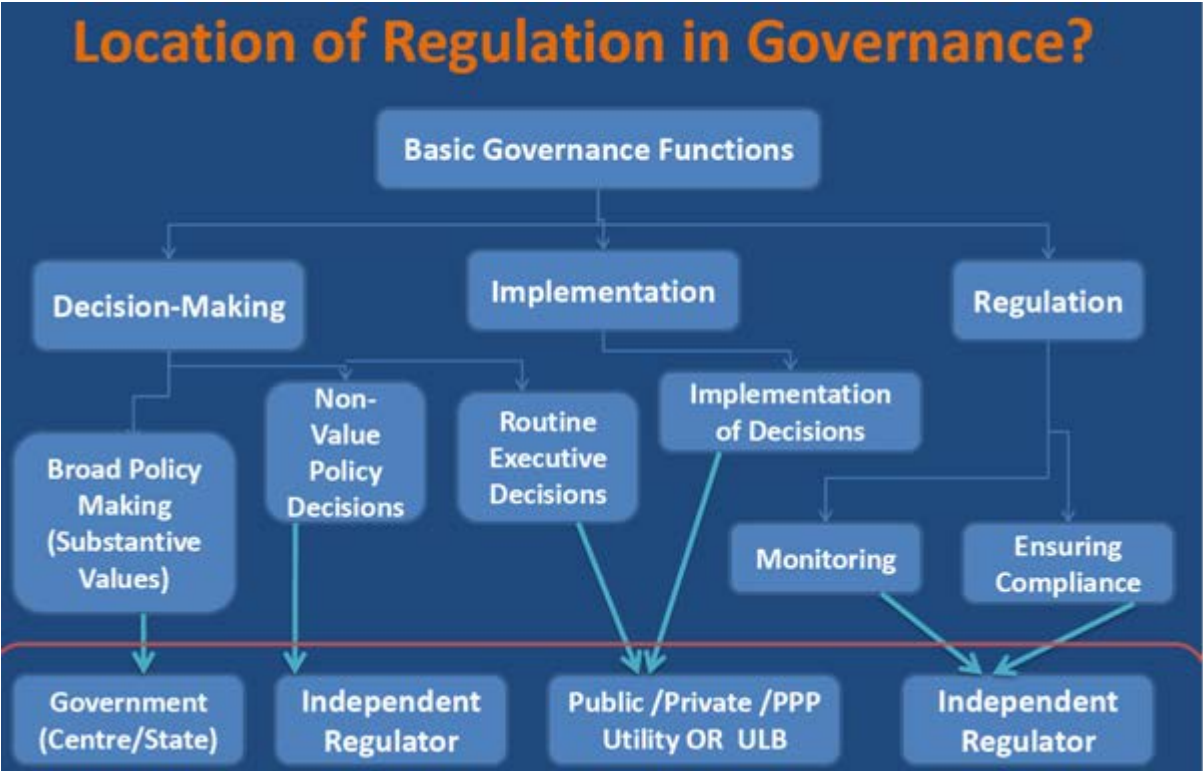


# Discussion contributions: case studies from India & Pakistan

## A. Regulatory Challenges of Water Sector in India (by 'DrMehta')

Picking threads from the 'Assignment for Week 2' that India has an enormous governance deficit when dealing with changing water scenarios. Governance of water is divided between the central and state authorities, with categorisation of rules and responsibilities, yet it is seen that the overall sustainable vision for water development, conservation and management remains missing. The coordination and synchronisation between departments/implementers and regulators is fragmented leading to each department doing things without much coordination with other departments, and sometime at cross purposes. The following slide defines the role of Regulation in the basic governance functions with regard to water sector:



Source: A Presentation by Dr. Subodh Wagle, Dean, School of Habitat Studies, TISS and Mr. Pranjali Deekshit, Doctoral Candidate, School of Habitat Studies, TISS

**Current Status of Regulatory Regime** The current arrangement to manage water in India exists at two levels—central government and state governments. The designated apex body for water resource management is the union Ministry of Water Resources (MoWR), at the centre. The ministry is responsible for the overall development, conservation and management of water, treating it as a national resource. Water is a state subject and the governments at the state level are primarily responsible for its use, conservation and control. Administratively, the control and responsibility for development of water and water resources lies with the state's various departments and corporations. Traditionally, government departments/ministries (such as irrigation department and water-related government institutions) were responsible for regulation of water resources. In the post-liberalisation era, however, water sector reforms, which adopt the premise that water is an economic good, have facilitated the development of a new institutional framework. This has led to the transfer of some of the regulatory powers and functions from government departments/ministries to 'independent' or 'autonomous' water regulatory authorities. The regulatory authority exercises rule making powers,

implements these rules and settles disputes in respect of its sphere of regulation. The reasons given for the establishment of sector-specific regulatory authorities include: freedom from political interference, to improve the credibility of regulation in order to facilitate private sector participation in the water sector; and to involve qualified persons given the technical nature of water regulation. The idea of setting up a separate authority for water regulation at the state level was first adopted in the Andhra Pradesh Water Resources Development Corporation Act, 1997. This institution, though technically separate from the government, continued to be controlled by the government. A significant change in the institutional framework for water regulation was introduced through the Maharashtra Water Resources Regulatory Authority Act, 2005 which establishes a state level 'independent' water regulatory authority, the Maharashtra Water Resources Regulatory Authority (MWRRA). A number of states have followed Maharashtra and enacted laws for the establishment of 'independent' water regulatory authorities as given in the ensuing Table. Other states are also considering the establishment of water regulatory authorities. 1. Arunachal Pradesh - Water Resources Regulatory Authority, Arunachal Pradesh Water Resources Regulatory Authority Act, 2006 2. Uttar Pradesh - Water Management and Regulatory Commission, Uttar Pradesh Water Management and Regulatory Commission Act, 2008 3. Jammu and Kashmir - State Water Resources Regulatory Authority, Jammu and Kashmir Water Resources (Regulation and Management) Act, 2010 4. Kerala - State Water Resources Regulatory Authority, Kerala State Water Resources Regulatory Authority Ordinance, 2012 5. Gujarat - Water Regulatory Authority, Gujarat Water Regulatory Authority Notification, 14 February 2012 While water regulatory authority laws have been enacted in some states, the authority has been operationalized in only one state i.e. Maharashtra. The examples of 'paper authorities' include the UPWMRC, among others. Even in the case of Maharashtra, where the authority has been established and is actually functioning, the state government has curtailed its effectiveness. In addition, the Andhra Pradesh Water Resources Regulatory Commission Act, 2009 establishes the Andhra Pradesh Water Resources Regulatory Commission. However, this authority is advisory in nature; while the others are responsible for performing regulatory functions. Other states lag further behind. Keeping in consideration of the status above, one can easily interpret that the water sector in India is still neglected vis-a-vis regulatory regime and idea of Independent Regulatory Framework is still evolving and at a very nascent stage due to weak political will at various levels. Lately, there is a proposal to set up The National Bureau of Water Use Efficiency, which will have the responsibility of improving water use efficiency across various sectors namely irrigation, drinking water supply, power generation and industry. The Bureau will take up five benchmarking irrigation projects in parts of the country to demonstrate water use efficiency through water supply on volumetric basis, empowering Water Users Associations to price water and collect water charges and demonstrating state-of-the-art technologies. States will have to establish Water Regulatory Authorities for overseeing water pricing and mandatory water audits.

### Expected Public Values

Given the nature of the problem and multi actor environment, there are daunting regulatory challenges to cater to the expected public values. The public values along with role of regulation is given below:

- Public Values - Role of Regulation
  - Market Competitiveness - Controlling Natural Monopoly, Unavoidable monopoly due to the essentially monopolistic nature of the sector, facilitating private sector participation, approval, monitoring and review of projects
  - System Transparency - Controlling Political Expediency/ Opportunism, Control on opportunistic / irrational / anti-public decisions due to partisan politics or politics of patronage (given the Indian context), ensuring techno-economic rationality Social Equity - Tariff setting, quality and service standards, allocation or rights to water, sectoral planning and review, regulation of market players, Setting benchmarks, robust monitoring mechanism, grievance redressal and dispute Resolution
  - Safeguarding Environment - Groundwater recharge, Water Conservation and Pollution Control
  - Regulatory Challenges
- India is still evolving on the idea of regulatory regime in water sector and following are the

key concerns in this regard keeping in view of the making these regulations Loud, Long and Legal.

- Legal Framework: In some of the Indian States, Notifications and ordinances are passed by the Executive wing of the government for creation of Regulatory Authority. The policy push and grant conditionality, may be one reason for the establishment of water regulatory authorities in many states through executive action by-passing the legislature. It is not advisable to introduce such drastic reforms in a critical sector like water without the sanction of the democratically elected representatives of the people.
- Economic Feasibility Vs Social Equity : Water tariffs, the cost recovery principle, and the creation of water markets may result in inequitable water distribution besides adversely affecting the provision of affordable access to water, especially for poor and vulnerable communities. This impedes the realisation of the fundamental right to water, which has been interpreted as a part of the right to life guaranteed under Article 21 of the Constitution of India, in a number of decisions of the Supreme Court of India and various High Courts.
- Environment Concerns: Sustainable management of the state's water resources is another stated objective of a majority of the existing water regulatory authority laws. However, most of the water regulatory authority laws are silent as to the mechanisms to achieve these objectives.
- Government Interference: The extent of financial independence of the regulator from the government is an important determinant of the degree of control exercised by the latter. The regulator can be financed either by a fee levied on the regulated entities or from the state budget. The former method is more independent than the latter, because governments can influence regulators by cutting budgets. Most of the water regulatory authority laws do not include a provision for financing by levying a fee on the regulated entities.
- Lack of Transparency: There are very few formal mechanisms to ensure transparency and accountability of water regulatory authorities. They are non-elected bodies and therefore they are not directly answerable to the public. The water regulatory authority laws envisage very little public participation in the rule making or execution/ implementation

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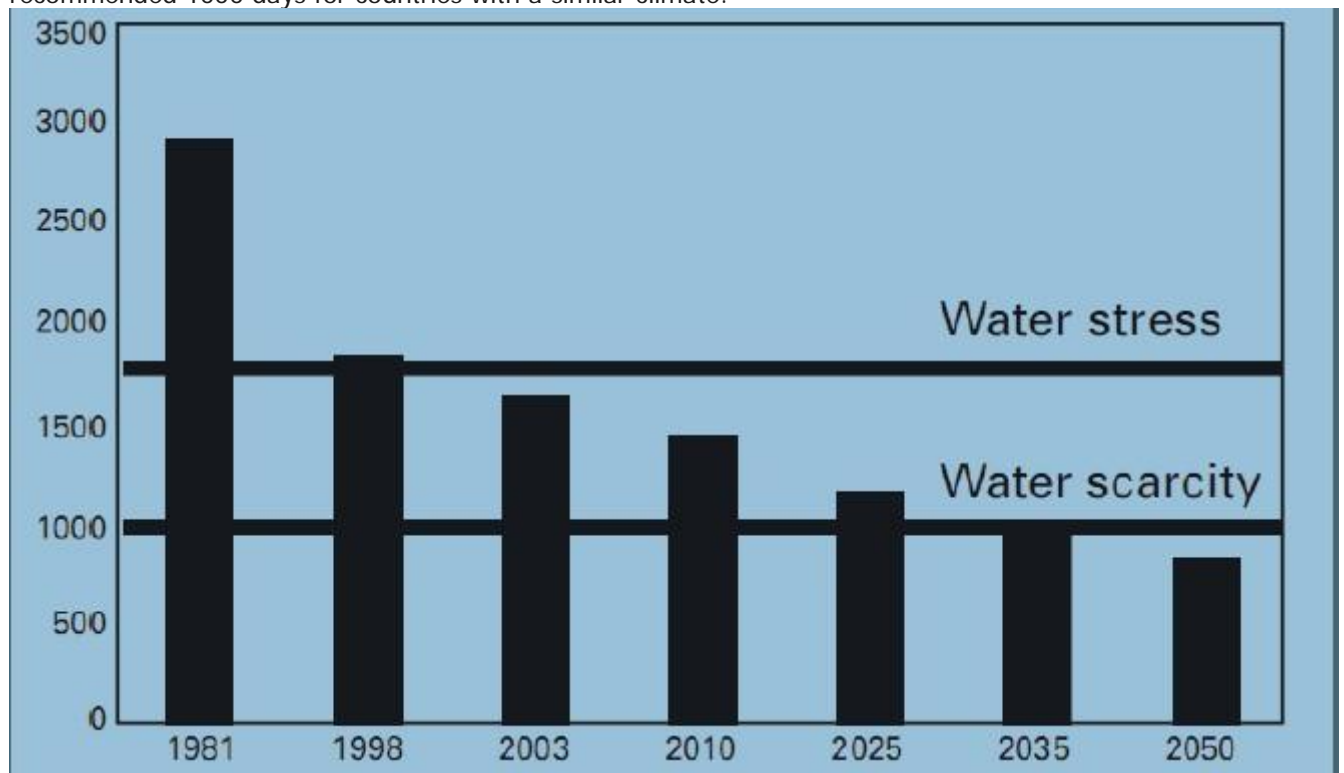
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## B. Water Crisis in a former water abundant country : Pakistan (by ' igorfrankey')

Pakistan is currently going through a power crisis of gigantic proportions. This is apparent by power outages for up to 18 hour and little industrial growth. However, a bigger crisis looms on the horizon with implications far greater and far drastic than any other problem the country is facing. That problem is the scarcity of Water. Different reports have termed this situation as [“Pakistan’s New Big Threat”](#) to [“a threat of existential level”](#).

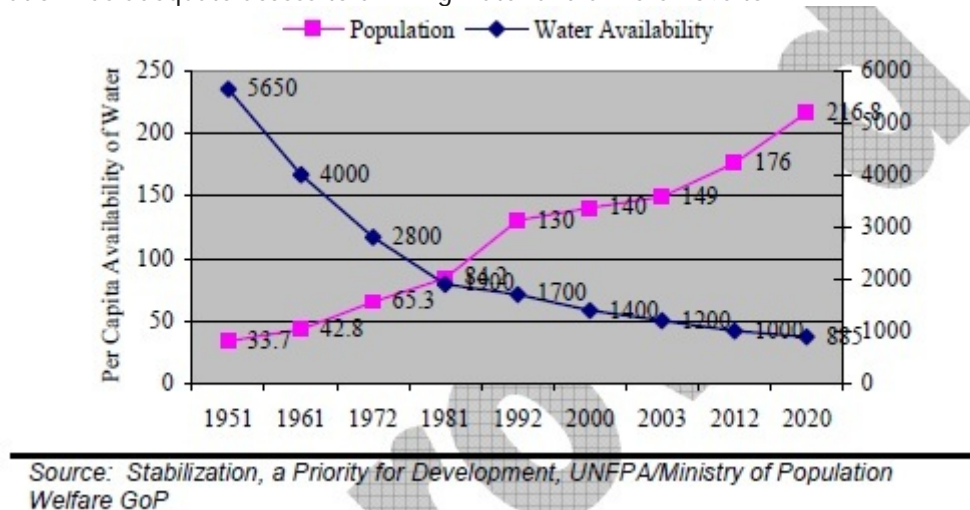
### Problem Outline:

Pakistan’s water situation is extremely precarious. According the World Bank report in 2005, the per capita water availability in Pakistan has decreased from almost 3000 cubic meters per person in 1981 to less than 1500 cubic meters per person in 2010. This shows that Pakistan has transformed from a country with abundance of water to one of the most water stressed countries in less than 30 years [1]. According to 2008 data from the Food and Agriculture Organization, Pakistan’s total water availability per capita ranks dead last in a list of 26 Asian countries and the United States [1]. The Asian Development Bank in its Asian Development Outlook 2013 has termed Pakistan as “not far from being classified as water scarce with less than 1000 cubic meters per person per year [2] with some experts suggesting that this may happen as soon as 2020, if not earlier [1]. The report further states that the country’s storage capacity is limited to a 30-day supply only which is well below the recommended 1000 days for countries with a similar climate.



The water infrastructure in Pakistan is on the brink of collapse. Irrigation system while being the largest in the world is responsible for the loss of major share of water. The system cannot sustain its operational, maintenance and repair costs and has thus declined significantly over the years. There is absolutely no system of drinking water distribution in the rural areas where the primary source of water is ground or canal water, unfit for use in most cases. Major urban centers have a highly disproportionate water distribution system which results in more than 50% population of these centers without safe drinking water. In such areas, local water suppliers charge up to 12 times of what regular customers pay. In addition to these, it is appalling that the entire country of over 160 million people has only five water treatment plants. Experts are of the view that in reality around 50%

of the population has adequate access to drinking water and a mere 15% to



sanitation.

Pakistan is an agricultural country with almost 50% of its population associated directly or indirectly with agriculture. Water scarcity has severely affected agricultural activities and in turn affected millions of households depending directly or indirectly on agriculture. Additionally, with its population set to increase by 50% of its current number by later half of this century, water resources will be under increased strain.

Environmental consequences are enormous as it estimated that 250,000 children die each year due to water-borne diseases. It is estimated that water sanitation and hygiene related diseases cost Pakistan's economy about PKR 112 billion (USD 1.12 billion approximately) per year. [[8]]

Water has invariably always played a role in domestic as well foreign politics in this region of the world. Since the rivers flowing in Pakistan have their origins in neighboring countries of India and Afghanistan, water issue in Pakistan has always been heavily politicized. Water scarcity may thus lead to regional and intra-regional strife that may further weaken the already struggling economy.

#### Causes:

The causes that have led to the current levels of water are multifaceted. Most of them however can be linked back to poor governance, mismanagement, lack of understanding on the part of policy makers while addressing the issue and rampant corruption. A summary of the factors driving this problem have been listed below (not in any particular order)

#### Technical Perspective

- Losses in the water transmission system. (Water management in Pakistan has been controlled by the construction of dams, barrages and weirs to feed the extensive canal system for the irrigation of agricultural land. The canal system is the world's largest continuous irrigation system. It is estimated that almost two-thirds of the water allocated to agriculture is lost during transmission in this aging system of irrigation. This lost water amounts to almost 76MAF out of 114MAF allocated for agriculture. [1])
- Aging of existing storage infrastructure (Tarbela and Mangla dams, the two biggest dams in the country were constructed during 1960's and 1970's). Reduced storage capacity by 25% due to sedimentation. [1][[8]][[9]]
- Low storage capacity of the system( New dams have either not been built or the scale has been too small to affect the overall storage capacity e.g. Khanpur Dam) [[7]]
- Recovery of a fraction of operational, maintenance and repair costs of irrigation system. (The irrigation system charges around Rs 150 / Hectare i.e. US\$ 1.50/hectare for the water resource which is gross undervaluation of water (World Bank 2005, 58-59). There are a number of causes

for such practices, the major being the oligopolies of large landowners who are associated with policy making in a number of ways). [1]

- Inefficient farming techniques and poor management of irrigation water which leads to only 45% of cultivable land being under cultivation at a time.
- Climate change with glacial retreats, severe droughts and increased floods cause extra burden on an already fragile system.
- Wasted rainwater due to lack of storage reservoirs.
- Large scale illegal logging and removal of forest cover causing annual flash floods resulting in heavy collateral damage[1]
- Absence of water distribution system in urban areas (The water distribution in urban centers is highly inequitable with majority of population reliant on overcharging of water by local suppliers) [1][8]
- Lack of extensive sewerage system in urban centers[[8]]
- Water pollution due to discharge of untreated industrial and domestic effluent into rivers ( It is estimated that only less than 30% of waste water is treated). Increased use of pesticides and chemicals in farmlands which eventually find their way to streams and groundwater[[8]]

#### *Social Perspective:*

- Increased demand with an exponential increase in population. [[8]]
- Agricultural oligopolies and entrenched agricultural interests hampering attempts at water and land reforms. [1][8]
- Government's inclination towards massive engineering projects like dams and barrages which are cost intensive environmentally unfriendly and inefficient for political reasons [1] [2]
- Rampant corruption in water bureaucracy [1]
- Increasing trend of urban migration exerting more load on the water resources allocated for urban centers [1][8]
- Inequitable water distribution at micro level and absence of water laws [1]
- Inter-Provincial disputes over water claims[1]

#### *Economic Perspective:*

- Gross underinvestment in basic water-related facilities
- Complete lack of attention towards repairing and maintenance of existing infrastructure.  
**(Government policy towards water-related infrastructure characterized by World Bank as Build/Neglect/Rebuild.)**
- Absence of private sector in any domain of transmission, maintenance and repair which results in no competition and quality control in water sector.

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