



REDUCE WATER FOOTPRINT FOR SUSTAINABILITY

By SPML Infra Limited

The ancient proverb ‘water is life’ has become more relevant now than it ever was. Water management has become most significant around the world in the prevailing situation where the resources are shrinking and demand continues to rise. Water is vital to India’s economic growth, well-being of people and sustainability for both human and businesses. But India is becoming a water-scarce country with risks of drought and diminishing groundwater reserves. By 2030,

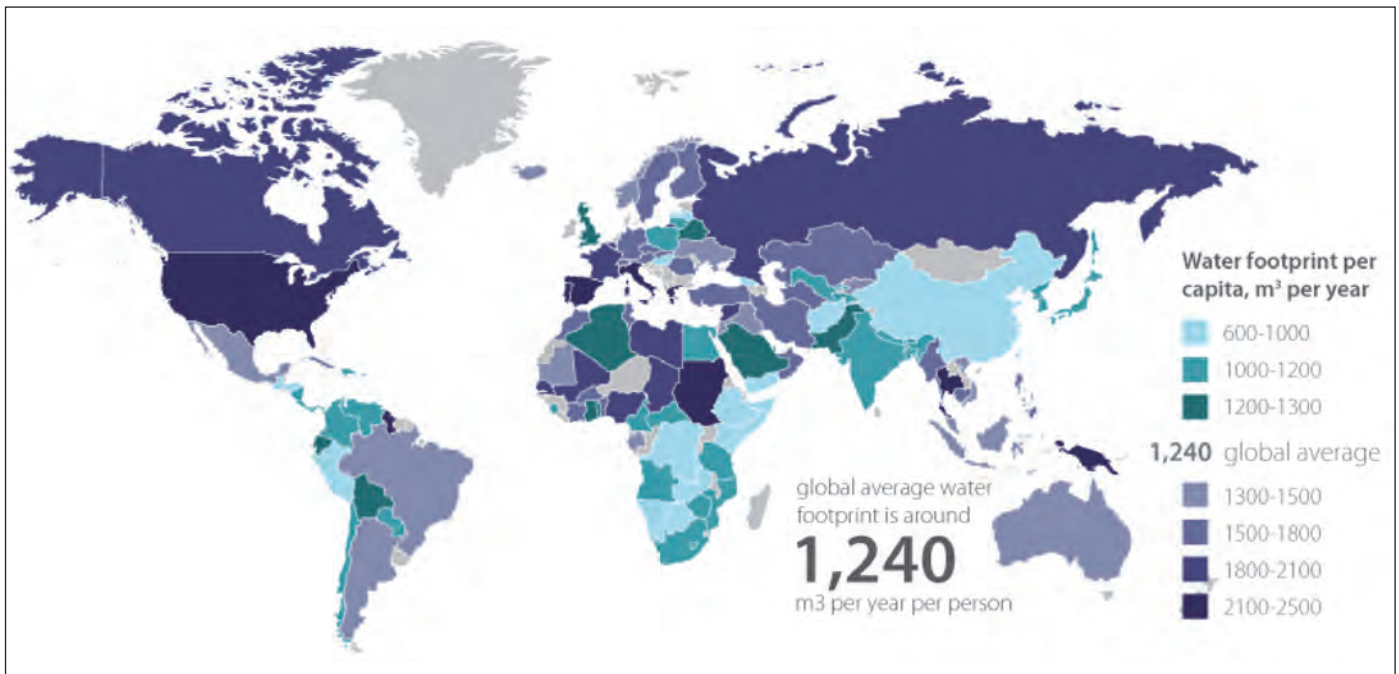
India’s water demand is projected to be twice its available supply, implying severe scarcity and an eventual 6% loss in the country’s GDP.

The concept of water footprint depends on the context of water consumed by all human activities, including production of goods and services, and cultivation of crops. The importance of water footprint can be acknowledged by the appeal of the President of India to farmers, industries and

government bodies to opt for efficient usage of water for reducing our water footprint.

Water Scarcity

Increasing water demand and greater variability of water supplies due to population growth, increased industrial activities, contamination and climate change have become the major threats to water security. Water has become scarce resource globally and United Nations has estimated that



Global Water Footprint Per Capita Per Year in Cubic Meters (Source: World Water Exchange)



68 MLD WTP, Hubli Dharwad, Karnataka

2.2 billion people lack access to safely managed drinking water. Water scarcity has become a real threat to human life as a quarter of world population live in the countries experiencing high water stress. The United Nation's World Water Development Report suggest that by 2050 more than 5 billion people could suffer water shortages due to climate change, increased demand and polluted supplies.

Clean drinking water is a precious commodity in most part of the world and the same is true for India. India which had abundance of water historically is facing a difficult challenge as millions of people are still deprived of piped water supply. The average annual per capita availability of water has reduced by almost 70% in a span of 60 years, from 5177 cubic meters in 1951 to 1545 cubic metres in 2011 and estimated to decline further to 1486 cubic meters in the current year.

India has ranked as the 46th highest risk country in the world in Water Stress Index 2019. It also

suggest that 11 of India's 20 largest cities like Delhi, Chennai, Agra, Jaipur, Ahmedabad, Indore, Kanpur, Nashik, Lucknow, Hyderabad, Bengaluru are facing extreme water risks. Seven other big cities are also at the high risk level.

The World Resources Institute (WRI) has placed India at 13th among the world's 17 'extremely water-stressed' countries under 'extremely high' levels of baseline water stress in 2019. WRI also predicted a severe future water stress globally by 2040 and out of 167 countries explored, 33 countries will face extremely high water stress. While the Middle East countries will be highly affected by extreme water stress in 2040, large economies like United States, China and India will face water risks of their own and they are projected to be remaining constant through 2040, except specific areas will see increased stress levels.

India's policy thinkers at Niti Aayog have also flagged the distressing situation of freshwater

availability in the country. The report has identified that 600 million people (43% of the country's population) is facing high-to-extreme water stress and 75% of households do not have drinking water facilities on their premises and 40% of India's population will have no access to drinking water by 2030.

There is a ray of hope as the water conservation

600 million people in India are facing high-to-extreme water stress and major cities are running out of water.

~ Niti Aayog



2587 MLD Pumping House for SAUNI Yojana Phase-1, Gujarat

need to become a people’s movement. An example by Gaya, a district in Bihar which faced the worst water crisis in 2019 is worth following by other Indian districts. The water table in Gaya has increased by 12 feet in the last 1 year by creating more than 1650 ponds, 329 check dams, over 2000 trenches & soak pits etc. If same could be replicated in other places, we will be able to mitigate the water scarcity substantially.

Water Use Efficiency

Water use efficiency in India is still much lower as compared to other countries. Agriculture sector in India withdraws about 80% of all water

India’s water footprint of 1089 cubic meters per capita ranks lower than the global average of 1240 cubic meters.

and the highest user of freshwater. The overall irrigation project efficiency in developed countries are 50–60% as compared to only 38% in India. It uses more water per unit of production as an estimate suggest that the industrial plants in India consume about 2 to 3.5 times more water per unit of production than similar plants operating in other countries. Water use pattern for agriculture is different at global level as it varies from 21% in Europe to 82% in Africa and 81% in Asian countries with global average of 69%. The water usage for industrial and municipal purposes also differs between the continents. European nations use about 57% water for their industrial purposes compared to just 5% in Africa and 10% in Asia, whereas municipal usage of water differs from 9% in Asia to 22% in Europe against the world average of 12%.

NITI Aayog also identified the key issues related to water use efficiency in India. It has set out the 28 key performance indicators covering irrigation, drinking water and other water-related sectors. Critical areas such as source augmentation, major and medium irrigation, watershed development, participatory irrigation practices, sustainable on–

farm water use practices, rural drinking water, urban water supply and sanitation, and policy and governance have been accorded high priority.

A well planned and properly defined policy intervention is needed to conserve, protect, and ensure affordable access to water with proper pricing, integration of environmental concerns into agriculture policy, information sharing, awareness and education, increasing financial support for infrastructure development and improved governance. The challenge lies not only in channelling treated used water back into the waterways, but also in processing it to be reused for other applications. There is a growing trend towards water reuse projects in Singapore, Australia, USA and Israel to deliver high-quality treated water that can be used to augment the potable water supply. India needs to follow the best practices from around the world to make water reuse a rewarding affair.

Water Footprint

The changing water paradigm is putting more emphasis on finding new sources of water to address increasing demand while incorporating



Raw Water Reservoir, SAUNI Yojana Phase 2, Gujarat

ecological concern into nation's water policies. The connection between water and food are at the focus as many countries around the world are already facing moderate to extreme water crisis and the problem is likely to become more serious as the realities of water availability are being challenged. There are serious thinking across many countries related to water footprint to incorporate it into government policy and corporate strategy. The water footprint of India reveal that staple food and export crops are often produced inefficiently and they use more water and land resources than the global benchmark for these crops.

India is amongst the world's top producers of cotton, a crop that requires substantial amount of water to cultivate as for the water footprint, cultivating just a kilogram of cotton (the amount required to make one pair of jeans) requires 10,000 litres of water for growing, dyeing and washing. In India, water is also pumped up for agricultural use at a higher rate than it can be replenished leading

to groundwater levels plummeting alarmingly. The irrigation sector in India uses 80% of the available water from the limited sources. The growing demand of the population and especially from the urban settlements including domestic water requirement, industrial requirement, ecology sustenance, and power generation needs to be catered. It is estimated that irrigation requirement has to be lowered to the level of 68% of the total demand by 2050. The present level of irrigation efficiency for surface and ground water is 30% and 55% respectively that is estimated to increase to 60% and 75% respectively by 2025. India is the largest user of groundwater but its water footprint is still much lower than developed countries as its 1089 cubic meters per capita ranks below the global average of 1240 cubic meters.

Whereas United States has the highest water footprint of 2842 cubic meters followed by the United Kingdom at 1695 cubic meters per capita. But at the same time, the 1395 million people in India collectively contribute to a significant 12% of

the world's total water footprint.

Way Forward

A well planned and properly defined policy intervention is needed to conserve, protect, and ensure affordable access to water with proper pricing, integration of environmental concerns into agriculture policy, information sharing, awareness and education, increasing financial support for investment in infrastructure development for effectively lowering of India's water footprint.

About the Author

SPML Infra Limited is a leading infrastructure development company in India with over 600 completed projects in a rich legacy of four decades. It is among the World's Top 50 Private Water Companies and provides clean drinking water to over 50 million people in India.

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