

# Climate Change and Water Crisis

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## Introduction

The protection of environment, revitalization of natural resources and sustainability related policy issues have been part of our work at Rajiv Gandhi Institute for Contemporary Studies (RGICS). The 'Environment, Natural Resources and Sustainability' theme of RGICS has been engaged on key national and state level policies related to environment and natural resources such as water, forest and land. In last two years, it has commissioned research studies, working paper, case studies and policy dialogues at various levels to explore advocate and pursue more ecologically sustainable solutions. Water resources has been one of the important subjects of policy work of RGICS in the last two years. Our work on water resources attempts to explore policy solutions to addresses brewing acute water crisis all across the country, changing climate leading to extreme weather events such as drought, heavy rain & floods, global warming and assimilation of modern science, innovation and traditional wisdom of communities. Our activities range from stakeholder consultations to policy analysis. We strongly believe that policy making should be inspired and informed by what is happening on the ground. Therefore, we organize consultations involving all kinds of stakeholders to enrich policy discussion, research and advocacy. The panel discussion on 'Climate Change and Water Crisis' organized in collaboration with 'Khudai Khidmatgar' is one such event.

The panel discussion organized on February 21, 2020 was steered by two USA based Gandhian scholar and practitioners. The first discussant was Prof. David Willis from Fielding Graduate University. He contextualized the global water crisis and touched upon broad global policy solutions. The second discussant was Mr. David H. Albert, Global Chairman of 'Friendly Water for the World'. He elaborated on grass root water solutions to address issues of malnutrition, mortality, morbidity and livelihood. He explained the above water and community deprivation nexus by illustrating his work in villages of India and various other African countries. The attempt of the discussion was to link grass root solutions with policy requirement. The discussion was moderated by Mr. Vijay Mahajan, Director of Rajiv Gandhi Institute for Contemporary Studies.

## Climate Crisis, Water and Transformational Leadership

Prof David Willis from Fielding Graduate University initiated the discussion by speaking on global water crises due to rapidly changing climate. In his discussion, he also suggested way forward to resolve this huge crisis by promoting transformational leadership. Prof. Willis teaches anthropology and education at the Fielding Graduate University in USA. He has spent a considerable part of his life living in traditional cultural systems in Japan and India which researched and written on transformational

leadership and education, human development in transnational contexts, the Creolization of cultures, comparative education, citizenship, transcultural communities, transnational diaspora, transformative adult education, and Dalit/Gandhian liberation movements in South India. He is often identified as a Gandhian and is associated with the Friendly Water for the world and presented on Climate Crisis, Water and Transformational Leadership: Lessons from India. His deliberation has been summarized as follows:



*Prof. David Willis presenting on Climate change, water crisis and transformational leadership*

## Impact of Climate Change

There is enough evidence to show that we are in the age of Anthropocene- the epoch when Earth's geological and ecosystems are immensely impacted by human action, or rather the age of Capitalocene- one dominated by capitalism. He states we only have one planet, the consciousness of whom we visualized for the first time in 1968. This is the only spaceship we have and he emphasizes on the urgency for constructive action.

Dramatic changes in temperature in the last 50 years has led to changes around the world- in Northern areas where glaciers are melting freshwater into oceans, sea levels are rising with an expected rise of 132 cm in 30 years compromising cities like Mumbai, Kolkata and large parts of Bangladesh in the Indian subcontinent. Climatic events like flooding, cyclones have gotten stronger. In Japan, there is a term for heavy rain in a short period of time causing heavy floods "guerilla rainstorm". Within the India, the super charging in the Indian Ocean has caused a variability in rainfall patterns leading to unseasonal showers as well as flash floods in many regions. Grass is growing around the Mount Everest, a place always seen as unlikely for primary succession.

Biodiversity has been greatly impacted with half of the birds and three quarters of the insects in Germany reported by scientists as gone in 1990. Countless mammals, insects and birds are in danger of extinction worldwide. According to the IUCN, 28,000 species worldwide are facing extinction.

As of 2015 in the US, number of bees and other pollinating insects has dropped to half of what the number of hives was in 1998.

The issues of global warming, he notes are systems issues, complex systems issues that cannot be understood or solved with a binary or linear view. These are intertwined deeply with other issues and require action at various levels.

He juxtaposes the example of flights in the world along with the endangered biodiversity to establish the complexity of the climate crisis. The number of commercial flights in India is 6300 and the same in the US is 42,000 per day. In the world 100,000 flights take off every day. Including the military and private flights, we a total of 50 million flights take off each year. Unsurprisingly contributing to a global crisis.

A second existential crisis that we have is of nuclear weapons and much is being to make a shift away from them. The doomsday clock is closer to midnight than it has ever been- it is 100 seconds away from midnight. In the 1990's the clock was 17 minutes away from midnight so what has happened in the past 20 years or so, that we are so much closer to the doomsday and what are we doing about it?

### **Transformational Leadership for addressing the looming crisis**

This is where the role of transformational leaders comes into play. Prof Willis reminds us of one of the youngest climate activists, Greta Thunberg from Sweden and her resounding quote "we will be watching". American Indians believe that one must look seven generations back and seven generations forward when considering any decision or plan, reflecting a sustainable way of making decisions. The three-legged stool of sustainability is based on social welfare, economic stability and environmental health. How do we aim for all these three? One way to do so is by back casting. Imagine a positive, optimistic future, and back casting- coming back to today and what do we need to do today to attain that future tomorrow?

This would mean stopping the extraction of fossil fuels from the Earth. Reducing waste created by society, especially food waste- an extreme amount of effort and input goes into producing food, but in the US, Prof Willis informs, half of the food produced is wasted. Similarly, water, a fundamental need for our life, is threatened by climate change and our own non judicious use as well as pollution. The access to water especially in terms of quantity and quality is going to be a huge issue in the coming years and has already become one in some parts of the world as also witnessed in the summer of 2019 in Chennai.

In this regard, constructive work is being done by the organization Friendly Water of the World who are working towards the need of clean drinking water for healthy communities. The organization has been working in several states in India with a training facility in Gandhi Gram, Tamil Nadu. Younger leaders who work for the community with empathy and a sense of camaraderie are needed. And along with innovation, they must appreciate the wisdom of the past.

The organization is working in collaboration with Mrs Krishnamala Jagannathan, a Padmabhushan awardee who was also awarded the Right to Livelihood award in 2019.

Prof Willis also alludes to the various women led struggles in India as examples of transformational leadership.

In America- Dolores Huerta- American labor and civil rights activist and head of the United Farm Workers is a great example of such leadership. In the Strike against grapes she, along with Cesar Chavez, came up with the slogan “Si querda” which means yes, we can do. Barack Obama picked that phrase and used it in his campaign. And there is a need to instill the same feeling in ourselves to lead the fight against climate change.

Prof Willis concluded his presentation with a quote by Mahatma Gandhi- “I am praying for the light that will dispel the darkness, let those who have living in non-violence join me in this prayer”.

### **Global Water Crisis and India Today:**

Mr. David H Albert is the Global Chairman of the international organisation ‘Friendly Water of the World’. He has travelled widely throughout the world and helped bring low cost clean water technologies to the most marginalized. Apart from that he has also worked with the Land for the Tillers Freedom and the renowned Gandhian activist Krishnammal Jagannathan, the African Great Lakes initiative in Burundi, the Israeli Palestinian Bereaved Families for Peace and the Rachel Corrie Youth and Cultural Centre amongst others. In his presentation, Mr. David highlighted some of work carried out by his organization in villages of India and African countries to address nexus of water crisis and community deprivation. His presentation has been summarized as follows:

### **The Friendly Water for the World**

The Friendly Water for the World is an international organization works to expand global access to low cost technology and information about health and sanitation. They do knowledge sharing and training and don’t believe in giving anyone anything for free when with proper tools and training people can do it for themselves- which is also an important tenet of Gandhian philosophy around constructive work. The organization works with the most marginalized and disadvantaged people in the world- the poor, widows, HIV affected, former child soldiers in Congo, people with albinism, survivors of rape and sexual violence, orphans, survivors of genocide, unemployed youth, refugees, physically challenged people. They strive to help these people to realize the value they have and try to give them enough courage to understand the assets they have to try to build a community of self-sufficiency.

They practice the principle of altruism and believe that one can do a lot with very small amounts of money. The idea is one doesn’t need millions or billions, but just small inputs and initiative to make massive changes. This reflected in the work of the organization as illustrated through some case studies below.



## Global warming crisis in India and Africa

Mr. Albert notes the many similarities between India and the US, noting the only major difference is the population. And despite the rich human resource in India, who are highly educated and skilled and have several esteemed institutions in the country one cannot breathe the air; in many areas one cannot drink water. A fact that perhaps reflects the shortcomings in the American and Indian education system.

### Simple Solutions

Mr. Albert gives examples of how the bio sand filter, a mere \$50 instalment changed the lives of many in rural areas in Uganda, Kenya, Rwanda and several other African countries as well as India.

The bio-sand filter is a simple device- an adaptation of a slow sand filter. BioSand Filters stand 40 inches tall, and 12 inches wide on each side. The Filter container is made of concrete and filled with layers of specially selected and washed sand and gravel. BioSand Filters remove pathogens and suspended solids from contaminated water using biological and mechanical processes that take place on the surface of and in the sand column.<sup>1</sup>

Along with bio sand filters, rainwater catchments, micro-flush toilets, non-fire soil stabilized bricks, rocket stoves and soaps are also technologies made and shared by the FWOV.

### Africa

One compelling story is shared by David from Rwanda. The representative of Friendly water there Richard Shawnbody lived with his family of parents and two stepmothers and brothers and sisters. While his stepmothers are Christian and Animist, his mother is Muslim. Their village is in South west Uganda, where war was going through, and soldier were raping women giving them HIV and they also had a disease called Cryptococcosis. Richard at this time decided to open an orphanage, but had no resources- no organisation, no church, no rotary club. He got 50 children and wrote to David in late 2013m. He said that he was managing the orphanage but 1/5th of all children below the age of 5 were dying before their 5th birthday, it was because of Crypto. With \$100, to bio sand filters were installed in the orphanage. Within 18 days of installing it, the person informed it was a miracle that there was no single case of dysentery, diarrhoea, not even a stomach-ache. And from all the money saved from medical care on these diseases, they built a school catering 400 children.

**Case Study- I:** Gabila Milton Andrew from Eastern Uganda started an organisation in 2003 to stop child sacrifice. He ended up with a school of 50 kids with HIV, a school with 300 children with HIV, a rotational training institute with children with HIV and he was also supporting grandparents who were taking their grandchildren when their parents died of AIDS. He wrote in late 2014 to David that all his children were in hospital with water borne illnesses, if he paid the hospital bills, they would be left with no food for the children. David said pay the bills, that they would find some money for food and also promised that that situation would never happen again when so many kids got in hospital. 2 Bio-sand filters and 3 weeks later all kids were healthier. Gabila started making bio-sand filters to sell, and saved enough money for food.

<sup>1</sup> <https://friendlywater.net/HOW#BioSand>

Mr. Albert shared another instance from Tanzania and the role of mothers in developmental work. He said no real development can happen without focussing on mothers. The reason is they care for the culture of the community, the future, the children, husbands. So, it is crucial to start with mothers because no mother wants to have a sick child. They started a programme working on mothers in Tanzania. The community had many children dying of typhoid. They are now making bio sand filters and all are healthy.

**Case Study-2:** In the town of Minova in East of Congo, the effects of the biggest war of the world going on in Congo where 7 million people have died in the ongoing war was felt widely. Women were raped by soldiers, and many of them even got children, were abandoned by their families. These women were taught how to make bio-sand filters and they sold 700 filters and are now healthy and saved enough money to send children back to school and stop cholera in two refugee camps. The programme kept on expanding, every school got bio-sand filters, so the school children got healthier, and the local government, decreed that every restaurant and café has to have a bio-sand filter.

He also shared a story of women asking for training – of community themselves becoming aware and united. Despite the facility not having resources at the time, the women were adamant that they won't leave without training and walked 7kms back and forth everyday for 5 days for getting trained in making the filters. In the previous year, of these 26 women, 18 of them had children who died of cholera. Their leader, had a sister in Minova, who had learnt how to make bio sand filters, she was healthy, her kids healthy and going to school, when that sister visited her, she said she only drinks water from a bio-sand filter. So, in this village the sister gathered 25 other women for training and they told the men, that they were leaving and the men will take care of the children. Now they have built 110 filters.

## India

India suffers from an acute water crisis where in along with less availability of water, access to clean water is even lesser. No recharge happens because of pavements, roads and houses. Rivers are extremely polluted. Water in wells have dangerous levels of fluoride especially in Northern Karnataka. Arsenic in irrigation water which is washed down from the Himalayas to Bihar and Bengal is present in water which is used to irrigate fields. Wells are running dry everywhere. Water facilities in every major Indian city is overwhelmed, sewage treatment has not kept pace with population growth. Water borne diseases that had not been seen for decades, are recurring- cholera in Karnataka, Punjab, Bengal, Rajasthan, UP.

Mr. Albert criticises the Reverse Osmosis water purifying systems. They waste 5 gallons of water for every one gallon gained- minerals and salts are removed and have caused an epidemic amongst the rich people of deficiencies. 21 cities of India are going to run out of water in 2021. Chennai is a harbinger of things to come. The city ran out of water and closed hotels, restaurants, and people started moving back to the countryside. Reverse movement is happening as opposed to the general trend of people moving to urban areas.

**Case Study-3:** Mr. Albert shared the story of Abdul Karim, who lives in a refugee camp in \_\_, who installed the filter in his house. Prior to the bio sand filter, children were constantly sick, he spent Rs. 1500 every month on hospital bills, which is now very rare expenditure. \$50 investment in bio sand filter was an investment that helped save \$250 every year. Now he makes these filters and sells them. Another family from the camp, spent Rs 6000 every month which has now come down to Rs 1000 every month ever since installing the bio- sand filter. They started making filters and provided them for 35 families.

Infant child mortality is 30 per 1000 births. A number not because of lack of food, rather because children can't digest their food. Children are missing school, girls are leaving schools early indicating parasitic stress- children are using all their energy to fight off parasites instead of building a stronger immunity and the result of this is permanent cognitive impairment. Children are going to school but they are not able to learn. In India it is estimated that more than 20% of youth under age 21 have permanent cognitive damage which means largest loss of human potential in the history of the world.

48% of children in India are malnourished. 1/3rd of them enough to eat and come from wealthy families but just because they cannot digest their food properly. There is an increased risk of diseases like diabetes, heart attacks and stroke.

### Discussion and Summing up:

A short discussion followed the presentation by two main speakers of the event. Initiating the discussion, Mr. Major Pande from HIMCON shared his organization's experience in Himachal Pradesh and Uttarakhand. Remembering their work, he said that their organization also worked on bio-sand filter to provide clean water to mountain communities. He observed that while the technology is efficient and affordable, such intervention cannot be carried out without understanding and resolving community level power dynamics. While the filter worked well, there were clashes within the community, within the Dalits and upper castes. Even after having pure drinking water, people still had to walk 12 kms for water just because of caste issues within the community. He stressed that an informed and concerted social process is highly required for the success any technological intervention.

Taking this discussion further, Mr. Achintya Ghosh from Kabil Foundation touched upon importance of ensuring availability of water by conserving rainwater. He said that low cost water shed techniques if implemented effectively can solve the issue of water crisis. According to him, communities have to change their attitude towards water usage. While water is a right of people to survive, it is duty of every person to save water for its availability. Ms. Mika Obayashi, Mr. Inamul Hasan, Mr. Faisal Khan and N. Siva Kumar also contributed in the discussion. In his concluding remark Mr. Vijay Mahajan noted that the changes at policy level is also beginning to happen, as some states like Madhya Pradesh presented a separate budget for climate change mitigation and adaptation activities in 2019 as well as proposed initiative like Gram Sarovar authorities at village level. The need of the hour he noted is to conduct constructive work as well as bring about changes at the policy level with adequate financial resources in a collaborative system to bring about any change.

To see full video coverage of the discussion, click on:

[https://www.youtube.com/watch?time\\_continue=6&v=hZQJsbaeENg&feature=emb\\_logo](https://www.youtube.com/watch?time_continue=6&v=hZQJsbaeENg&feature=emb_logo)

