

## **PRICING DRINKING WATER-IS IT ETHICAL? - CASE STUDY**

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It was a grim Sunday evening in the month of June when Ravi had just returned to his village, Vidarbha, after six long years from Harvard University where he completed his studies with scholarship. On the contrary his homecoming was rather desolate for him. He was appalled by the damage that the yearlong draught had inflicted upon his village. Vidarbha is the eastern region of the Indian state of Maharashtra which has been well known for farmer suicides for a very long time now.

As soon as Ravi entered his house, he found his father perturbed; his mother had grown frail over the years. The women in Vidarbha had to walk six kilometres every day to fetch water from nearby water body. When he asked his father what was troubling him, he learnt that the crops had all dwindled this year due to the shortage of water and water was so scarce that the families residing in the village were starving for water in order to fulfil their basic necessities and it had become a luxurious item to cherish. His father even told him that one of his uncles with whom Ravi used to spend most of the time during his childhood had committed suicide due to draught. His

mother told him how hard it is for all the ladies of the village to wake up in the wee hours of the day and then come back in time so that they can clean their houses and prepare meals for the day as water is required for carrying out each and every chore of the house. However, she ignored everything and disrupted the conversation by offering food to Ravi. Next morning Ravi's mother didn't return home on usual timings. He got worried and went on to look for his mother towards the water body. Sun was scorching and gust of hot winds were making it difficult to walk properly and then he realised how difficult it is to survive without water. On his way he was anxious to see all the ladies were gathered around and when he went closer, he found his mother lying on the ground and the ladies were helping her mother to bring back to consciousness which probably happened due to dehydration. As his mother gained her senses she immediately stood up and started walking towards home thinking that she was quite late having no thoughts of her health or even the surroundings in her mind because she didn't even bother to see her son among the ladies. Somehow both mother and son returned home. This incident

had shaken Ravi very badly; thoughts about his mother, father and the pathetic condition of villagers didn't let him sleep that night. Next morning, he gathered the villagers and tried to convince them that they themselves had to find the way to get rid of this devastating problem but nobody paid attention to him as all of them were so heartbroken that they had accepted this as harsh reality of their lives and were ready to spend their lives as it is considering it as God's wish. Ravi realised that there was no point in talking to them so he went to the nearby government office responsible for distributing water in the villages of his area and found that his village was not getting the water supply as allotted by the state government. He questioned the concerned officer about the same but the officer told him that water allotted by the state government had not been discharged towards their area, however even if it reaches it won't be suffice to cope up the requirement. Ravi went to his friends residing in the city and narrated them the whole incident. One of his friends was working in an NGO called "LIFE". Its motto says water is life as they were working from past few years for creating awareness about water, its judicious use and recycling methods among people. When his friend told him that he has organised a meet with President of the NGO, Mr. Akash, Ravi decided to do considerable research on water issues before meeting Mr. Akash, Ravi accomplished his research and went to meet Mr. Akash. His friend introduced him to Mr. Akash who was an environmentalist and have been researching about the depletion

of water in the world and its effects on the mankind and asked him for his support. Ravi came up with his research which stated overall scenario from Cape Town to his village. It states that even after being awarded as Adaptation Implementation Prize for its water management yet on 15th April Cape Town is going to witness "DAY ZERO", in which there will be no line up for water rations for city's million residents. Even after its strong environmental policies which include careful water management, city has headed to a three-year drought period which is increasing dry corner of the world. Going to the worst drought period Cape Town is facing risk of becoming the major cities to loosen piped water services. Ravi also expressed his concern over Bengaluru water level as it will be the 2nd city which goes water less by 2020. These kinds of alarming reports motivated Ravi to do something for his village. Mr. Akash was an influential man and he had very good links with a few activists and political leaders. He came up with a brilliant idea of asking some leaders of opposition party to talk about this issue and he was quite sure that the leaders will also agree to do this because they would foresee their own advantage in this as they would get a matter to blame the present government. Due to some petitions and awareness drives headed by Mr. Akash and some political support, this issue got its hype and soon the government was alarmed. As a result of this, water resource minister Mr. Ashish Prakash formed a committee comprising of state ministers, district officers and even the officials of Panchayati Raj

to discuss the matter and take the necessary actions for solving the rising issues of water scarcity and helping the draught hit regions. But whole state of affairs lost its heat within a few weeks and matter got shelved. Ravi was feeling helpless once again as he failed to cultivate the fruits of the crops he sowed. One of the volunteers of the NGO called him and told him that the MLA of the town Mr. Ganesh Gaitonde wants to meet him. Next morning Ravi went to meet the MLA, Mr. Ganesh. He was waiting for Ravi and he started the conversation by praising him about his efforts but told him that your plan did not reach its destination because the actual ground reality of the policies implemented by the government is different than what the government portray. He told Ravi that successful execution of any policy or scheme in state requires the full support from the central government. Ravi seemed to be in trauma after listening to Mr. Ganesh and asked him that how he could involve the government at Delhi. It was that moment when Mr. Ganesh played his trump card by offering him to join his party and assured him that he would be given the ticket for the upcoming Lok Sabha elections as Ravi is one of the promising candidates to defeat the present Member of Parliament of the ruling party. After introspecting for a while, Ravi agreed to contest the elections and even won from his constituency. Now, again Ravi started his campaign with more enthusiasm and clear vision in his mind as he was aware of the fact that now he has the power in his hands and

is capable of taking some independent decisions. He called a meeting with all the concerned government officials for a brain-storming session to find a concrete solution to the problem. They all proposed different alternatives like hiking the water price, subsidizing the water bill, water harvesting techniques and many more. After listening to the suggestions given by all the government officials and advisory department, Ravi fell into a dilemma that he himself was from financially weaker background, is it ethical to impose taxes on water or increasing the price of water or even subsidizing it as by doing this he might succeed in controlling the abusive use of water to some extent but would it be just and fair to the financially weaker sections because he knew very well that water is a necessity and it is the fundamental right of the masses to consume it free of cost.

### **Case Study I: Farmers' Suicide in Vidarbha: Everybody's Concern**

Vidarbha is a critical geographical region in Maharashtra which is defamed for farmer's suicides. Purna, Wainganga and Wardha River etc. are the rivers flowing in this region. Dams were also built in the region. Famine and Drought conditions are rare while compared with other drought-prone areas in the Marathwada and Western Maharashtra areas. In 2015, 2,428 farmer's suicides were reported in Marathwada and Vidarbha region as per government statistics (Exhibit I). Similar news was also printed in the newspapers of Andhra Pradesh. In the beginning, majority of farmer's

suicides took place among the cotton growers from Vidarbha [1]. In 2014, 5,650 farmers committed suicide as per National Crime Records Bureau of India [2]. Scarcity of water directly influences the agriculture and rain-fed as well, and food processing industries are also affected. As agriculture contributes to scarcity of water, inflation will go up causing regional conflicts, deaths and migration of population to where water is easily accessible [3].

### ***Case Study II: Cleaning of the Yamuna River: Social Entrepreneurship Approaches***

With a population of almost twenty-two million, India's capital New Delhi faces a daunting challenge: Yamuna, the second largest river of the Ganges is one of the most contaminated in entire world. In Delhi, the Yamuna is primarily contaminated by untreated and treated sewage and various other toxic chemicals and effluents [4]. The contaminated water put critical health hazards in front of New Delhi citizens as it has zero oxygen content and believed to be "dead". Thus, assert critical health problems to the people of New Delhi (Exhibit II). Will there be any solution to revitalize and clean-up the Yamuna river plain using approaches of social entrepreneurial and make scenery better?

Water borne ailment and diseases are caused by dirty water or drinking

contaminated. Due to this, several types of diseases like diarrheal diseases including guinea worm diseases, dysentery, cholera and other serious disease occur [5]. Around 80% stomach problems happen because of consuming contaminated water. Rivers and lakes are dangerously polluted. Fresh water scarcity is made worse by droughts that grip India as groundwater reserves are shrinking fast from over pumping and over usage. Sewage treatment plants are not available in adequate number. This results in untreated and contaminated urban wastewater. This water is often added to the downstream flowing river and the very same polluted water is supplied to rural areas for daily household works.

### ***Case Study III: Augmenting Food Security and Water Security of Farmers in Tamil Nadu, Andhra Pradesh and Karnataka***

A serious depletion in graded scale of water levels has been noticed in the states of Tamil Nadu, Andhra Pradesh and Karnataka. Condition of acute water storage has worsened in many districts along with the time. This problem led to conflict, rising cases of suicides of farmers and conflicts between the neighbouring states for access to water. The major culprit that is responsible for breakdown of these systems that help provide a countervail to shortage of water is

<sup>1</sup> <http://medind.nic.in/jaw/t09/i2/jawt09i2pii.pdf> (Last accessed on 18th March 2019)

<sup>2</sup> ADSI 2014 > Chapter 2A – suicides in farming sector

<sup>3</sup> <https://globalriskinsights.com/2016/10/indias-systemic-water-crisis/> (Last accessed on 18th March 2019)

<sup>4</sup> [https://batten.virginia.edu/sites/default/files/research/attachments/Revitalizing%20the%20Yamuna%20River\\_MullothRao.pdf](https://batten.virginia.edu/sites/default/files/research/attachments/Revitalizing%20the%20Yamuna%20River_MullothRao.pdf) (Last accessed on 18th March 2019)

<sup>5</sup> <https://www.vestergaard.com/global-challenges/waterborne-diseases>

lack of accountable authorities in charge of protection and maintenance of water harvesting systems and lack of interest from the local people who will use these commodities in the water starved regions of Tamil Nadu, Karnataka, Andhra Pradesh. Acute critical shortage of drinkable water is a common circumstance observed every year (Exhibit III). The ground water is unfit and saline for drinking as well as for irrigation purpose. By long established tradition, surface water ponds are nurtured and maintained over the period of time by local a community which is the source for water for the people in this domain. The water bodies have lost their efficacy due to breakdown of community management and poor maintenance. People, mostly women have to travel 3-5 kilometres to go and bring water.

Feasible, low-cost sustainable solution includes harvesting and storing rain water. Isolated attempts have been made to revive rainwater harvesting structures. It is seen that Heavy downpour is caused by climate change and water-harvesting structures thus helping in compensating its effects. The water stored can be used for irrigation and other purposes [6].

#### *Case Study IV: Water Wives of Punjab*

Punjab, once an agricultural pioneer in India is now turning into a desert as its undergoing severe water crisis.

Water being a basic necessity, the villagers in Punjab rely on its deliveries from elsewhere and are going bankrupt over the need to pay for the same. Water has become a luxury as people have to pay outrageous prices for it. To ensure their families' survival, they come up with desperate arrangements such as polygamous marriages [7]. Bhagat, a villager has three wives, one to do the house work and the other two to work in the field and carry water (Exhibit IV). Every morning the three wives set out on water fetching trip and it's a lengthy business, the line is long and it's best to be amongst the first to show up. While waiting for their turn at a half-dried well, the first wife says, "The pond has little water, but the village has more families now. Initially it was sufficient now it's a problem" [8]. A combination of global climate change and an unintended outcome of the green revolution in India are the major cause of the water crises. The government hasn't built an effective agricultural infrastructure. The traditional method such as gathering and preserving rainwater offer the natives some relief but fails to be enough at the time of drought. Scarcity of water in India is expected to become worse as the India's entire population is estimated to surge to 1.6 billion by year 2050 [9]. There are lot of states and their talukas where the groundwater's quality is poor. 90% of water distribution between the states is

<sup>6</sup><https://www.gwp.org/contentassets/ea9d8ac66764f9fb9d754bfce70f9c7/wacdep-india-case-study.pdf> (Last accessed on 18th March 2019)

<sup>7</sup><https://rttd.rt.com/films/india-water-crisis/> (Last accessed on 18th March 2019)

<sup>8</sup> [https://www.youtube.com/watch?v=H0hk\\_5Plv5U&feature=youtu.be](https://www.youtube.com/watch?v=H0hk_5Plv5U&feature=youtu.be) (Last accessed on 18th March 2019)

<sup>9</sup> <https://thewaterproject.org/water-crisis/water-in-crisis-india> (Last accessed on 15th March 2019)

done through rivers and canals which create conflicts between the states on water sharing issues.

### Repercussion

163 million Indian population lacks access to quality and safe drinking water; 210 million population of India have no approach to proper sanitation; contaminated water has been directly or indirectly linked to 21% of communicable diseases and 500 minors below the age five die from diseases like diarrheal diseases including guinea worm diseases, dysentery, cholera and other serious disease each day in India-World Bank [10]. A warmer climate results in creating major critical changes in patterns of water availability and rainfall [11]. So, water is the prime medium through which impacts of climate change will be felt. Keeping the view of uncertainty and risk as to the water availability over due course of time, present water institutions and management infrastructure will not be as good in numbers as necessary to deal effectively with the adverse impacts of climatic change. Water pollution affects climate change in rainfall and temperature will increase further pressure on availability of water and its use. From past 100 years, rise in temperature has not shown any effect in rainfall patterns there are some significant variations in rainfall

patterns at the regional level. Since water evaporation is likely to rise up throughout India, there will be serious pressure on water availability, especially during the summer season. With changing runoff water and increase in evaporation, the total recharge to become reduced; also, many regions in India will be affected by groundwater levels. Requirement of water for India's rapid growth is increasing daily. Lack of government plans including industrial and human waste, privatization and corruption in government schemes are linked to India's water crisis [12].

### Conclusion

Water is an essential and most important natural resource for the existence of life. India has around 4% of the water available in the world [13]. Due to increase in population, industrialization and modernisation the demand for water is increasing day by day and due to this water will become scarce in the coming years though it has already shown its signs of depletion in some areas. These hazards and problems related to water and environment clearly indicate that the ecosystem is exploited beyond the carrying capacity limits, though water is vital for each and every activity in day to day life, not only for domestic but industrial use also but it must be kept in mind that water should be used

<sup>10</sup> <http://time.com/5302661/water-crisis-drinking-india-drought-dry/> (Last accessed on 18th March 2019)

<sup>11</sup> <https://www.climaterealityproject.org/blog/climate-change-impacting-water-cycle>

<sup>12</sup> <https://www.independent.co.uk/news/world/asia/india-water-crisis-shortage-niti-aayog-report-drought-mismanagement-a8403286.html>(Last accessed on 18th March 2019)

<sup>13</sup> <https://businessconnectworld.com/2018/01/11/water-crisis-in-india/> (Last accessed on 25th March 2018).

<sup>14</sup> <https://www.downtoearth.org.in/blog/water/challenges-in-the-management-of-water-in-india-58275>(Last accessed on 25th March 2018)

in such a way that it can be reused and treated again without affecting the BOD and COD of water so that its quality index is maintained. Therefore, there is a need of water resource management for the proper growth and development of the country [14].

The main causes that lead to the water deficiency include poor management of the available resources, negligence of the government and waste produced by humans. Water sources are infected with pollutants (both biological and chemical). Around quarter of total diseases in India are water-borne [15]. Water utilized for industrial and domestic purposes is total waste when released to streams [16]. Scarcity of water will affect every sector including agriculture, power sector, human consumption, industries and factories thereby hindering the overall growth of the country [17]. As per the reports, Indian scientists have warned that around 21 cities will be ground water deficit by the year 2020. Government is trying its best to create awareness among the people regarding the water crisis [18]. It had developed catchment areas in drought-prone regions by creating check dams, canals and percolation tanks for managing the water resources. Rainwater harvesting

and construction of farm ponds is also encouraged for using the water resources adequately.

In cities waste-water management, sewage treatment and water recycling are also paid due importance [19]. But are these measures enough for preventing water scarcity which is increasing rapidly? Are there no other alternatives available? What other sustainable and efficient methodologies can be used in India especially in the metropolitan cities for preventing creation of water stress?

### Questions for discussion

1. Is Increase in price of water the solution to this problem?
2. What are the other alternative options available to government of India to address the above problem?
3. Indian industries are highly inefficient and generate 5-10 times more quantum of waste water from their process compared to the developed world. Suggest policy options.

<sup>15</sup><https://www.ncbi.nlm.nih.gov/pubmed/25151722> (Last accessed on 25th March 2018).

<sup>16</sup><https://www.newsecuritybeat.org/2019/01/toxic-water-toxic-crops-indias-public-health-time-bomb/>(Last accessed on 25th March 2018).

<sup>17</sup><https://www.independent.co.uk/news/world/asia/india-water-crisis-shortage-niti-aayog-report-drought-mismanagement-a8403286.html> (Last accessed on 25th March 2018).

<sup>18</sup>[http://planningcommission.nic.in/reports/genrep/bkpap2020/10\\_bg2020.pdf](http://planningcommission.nic.in/reports/genrep/bkpap2020/10_bg2020.pdf) (Last accessed on 25th March 2018).

<sup>19</sup>[https://www.academia.edu/10279627/IDENTIFICATION\\_OF\\_SUITABLE\\_SITES\\_FOR\\_WATER\\_HARVESTING\\_IN\\_THE\\_WATER\\_SCARE\\_RURAL\\_WATERSHED\\_BY\\_THE\\_INTEGRATED\\_USE\\_OF\\_REMOTE\\_SENSING\\_AND\\_GIS](https://www.academia.edu/10279627/IDENTIFICATION_OF_SUITABLE_SITES_FOR_WATER_HARVESTING_IN_THE_WATER_SCARE_RURAL_WATERSHED_BY_THE_INTEGRATED_USE_OF_REMOTE_SENSING_AND_GIS) (Last accessed on 25th March 2018).

### Exhibit I: Farmers 'suicide' in Vidarbha: Everybody's Concern



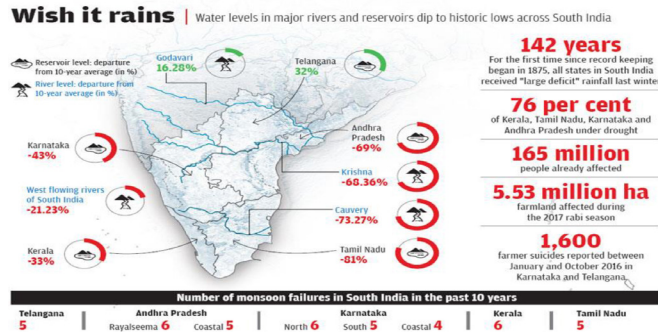
Source: indianyouth.net (Last accessed on 19th March 2019)

### Exhibit II: Revitalizing the Yamuna River: Social Entrepreneurship Approaches



Source: planetcustodian.com (Last accessed on 19th March 2019)

### Exhibit III: Augmenting Food Security and Water Security of Farmers in Tamil Nadu, Andhra Pradesh and Karnataka



Source: downtoearth.org.in (Last accessed on 19th March 2019)

### Exhibit IV: Water Wives of Punjab



Source: [https://www.youtube.com/watch?v=H0hk\\_5Plv5U&feature=youtu.be](https://www.youtube.com/watch?v=H0hk_5Plv5U&feature=youtu.be) (Last accessed on 18th March 2019)