

## 'We have to accept diversity of knowledge to manage water systems wisely'



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**Q) We are approaching the World Environment Day on June 5. As a pioneer in public interest research in India and as one of the most experienced environmental policy experts, how do you look at the forthcoming World Environment Day?**

**A)** It is a very mixed feeling. On one hand, we have a fairly high level of environmental consciousness. On the other hand, we seem to be somewhere failing to convert our consciousness into policy actions, sustainable consumption and behavioural transformation.

**Q) You are a leading campaigner on ecologically informed water policy for India. What is the current status of India's water resources? Do you think India's water resource is better than that of other countries?**

**A)** India's water resources have two distinct kinds of status. The first commands great reverence and respect as embodied in the National Anthem which mentions the name of all the major rivers in India. The other song Vande Mataram starts with the description Sujalang meaning a land with good water. Thus, we seem to be aware of the significance of water resources. But the other side of the story is grim. In practice, we are negligent about our water resources and disrespectful to the rivers.

We seem to be determined not to address our water resource as common property. We see ground water as private property and surface water as the sink for untreated human and industrial wastes.

As far as the availability of water is concerned, India is not badly off.

India has 2.45 % of land in the world but receives about 4 % of the fresh-water resources of the world. It receives about 4000 cubic km of precipitation. Water is Nature's gift but we have a shameful approach to our water resources in spite of having a supply of water per unit area larger than the world average.

**Q) How do Global Warming and Climate Change impact the present water resources of India?**

**A)** The major impact of Global Warming and Climate Change on water resources is warming of the oceans and melting of glaciers as well as polar ice caps. A warmer ocean would expand and cause sea level rise. Moreover, through the melting of glaciers and polar ice caps, additional water will eventually come to the oceans further causing sea level rise. Since many major cities are located near the sea, the economic impact of sea level rise will be very heavy on the port cities. Warming of the atmosphere will destabilise the climate. The nature of such destabilisation is not clear and is a matter of projection. Huge modelling activities are going on to provide description of the climate change under various warming scenarios. The IPCC has summarised the work on climate scenarios.

According to the IPCC, the immediate impact of global warming or climate change on India is not expected to be uniform. Somewhere there could be more rain and somewhere less. Predictions indicate that there will be generally larger total annual precipitation and this precipitation is going to be more concentrated in the monsoon period. For the rest of the year including winter precipitation, drastic reduction in most parts of the country is the general prediction. Thus agricultural activity will be stressed for water, specially from October to June. From June to September, there will be natural high availability periods when it could have much more water availability

than earlier.

**Q) How far is India's water policy justified given the fact that due to Climate Change, the availability of water will alter?**

**A)** In India, as all over South Asia, we follow a narrow engineering-based approach to water. Based on India's National Action Plan for Climate Change, I hope that water management and water engineering in India would emerge with a wider scientific base to produce and manage our water systems more wisely.

Unfortunately, our traditional water management looks upon water as a stock of resource, not as a functioning ecological system. It avoids eco-hydrological updating of water policy in the country. India's governmental water engineers are planning to construct dams, barrages but there are doubts about their sustainability and economic efficiency. We have to accept diversity of knowledge to manage water systems wisely.

Take the case of the Himalaya, the water tower for South Asia. Ecological engineering would first recognise the Himalaya as a water tower and producer of water. Both in the glaciers as well as the aquifers, the Himalaya stores water to supply much after the precipitation took place. Both Global Warming and Climate Change would impact on this role of the Himalaya. It is high time that we see the Himalayan landscape primarily as producer of water and regulator of water flow downstream. How do we encourage people to use land to produce water? The answer is watershed management. The upland people can keep the mountain land ready for water conservation by planting appropriate trees, like oaks which help water conservation. Downstream people have to pay for such watershed services. Otherwise, the Himalaya will create natural disasters like floods, and the economy will suffer as a result.

**Q) Water wastage is rampant. Can water wastage be reduced by taxing prices?**

**A)** Water is used for five basic needs- for drinking and domestic use, for irrigation and food security, for transportation, for industry and last but not the least, for

maintaining the ecosystem stability. If one wants to save water, one has to use less water. With increasing population, one has to improve use efficiency or deprive the marginal section of people. It is easier to deprive the poor of water. But what we need is to ask farmers to be more efficient in the use of water in irrigation. Drinking water usage is much less than irrigation water.

India's irrigation is very inefficient in water use. For a country like India where 200 million people have no access to safe water, one cannot have this luxury. The government's responsibility is to increase water use efficiency in irrigation and should impose tax as inefficiency.

Pricing should be there beyond basic needs and it should be staggered so that you pay more as you consume more. In the urban areas, water wastage is also huge as leakage in water supply pipeline.

**Q) How far is rain water harvesting feasible?**

**A)** Rain water has been harvested in India all the time. A pond is a good example of rain water harvesting. But what we have done over the decades is to fill up ponds to build residential buildings. Now we try to legalise rain water harvesting for each high-rise building. This is a shameful approach. There is a need to harvest every drop of rainwater and protect it from getting back to the atmosphere through evaporation. Large dams are being sold as structures for harvesting rain water. But they are based on short term technology. What will be the water scenario when the dams will be filled with sediment and their economic life will come to an end? ■



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