old way of relying on the state to legislate, act and enforce on behalf of 'the people' is much less likely to work if it is not supported by these processes. There is a need to look afresh at multi-stakeholder processes and participative instruments for working out reasonable entitlements and arrangements for sharing during normal, surplus and shortage situations.

There is also a need to work out appropriate economic instruments that will adequately take account of water as a basic human right as well as its aspect as private property. We need to see how our common pool of water resources can be utilised for ensuring the provision of basic rights at a high dependability, without necessarily foreclosing options of economic use for the extra water that will be available in most years if we do so. Graded tariffs with an assured minimum water service that constitutes a basic right to be available at an affordable rate, combined with variable surpluses that may be provided at economic prices for remunerative and profitable use, constitute an attempt at bringing about this reconciliation. The important point here is the need to be able to treat water in all its complexity; as a

basic right as well as an economic good, as the basis of life to be nurtured and prized if not worshipped, but also as a resource to be utilised productively and profitably like any other resource.

Changing the legal terrain: issues related to rights

In recent times, the legal framework generally, and especially around water, is changing under increasing pressure from two directions: one from the rights perspective and the people's movements from below; and the second from above due to the reform process initiated in the early nineties by the world wide process of globalisation. As has been discussed earlier, any allocation between different uses involves a normative framework and an order of priority based on it. This is very much related to what we see as rights and what we see as the order between them.

As Iyer (2009) has pointed out, water is implicitly considered a human right since it is treated as a basic necessity that has to be ensured as part of ensuring the right to life. Hence the right to clean potable water and water for proper sanitation and domestic use is considered on par with or rather as part of the right to life. This is very much in line with the international thinking where the UN has also incorporated the right to water as a human right in the same manner. However, we should note, first, that this right is still implicit, and there could be a case for making it an explicit right accompanied by the corresponding onus on the state for ensuring the fulfilment of that right. Secondly, it is only one of the vital uses and rights related to water.

Right to water needed for livelihoods, environmental health and gainful economic activity

In fact there are at least three other rights issues in relation to water; the right to water needed for livelihoods, for environmental health and for gainful economic activity. The first is the issue of livelihoods and the water that is required to earn a livelihood. A farmer requires water for his farm, and a tanner requires water for cleaning and curing the hides. Almost every kind of livelihood activity requires some water in one form or the other.

This raises the issue of whether the right to a livelihood should not be treated as part of the right to life, since earning a livelihood is essential to living. It is possible to see this as a relative rather than an absolute right, and also to see it as a successor of the earlier basic right of water as a means of individual health and wellbeing. However, so far, the right to livelihood has not been included as a basic right in spite of a growing demand for its inclusion from popular mass movements. Whether or not it is treated as a basic right, we would nevertheless suggest that it needs to be included as a priority use.

Moreover, ensuring livelihood opportunities for all is also an issue related to equity. There has been growing pressure from below to treat water as an important instrument in this respect, and to treat equitable access to water as part of assuring livelihoods for all. Thus the pioneering Pani Panchayat movement in Maharashtra and the South Maharashtra movement, both have made equitable water access as defined by the livelihood needs of a family one of their major planks. These movements have had some impact on the political establishment as well. When the previous Congress

led coalition government took over the reins in Maharashtra some years ago, the coordination committee of the parties supporting the government issued a 51-point Common Minimum Programme (CMP), the very first point of which states that water should be distributed equitably on the basis of population. Subsequent to their coming to power, the government has resolved to implement pilot experiments in this direction with the help of these movements.

The next is the increasingly recognised need for environmental flows, which is seen in some ways as a minimum right of ecosystems. The issue involved here is whether or not we need to ensure that appropriate flows remain unbound and 'unused' so that ecosystem services may be regenerated. Though there is an increasing acceptance of this concept, there are different takes on it. Those with environmental leanings tend to give more importance to the preservation of ecosystem integrity than merely regeneration of ecosystem services, and tend to see appropriate environmental flows being ensured before providing any type of water services. The issue is unresolved and probably there will have to be some give and take around it, but it is becoming increasingly clear that we can no longer treat unbound flows as 'wasted' because the water 'flows out to the sea', and must reach consensus on the level of flows that may be treated as necessary for environmental needs.

Following this is the freedom to use natural resources as economic resources for entrepreneurial gain. This freedom is also often seen as an important right in itself. Indeed, there is increasing pressure to recognise natural resources, including water, as an economic good and to remove all restrictions that supposedly 'distort' its operation as an economic good. Here too there are very different approaches in play. On one hand, the globalisers take the extreme position that water should become a freely priced economic good, and believe that doing so will actually allow for more efficient allocation and thereby for better fulfilment of all rights. On the other hand, there are an equally large number of people, including those from the developed countries, who would argue for the operation of economic laws in respect of water only in a restricted and regulated space.

In our opinion, too much of the present discourse on water rights stops at the level of water rights as part of life and does not go on to consider other dimensions of the right to water. We would suggest that the legal framework must take as its starting point an articulated hierarchy of these rights. Thus we have at the bottom the right to water as part of the right to life (water of adequate quality and quantity for use as drinking water, water for domestic use and sanitation and for livestock) as an absolute right, so that its fulfilment is the precondition for any other water use or right.

This should be followed by the water needed for the fulfilment of environmental needs and livelihood needs, which together form a set of relative rights. It may be conceded that there are greater options and a greater scope for variation and flexibility here than in the right to water as part of the right to life. Thus this tier needs to be taken together, that is, in case of shortage, both uses share the burden of the shortage. That is why, we classify it as a relative right rather than an absolute right. Nevertheless, this tier must be taken to have a higher priority than the following one, so that in case of shortages the following tier shares a much larger share of the brunt.

Water for economic activity including that for profit should then be seen as *following* these rights. It should be emphasised that in view of the variability of the water regime, it should be clearly recognised that only a minimum level of water would be available for economic activity during lean years. However, this also implies that during better years, a larger share of the increment may become available for gainful economic activity.

How much water is a right?

Once we grant these four aspects of the right to water and their hierarchy: right to water for life or for basic needs, water for livelihoods, water for environmental health, and water for gainful activity, it immediately raises the issue of what should be the rightful entitlements and allocations for these uses. These issues have been taken up in detail in the report, “Life, Livelihoods, Ecosystems, Culture: Entitlements and Allocation of Water for Competing Uses”, the report of the working group set up by the Forum (Joy et al., 2011). This document discusses many of these issues in greater detail and also discusses their interrelationship and hierarchy.

At present, judicial decisions are based on a very simple view of rights, and we would suggest that there is an urgent need for the judicial system to acknowledge the need and evolve principles for the prioritisation of various uses from within a rights perspective. Another important fall out of this perspective needs to be noted: the sectoral allocations and their priorities would follow from a rights analysis and would not be derived independently. Thus, the livelihood pattern in any particular area would determine how much water is needed for which uses and sectors, and priority allocations would cut across sectors than become sectoral priorities *per se*. This means that there would be space enough for diversity in spite of commonalities in principles.

Similarly, the hierarchy of rights that we have discussed here has a bearing on the issue of tradability of rights and entitlements that has become an issue of contention. The trend at present is towards moving from property right to use rights (Iyer, 2009) but simultaneously towards making them tradable. The framework above also gives us some guidance in this respect. The three tiers that we define here also represent different degrees of tradability. The first tier of water right as part of the right to life cannot be treated as tradable. Those rights vest in individuals and need to be satisfied for those individuals in person and cannot in any sense be traded away. The second tier of rights also represents a tier of rights that basically should not be tradable, especially those relating to ecosystem needs. However, a certain restricted tradability in the water required for livelihoods may be necessary, given the close links it has with economic activity, but, given that it represents the rights of weaker sections of society, sufficient safeguards need to be provided to see to it that tradability does not become a wholesale shift of rights in perpetuum which would amount to a *de facto* denial of those rights. It is only within the last tier that water rights can be treated as truly tradable, and full tradability must be restricted to those uses, and only after mechanisms are in place to see that other rights components have indeed been fulfilled and are not being encroached upon.

Secondly, it also needs to be pointed out that in the debate over privatisation there is little distinction being made between tradability of rights and privatisation of services.

Thus, mere privatisation of drinking water supply need not necessarily run counter to providing drinking water rights to the populace. However, how it is done, first, in terms of whether it involves a direct transfer of rights - as it did in the so-called sale of the Sheonath river - and whether it involves an indirect denial of rights, as for example would happen if the company would be given the right to fix prices freely and indulged in cherry picking and thereby denied the poorer sections of adequate supply of water. The restrictions above therefore need not be seen as directed against privatisation per se but certainly against undue privatisation of rights. Indeed, the process of privatisation immediately implies a regulatory structure that would, among other things, ensure that this did not take place.

The changing legal terrain: regulation and globalisation

Since the nineties there has been increasing international pressure directed towards the so-called reform process, and the legal frameworks in the country have been changing in response to that pressure as well. There has been a general drive towards a managerial change, a change in favour of user participation including user contribution to capital costs, a change in pricing policy oriented towards removal of subsidies, and towards a move away from state control and to a regulatory regime overseen by independent regulators. The World Bank and other donors have been making some of these measures a requirement for availing of their funds, and this has acted as an important driver in initiating this change.

Many states have acted in response to these pressures. The Union government enunciated the National Water Policy in 2002, and many States have followed suit. Many states have enacted legislation providing for farmers' participation in irrigation management, and many are in the process of setting up regulatory mechanisms - there has already been a spate of enactments providing for regulatory bodies in the electricity sector. Maharashtra could be considered one of the progressive states in this respect, and it may be useful to discuss briefly the Maharashtra state legislation as one of the better examples of this trend.

The Maharashtra Management of Irrigation Systems by Farmers (MMISF) Act that has been passed in 2005 provides for statutory formation of Water User Associations (WUAs) in all the command areas served by canal irrigation. Under the Act, the State and the WUA enter into an MoU that fixes a volumetric quota for the WUA, and the actual quota for any year is determined on the basis of reservoir filling and availability of water (GoM, 2005a). The important thing here is that the MoU provides a definite binding and takes us nearer to a mutual arrangement than a simple unilateral quota granted at the state's discretion. It is also important that the water charges are related to the quantum of water delivered to the WUA, rather than on a localised crop pattern and area based charge. The latter arrangement almost invariably meant a flouting of the designed crop pattern. Now the WUAs are free to plan their crop patterns on the basis of the volumetric supply they receive, and the need for spurious double accounting of water, which created many avenues of corruption, is now minimised.

However, there are a number of problems with the Act, so far as we see it as an instrument for restructuring the water sector along more sustainable and equitable

lines. Though we can hardly expect equity to be legislated into water sector legislation by the present state, it does not provide for enough flexibility by water users to change the basis of water distribution from proportionality of land owned within the command to a more equitable concept based on minimum water assurance, and to change the basis of those eligible to receive water and extend water service to those needy people outside present designated commands who could also be served if the distribution basis becomes more equitable. As presently constituted, the Act would simply result in a freezing of presently iniquitous allocations and relations within canal irrigated areas.

The latest in the series of these enactments is the Maharashtra Water Resources Regulatory Authority (MWRRA) Act of 2005, which sets up a regulatory authority to deal with allocations and disputes around water. Unfortunately, the Act raises more questions than it answers. It is modelled on the Electricity Regulation provisions and is therefore a highly centralised body. Its progressive features include working out entitlements and quotas but mainly for irrigators and deals mainly with surface water resources (GoM, 2005b). The very introduction of entitlements is an empowering provision for users, but it shares all the drawbacks of the MMISF. In addition, it takes a step towards making entitlements tradable, though it is cautious in its provisions (for example, it allows transfer of rights within categories but not across categories). The criteria for tradability are not embedded within a rights perspective as pointed out above. In fact, the Water Policy does not seem to make any distinction between privatisation of services and rights and this may prove to be a device by which privatisation of rights may take place disguised as privatisation of water services.

The first problem here is that the legislation, in spite of its progressive features, is based on a static and classical concept of property. As we have discussed earlier, there are many ways in which water differs from classical static natural resources and needs a new type of concept of dynamic entitlements related to the type of water use. In some ways, this parallels what Iyer has identified as use rights rather than property rights (Iyer, 2009). This switch is a welcome one, but it must also make space for the dynamic reallocation, which is required by a fast changing water use pattern that is characteristic of modern societies. For this, allocations must be provisional, valid for a certain period, and there must be scope and mechanisms for reallocation through periodic renegotiation. This is even more important if we are to incorporate the issue of contending water uses. Contending water uses need to be recognised as a problem that cannot be wished away but must be tackled through a process of negotiation. There is scope for neither in the legal enactments that are taking place.

Where to begin: Right to water and a Water Framework Law

The chapters in this volume have uncovered a wide range of issues related to the legal and institutional framework around water and water conflicts in India. These issues range from the nature of law and lawmaking in India – for example, how colonial concepts of law impacted the legal system and what it did to customary law, to what might often be considered issues of policy rather than law, for example the issues of water allocations and their prioritisation, which is normally considered a matter of policy and not law. Many of the suggestions are very specific while there are

many with such a wide sweep that they would impact a whole body of established law. What confronts us is a tangled mass of issues. It does not quite clarify where to begin to unravel it.

This is further complicated by the particular position that water has in the constitutional scheme, both in terms of rights and in terms of the division of powers between the States and the Union. There is no specific mention of a right to water as part of the rights that a citizen enjoys. Even the right to water for life, the most basic portion of the right to water that has been discussed above, is not a right explicitly conferred by the constitution. It is only by judicial interpretation that it has been read into the right to life.

Similarly, the other complication is that according to the constitutional scheme of things, water is, and largely rightly so, a state subject, and the Union has very little legislative powers over water as a subject. This has resulted in a diversity in the State legislations and policies that makes it difficult to bring them under a common framework. The most that can be done is to take advantage of Article 56, but this article only bestows power to intervene in cases where there is a dispute among States, and can hardly be invoked to justify general legislation on the subject. Of late, the Union has been taking advantage of the powers that it enjoys under the Environment Protection Act to circumvent this obstacle, but this option is limited to the explicit objectives stated under the Act.

Moreover, the detailed discussion on allocation and entitlements in the report, “Life, Livelihoods, Ecosystems, Culture: Entitlements and Allocation of Water for Competing Uses”, by Joy et al. (2011) also implies that the various water policies also need to be aligned in this common direction of water use priority and hierarchy. Even if water policies of the States were to be aligned in such a manner, they would still lack teeth because water policies are at best statements of intent and at worst decorative wish lists, and there is no way to ensure their implementation.

A movement for recognising the right to water as a basic/human right

One of the prongs suggested to begin unravelling the tangled mass of issues related to the legal and institutional framework around water is a movement for the recognition of the right to water as a constitutionally guaranteed basic/human right. Obviously, this presupposes some consensus on what a right to water would comprise of.

As noted earlier, the report, “Life, Livelihoods, Ecosystems, Culture: Entitlements and Allocation of Water for Competing Uses”, discusses these issues in detail and tries to arrive at what at its minimum should comprise a rightful entitlement to water. Their suggestions cover basic water or water for life, water for environmental health, water for livelihood, and water for cultural needs. It could be argued that a rightful entitlement of timely access to water of adequate quantity and quality for these four aspects should comprise a right to water that should be constitutionally ensured.

It has been argued that ensuring these entitlements and priorities is a matter of policy and should not be treated as a right. It is also pointed out that gradually, water policies are indeed taking these aspects into account, and the need is to concentrate on reform of water policy and not get into the issue of a constitutionally guaranteed right to water.

This does not take into account that most policies are mere declarations of intent and wish lists aimed more at pacification rather than serious implementation. Moreover, policies are the prerogatives of the government of the day and cannot be questioned for compliance or lack of it, and further, could be turned around by the next government that comes to power.

The movement for a right to water is based on an understanding that a portion of the provision of water, which we may call the rights component, is on a different level from other components of water use and access. It is important to see that the rights component is protected from the political vagaries, and that fulfilment of this right becomes an enforceable priority for the government of the day. It seeks a constitutional guarantee for this portion of the water entitlement because it provides it protection from political fluctuations, and at the same time by making it such a right, it also makes it justiciable and enables governments to be held accountable for its provision. At present, there are very few avenues of ensuring such accountability.

There is already an ongoing initiative in this regard, a campaign for the right to water and sanitation. However, it does not see the right to water as comprising all the four components described above. It mainly concentrates on what may be called water for life: basic water necessary for drinking and for domestic use and hygiene. In fact, there is at the moment no consensus on what should comprise the right to water. The most common position sees the right to water as comprising mainly of water for basic needs, or water for life. It sees the other components as desirable goals but not forming components of a justiciable right.

Given the circumstances, it may be better to follow a progressive strategy to work towards a formalisation of the right to water to make it justiciable if necessary via a constitutional amendment, as well as its incorporation in national and state-level water policies. As a first step, the right to water could include water for basic needs with a mandate to progressively enlarge the right to include environmental, livelihood and socio-cultural needs. Basic water should be guaranteed to all residents of a locality at any given time irrespective of the legality or otherwise of their domicile status.

Enactment of a Water Framework Law

The formalisation of a right to water, first to the water required for basic needs, and progressively to minimum water assurance for environmental, livelihood and socio-cultural needs, would be an important step forward. However, it would not necessarily change the present legal and institutional framework that governs water in the country. The movement for the formalisation of the right to water also needs a parallel initiative that will be capable of engaging with these larger issues.

The problem here is two-fold, how to bring about the required commonality in the approach to water at the national level, but without encroaching on the ability of the States to craft water governance in consonance with their specific needs and contexts. In fact if we follow the subsidiarity principle, we also need to engage with what happens within the States. It also becomes a matter of ensuring that within the States too, different regions and sub-regions have a similar freedom.

The sorry state of water resources in India does make it necessary to advocate a

speedy and unified, though not uniform response to the problem. Two of the alternatives proposed involve moving water from its designated place in the constitution. The more radical proposal is to move water from the state to the union list. However, given the federal nature of our polity, this proposal is a non-starter. Moreover, it is in direct contradiction to the subsidiarity principle and the welcome trend of decentralisation embodied in the 73rd and 74th constitutional amendments.

The other option is to move water into the concurrent list. However, that option has also been resisted by the States, and in the light of the federal structure of the constitution, perhaps rightly so. India does not have a fully federal structure, but has a structure in which the Union has dominant powers. This is true for most of the items in the concurrent list, in which the States have very limited scope to devise measures specific to their situations. The States are heard but do not have the power to craft legislation and institutions adapted to their needs. The States therefore are apprehensive that this is another ploy to reduce their powers even further. There are similar limitations on using the Environment Protection Act that have been mentioned above.

A better alternative seems to be what has been called a Water Framework Law. This initiative has been inspired in some ways by the European Water Framework Directive of the European Union. However, the EU Directive is much more stringent in scope imposing limits, targets and tasks for the States to carry out. The proposed Water Framework Law however places no such obligations on the States. What it is supposed to do is to lay out detailed principles and approaches that water legislation and governance in the State must conform to. The States are free to craft legislation and institutions according to their specific needs so long as they conform to these principles.

The Planning Commission's Working Group on Water Governance for the Twelfth Plan had set up a Sub-Group on a National Water Framework Law chaired by Professor Ramaswamy Iyer. The Sub-Group has recently submitted the draft National Water Framework Act. This draft comprises a comprehensive set of principles related to water meant to guide all legislation on water. The 30-page draft comprises 28 brief sections that speak for themselves:³

1. Short Title, Extent and Commencement; 2. Definitions; 3. Water: Heritage, Ecology, Equity; 4. Water as Sustainer of Life; 5. Water as Common Pool Resource; 6. Water as Public Trust; 7. Water as a Scarce Resource; 8. Basin and Aquifer as Guiding Frameworks; 9. Water-use and Land-Use; 10. Right to Water; 11. Priorities in Water Allocations; 12. Water Conflicts: Inter-State River Water Disputes; 13. Water Conflicts: Other Kinds; 14. Institutional Arrangements; 15. Major Water Projects; 16. Groundwater; 17. Local Water Augmentation and Management; 18. Water Services: Corporatisation, Privatisation; 19. Water Markets; 20. Water Pricing; 21. Water and Women; 22. Water Quality and Pollution; 23. Drought; 24. Floods; 25. Climate Change and Water; 26. National Water Information System; 27. Existing Water-related Legislation and Reforms; 28. Compliance, Deviations and Remedies

In fact, the definitions section is the longest section in the draft. It is a succinct comprehensive statement of principles covering all major issues related to the legal

³ The Draft National Water Framework Act has been prepared by the Sub Group consisting of Ramaswamy R. Iyer, (Chairperson), Philippe Cullet, K. J. Joy, K. C. Sivaramakrishnan, Videh Upadhyay, M. S. Vani and assisted by Mahadevan Ramaswamy set up by the Planning Commission's Working Group on Water Governance for the Twelfth Plan. It is available on <http://planningcommission.nic.in/aboutus/committee/index.php?about=12&id=114#w>, last accessed on 23/03/2012

and institutional framework around water. Reading through the draft, it becomes clear that because the draft is a set of principles, it does not in any way bar the States from evolving a legal and institutional framework appropriate to their specific needs. In fact, it should be seen as an enabling rather than a restrictive legislation.

What use, it may be asked, in putting together a set of principles when they have been put forward so many times by so many people, which indeed is the case? The value lies in its being an Act and therefore in that the legislation on water whether by the States or the Union would then become accountable; it would be possible to go to court if it was found that the States were not following them in either their legislation or in their practice. The enunciation of the principle as an Act has this advantage.

The draft has also devised a good strategy for its application to the States. The legislation does not automatically become statutorily binding on all States. It comes into force only in those States that pass the Act or assent to the Act by the prescribed procedure and majority in their legislatures. This gives the freedom to the States to think over the Act and adopt it only when they are ready to do so. This makes it much more acceptable to the States.

To conclude

The foregoing discussions clearly bring out the need to take a critical look at the constitutional and legal framework (including customary law) related to water and other related sectors and institutions at different levels and types. The existing legal framework seems to be rather limited to address the emerging challenges in the water sector; nor can it resolve or prevent the different types of conflicts emerging in the country especially on the issue of allocations. The existing legal framework also does not seem to be capable to withstand the onslaught of the reform process in the water sector. Merely tinkering with the existing water related laws may not suffice. We need a legal framework that takes into account the bio-physical and socio-cultural peculiarities of water, the emerging concerns of seeing water both as an ecosystem and common pool resource, the discourse around the right to water and equity, principles and doctrines of decentralised and participatory forms of governance and management, subsidiarity and trusteeship.

It is heartening to note the emerging sensitivity amongst most of the people involved in the water sector to the need for a legal reform - a legal reform wedded to the core values of sustainability, equity and democratisation. This report only brings out the broader contours of such a legal reform; the details are yet to be worked out. This has to be a much wider process involving water users, civil society activists, academics and the political class. The Forum is committed to take this process forward.

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