THE SUSTAINABILITY MAFIA

BUILDING A POST COVID-19 RESILIENT INDIA THROUGH SUSTAINABLE SOLUTIONS

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Introduction

As we get used to the "new normal" of working from home since COVID-19, we have encountered pictures, videos and news reports telling of cleaner air, purer water bodies and wildlife reclaiming habitats. These are stories of hope, and of nature healing itself.

Of course, this might not last forever. As we limp back to the world that was, it is possible that we will see signs of renewed vigour in human activities – whether reflected in greater road traffic, manufacturing output, or waste generation. In the zeal to revive the economy, it is possible that manufacturing and operations might be ramped up, and environmental regulations disregarded, poorly enforced or relaxed considerably.

How do we ease back into a healthy economy while being mindful of our environmental footprint? What can we do differently in order to keep breathing clean air, maintain our lakes and rivers, and continue to have cleaner cities? How can we "build back better" and create a more resilient, sustainable society?

The Sustainability Mafia (eco.susmafia.org) is a network of more than 50 top entrepreneurial practitioners in sustainability working across domains in India and Bangladesh. In this position paper, we outline key implementation proposals informed by experience in energy, water, mobility and green product-development. These proposals are offered as recommendations to the Government of India as well as other stakeholders such as private investors, etc., looking to create a newly resilient economy in response to the challenges we face.

3 DECENTRALISED SOLUTIONS FOR WASTEWATER REUSE

Context. According to a 2018 report released by the Niti Aayog, 21 major Indian cities including Delhi, Bangalore and Chennai are in danger of reaching *zero* groundwater levels by 2020, affecting access for 100 million people. The Union government recently formed the *Jal Shakti* (water) ministry for addressing water scarcity issues, and plans to provide piped water connections to every household in India by 2024. Laying huge pipeline networks would mean prioritising infrastructure over other viable options. Even with a pipeline network, the questions remain: *What will happen if there is no water to supply? What will happen to all the wastewater that gets generated?*[14]

India's **sewage treatment plant (STP)** capacity is low, with insufficient underground sewerage network to transport wastewater. The overall treatment capacity is only about **37%** of the **62 billion litres** of sewage generated daily by urban India[15]. This implies that 39 billion litres of untreated or partially treated sewage is disposed into lakes, rivers and other water bodies.

Solution. The COVID-19 pandemic has reinforced the value of clean water and its connection to human health. An important part of the urban solution for increased access to water, addressing water scarcity and untreated sewage load, is the reuse of **recycled wastewater** by **industries**, through on- and off-grid distribution.

Grid Distribution. While sewage treatment "infrastructure" is implemented at the city municipality level, it is common to find STPs within communities, apartments, business campuses or industrial complexes[15]. These can be leveraged by installing waste-water grids to transport domestic wastewater to such STPs, where it can be treated and then transmitted back after treatment to suitable **industrial** consumers. The necessary pipeline installations could be financed through ESCo[16] models developed as PPPs, potentially offsetting the public sector financial burden.

Off-grid Distribution. Bangalore receives its water supply from the Cauvery River, as well as urban and rural borewells. The Bangalore Water Supply and Sewage Board (BWSSB) supplies 1,453 million litres (MLD) per day through pipelines and 167 MLD per day through water-tankers. The centralized wastewater sector is highly unorganized; the excess treated wastewater is unscientifically discharged into freshwater bodies, which can otherwise generate revenue through planned, off grid distribution as exemplified by the following case study.

Case Study 1 - Rent-O-ReWa[17] (Rent-O-Recycled Water) proposes to 'close the loop' and offer sustainable, long-term solutions optimising wastewater disposal. The company aims to reduce the pressure on freshwater sources through an online trading platform, by matching sellers with buyers of recycled water that is supplied through tankers. The objective is to establish market linkages for treated wastewater in order to mitigate dependence on fresh water sources for non-potable usage purposes.

Highlighted benefits include - on demand availability of recycled water without investment; certified water quality test reports accompanying wastewater tankers; hassle-free payments,

[14] https://www.downtoearth.org.in/blog/water/india-s-water-crisis-the-clock-is-ticking-65217
[15] Waste Water Treatment & Reuse. 2018, Urban Waters
[16] See Section 4 for an exploration of the ESCo model in the context of sustainability projects
[17] http://www.ipsnews.net/2019/09/bangalore-city-goes-dry-lets-close-loop/

and a business model that creates financial benefits for both buyers (upto 60% saving compared to potable water) and sellers of recycled wastewater.

Through this platform, Rent-O-ReWa helps companies lower their water footprint and achieve their water-positive commitments at lower cost.

Case Study 2 - Chennai. With rising population and a flourishing economy, water demand from households, commercial hubs, industries and power plants pushed Chennai into a water crisis, as outlined in a 2018 report[18] by the International Water Association. In response, Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB) took 'serious steps' to close the water loop and make most of the available water. Among other measures, it was made mandatory for industries and manufacturers to achieve zero liquid discharge (ZLD) in their operations; all wastewater was treated to be reused. CMWSSB through a PPP model started treating wastewater to a standard, selling it to larger industries in the city that then further treated the wastewater[18].

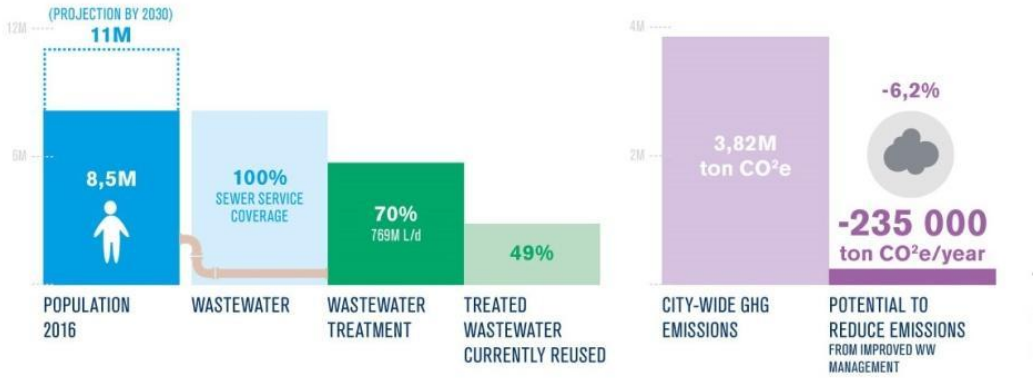

FIGURE 3 POTENTIAL TO REDUCE GHG EMISSIONS BY 6.2% PER YEAR BY IMPROVED WASTEWATER MANAGEMENT[18]

As a consequence, Chennai was able to meet around **15%** of its water demand through **treated wastewater consumption.** Around 8% of the treated wastewater was sold to industries, and up to 40.7% of domestic water needs in newly built houses was secured from in-situ wastewater reuse. In-situ wastewater reuse in residential areas along with rainwater harvesting reduced nearly 60% of water reaching the sewer system contributing to **improved operation of sewer networks.** As demand for onsite wastewater treatment systems increased, **new markets** for wastewater treatment manufacturers and businesses were created.

[18] The International Water Association, Waste Water Report, 2018.

ABBREVIATIONS

CSR	Corporate Social Responsibility
ESCo	Energy Services Company
HVAC	Heating, Ventilation and Air Conditioning
IoT	Internet-of-Things
MSP	Minimum Support Price
PPP	Public Private Partnership
RNFS	Rural Non-Farm Sector
RTDC	Regional Design Training Centre
SDG	Sustainable Development Goal
STP	Sewage Treatment Plant
ZLD	Zero Liquid Discharge

Contact

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