Global Politics Standard Level Engagement Activity

# To what extent does the state facilitate non-state actors in bringing about sustainable development in water infrastructure?

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Despite the success of the Millennium Goal Seven C - to halve by 2015 the population without sustainable access to safe drinking water and basic sanitation - there are still 650 million people across the world without safe water.[1] Studies show that demand for water will increase by 55% by 2050.[2] Due to such demand, an increase in supply is necessary but should that increase in supply come at the cost of the environment? While development in water infrastructure is being made constantly, estimates by the UN suggest over 80% of wastewater is discharged without treatment.[3] Keeping in mind the figures on both, increase in demand and increase in untreated wastewater, keeping a check on the sustainability and durability of water infrastructure is imperative for the environment and for mankind. Hence, the question arises, "To what extent does the state facilitate non-state actors in bringing about sustainable development in water infrastructure?"

Today, India is the largest democracy on the face of the world. With rapid decrease in fresh water availability in metros such as mine, Mumbai, water regulation & optimisation are need-of-the-hour issues. Overlooking this larger issue – the deterioration of our immediate environment – can lead to various issues ranging from hunger to market explosions to poverty. While thinking of the same in the summer before IB, I interned at one of India's leading water treatment companies, Marcuras Water Treatment Pvt. Ltd. Furthermore, attending several conferences like IFAT Mumbai 2018 and Shakti Pumps Pithampura Meet 2018, I learnt the intricacies of water treatment and industrial filtration. These experiences taught me about the impact of different techniques and technologies employed by different companies (globally and locally) on the environment as well. It was crucial to understand how the every company maintained competitive rates despite new government regulations and the arising need for sustainability, a factor frequently overlooked in developing countries. Hence, this EA shall be focused on sustainability and the importance of considering environmental factors while promoting development. It would also look into the effect of the balance of power in a few cases and shall analyse the issue using the local and global levels of analysis.

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[1] "University develops new cheap, sustainable water treatment devices for developing countries," University of Bath, accessed September 3, 2019, https://www.bath.ac.uk/announcements/university-develops-new-cheap-sustainable-water-treatment-devices-for-developing-countries/

[2] "Water and Sustainable Development," UN-Water Decade Programme on Advocacy and Communication (UNW-DPAC), accessed September 3, 2019, https://www.un.org/waterforlifedecade/waterandsustainabledevelopment2015/images/sustainable_development_eng.pdf

[3] Ibid.

At the outset of my exploration, I engaged in research that largely came from my reading of the 'Global Trends 2030: Alternative Worlds' report of United States' National Intelligence Council.[4] Further, for one of my engagement activities I decided to attend the tenth Water Quality India Association (WQIA) General Body Meeting held on Aug 9, 2019 at India Habitat Centre in New Delhi, India. Through the many speeches and informal conversations in Delhi, I gained heavy insight in the current scenario in water infrastructure development along with perspectives through different stakeholders.[5] After the conference, I interviewed many people in and out of the industry to gain a better understanding in the same issue. From the industry, I interviewed Mr. Suneel Shah (Technical Head – Pentair Water), Mr. V.A. Raju (Director – Alfa UV) and Mr. Chrys Fernandes (Regional Marketing Manager – Dupont Water Solutions). These interviews me taught me what are the major barriers on the road towards sustainability, how the industry is using technology to overcome such barriers, what the future generation should learn and what role does the state play in the same. Outside the industry, I spoke to a microbiology expert, Dr. Sandhya Shrivastava (Director – Bhavan's Research Centre) who apprised me of how reverse osmosis is necessary even in low TDS waters, an international quality standards expert, Mr. Anil Jauhri (Former CEO, National Accreditation Board for Certification Bodies, India) who informed me about international standards and country laws and Mr. Ram Mallar (Managing Partner, Mallar Law Associates LLP, legal representatives to the WQIA at the NGT) who allowed me to know a lot about the Friends vs WQIA case at the National Green Tribunal, its progress and what we can learn from the case as a whole.

For the body of the piece, I shall analyse a few prominent themes that came up in my engagement as a whole. In this paragraph I shall be linking my engagements with the unit power and studying the effect of power dynamics in sustainable development on a national scale. To explore the first one, let's take a look at a recent case filed before the Principal Bench of the National Green Tribunal (NGT), New Delhi by a non-profit called 'Friends' against the Ministry of Water Resources, Water Quality India Association, Central Pollution

[4] *Global Trends 2030: Alternative Worlds* (National Intelligence Council, 2012), https://www.dni.gov/index.php/who-we-are/organizations/mission-integration/nic/nic-related-menus/nic-related-content/global-trends-2030

[5] Christos K. Makropoulos, and David Butler, "Distributed Water Infrastructure For Sustainable Communities," *Water Resources Management* no. 24 (2010): 2795-2816, https://doi.org/10.1007/s11269-010-9580-5.

Control Board and several other such organisations.[6] The latest NGT order says that Reverse Osmosis Filtration (RO) should be completely banned where water has a TDS of less than 500 ppm.[7] However, the International Organization for Standardization (ISO) lists sixty-eight different parameters to determine water quality and not just TDS, clearly showing the inept nature of the NGT order.[8] Another example of the empty nature of the order is clause nine, sub-clause A, sub-sub-clause (iv)(2) that calls for a minimum permeate recovery of 60% for water with TDS of above 500 ppm while the highest possible recovery today is 50% upto 1500 TDS and 30% upto 2500 TDS as said by both, Modak and Shah.[9] Through these examples, we can clearly see how power is being abused by the government (the judiciary). Clearly, the bench does not comprise of water experts but they are using their position to create new rules and regulations not subject to scrutiny. Hence, we can conclude that the new government has the willpower to bring about change and wants to work towards sustainability but maybe due to lack of expertise or public satisfaction are bring about zany changes in an erratic unreliable manner, resulting in more harm than good.[10]

As I read through the rest of the order, it was evident that the state is taking effort to increase sustainability to a certain extent, however a new conflict of local v. multinational could be seen. This second theme is explored primarily through interviews of Raju and Shah, executives at a local/national company and a multinational global leader respectively. The major question here is of liability. Companies at different levels and scales are liable to answer to different governments and/or organisations. Raju tells us how UV is a green technology and is considered to be the most eco-friendly but still deals with sustainability issues when it comes

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[6] Friends through its General Secretary v. Ministry of Water Resources, before the National Green Tribunal Principal Bench, New Delhi, Application No. 134/2015, May 20, 2019, http://www.greentribunal.gov.in/Writereaddata/Downloads/134-2015(PB-I)OA20-5-19.pdf

[7] Ram Mallar (Managing Partner, Mallar Law Associates LLP), "Ro Case before National Green Tribunal – Brief Points," presentation at Water Quality India Association General Body Meeting, August 9, 2019, https://drive.google.com/open?id=1N66BQezne3vsLwd14IahTz-O449QZYpG

[8] V.A. Raju (Director – Alfa UV), interviewed by Candidate, New Delhi, India, August 9, 2019. Appendix D.

[9] Friends through its General Secretary v. Ministry of Water Resources, before the National Green Tribunal Principal Bench, New Delhi, Application No. 134/2015, May 20, 2019, http://www.greentribunal.gov.in/Writereaddata/Downloads/134-2015(PB-I)OA20-5-19.pdf; Modak, Sandeep (Senior Technical Manager, DuPont Water Solutions), presentation at Water Quality India Association General Body Meeting, August 9, 2019; Shah, Suneel (Technical Head – Pentair Water), interviewed by Candidate, New Delhi, India, August 9, 2019

[10] Chrys Fernandes (Regional Marketing Manager – Asia Pacific, Dupont Water Solutions), verbal conversation with Candidate, New Delhi, India, August 9, 2019. Appendix B.

to packaging and disposal of its equipment.[11] It is appalling to know that newer more environment-friendly technologies (such as self-cleaning and purifying bottles) exist but they are not promoted as companies are afraid of increasing the cost to customers than the environment.[12] Bodies regulating Alfa, primarily the Indian Govt., don't have laws as strict and hence change is not being seen in this industry. On the other hand, Shah proudly tells us how high recovery membranes and automatic valves that can save 20-30% more water are already being used heavily in the United States as Pentair is liable to answer to Californian environmental laws which have the highest standards in the world, probably equivalent to what India would have 10 years later.[13] From this we can learn about the importance of the role of the state in pushing sustainability at the forefront and of public awareness and willingness to pay more so that our environment pays lesser. All efforts in this field need to be joint-efforts by companies and governments across the world. Shah speaks about patented technologies that highly reduce contamination. If these technologies would be shared and adopted across the world, millions of gallons of water could be saved by now. The concept of contested meanings of development can also be linked here inasmuch as this is nothing but a conflict: satisfying short term water needs of mankind (cheap) v. satisfying long term needs of both mankind and the environment (expensive).

This comparison and difference in liability paves the way to the final theme analysed largely at the international level, about international standards and regulations for potable water, testing methodologies etc. One could argue that these standards are the indicators through which we measure development and sustainability in water infrastructure. Clearly put by Mr. Jauhri, countries today are acting like companies and they also want to reduce their liabilities and surpass laws that govern them.[14] He says that purity testing and regulations are present and can be easily implemented but there will always be a variance in these regulations, single points of failures that could be manipulated (tweaked) in such a way that desired outputs are met.[15]

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[11] V.A. Raju (Director – Alfa UV), interviewed by Candidate, New Delhi, India, August 9, 2019. Appendix D.

[12] Francesca Rea, "This $95 water bottle uses UV technology to self-clean and purify your drinking water," *Business Insider*, April 30, 2019, https://www.businessinsider.in/This-95-water-bottle-uses-UV-technology-to-self-clean-and-purify-your-drinking-water/articleshow/69117915.cms.

[13] Suneel Shah (Technical Head – Pentair Water), interviewed by Candidate, New Delhi, India, August 9, 2019. Appendix A.

[14] Anil Jauhri (Former CEO, National Accreditation Board for Certification Bodies, India), speech at Water Quality India Association General Body Meeting, August 9, 2019.

[15] Ibid.

Jauhri further this manipulation theory through another analogy. He speaks about the way in which countries draft laws in a manner which is compliant to the World Trade Organisation (WTO) laws making sure they have access to the international market while their own market is not equally accessible citing the US' allegations about unfair trade policies employed by India as an example.[16] Countries make sure that their practices cannot be questioned but they gain an unfair advantage clearly showing do not want to commit to going the extra mile on the international stage. He outlines how he feels that the international community is regressing when it comes to the environment inasmuch as he believes that international standards have fallen from being technical conformities to standards that are simply accepted by the majority, that simply make everyone happy while on the countering hand Palkon speaks about the success with the India Uniform Plumbing Code.[17] This shows us that different bodies of the state itself work differently towards achieving sustainability.

Concluding the piece I would like to reiterate the extent to which sustainability has been achieved or is being worked towards. As far as the state - in this case specifically the Indian govt. - is concerned, the steps being taken on the international stage are unpleasant however the willpower that is shown by members of the judiciary referring to the NGT case order is incredible. While the state moves towards development, it needs to have a greater foresight maybe like that of Australia by recharging tubewells for 20 years later (as said by Fernandes) along with skilled personnel to guide them through the process of new regulations that are practical and beneficial to both, the water industry as well as to the planet, the environment (as put by Modak). Moving on to non-state actors, non-profits need to increase public awareness about the ill-effects of low recovery membranes and mass-produced low-cost technologies.[18] If such awareness is made, companies would not be afraid of launching newer more sustainable technologies due to concerns arising from higher-costs.[19] Again,

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[16] ET Bureau, "US commerce secretary warns India on 'unfair' trade policies," *The Economic Times*, May 8, 2019, https://economictimes.indiatimes.com/news/economy/foreign-trade/us-commerce-secretary-warns-india-against-any-retaliatory-tariffs/articleshow/69217711.cms?from=mdr; Manoj Sharma, "US to end preferential trade treatment for India from June 5; what it means and will it affect country?," *Business Today*, June 13, 2019, https://www.businesstoday.in/current/economy-politics/us-to-end-preferential-trade-treatment-for-india-from-june-5-what-it-means-and-will-it-affect-country/story/352851.html

[17] Anil Jauhri (Former CEO, National Accreditation Board for Certification Bodies, India), speech at Water Quality India Association General Body Meeting, August 9, 2019; Tom Palkon (Senior Vice President of Water Systems, International Association of Plumbing Mechanical Officials), speech at Water Quality India Association General Body Meeting, August 9, 2019

[18] Li Liu and Marina Bergen Jensen, "Green Infrastructure For Sustainable Urban Water Management: Practices Of Five Forerunner Cities," *Cities* (2018): 126-133, https://doi.org/10.1016/j.cities.2017.11.013.

[19] V.A. Raju (Director – Alfa UV), interviewed by Candidate, New Delhi, India, August 9, 2019. Appendix D.e

while water infrastructure is developing at an explosive rate, it is imperative to note that the world has to run a perpetual marathon and not a brief race. That can only be achieved when development and sustainability act as the two hands to progress.

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**Bibliography**

ET Bureau. "US commerce secretary warns India on 'unfair' trade policies." *The Economic Times*, May 8, 2019. https://economictimes.indiatimes.com/news/economy/foreign-trade/us-commerce-secretary-warns-india-against-any-retaliatory-tariffs/articleshow/69217711.cms?from=mdr

Fernandes, Chrys (Regional Marketing Manager – Asia Pacific, Dupont Water Solutions). Verbal conversation with Candidate, New Delhi, India, August 9, 2019.

Friends through its General Secretary v. Ministry of Water Resources, National Green Tribunal Principal Bench, New Delhi, Application No. 134/2015, May 20, 2019, http://www.greentribunal.gov.in/Writereaddata/Downloads/134-2015(PB-I)OA20-5-19.pdf.

*Global Trends 2030: Alternative Worlds*. National Intelligence Council, 2012. https://www.dni.gov/index.php/who-we-are/organizations/mission-integration/nic/nic-related-menus/nic-related-content/global-trends-2030.

Jauhri, Anil (Former CEO, National Accreditation Board for Certification Bodies, India). Speech at Water Quality India Association General Body Meeting, New Delhi, India, August 9, 2019.

Liu, Li, and Marina Bergen Jensen. "Green Infrastructure For Sustainable Urban Water Management: Practices Of Five Forerunner Cities". *Cities* (2018): 126-133. https://doi.org/10.1016/j.cities.2017.11.013.

Makropoulos, Christos K., and David Butler. "Distributed Water Infrastructure For Sustainable Communities". *Water Resources Management* no. 24 (2010): 2795-2816. https://doi.org/10.1007/s11269-010-9580-5.

Mallar, Ram (Managing Partner, Mallar Law Associates LLP). "Ro Case before National Green Tribunal – Brief Points." Presentation at Water Quality India Association General Body Meeting, New Delhi, India, August 9, 2019. https://drive.google.com/open?id=1N66BQezne3vsLwd14IahTz-O449QZYpG.

Modak, Sandeep (Senior Technical Manager, DuPont Water Solutions). "Water Purifiers Business: Market Trends." Presentation at Water Quality India Association General Body Meeting, New Delhi, India, August 9, 2019.

Raju, V.A. (Director – Alfa UV). Interview by Candidate. New Delhi, India. August 9, 2019.

Rea, Francesca. "This $95 water bottle uses UV technology to self-clean and purify your drinking water," *Business Insider*, April 30, 2019. https://www.businessinsider.in/This-95-water-bottle-uses-UV-technology-to-self-clean-and-purify-your-drinking-water/articleshow/69117915.cms.

Shah, Suneel (Technical Head – Pentair Water). Interview by Candidate. New Delhi, India. August 9, 2019.

Sharma, Manoj. "US to end preferential trade treatment for India from June 5; what it means and will it affect country?" *Business Today*, June 13, 2019. https://www.businesstoday.in/current/economy-politics/us-to-end-preferential-trade-treatment-for-india-from-june-5-what-it-means-and-will-it-affect-country/story/352851.html

UN-Water Decade Programme on Advocacy and Communication (UNW-DPAC). "Water and Sustainable Development." Accessed September 3, 2019. https://www.un.org/waterforlifedecade/waterandsustainabledevelopment2015/images/sustainable_development_eng.pdf.

University of Bath. “University develops new cheap, sustainable water treatment devices for developing countries.” Accessed September 3, 2019. https://www.bath.ac.uk/announcements/university-develops-new-cheap-sustainable-water-treatment-devices-for-developing-countries/.

Palkon, Tom (Senior Vice President of Water Systems, International Association of Plumbing Mechanical Officials). Speech at Water Quality India Association General Body Meeting, New Delhi, India, August 9, 2019.

**Appendix A: Transcript from Interview with Mr. Suneel Shah**

Interviewee: Mr. Suneel Shah, Technical Head, Pentair Water India Private Limited

Question - Could you briefly state what your company does and what is its role in the water industry?
Answer - Pentair is 100 % into water treatment. When I say water treatment, I mean all 4 segments. It does purification in osmic application, water industry application (reverse osmosis, nanofiltration, providing components). We have another business where we work in the filtration industry and provide all the components right from filters to carbon etc. Then we have a separate segment which caters only to the food industry where we use the filters under the brand name of Everpure to Starbucks etc. Next, we have the highest share in the market for auto[matic] valves which goes in every industry and process. The total turnover of the company globally is USD 3 billion. In India, we do around 80-100 million USD worth of business and we have a factory in goa as well where we manufacture a myriad of products.

Question - Are you aware of the SDGs of 2030 set by the UN? Goal 6 speaks about clean water and sanitation and how everyone should have access but at the same time environmental sustainability is also an equally important goal. Could you, in this respect, elaborate on some of the steps Pentair or the water industry as a whole has taken to achieve these goals, for example, to increase the permeate recovery?
Answer - When you talk about sustainability especially, in case of components, Pentair as global company has focused on the innovation and tech development. It's been three years since we introduced the high recovery (50% recovery) membranes in the residential sector. There are a lot of developments going on. For example, we have recently launched salt free softeners in the US. Focus is going towards efficiency to minimize water wastage. Let's take an example, say automatic valves, they are basically designed in such a way, they save minimum 20-30% more water inasmuch as we use our own patented technologies. We have filters called Fiberdain which is a mixture of carbon fibers and sediments. Hence, you'll end up having one filter instead of two, with lesser pressure drop and high contamination reduction. It is our main motive to reduce plastic footprint etc.

Question - Could you suggest some measures which are maybe not implemented yet but in an ideal situation could be implemented in the future and would be much more efficient than now?
Answer - Yes, there is a lot of research and development is going on right now. In coming 2-3 years, most products will come with IoT, with internet-enabled tools which will make a good impact on the customer usage. Suppose there is a leakage that cannot be detected today, will be easily detected tomorrow by the means of a notification/alert. Those things will definitely help. Tech will build to reduce water wastage and Pentair is also working for the same.

Question - Who do you think are the measures taken by the governments, here in India and abroad to bring such sustainability? For example, by making new laws or proactively changing the environment.
Answer - As I said, we are one of the companies to launch 50% recovery membranes which still people are struggling to develop. We are way ahead of the market. California has the toughest environmental laws today and our products are being tested on those standards and then brought to India. We [India] will probably follow those after 10 years now.

Question - Has there been any instance where the Indian govt has posed an hinderance to your development or where it has given you an unusual push to move toward development?
Answer - There have been no regulations from the Indian side, no rules. There have been some conditions. In. today's conference, you might have heard about the National Green Tribunal. They are also asking to reduce wastage, increase efficiency and make better systems. All our products are internationally certified and following BIS Standards.

Question - From the NGT Case you just mentioned, what can we as future industrialists learn or imbibe?
Answer - Water is getting scarce by the day. We need to be more innovative and create such a culture where we basically best utilize all the available natural resources and develop products as per their requirement not giving the wrong indication. We need to be consumer-based.

**Appendix B: Transcript from Interview with Mr. Chrys Fernandes**

Interviewee: Mr. Chrys Fernandes (Regional Marketing Manager – Asia Pacific, Dupont Water Solutions)

In Australia, we have done a project in which they take all the sewage in the city of Sydney and they treat it. They have primary, secondary, tertiary advanced treatment and then they put it in tubewells 50 km away from the city. They feed it in the ground, so that's high quality water. They are testing this water for a myriad of factors at every stage of treatment at certain standards so the ground water is not contaminated, it is receiving high quality water.

Yes, we have already done studies on how much time it will take to reach the city of Perth. 20 years for it to reach the city of perth. They are doing it now for 20 years down the line, that's the kind of foresight that you need.

Those are the concepts that we need to think about today. That's what Malaysia is doing as they know that in 2033 water for them will go away. In Chennai, desalination is used for agricultural purposes. Water should be monetized and harvesting should be incentivized. Economic models should be applied to the supply of water.

Today, the govt is very active if you've heard about the NGT. This is just asking municipalities to go back to old discharge levels. There is willpower in the new govt.

**Appendix C: Transcript from Interview with Dr. (Mrs.) Sandhya Shrivastava**

Interviewee: Dr. (Mrs.) Sandhya Shrivastava (Director – Bhavan's Research Centre)

You're selling purifiers to make water safe but it has to sustainable as well. In RO, its not only selling where TDS is low or where other alternatives can be used but also that so much water is being wasted. But where it required it should be used and that is the responsibility MNCs need to be taken. Buying RO has become a

prestige issue. Industries need to create awareness about the processes in RO filtration. The burden of the environment has to be taken by someone and here govt needs to intervene. Profit is not bad and companies should continue selling but should keep in mind responsibility at the same time too.

**Appendix D: Transcript from Interview with Mr. V.A. Raju**

Interviewee: Mr. V.A. Raju (Director – Alfa UV)

Most of the organized sector is aware and are making environment friendly components. UV is considered to be a green technology. However, UV has got a component that is the UV lamp that is mercury based. Now, mercury is one element that is highly toxic to nature and hence disposal of these lamps becomes a major issue. The new development is to use LED lamps but it has not become cost effective. The difference is 10 times the cost which is not affordable for the common man. Though the technology is there and we are aware of it, it is too expensive for us to promote it. Industry needs to work on making technologies affordable by increasing the supply.

NGT - When you look at banning laws, there needs to be a lot of research and affordable implementable alternatives. This is due to indiscriminate promotion of technology that is made to look like magic, like anything can be purified, it's the best. Public awareness here is very critical. NGT thinks that TDS is the only parameter when you look at water quality but what they need to understand that TDS is not the measure of purity. It is one of the indicators out of 68 others in the IS 10500 which is the standard for potable water. I may have water with TDS of less than 500 ppm but not permissible under other indicators. NGT is not aware of the intricacies, the nitty-gritties of water purification.