

India's Water Crisis - Every Drop Counts: RSTV – The Big Picture

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Larger Background:

- Maharashtra is facing a water emergency of unprecedented proportions.
- Following years of drought, the rivers' currents have ebbed, water in dams and reservoirs has depleted and over-exploitation of groundwater has raised concerns over the long-term availability of water.
- Meanwhile media reports claim IT companies in Chennai are asking employees to work from home.
- The reason being, they don't have water to sustain operations.
- It has not rained for almost 200 days in the city and Chennai may not get sufficient rain to tide over the water crisis for the next three months.
- In North India, residents in the arid Thar Desert of Rajasthan are dishing out Rs 2,500 to buy 2,500 litres of water which they share with their cattle.
- With the threat of desertification staring Punjab in the face and the state struggling to break away from the 'wheat-paddy' cycle, farmers in the state are quickly adopting a five-decade-old scheme to use '**Underground Pipeline System**' for irrigation.
- The union government on its part has created a **Jal Shakti Ministry** under a full-fledged cabinet minister to try and address the water emergency, but a lot more needs to be done.
- This edition of the big picture will analyse how grave the water crisis is and what needs to be done to deal with the problem.

How grave the water crisis is and the affected areas:

- - In terms of availability of water, India receives around 4000 BCM (Billion Cubic Meters) of rainfall every year. Out of this, around 1869 BCM is left available for utilization after evaporation. The actual availability of water is around 1137 BCM. The question that arises now is where is the 1137 BCM of water?
 - There is a lot of spatial and temporal variation in terms of that availability of water. There are states which are water surplus in nature and there are states which are water scarce in nature.
 - The states where water is scarce include states such as Maharashtra, Karnataka, Tamil Nadu, Rajasthan, parts of Gujarat, and even the previously so called water abundant states such as Punjab and Haryana (which have their own problems).
 - The question now is how do we manage the available water which is with us?
 - The management of water is the key issue which needs to be addressed across the country.
 - It is important for us to manage the supply side (this is aggravated because of the delays in the monsoon, there is also unprecedented heat, there are fewer pre-monsoon showers which further add to the problem); as a result we see more water scarcity in the country.

- Even reservoirs in the country are going down.
- Currently, the 91 reservoirs in the country which the Central Water Commission monitors, is at about 19% of its storage. However, last year (2018), the availability of water was just 18% and the average over a period of 10 years is 16%, thus in that respect, it is still better. However, the question here to be addressed is: How does one augment the supply of water? At the same time, it is important for us to manage the demand for water.
- As the population rises, the stress on water will increase. Thus, we need to holistically handle both the supply side as well as the demand side.
- Since water is a state subject, the state governments also have to play a vital role here. Furthermore, the citizens as well have to play a very important role along with the rest of the stakeholders like NGO's, and private companies (through their CSR Initiatives), etc.

A very grim picture:

- Several reports, such as UN reports, NITI Aayog reports, etc. have all painted a very grim picture as far as water is concerned.
- If we look at the numbers, India is now in a water-stressed situation.
- Globally, the standard for being water-stressed is 1700 cubic metres of availability per person. We are currently just below this figure. However, we have not yet reached a point which is globally known as a “water-scarcity” situation.
- There are many countries in the world which are surviving well below 1700 cubic metres of availability of water per person.
- At independence, the per capita availability of water was close to 5000 cubic metres. The time has come where we need as vigorous a programme on water efficiency, as we have on energy efficiency.
- As far as energy efficiency is concerned, we have standards set and a system of allowing people to trade, etc.
- We need an equally rigorous system on water.
- Thereby, just as in the case of energy efficiency, one is setting standards of efficiency for all sorts of things- for example: motorcars, fans, etc. which use energy.
- In the same way, one should start setting standards for water efficiency and water usage. We cannot increase the per capita availability of water beyond a point, thus managing the demand side of water consumption is crucial.
- Today, the geography of water is quite different from the political geography of the country. We need mechanisms which bring the relevant people together.
- Today, ground water is the single biggest source of water used for irrigation.
- In fact, it even outpaces surface irrigation. However, we have no system of coordination among the users of a particular aquifer. We have only just started the process of mapping our aquifers.
- However, there are countries which have a law wherein if a certain number of people are sharing an aquifer, then they must have a contract on how much each one of those members can draw. These are called aquifer contracts. It is important to start with this process.
- Next, almost all major rivers in India are shared between states, and it is perhaps premature to expect that the states would surrender authority to a river-basin authority. But it is important to at least make a beginning by encouraging states to come together and share information which doesn't necessarily require them to surrender a great deal of power and autonomy.
- The next is at the village level. We need organizations which bring users of water resources together in some form of coordinated water management.

Jal Shakti Ministry: A Perspective:

- The government understands that the problem concerning water security is a serious one and is trying to address it. However, the role of the ministry is quite limited in this because until the participation of people is there for using water prudently, and switching from crops which are water intensive to those that are less water intensive, conserving water is a very difficult job.
- The Prime Minister of India had said that the government would ensure the provision of piped drinking water to every household in the next 5 years.
- It is important to note that this is one of the most ambitious water projects taken in the last few decades. Also, the availability of water resources is shrinking. When we see the ground water level in most parts of North-Western India, one finds that groundwater is around 100 metres below the ground. Further, if it is being used the way it is being done now, i.e. without adequate recharge, the levels would go down dramatically.
- Thus, in the coming years, one sees that parts of Maharashtra such as Marathwada, Vidarbha and regions such as western Rajasthan, central Madhya Pradesh, and parts of Chhattisgarh also, are areas where water is a highly stressed commodity.
- If we see the data from 1984, and when we look at the dates from April-June 2019, we realize that the heat-wave span is increasing in these areas.
- However, unless the state governments come forward and we see a people's participation in the movement, it is only then that things will move forward.
- Lastly, the government either doesn't charge for water in rural areas, or it is highly subsidized in these regions. Experts opine that it is because of this that people don't use water efficiently.
- In parts of Marathwada, the situation is very grim; in most of the reservoirs, the water level is 0 to 2% to a maximum of 5% of capacity.

Need to think of out-of-the-box ideas for the Agricultural Sector:

- One critical area is changing the cropping pattern. This has been talked about for a long time. However, when we look at the situation in Punjab and Haryana, or sugarcane production in Maharashtra, we find that the area under sugarcane cultivation has increased in Maharashtra.
- In Punjab and Haryana we still find that rice cultivation is pretty high. This is linked with the price policy.
- This question of pricing is a politico-economy based question. The state governments will have to go by the policies adopted by the central government, and each state government comes up with additional incentives for procurement of grains.
- Thus, this is becoming a very difficult job wherein the vicious circle is hard to break.
- Also, we need the cooperation of the states and the central government, to agree on certain aspects that there won't be political considerations for raising the MSP of water consuming crops, which are not suited to a particular agro-climatic region like sugarcane and paddy. Thus, this is still one big issue that still remains unresolved.
- Further, this has been going on and on for more than 30 years.

Steps that the government has taken and is planning to take to address the problem:

- When we look at the entire country at a macro level, we find that states have taken a lead. There are states such as Rajasthan which launched the "**Mukhya Mantri Jal Swavlamban Abhiyan**", Maharashtra launched a scheme called, "**Jalyukt Shivar Abhiyan**", Telangana launched the scheme called, "**Mission Kakatiya**", etc. Thus, one sees that many water-stressed states are taking some good schemes forward to address this situation.
- However, we also need to engage the individuals, the NGO's, and the community at large towards this effort. This unfortunately is somehow lacking. The states have to encourage that integration. The approach currently is from top to bottom, i.e. the government takes the lead and then tries to enforce whatever they think is correct. But, we need to build a bridge and encourage local participation. We

have many good examples as well- such as **"Hiware Bazar"** wherein one single village and leadership successfully manages its water.

- Thus, we have to emulate and propagate such practices. It is natural that challenges will be there; however, crop diversification, demand-side management, pricing, etc. are the future.
- But how do we go about it given the state of our political-economy? This is a challenge.
- Thus, we need to raise awareness. We need to generate awareness amongst all the stakeholders, be it in the political class, or citizens at large and even the government officials at different levels.
- Once the awareness is brought about and the first step is taken, then one can build slowly and steadily on the area of demand side management.
- The Central government is already thinking on these lines and it is working in consultation with many of the states.
- There are meetings at the Cabinet Secretariat level which continuously monitors the situation and discusses with the states- discussions on the steps being taken are held. Also, recently, the Prime Minister of India as recently as the 8th of June, 2019 has written to all the "Sarpanch's" in the country to undertake water conservation programmes within their village. This is a remarkable development in the area of water conservation in the country. This will be a big motivator in the area of water conservation. This is because **the villages are critical units, and once we mobilize people at the village level, then things will start changing and we will move in a better direction.**

Is rain our only hope or do we need an overhaul of the entire system?

We have to

a) recognize that the crisis we are witnessing this summer may become more frequent with the progress of climate change. The projections of climate change are that the hot spells will increase, and that the rain patterns would change- i.e, one would receive more rain on fewer days. Thus, one would have a problem of frequent droughts as well as frequent floods. Thus, one should bring in a very effective system to cope with the emergence of such a crisis. One should set priorities, find alternative supply sources for emergency situations, advising farmers on alternate crop patterns, etc.

b) The second aspect is the longer term problem. Considering the fact that one cannot increase the amount of rainfall that the country receives, the government and the society at large should introspect and check whether we as a nation are institutionally organized to face this challenge. There are people who argue that the Centre should take a greater role- there is also a provision in the Constitution which allows the Centre to play a stronger role and we also know that water is a highly emotional issue (especially when we look at inter-state conflicts). Thus, one would like to see a beginning being made by some form of constructive cooperative arrangements at the river basin level, so that states don't feel threatened. It could be constructive arrangements focussed on conservation. One should also focus on aquifer planning- this is absolutely vital. In India, we know very little as to what the geography of our aquifers are. In the South of India, there are defined aquifers, but in the North of India, the entire Indo-Gangetic river basin is an aquifer. The government of India has started the process of mapping the aquifers, but this needs to be taken forward in a mission mode.

- Having said that, it is important to note that in Marathwada, water ATM's have been installed. So, for about 25 paise, a litre of water is being given to the public. People are paying for it because they are getting water delivered to their doorstep. Thus, if the government provides a facility and charges a nominal amount from the people, then this can be taken forward.

Interlinking Rivers:

- This project has been in the pipeline for over two decades now. But, the inter-linking of rivers is a long-term project. There is a lot of political opposition as well which obstructs these sort of interlinking projects. Opinions are divided whether or not interlinking of rivers can solve the water

crisis in the country. As a matter of fact, it has its own ecological disadvantages. For example, in the case of Ken-Betwa, about half of the habitat of the Panna Tiger Reserve, would get submerged. Thus, the ecological costs of interlinking of rivers, is very huge. Also, the floods in the North-East happen during the monsoon months, whereas the drought in the south happens during the dry months.

- Thus, how would one propose to hold the surplus water from the North-East for six months. It is also a highly impractical scheme. The energy required to pump the water to the deccan plateau is also huge. Also, it is important to note that the water body management in India is extremely poor. Water bodies provide localized water supply to a large population in rural areas. A large number of these water bodies have simply vanished over the last 50 years or so.

Policy Level Changes to tackle to Issue:

- One big policy that needs to be taken forward would concern the ground-water usage. The states should be able to come together and develop an understanding towards the ways and means of using ground water; one should also have ways to mitigate over exploitation; decisions should also be made on whether people would need to pay for utilizing ground water. These are some of the policy level issues which are pending for a pretty long time. Also, in-situ water conservation is a critical point. Rain water harvesting has to be promoted, and structures have to be built such as check-dams, etc. In some cases, they have been done, but they have been very poorly maintained. Thus, this is another issue where the community has to be involved. Also, knee-jerk reactions are not going to work.

Concluding Remarks:

- Local decentralized water conservation is the future. In fact, local decentralized water conservation through community participation, and managed by communities themselves is the future. Big projects have their own difficulties and challenges. Design and development around water management is important. This is important at village levels as well as in urban areas.
- Getting water management right would mean that one gets land management also right as well as health management and education management right. Thus, water management should be made the central focus of the planning efforts around agriculture, urban development, and many other areas. Also, incentive-based water conservation in rural parts of our country is important to be promoted. For example: If a high level of ground water is maintained in certain areas, then a certain higher MSP can be given to the farmers.