

Ethical Issues with Water Management for Sustainable Development

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WATER is the most precious natural resource which literally controls the development of the people and area. Knowing this, we started performing pooja to the God of Rain (Varuna) for giving us sufficient rain at right time over the regions. We believed that God of Rain was kind enough to give us water sufficiently for leading sustainable living with better development and quality. This may be one of the strong reasons that our intelligent ancients never thought to include "WATER" in our nation's slogan "Garibi Hatao (eradicate poverty)" which emphasis on providing basic needs covering "Roti (Food), Kapada (Clothing) and Makhan (Housing)" for abolishing poverty. This mantra clearly supports the fact that "Water and Development are the cause and consequence of each other". People used to draw water directly from rivers, ponds, wells, bore wells and other sources for various purposes. The logical sequences of water for development go like this: access to water – to – good health – to – good production (agriculture) – to – affordability for health care and education – to – empowerment with employability – to – independent living with sustainable development – to – better quality of life. At the end, it is the fact that "water, poverty and development are the cause and consequences of each other". The other side of this logical sequence results for poverty, health and vulnerable circumstances, and to struggle for basic needs. What happened later? What are the causes and consequences?

There was no option left out for us except to accept the consequences of "Liberalization, Privatization and Globalization". Though this process on one side resulted for development but on the other side created significant ill effects. The expected development was not uniform and mostly confined to limited areas of people and further widened the gap between the rich / urbanites and poor / ruralites. Due to the explosion in the population, greedy and unethical race towards the quick and unsustainable development, people have forgotten the basic measures for optimizing the resources in general and particularly natural resources like water, soil / land, air, minerals, etc. All these causes and consequences have resulted for "water crises" which are alarming globally even to the extent of expecting next world war. It has become safe way to escape from the water crises by just taking three techno words like; Global Warming, Climate Change and Greenhouse Effect.

Now what is the position of water? Imbalance in the hydrological cycle, pollution, mismanagement of surface water, increased demand, unethical way of puncturing the groundwater, mismatched development and unhealthy measures for harvesting the rain water put together resulted for droughts,

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cyclones, earth quakes and other disasters which are mostly man made. It is the known fact that mismanagement of water resources is causing for droughts (during no or short rainfall) and floods (during excess rainfall) and both affects the development. We all should feel that these ill effects or disasters are the warnings given by our mother earth? Any thing we can do and should do in this direction?

Now it has become common practice to purchase water for drinking and other domestic use? Why? Significantly, the availability, access, quality of water available is not potable for direct use. Several questions come in to our mind like: Who is doing the business? At what cost the business is going on? Who is eating the cream? Who is paying? Who is suffering? Who is polluting? Why polluters were not penalized for their unethical activity? ... the list is end less. All these challenges lead for poor development with out sustainability.

Knowing challenges is not the end of road or life for every one in general and particularly people of India as it still come under "developing country". We, the Indians can do and should do for resolving water crises and to create access for water both in terms of quantity and quality. The problem solving strategies include:

- **Harvesting Rainwater** : It is the fact that if every drop of rain water is harvested to the maximum extent possible in the given environment, it resolves majority of our water crises. The measures which every one of us should do includes:
 - i) Store rainwater in the surface bodies like: rivers, ponds, open wells, and tanks (both individual as well as the community) which help for direct use and to recharge the ground water.

- ii) Recharge the groundwater by way of harvesting pits (both individual and community level), check dams, injection wells and watersheds.

- **Mapping Water Resources** : Like any project planning, it is necessary to map the water resources both surface and sub-surface (groundwater) before planning for its use for agriculture, industry, domestic and other purposes. Use of well established technology like: remote sensing, geological, geophysical, meteorological and hydrological inputs / tools help to map the water resources in terms of both quantity and quality.

- **Management of Saline Water – Fresh Water (SW-FW) Interface** : India has got vast coast and salinity & intrusion of saline water is the most common cause for water pollution / crises. Acceptable and healthy SW-FW Interface should be maintained by way of:

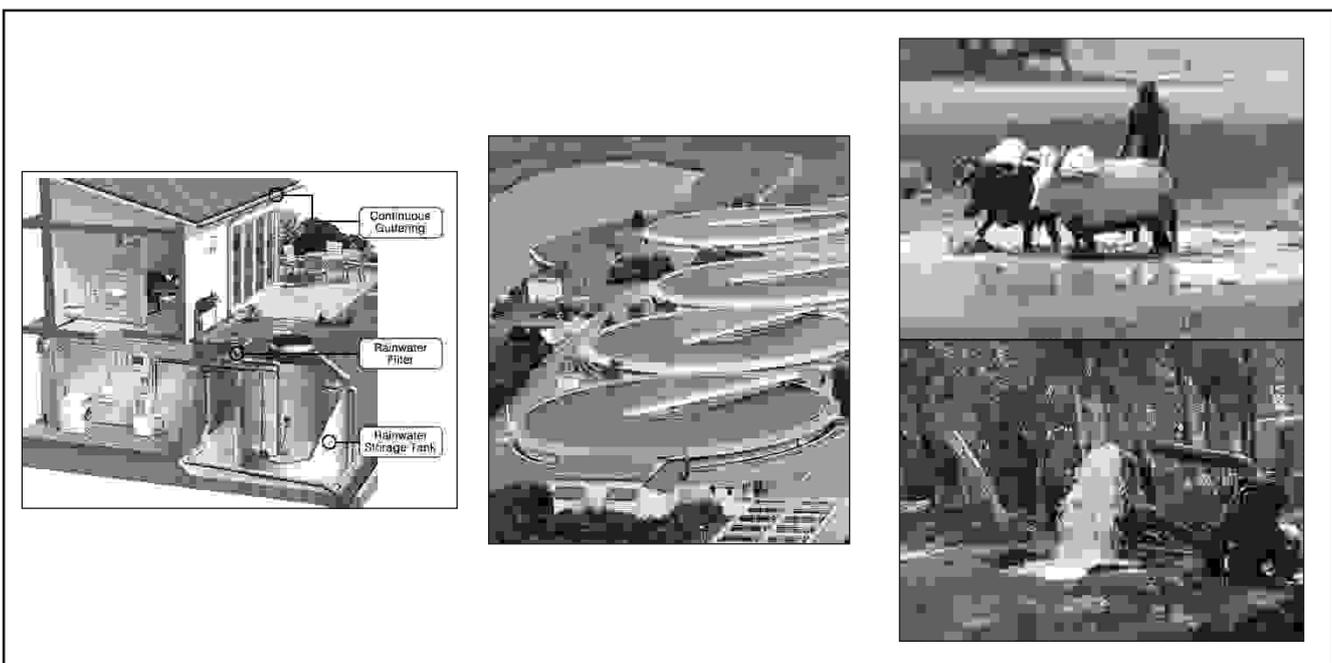
- i) Map the SW-FW Interface (both horizontally and vertically) deploying geological, geophysical and hydrological tools,
- ii) Recharge the groundwater by way of check dams, ponds, open wells, injection wells, harvesting pits (both individual and community),
- iii) Arrest the flow of back water (sea water) through discharging rivers by way of check dams,
- iv) Optimize the man made activity like: industries, mining and other infrastructural development, and
- v) Monitor the SW-FW Interface periodically for understanding the dynamic situation and to take preventive measures.

Optimization of Water Resources: The need of the hour is to optimize the balance between availability of water resources and its utility for various purposes. Once this type of balanced plan is put in to use, then majority of the water crises can be minimized.

- **Controlling the Pollution :** The other constant worry is the pollution of water with man made activities like: industries, mining, waste dump, increased water based agriculture and other man made activities. Suitable acts and its strict implementation with the thumb rule of “penalty for the polluters” will control the pollution.
- **Measures to check Global Warming and Climate Change :** Water play significant role in controlling the situation of Global Warming and Climate Change. Simple measures with water both at storing and utilization helps to move in the right direction of crating healthy and eco-friendly environment.
- **Create access for Water :** The other most worry is the access for available water

resources. Community based and participatory strategies at all levels help to create better access for all including the women and persons with disabilities who need special arrangements / barrier free environment.

This paper presents the ethical issues and other challenges of water while it is used for development of the people as well as area with better sustainability and quality. This includes what we can do and should do with water resources and to crate healthy and eco-friendly environment. The presentation includes concepts, use of technology, constraints, success models and action plan for every stakeholder at all levels. At the end, it is the fact that if we all can put our hand and heart together with Concern, Commitment, Responsibility, Accountability and Transparency (CRAT) nothing is impossible for us to move towards sustainable development with quality as “water, poverty and development are the cause and consequence of each other”.





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