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## INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/12190

DOI URL: <http://dx.doi.org/10.21474/IJAR01/12190>



### RESEARCH ARTICLE

#### WATER-A HUMAN RIGHT OR THE 21<sup>ST</sup> CENTURY OIL

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#### Manuscript Info

##### Manuscript History

Received: 20 October 2020

Final Accepted: 24 November 2020

Published: December 2020

#### Abstract

A year into what has been an excruciating entry into a decade that was replete with hope, we take a trip down the memory lane to the last. Ostensibly linked to the deficit in rainfall, several parts of India had faced its worst water crisis in a while. Chennai had actually gained international media attention when day zero was declared, no lessons learnt from the horrendous times Cape Town went through just a year prior. In the rural world, Saurashtra remains perennially parched. NITI Aayog too reiterated the specter of doom with its CWMI\* report, which revealed that nearly half the population and 40% of India's agricultural produce are in a fickle zone.

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#### Introduction:-

##### A Tale of Two Cities:

##### Chennai:

Located on the colossal coromandel coastline abutting the Bay of Bengal, the quote from the Rime of the Ancient Mariner in the beginning truly rung on 19 June 2019, when the water crisis was made official. The media was buzzing with the "Day-zero" narrative. Deftly, the entire blame was put on the deficit in the rainfall received. This was however, just one part of the equation. A closer inspection, perhaps, reveals something far more sinister. In fact, ironically, the floods of 2015 might be an effect of the same cause. Its ever-growing IT, Automobile and Construction industry brings with it an exponential rate of urban sprawl\*\* (and hence, the population surge). One dire consequence of this (among many that resource crunches bring with them) is a robust real estate mafia nexus and the collusion with the municipal bureaucracy. Flouting the norms and rampant illegal construction activities brings it with a lack of seepage in the concrete jungle. On the one hand, this leads to mismanaged overflows during inclement weathers and depletion in groundwater levels and drying up reservoirs on the other. Accrue to this, an ad-hoc planning mechanism in resource allocations, with the businesses and industries taking the lions share, you indeed have a double whammy that gave Chennai an eerily dystopian time.

##### Cape Town:

This lone case outside of India was taken to illuminate the ignorance of mankind. Merely a year before the Chennai water crisis, this could have served a fitting lesson, especially given, how effective policy making saved the day. A relatively affluent nation in a parched continent, South Africa's Cape Town has been considered the land of opportunity. Yet, like Chennai, the freshwater supply hasn't been able to keep up with the population explosion. Not unprecedented but the climate change, especially from the industrial activities, over time exacerbated the droughts in the region. When things started to go downhill, the focus of the entire law enforcement was shifted to controlling the municipal water consumption (what they call level 5 water allowance). Laws such as illegalizing the use of water for gardening, car washing or anything apart from essentials may sound draconian but triggered the citizen's consciousness to the gravity of the situation. Through such efforts, the day zero has been deferred. However, what is

commendable is, unlike Chennai, administering water allocation to mitigate for the future, there has been initiation of several water well drilling projects and setting up of desalination plants. A contingent plan basically. Chennai, however, has again fallen into complacency and ad-hocism.

**The Agrarian Dilemma:****Rural Saurashtra:**

Among the most parched regions of the country, the Saurashtra and Kutch region of Gujarat often takes the centerstage on the media noise on the plight of its farmers. Highly dependent on rainfall, this region declares being drought ridden every few years with a dire situation of rainfall deficit always inevitable now. The limited water resource too is prioritized for non-agricultural and non-essential activities and streamlined to the industrial powerhouses and cities such as Rajkot and Junagadh. The farmer of Kutch is in absolute shambles. Interestingly, the high profile (albeit controversial) Narmada Valley Project was envisioned in 1946 to be a boon to this region as well. Nearly three-fourth of a century passes and yet, not even 40% of the project is completed. Among that too, the allocation by the Narmada Water Disputes Tribunal offers little respite to the rural Kutch, limiting it to the affluent central Gujarat region. There have, however, been several initiatives by the corporate behemoths to offer some assistance through their CSR activities (Reliance foundation a prominent example). Reliance foundation's efforts in the Jasdan village to set up check dams is one laudable example. There are also efforts by the state government to set up desalination plants (the famous 100MLD desalination plant project) and we hope it comes to fruition soon.

**Hatkarwadi, Maharashtra:**

A tiny village in the Beed district, Hatkarwadi has gained much media attention due to its impoverished state, arising from a complete dearth of the most basic lifeline. In fact, there is now a robust black market of "tanker mafia" that has set up, controlling the water resources (if this becomes a global trend, water would indeed be the new oil). While the issue at hand is often touted to result from the climatic conditions and the rainfall deficit, the matter, as usual, doesn't end there. As quoted by among the tallest rural journalists P. Sainath, It also has to do with the appropriation of water by the well to do at the expense of the poor, and the skewed allocation of water. There is a surge in rural to urban migration from this region to escape the atrocities, the migrants being given the moniker "water refugees". With nearly all borewells and well going dry, over 90% of the village has been forced to flee their circumstances, only a handful of families now left behind. Ironically, many of the migrants end up being labourers in the sugarcane fields, the most water intensive cash crop and perhaps one of the reasons for such a degree of water depletion.

**The Corporate Imperatives:**

The modern water crises across the board could be linked to factors pertaining to industrialization, in essence, the modern capitalism in its nascent stages. However, in contemporary times, the globalized supply chain makes it imperative to view sustainability as an investment than a cost. Corporate stalwarts, Michael Porter and Class Van Der Linde in 1995 had put forward the proposition the environmental regulations actually lead to greater profitability. A linear thinking towards supply chain management is antiquated. In the circular economy, corporate stewardship is the need of the hour. The socioeconomic consequences in any part of the chain could have a direct impact on the entire business. Ignoring the social and environmental costs could even lead to products and services that have negative value. Think of Bangladesh, for instance, wherein arsenic poisoning due to blatant water contamination by the manufacturing industries has had an adverse impact on the labour force. The famous 3E model of sustainable practices cannot be merely rhetoric.

**At the Forefront- Making a Difference:****Hersheys:**

The food and beverage industry is perhaps the most water dependent. This has led behemoths like Hershey's to incorporate sustainable practices and curb its use. It has taken the lead in initiating internal water audits in all its facilities and participating in reporting initiatives to set the standards such as CDP Water Disclosure Project and Dow Jones Sustainability Index.

**ITC:**

In the Indian scenario, ITC is leading by example through its Watershed Development Program. Taking cognizance of the agrarian impact of depleting groundwater resources, it has come up with a multi-pronged strategy to alleviate the issue at the grassroots. It does so by forming Water User Groups, supported and trained by ITC and ensure

optimal allocation and pooling of the water resources. To scale up this initiative, it also partners with state governments, NGOs and academic institutions.

**Tata Trust:**

Tata's KharashVistarotthan Yojana or the Coastal Area Development Project in Gujarat is yet another prominent initiative. Given its coastline and topography, several districts in Gujarat view an increase in salinity in its freshwater and groundwater sources. The program includes several technological interventions centered around agriculture, drinking water, sanitation and nutrition with the goal to reduce the dependence on external agencies for potable water. It also seeks to educate through elementary education, skill development and community institutions to bolster water allocation. Under its second phase, the project will be partnering with the Govt of Gujarat, Conrad N Hilton Foundation, Bill & Melinda Gates Foundation and TWM.

**Israel:**

Digressing a bit from industries, one nation to take lessons from in the impact of effective governance, employment of technologies and robust public-private partnership model would be Israel. The country stands out as a food and water secure region in an otherwise parched middle eastern region. Over 90% of Israel's wastewater is treated and 75% used for agricultural irrigation. It has fostered the growth of companies such as Mekorot Group, Netafirm and Global Environment Solutions. Not only has Israel managed to thrive despite the climatic and topographic circumstances but taken the lead to deploy its technology in several third world nations in Africa, South and South East Asia and indeed make a difference.

**Upcoming Technologies and Industrial Opportunities:**

**Reverse Osmosis:**

Whilst already in use in the households, it has potential to be implemented on a far larger scale (already been experimented in a few municipalities in the state of California). With the systems being much larger, several RO membranes will need to be used which significantly raises the costs and placing greater importance to operation time and membrane life is needed. This could prove to be quite a boon in several hinterlands where there is abundance of brackish water. However, the economic feasibility is still doubted for use in coastal regions. This is a huge area of opportunity for corporates with a long term vision as it could expect several public-private partnership models.

**Desalination:**

Desalination is the process that takes away the mineral components from saline water. This is more sophisticated than Reverse Osmosis and its potential is unbounded if economic viability is achieved on a large scale. On an experimental basis, large scale desalination has been taken up the Government of Gujarat already to cater to the Saurashtra and Kutch region. It involves a two step process-first the regular reverse osmosis and then a multistage flash distillation. Some corporations with operations in India are IDE technologies (Israel), Canadian Crystalline (Canadian), Econopure Water Systems etc which actively deal in R&D and deployment in Industries for desalination plants. It is already in extensive use in UAE as well where there are no natural freshwater sources.

**Natural Farming:**

Quite literally, getting back to our roots, the famous Zero Budget Natural Farming (ZBNF) proposed by Subhash Palekar could prove to be quite the asset for sustainable agriculture practices. Excessive use of fertilizer, pesticides and GMOs have not only depleted the water table due to the irrigation intensive methodologies but also contaminated the sources of water. Long term vision and replenishment of the fertile land and the water sources in sine qua non to effective and safe water management.

**Other Experimental Technologies:**

Recently, it has been discovered that the ocean beds hold massive reserves of freshwater aquifers just waiting to be tapped. In addition, a new experimental technology is fog catchers which are able to tap the evaporated water from the moisture itself. Recently Lockheed Martin has patented a Perforene graphene filter with immense potential to reduce reverse osmosis and desalination costs.

**The Way Ahead:**

The preconceived notions of profits being merely economic and avoiding a systems thinking in a globalized world would only lead to and has several times to a company's own peril. The connivance of bureaucracy to attribute all the blame to climatic consequences and blatantly ignore the collusion, misgovernance and lack of national

consciousness comes with huge social costs, for the present and the next generations. Polarized when it comes to water availability, India and Indian corporates need to ramp up their efforts to ameliorate this excruciating problem. The hope that the latest narrative of Atmanirbhar Bharat brings with it could nurture the much-needed innovation and technological intervention needed. The land of the seven rivers, and wedged between the Indian Ocean and the formidable Himalayas, the potential is indeed limitless.

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