



6th **WORLD WATER**
SUMMIT 2022
Water Management Locally - Globally
International Conference & Exhibition

August 24-25, 2022, Convention Centre – NDCC
Parliament Street, New Delhi - India



Global Investments For Good Water Governance

PRANAB J PATAR, PhD
Global Foundation (GFAEHW), New Delhi

- Member -

Deepor Beel Conservation Society, Govt. of Assam (Governing Council)

IUCN Commission on Education & Communication

IUCN World Commission on Protected Areas | Assam Science Society

Sustainability Council | Indian Science Congress Association

CoalitionWILD Global Mentorship Program | Responsible Tourism Society of India

International Council for Circular Economy (ICCE) | Climate Reality Leadership Crop

Global Foundation for Advancement of Environment & Human Wellness

A unique
**Environmental &
Social Impact Organization ***

Founded on
Triple Bottom Line Philosophy



Committed to bring in **Innovative & Enduring Solutions**
to address socio-environmental challenges through
Multi-stakeholder, Trans-disciplinary & Hands-on Approach

Thematic Areas



Water Security

Climate Security

Food Security

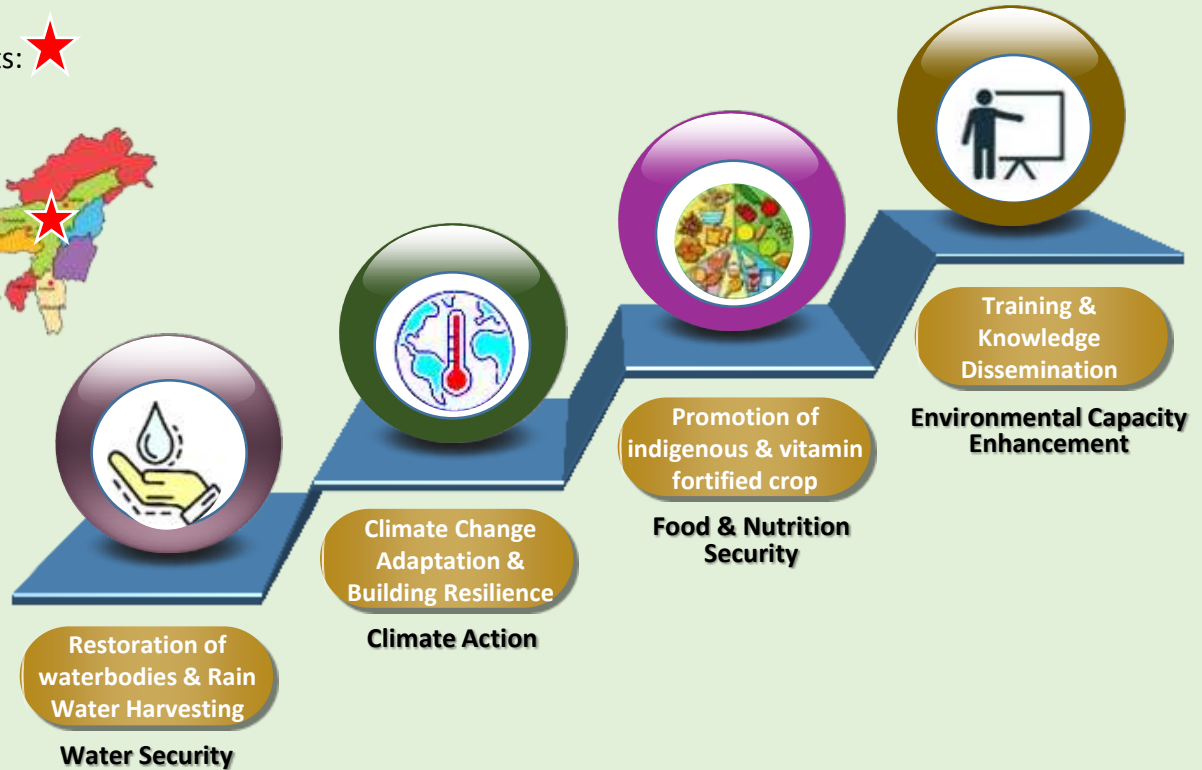
* Registered as a 12A/80G compliant Charitable Trust in India



Broad Areas of Work



Office: ★ Projects: ★



National Strategic Alignments:

| National Water Mission | National Mission for Sustaining the Himalayan Eco-system |
| National Mission on Strategic Knowledge for Climate Change | National Nutrition Mission 2018 |

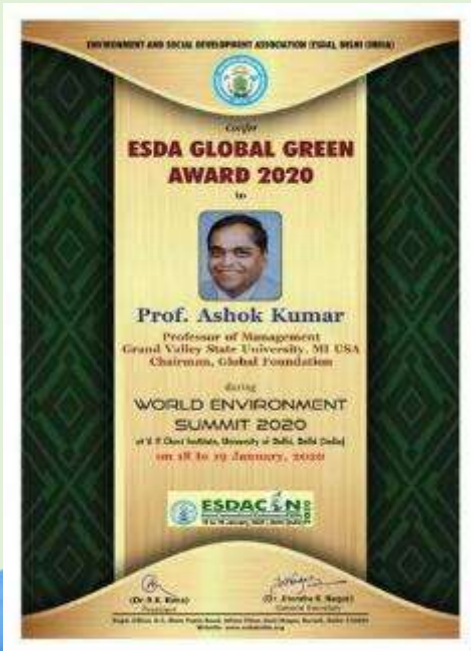


Sustainable Development Goals:

| SDG 2: Zero Hunger | SDG 3 - Good health and well-being |
| SDG 6: Clean Water and Sanitation | SDG 13: Climate Action | | SDG 15: Life on Land |
| SDG 17: Partnerships for the Goals |



Awards & Accolades



Partnerships & Collaborations



Media Coverage

नोएडा और बोनो की कई सोसायटियों ने खोला मेडिसिन बैंक

नोएडा, अंतर्राष्ट्रीय, नोएडा अपार्टमेंट्स के निवासी ने खोला मेडिसिन बैंक



नोएडा, अंतर्राष्ट्रीय, नोएडा अपार्टमेंट्स के निवासी ने खोला मेडिसिन बैंक

नवोदय

सफाईगिरी अभियान नोएडा को अक्ल ला

नोएडा, 19 दिसंबर, 1 मिनट



दैनिक जागरण

शहर को स्वच्छ बनाने में जुटे निवासी

नोएडा, 19 दिसंबर, 1 मिनट



दैनिक

बन्यात नय जाब पब

नोएडा, 19 दिसंबर, 1 मिनट



Noida's apartment complexes 'Roti Bank' to help feed the poor

नोएडा, 19 दिसंबर, 1 मिनट



The Sentinel

Face masks distributed

नोएडा, 19 दिसंबर, 1 मिनट



हिन्दू

सेक्टर-119 में किया रक्तदान

नोएडा, 19 दिसंबर, 1 मिनट



संस्थान ग्लोबल फाउंडेशन ने ग्रामीण क्षेत्र में मास्क एवं सेनेटाइजर का किया वितरण

नोएडा, 19 दिसंबर, 1 मिनट



JNN

2021 SABERA Award for Assam environmentalist Dr Pranab Jyoti

नोएडा, 19 दिसंबर, 1 मिनट



जागरण

कोरोना से नहीं घबरए, आपदा में निखरकर आएं

नोएडा, 19 दिसंबर, 1 मिनट



जागरण

5 लाख उपकरण बांटे

नोएडा, 19 दिसंबर, 1 मिनट



दैनिक अजस्र

ग्रामीणों में नई-इंस्ट्रूमेंट्स और पत्र-पत्रिकाएं

नोएडा, 19 दिसंबर, 1 मिनट



जागरण

राज्य सरकार के नियमों का पालन लिए किया गया प्रेरित

नोएडा, 19 दिसंबर, 1 मिनट



JNN

Medicine Bank formed in Noida for Assam's flood affected people

नोएडा, 19 दिसंबर, 1 मिनट



जागरण

कोरोना से नहीं घबरए, आपदा में निखरकर आएं

नोएडा, 19 दिसंबर, 1 मिनट



जागरण

5 लाख उपकरण बांटे

नोएडा, 19 दिसंबर, 1 मिनट



दैनिक अजस्र

ग्रामीणों में नई-इंस्ट्रूमेंट्स और पत्र-पत्रिकाएं

नोएडा, 19 दिसंबर, 1 मिनट



जागरण

राज्य सरकार के नियमों का पालन लिए किया गया प्रेरित

नोएडा, 19 दिसंबर, 1 मिनट



JNN

Medicine Bank formed in Noida for Assam's flood affected people

नोएडा, 19 दिसंबर, 1 मिनट



जागरण

कोरोना से नहीं घबरए, आपदा में निखरकर आएं

नोएडा, 19 दिसंबर, 1 मिनट



जागरण

5 लाख उपकरण बांटे

नोएडा, 19 दिसंबर, 1 मिनट



दैनिक अजस्र

ग्रामीणों में नई-इंस्ट्रूमेंट्स और पत्र-पत्रिकाएं

नोएडा, 19 दिसंबर, 1 मिनट



जागरण

कोरोना से नहीं घबरए, आपदा में निखरकर आएं

नोएडा, 19 दिसंबर, 1 मिनट



जागरण

5 लाख उपकरण बांटे

नोएडा, 19 दिसंबर, 1 मिनट



दैनिक अजस्र

ग्रामीणों में नई-इंस्ट्रूमेंट्स और पत्र-पत्रिकाएं

नोएडा, 19 दिसंबर, 1 मिनट



जागरण

राज्य सरकार के नियमों का पालन लिए किया गया प्रेरित

नोएडा, 19 दिसंबर, 1 मिनट



Contemporary Challenges



Contemporary Water Issues



Not A Good Change

Climate change or not, there's little doubt now that extreme weather events in India are becoming more common



Extreme Heat

WHAT WE KNOW

Annual mean temperature of India has risen by 0.6°C in past 114 years
West coast and southern India are projected to shift to new, high-temperature climatic regimes

WHAT CAN BE DONE

Stop towns from being heat 'islands' through planning



Rainfall

WHAT WE KNOW

A decline in monsoon rainfall since the 1950s has happened.
A 2°C rise in global average temperature will make India's monsoon go haywire

WHAT CAN BE DONE

Boost hydro-meteorological systems to conserve water



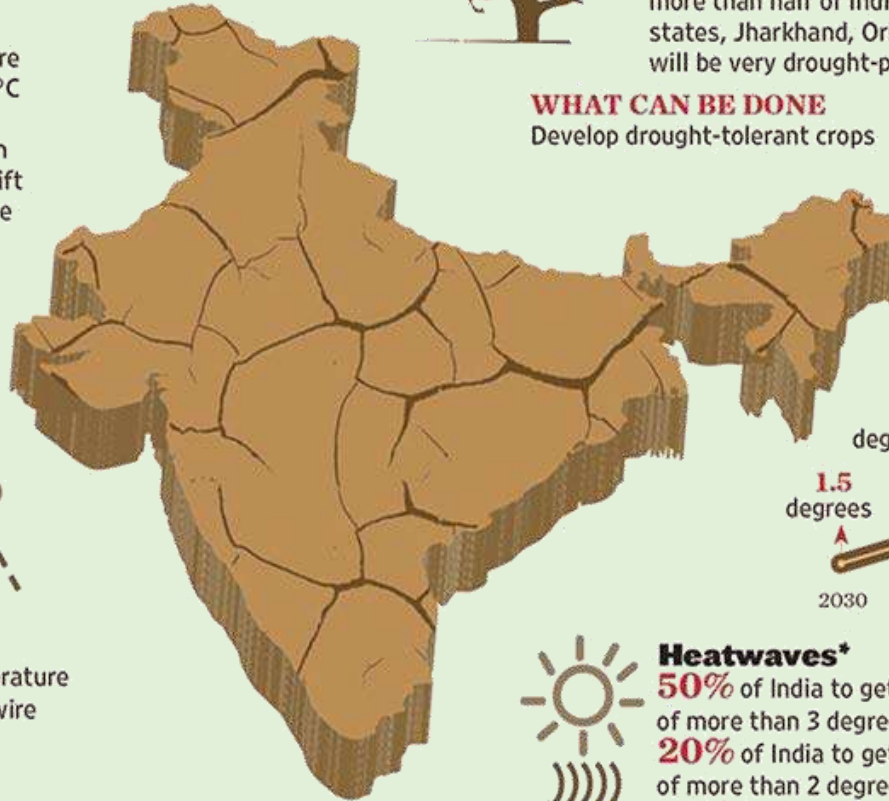
Droughts

WHAT WE KNOW

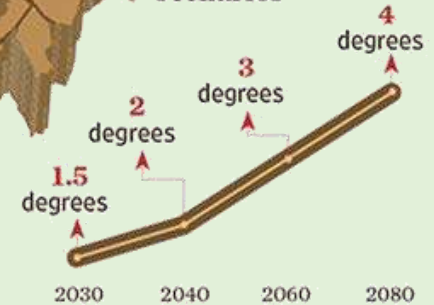
In 1987, 2002-2003 and 2009 droughts gripped more than half of India's sown area. Western states, Jharkhand, Orissa and Chhattisgarh will be very drought-prone

WHAT CAN BE DONE

Develop drought-tolerant crops



Projections* India Warming scenarios



Heatwaves*

50% of India to get heatwaves of more than 3 degrees
20% of India to get heatwaves of more than 2 degrees
15% of India to witness heatwaves of more than 1.5 degrees

* In the absence of climate change solutions

HOSTED BY Source: MoEF, IPCC, World Bank

Source: <https://www.team-bhp.com/forum/shifting-gears/221546-climate-change-impact-india-world.html>



The Global Risks Report 2022

A Timeline of Global Risks 2022

When Will These Major Global Threats Become a Serious Problem Worldwide?

Each year, the World Economic Forum releases its Global Risks Report, which highlights the top risks that pose a threat to the world in the next decade.

● Environmental ● Societal ● Technological ● Economic ● Geopolitical

Timeframe: 0-2 years



1 Out of 37 risks, respondents were asked to identify which risks they believe will become a critical threat to the world, and when.

Vaccine access is still highly uneven around the world, leaving developing countries more vulnerable to later waves of COVID-19 infection.

% Population Who Are Fully Vaccinated

■ 4.3% Low-income countries
■ 68.9% High-income countries

2-5 years



Competition between the U.S. and China is rising. The U.S. is frustrated by China's rising military presence and its tightening alliances with other world powers like the UK and Australia as a result.

5-10 years



Even the new commitments made at the 2021 COP26 aren't enough to achieve the 1.5°C warming goal established in the 2015 Paris Climate Agreement -- meaning, we're at great risk of climate damage.

Optimistic 3.7%
Positive 12.1%

Concerned 61.2%

Worried 23.0%

"How do you feel about the outlook for the world?"



Crisis or a Rising Opportunity



Increasing Global Demand

Global Facts & Statistics

Global demand for water will exceed viable resources by **40%** by **2030**, if we continue business as usual.¹

Industry is the **second largest** user of water, behind agriculture.²



Global water demand for manufacturing is anticipated to increase by **400%** by **2050**.³

Realizing a circular economy could globally divert up to **340 million tons** of waste from landfill each year.⁴

By applying circular practices in the near term across the consumer sector, **30% more materials could be recovered**.⁵

Urban Water Crisis

METRO CRISIS

India's urban population is set to grow massively over the next three decades—a major problem, since existing supplies of water are already insufficient to meet demand

40%

of India's population is projected to live in urban areas by 2030, up from 34 per cent in 2011

31%

of urban households lack access to piped water or public tap water

67.3%

of urban Indian households are not connected to a piped sewage discharge system

48%

of the urban water supply in India comes from groundwater, according to the Centre for Science and Environment

Sources: United Nations Department of Economic and Social Affairs; National Family Health Survey, 2015-16; Census 2011; Central Public Health and Environmental Engineering Organisation; Centre for Science and Environment



THE SUPPLY GAP

Average quantity of water supplied by urban local bodies in India

69.25

litres per person per day



Required quantity of water to be made available in the cities

135

litres per person per day

KEEPING IT FLOWING

While 80 per cent of households in India's cities have water sources within their premises, the challenge is to keep them recharged

Outside dwelling but within premises

24.6%



Within dwelling

56.1%

Less than 200 metres

13.8%

200 m–500 m

3.2%

500 m–1 km

1.2%

1 km–1.5 km

0.5%

More than 1.5 km

0.6%

THE 30 CITIES MOST AT RISK

A WWF-India report projects that the following cities will face a 'grave water risk' by 2050 due to sharp increases in population

- | | |
|-------------|-------------------|
| 1. Jaipur | 9. Visakhapatnam |
| 2. Indore | 10. Bengaluru |
| 3. Thane | 11. Kolkata |
| 4. Vadodara | 12. Ahmedabad |
| 5. Srinagar | 13. Jabalpur |
| 6. Rajkot | 14. Mumbai |
| 7. Kota | 15. Lucknow |
| 8. Nashik | 16. Hubli-Dharwad |



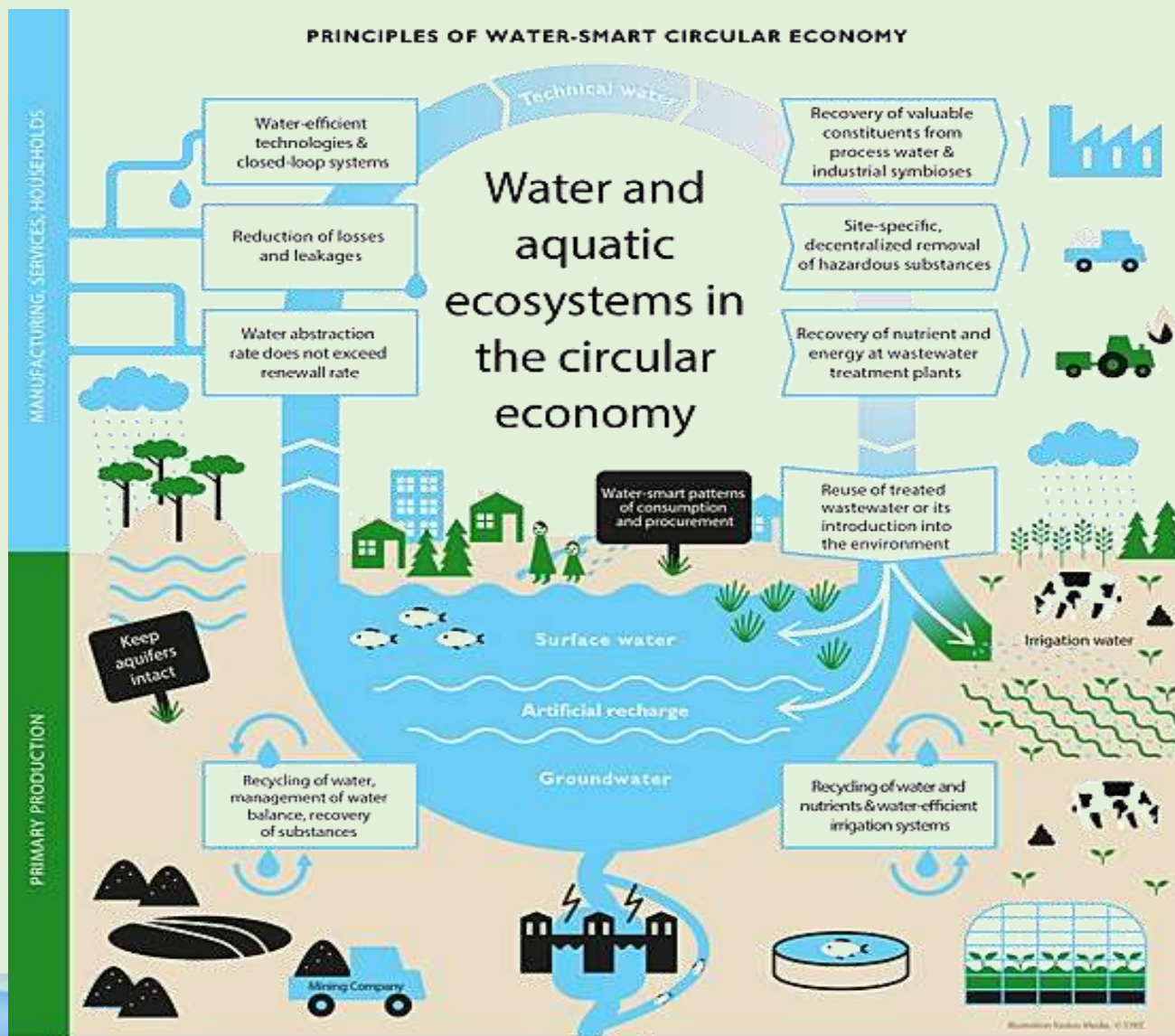
- | | |
|----------------|---------------|
| 17. Nagpur | 24. Bhopal |
| 18. Chandigarh | 25. Gwalior |
| 19. Amritsar | 26. Surat |
| 20. Ludhiana | 27. Delhi |
| 21. Jalandhar | 28. Aligarh |
| 22. Pune | 29. Kozhikode |
| 23. Dhanbad | 30. Kannur |

An Opportunity or A Crisis

- "You never let a serious crisis go to waste. And what I mean by that it's an opportunity to do things you think you could not do before." - Rahm Emanuel, former White House Chief of Staff
- "Crises can act as catalysts for corporates, governments, and broader society to focus on building resilient water systems. We continue to watch the Cape Town crisis to understand how this event might create opportunities for water-focused investors in the near term." - Sebastian Vanderzeil, Cornerstone Capital Group



Emergence of Circular Economy



Swelling Cost Or An Investment Opportunity



Investment Urgency

The ailing US water infrastructure:

a leaking lifeline and its immense investment gaps.

Loss in gallons of treated water due to water-main breaks occurring¹



Daily
6 billion

Yearly
2.1 trillion

High-hazard-potential aged dams in urgent need of remediation



over 50 years old

2,300 dams in poor condition

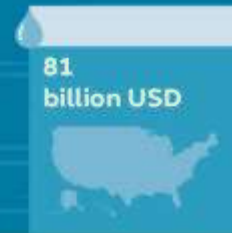


US water infrastructure annual needs²



100 billion USD

US water infrastructure investment gap



81 billion USD

US Drinking Water and Wastewater Infrastructure Act of 2021



35 billion USD

Now. For the future.
SDG-aligned investing for a more sustainable future.

¹Source: According to ASCE's 2021 Infrastructure Report Card

²Source: VOW Economic Paper_0.pdf (uswateralliance.org)

Investing involves risk. Please read this important information: <https://regulatory.allianzgi.com/en/global-disclaimer>
June 2021 #1663562



Radical increase in water & sanitation investment

70%

of countries have specific plans to reach low-income communities with WASH.

However, only an estimated

25%

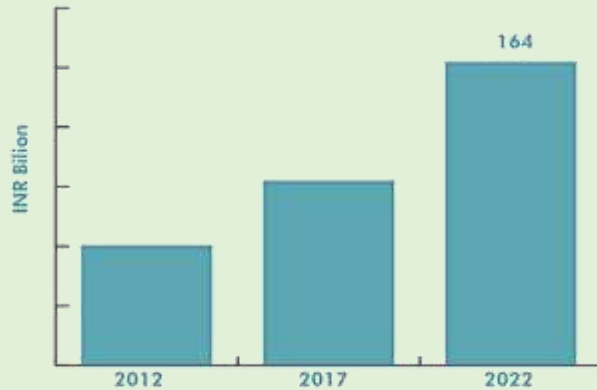
of WASH aid was spent on basic systems for unserved people, particularly in rural areas.

Source: <https://www.who.int/news/item/13-04-2017-radical-increase-in-water-and-sanitation-investment-required-to-meet-development-targets>



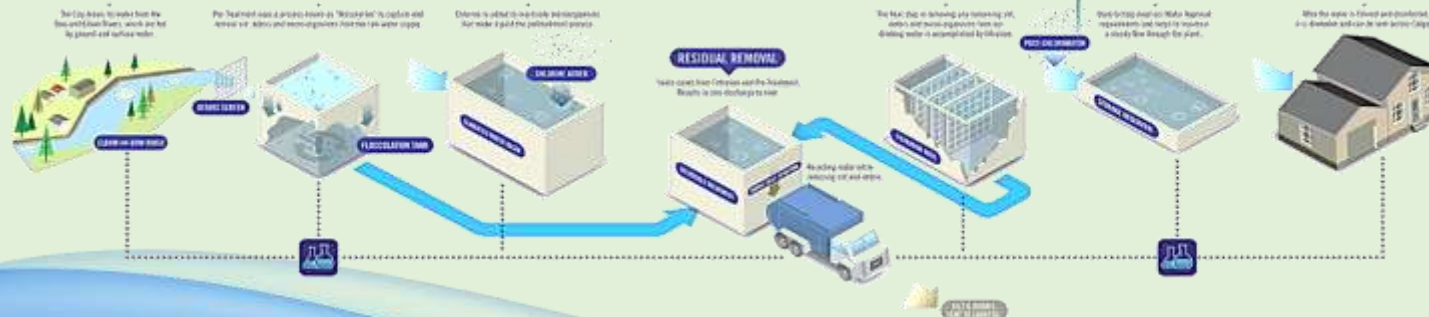
India Industrial Water and Waste Water Treatment Market is Expected to Reach INR 164 Billion by 2022: Ken Research.

India Industrial Water and Waste Water Treatment Market by Order Intake, 2012-2022



Source: Ken Research Analysis

- CAGR**
CAGR (2012-17): 10.8% in Revenues
CAGR (2017-2022): 10.4% in Revenues
- Market Stage**
Growth Stage
- Market Structure**
Concentrated among top 10 players having the largest share
- Number of Players**
More than 100 EPC players
- Basis of Competition**
Technology, Bidding, Experience, Bidding Price



Source: <https://www.kenresearch.com/energy-and-utilities/clean-technology/india-industrial-wastewater-treatment-market/144546-103.html>



Growing Similarities

Mother Nature's IMPACT ON WATER

As large towns and cities across Canada continue to grow, large paved surfaces and extreme weather conditions dramatically increase the challenge of managing excess water caused by storms.

68% Canadians say that we should prepare for **THE POSSIBILITY OF A MAJOR DISASTER** that affects storm water management systems



9/10

Canadians believe that a major disaster of the magnitude of **HURRICANE SANDY** IS POSSIBLE IN THEIR COMMUNITY



\$80 BILLION



replacement cost for drinking water, wastewater and stormwater infrastructure in Canada reported to be **IN 'FAIR' TO 'VERY POOR' CONDITION**

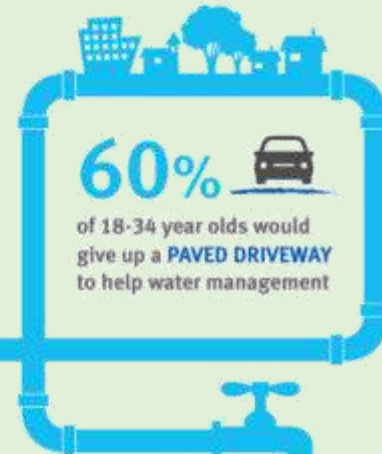
78%

believe their town's water infrastructure is **IN GOOD CONDITION** and don't see a need for investment in upkeep



60%

of 18-34 year olds would give up a **PAVED DRIVEWAY** to help water management



15%

are very aware of the condition of **MUNICIPAL WATER INFRASTRUCTURE**



Demand=Opportunity

Attractive Opportunities in the Wastewater Treatment Services Market



Increasing growth of food, pulp & paper and chemical industry are attributed to increase the demand for wastewater treatment services in APAC



53.0

USD Billion
2021-e

71.6

USD Billion
2026-p

CAGR of
6.2%

In terms of value, the wastewater treatment services market is projected to reach 71.6 USD billion by 2026, registering a CAGR of 6.2% during the forecast period.



The global market growth is attributed to increasing adoption of environmental regulations



New product launches may offer lucrative opportunities for market players in the next five years.



Rise in power generation industry is attributed to increase the demand for plastic additives within automotive industry

Source: <https://www.marketsandmarkets.com/Market-Reports/wastewater-treatment-service-market-38039841.html>



Why Invest in Water

- ❖ **Underserviced basic need:** fixed supply for increasing demand.
- ❖ Investing in **water supply chain:** efficiency, treatment, delivery or recycling vectors.
- ❖ The increase **need for solutions** are strong fundamental investment drivers in the long-run.
- ❖ **Segmented sector:** stand-alone performance drivers in Utilities, Industrials, Technologies and Infrastructure.
- ❖ **Wide array of funds** with different strategies and ESG overlays.
- ❖ These funds invests through **global listed equities**. This allocation can fit in a traditional equity portfolio.
- ❖ **ESG Investment at its core.** Investment bring solutions to water scarcity, efficiency and quality challenges.

Source: <https://www.whitestaginvesting.com/>



Water Trading

Exchange Traded Funds

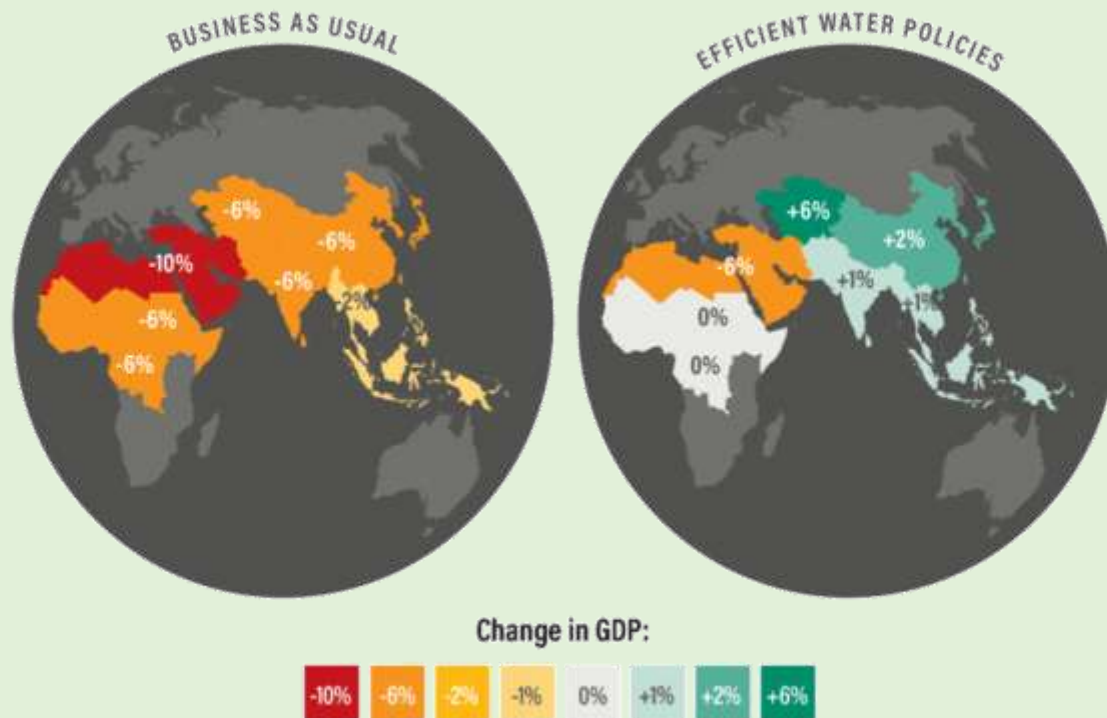
Water-themed [Exchange Traded Funds \(ETFs\)](#) provide investors access to a wide variety of stocks in the water industry, including water utilities, infrastructure, equipment and materials companies.

ETF	Invesco Water Resources ETF	First Trust Water ETF	Invesco Global Water ETF
Ticker	PHO	FIW	PIO
Exchange	NASDAQ	NYSE Arca	NASDAQ
AUM	USD 1.06 billion	USD 488.85 million	USD 202.8 million
Expense Ratio	0.60%	0.55%	0.75%
Number of Holdings	36	36	49
Top 3 Holdings	<ul style="list-style-type: none"> • Danaher Corp (NYSE: DHR) • Roper Technologies Inc (NYSE: ROP) • Ecolab Inc (NYSE: ECL) 	<ul style="list-style-type: none"> • IDEXX Laboratories Inc (NASDAQ: IDXX) • Danaher Corp (NYSE: DHR) • Agilent Technologies Inc (NYSE: A) 	<ul style="list-style-type: none"> • Danaher Corp (NYSE: DHR) • Geberit AG (SW: GEBN) • Ecolab Inc (NYSE: ECL)

Source: <https://www.poems.com.sg/>



Projected GDP Change by 2050



Source: Global Commission on Adaptation 2019, World Bank 2016.

 WORLD RESOURCES INSTITUTE

Source: <https://www.wri.org/>

- Research indicated that securing water for our societies by 2030 could cost just over **1% of global GDP** — about 29 cents per person, per day from 2015-2030.
- **Every dollar** invested in water access and sanitation yields an **average \$6.80** in returns. The World Bank found that failing to implement better water management policies could result in regional **GDP losses from 2-10%** by 2050.



Innovation, Scaling Up & Smart Economy

- There is an urgent need to make **alternative water resources** available for different functions and multiple users.
- Prospect of a '**water smart**' economy and society in which all available water resources are managed in such a way as to avoid water scarcity and pollution, increase **resilience to climate change**, appropriately manage water-related risks, and ensure that all valuable substances that could be obtained from waste water treatment processes, or are embedded in used water streams, are recovered.

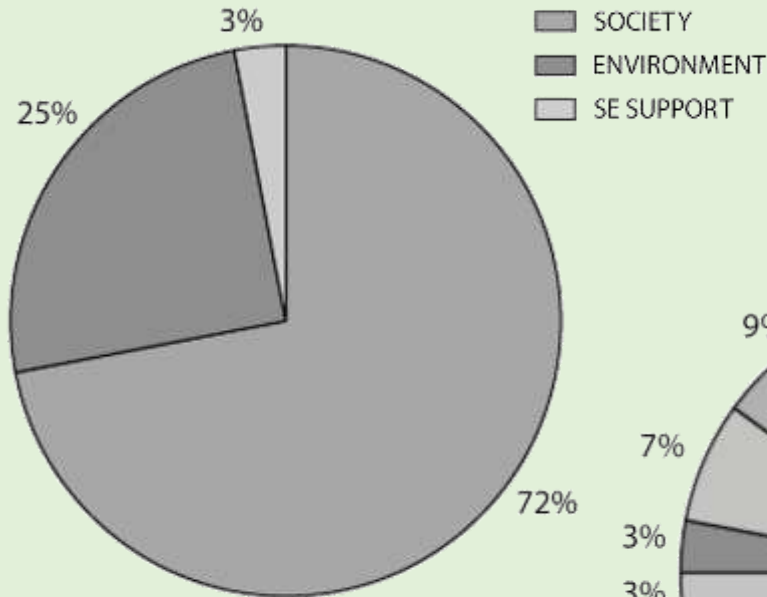


Entrepreneurship and Employment Opportunities

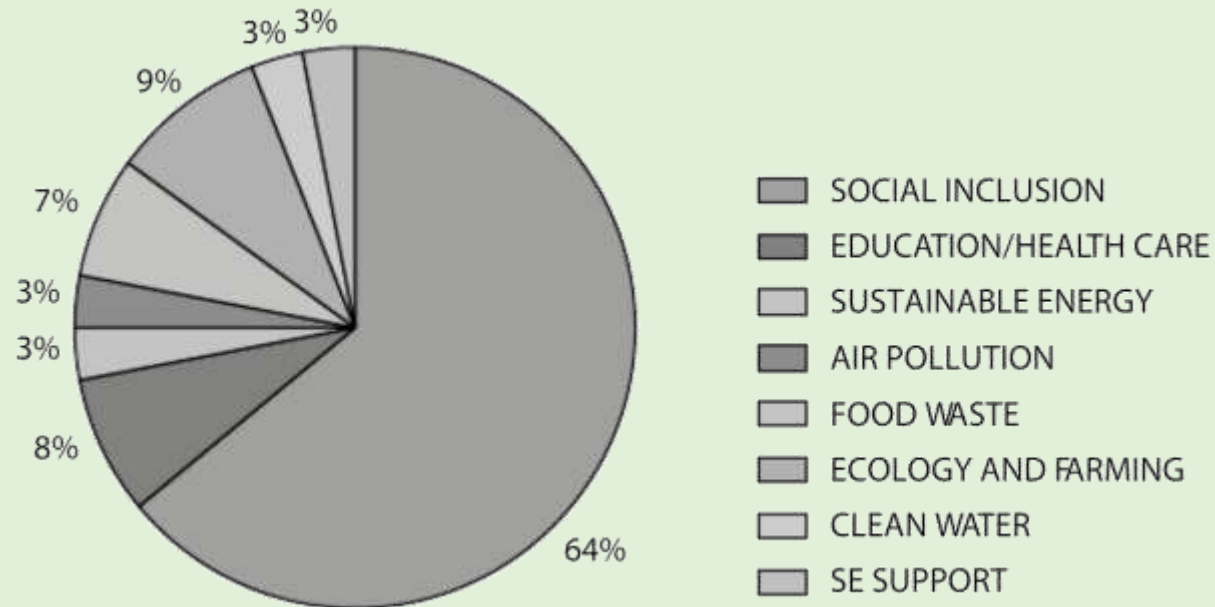
- ❖ Investment in small-scale projects providing access to safe water and basic sanitation in Africa could offer an estimated economic return of about **US\$28.4 billion** a year.
- ❖ Such investments also seem to have a beneficial effect on employment. In the United States, every **US\$1 million** invested in the country's traditional water supply and treatment infrastructure generates between 10 and 20 additional jobs.
- ❖ Meanwhile, the U.S. Department of Commerce's Bureau of Economic Analysis found that **each job** created in the local water and wastewater industry creates **3.68 indirect jobs** in the national economy.
- ❖ Another study in Latin America found that investing **US\$1 billion** in expanding the water supply and sanitation network would directly result in 100 000 jobs.



The Rise of Social Enterprises



Source: own elaboration.



Source:

https://www.researchgate.net/publication/322155956_New_generation_of_social_entrepreneurs_Exploratory_research_and_cross_case_study_analysis_of_new_generation_of_social_enterprises





Thank You

pranab.patar@gmail.com