

A Framework for India's Water Policy

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India's annually renewable water resources are finite, subject to uncertain climatic variability. These resources have to be systematically monitored and managed to meet the legitimate needs of a diverse society. Ideally, a unifying national water policy to enable rational water management will give consideration to scientific knowledge of the nature of the resource within the set of human values to which India's democracy is committed.

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An expectation of continuous, stable supplies of clean water is a vital component of India's economy. This expectation is constrained by the fact that because of the nature of the hydrological cycle and India's physiological, climatic and geological attributes, the annual replenishable water availability is finite and subject to unpredictable variability. Persuasive evidence from more than one source (Garg and Hassan 2007; Narasimhan 2008a; 2030 WRG 2009) suggests that India's current water usage may already be close to annual availability, and that continued water use at present rates may lead to serious shortfalls over the next two decades. Additionally, the physical and chemical integrity of India's water resource systems is seriously jeopardised by rapid industrial and population growth. For these reasons, it is reasonable to conclude that India will benefit from a unifying national water policy that combines scientific knowledge of India's water resource systems with the nation's avowed democratic ideals so as to achieve an equitable sharing of this vital resource among all segments of society.

Critical to a national policy as visualised above are three elements: the hydrological cycle, the dictating natural phenomenon; India's water endowments, the reality that demands adaptation; and science-society interface, the human challenge. A detailed, integrated treatment of these three elements can be found in a report issued by the National Institute of Advanced Studies (NIAS), Bangalore (Narasimhan and Gaur 2009). This note is restricted to the third of the three elements, namely, the science-society interface.

Resource Setting

According to the Ministry of Water Resources (1999), India receives annually 4,000 cubic km of water from rainfall. India's current water use is 634 cubic km (Planning Commission 2007), about 16% of total replenishable input. In comparison, California, with physiographic and climatic diversity similar to that of India, and known for impressive hydraulic engineering structures, uses about 18% of annual replenishable input (Department of Water Resources 2009; Narasimhan 2010). Finding this rate to be unsustainable, California is moving towards a 20% reduction in water use over the coming decade. It seems reasonable to assume, therefore, that India's annual replenishable water availability may not be significantly larger than about 650 cubic km.

Thus, the fundamental task of management is to store this water in surface water

reservoirs and in the groundwater reservoir, and retrieve it for controlled use. To stabilise supplies under climatic variability, the goal is to rely more on surface water storage during wet years, and increase groundwater production during dry years. Artificial recharge has an important role in this conjunctive use philosophy. Such conjunctive use has to occur on various scales from a small watershed to a large river basin.

From a policy perspective, a crucial idea that emerges is that surface water and groundwater constitute a single unified resource. They have to be managed together.

Science-Society Interface

Given the specificities and finiteness of the water regime, it is incontestable that a credible water policy has to be guided by the best available science. Science cannot, of course, make water policy, but, it can contribute effectively to a policy by participating in a harmonious coming-together of knowledge and values. If so, can one identify commonalities to facilitate this harmony? Surprisingly, the history of Roman Law provides an answer.

Jus Civile and Jus Gentium: Until the sixth century AD in Europe, law was primarily concerned with private property. During that century Roman jurists who codified law boldly departed from tradition. Inspired by the Greek philosophy of reason, they divided property into private property and public property (*res communes*). The latter was regarded as belonging to all people and governed by jus gentium (law of all peoples), while private property was governed by jus civile (Narasimhan 2008b). Applying jus gentium to contemporary understanding of nature, they decreed that water, air, the sea, and the sea coast belonged to all people. This view has, over the centuries, been referred to as the doctrine of public trust, and has endured to form the basis for water and natural resources law in Spain, France, the Netherlands and Britain. It became part of the US Constitution through the north-west Ordinance of 1787. More recently, it has been written into South Africa's Constitution. In the spirit of jus gentium, the Water Framework Directive of the European Union requires all its

27-member nations to formulate water policy to conform to a single unifying philosophy (European Commission 2000).

Legal Status of Water in India

To begin, two observations from Kautilya's *Arthashastra* on water-ownership merit attention (Kangle 1988: 172-74). First, private-ownership of irrigation tanks were recognised, although irrigation was a state activity. However, the ownership of a tank was lost if it was not used for five years, except in times of distress. This revocable ownership notion recalls to mind water-rights concept in the western states of the United States (us), where water rights are constrained by continuous use of water granted under the rights. Second, the concept *utakabhang* governed levy on water. A water tax was levied even when the water works belonged to the owner of the field. This concept implies the state ownership of water. However, it is not clear if the State represented the monarch or the people. If the latter, public trust would be implied.

In India's Constitution, water is a State subject (Iyer 2007) with the central government's role limited to interstate water issues. The Constitution does not explicitly address a citizen's right to water. Nevertheless, the Supreme Court has recognised right to water as part of the right to life generally, and has supported the public trust doctrine through Article 21 which assures life and personal liberty to all citizens. Currently, there are many water laws in India (Iyer 2009), but, water issues are addressed in response to emerging crises, resolving rights and settling disputes. Noticeably, no rational science-based framework is available to reconcile ambitious goals of economic prosperity and competitive claims for an increasingly scarce resource by different segments of society. Inevitably, societal adaptation to nature, and a national water policy facilitating such an adaptation remain elusive in the absence of a unifying framework.

What May Be Done

Many agree that India's water situation has to be addressed with great urgency. Two views exist on how this may be achieved. One advocates an active campaign of public awareness and advocacy,

arguing that the powers in government will only respond to public pressure. The other envisions constitutional recognition of water-science as a basis for formulating water laws, statutes, and regulations to provide a basic structure to predicate judicious and equitable actions to the nation as a whole. True, in critical situations drastic measures are necessary. In this sense, a campaign of public awareness has merit. The shortcoming is that water is a complex natural phenomenon with science and human dimensions that need to be harmonised. This harmony cannot be achieved in a public awareness campaign. Recognising this, we prefer the constitutional path.

Although used locally, water unifies the entire nation. Water policy, therefore, has to include the germ capable of accommodating a consistent set of alternative approaches to address issues at many interconnected levels. It cannot be left to any particular governance, local, regional, state, or national. Just as watersheds are interconnected at various hierarchical levels, water management needs to be linked at various levels of governance. Water policy must reflect participation of an informed citizenry that comprehends the imperatives of a just sharing of a finite resource, and an obligation to safeguard its integrity.

Accordingly, the role water plays in the sustenance of all living things by virtue of its physical, chemical and biological attributes merits articulation in India's Constitution through appropriate parliamentary action. Drawing inspiration from jus gentium, noting that public trust is part of the constitution of many countries, and that India's Supreme Court embraces it, water may be recognised in India's Constitution in a manner consistent with India's cultural and philosophical traditions. Narasimhan (2009) discusses how this difficult task may be approached.

India's self-governance rests on the Preamble to the Constitution, embracing values of justice, liberty, equality, and fraternity. Authorised by the Preamble, the Constitution provides the framework for governance. In India's tripartite system, the legislature enacts laws, and indicates to the executive and the judiciary how these laws may be implemented and

interpreted. Based on legislative policy, the executive translates the laws into rules. In this scheme, laws and policies are subject to judicial review to validate conformity with the articles of the Constitution.

In a union, policies must guide water management within different states (intra-state management), and among different states (interstate management), giving consideration to existing and historical water-use practices and local cultural traditions. Considering India's breadth and diversity, it is necessary that a legal framework enables uniform application of principles throughout the country.

Historically, constitutional democracies have focused attention on "rights" of the people, reflecting people's yearning to rid themselves of oppressive rulers. Nevertheless, the close of the 20th century is witnessing a shifting focus from inter-human relationships to relationships between humans and nature. Unexpectedly, nature is found to demand discipline and responsibility from humans. Remarkably, this responsibility constitutes the essence of

public trust conceived by the Roman scholars 15 centuries ago.

Establishing a constitutional mandate, based on which a body of law could be developed, is a task for legal experts. Recognising this, what follows is an exploration of what a constitutional mandate may look like, and what principles may need consideration in developing a body of water law.

Constitutional Mandate

Given, (1) that the functioning of hydrological, nutrient, and erosion cycles are subject to immutable physical laws, as also solar energy that drives the hydrological cycle, and that these lie beyond human control; (2) that these life-sustaining cycles, incessantly striving towards equilibrium, are delicately interlinked, and respond in complex ways to forces affecting their state; (3) that humans, with extraordinary technological capabilities have begun to disrupt these delicate linkages on a large scale, destabilising habitats and environments of subsistent living communities, including humans; and (4) that water is vital for sustenance of humans

and all living things; all waters within the nation's boundaries are owned by the people, and the government holds these waters in trust on their behalf, and is responsible for managing water judiciously and equitably for all citizens.

Principles of Water Policy

Atmospheric water, surface water, soil water and groundwater constitute a single interconnected resource. Management of such an interconnected resource is best achieved with drainage basins and groundwater basins as units of management. These basins may often cut across administrative boundaries. Water shall be put to beneficial use, without waste. Water use privilege is a usufruct, mandating that the resource itself may not be damaged in the act of usage. Resource integrity has to be preserved for future generations. Government has a fiduciary responsibility to protect, manage, allocate and distribute water which it holds in trust for the people. Every citizen has a right to safe and clean water for drinking and hygiene. In water allocation, safe drinking water and water

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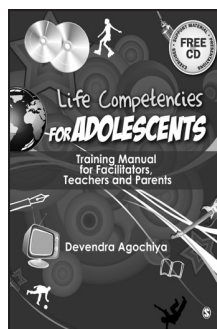
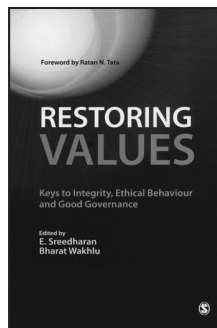
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for hygiene shall have the highest priority. Allocation of water for industrial, agricultural and other economic need shall be based on thoughtful prioritisation, constrained by making adequate supplies of water available for maintaining the environmental health of ecological systems. Because water resource systems are inherently subject to change with time, water use privilege cannot be granted in perpetuity.

Historical water use privileges of indigenous peoples to maintain their traditional lifestyles shall be respected. The rights of citizens unable to speak for themselves in the legal and political process must be protected. Institutions necessary for continued generation of scientific data to monitor and analyse evolving behaviour of water systems shall be established and funded, vested with the responsibility of data interpretation to enable timely detection of adverse impacts and unacceptable consequences of human action.

The highly complex task of introducing modernised law and institutions must be based on coordinated short-term and long-term objectives to minimise undue disruption of normal life.

Caveats

There are two reasons for the lack of a coherent national water policy for India. First, at the time of independence, scientific understanding of the water phenomenon was not as developed as it is today. Water was taken for granted as an abundant renewable resource. Second, formulating a rational water policy that unifies the entire nation is an enormously complex task. A substantial amount of literature exists on the difficulties confronting India's water management (e.g., Iyer 2007; Verghese 1990).

Perhaps the most important factor standing in the way of a coherent national water policy is attitudinal: both of society and of government. Serious awareness of the critical role of water in the functioning of environment, ecosystems and human habitat has emerged only over the past half a century. This serious want can be addressed through dedicated public education at all levels, from the lay person through children in schools to institutions of higher learning and research.

Governmental attitude towards water merits consideration. In pre-independence India, the British government functioned under the premise that the state-owned water, and that it had authority to manage water as it deemed fit, without feeling obliged to involve people in the process. This approach was contrary to principles of public trust to which England was committed for its own governance. Clearly, the resources of a colony were treated on a different footing from those of the rulers. A debate exists as to whether this mindset continues in independent India (Singh 1985, 1992). The central question is whether, in a democracy, the state's ownership of water is synonymous with people's ownership, or whether the State and people are different.

According to the public trust doctrine, people own water without formal title and the State holds water in trust for the people with fiduciary responsibilities. However, the colonial mindset was that the State, representing the crown, had the authority to decide what was in the best interest of its subjects. Sankaran (2009) argues that discussions on sharing of constitutional powers in India have devoted attention to sharing of powers among governmental organs, rather than sharing of power between the government and the people. If so, the matter needs to be addressed at a constitutional level. There is incontrovertible scientific evidence that water has to be managed for common benefit, with participation by an informed citizenry capable of balancing rights with responsibilities.

A related issue concerns public access to water data. Stream flow data in India are treated as classified information (Garg and Hassan 2007). Information pertaining to water is treated as vital for national security. The issue of data access relates more generally to geographical data, and was addressed in a special meeting of the Indian Academy of Sciences held in July, 1999 (Narasimha and Shetye 2000).

Conclusions

Along with the rest of the world, India is in a state of transition vis-à-vis water. Although the required science knowledge exists to help the transition, it remains unassimilated in the prevailing ideas and practices that drive the distribution, use

and development of the country's water resources. The challenge of harmonising this knowledge with a sense of the future and sensibility to equity and justice remains the most serious one in the midst of its growing stock, even as exploitation of water as a commodity for profit is increasingly being questioned. The naive hope is that the forces of democracy will eventually bear on the Indian ethos to wield this knowledge and lead to the emergence of a new order for its regulation, use and conservation.

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