



Enhanced Wapp Systems India

A Flagship Company of Eco-Inno-Vision Group, India

At

9th GRIHA SUMMIT, 2017

Track-III-Topic: Sustainable Water management: Affordable Solutions
(1530-1700Hrs, December 18, 2017)

Introduction Eco-Inno-Vision Group



ENHANCED WAPP SYSTEMS



SMART n GREEN

A Mfg./Automation/IoT company

Products

Automation

Electrical

A Full Service water Company

Technology

Solutions

Upgradation

Services



EXERGY ENGINEERS

A Consultancy Company

Water /Waste water Consultancy

Water IoT

Moving & managing water Efficiently

Enhanced Wapp Systems India

CETP-IV-Pali
12 MLD



Kalptaru, Thane-600KLD



- Founded in 1996 with the help of IIT-Delhi
- Full Service water Company
- PAN India presence/Focus of SAARC countries
- Inhouse Engineering capabilities
- IIT Visionaries
- 350+ strong Team
- 700+ (Small to fairly large projects)
- 100+ O & MsEnd Customer

Tata Trif, Kochi
O&M of RO/STP



NIIT Neemrana
O&M-STP



ITC-Chola, Chennai
O&M-RO+Multifiltration+STP



HMDA, Hyderabad
5 MLD STP



Medanta Hospital-Gurgaon
800KLD-RO



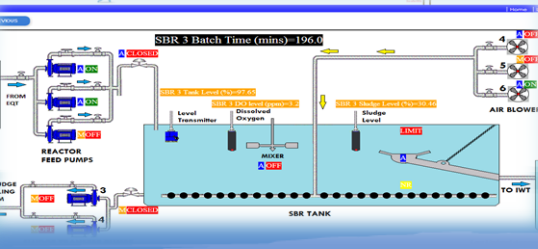
Moving & managing water Efficiently



Smart n Green Technologies

- ❑ Founded in the year 2013
- ❑ Electrical Systems & Automation of W/WW Plants
- ❑ Controllers/Panels for RO/water ATMs
- ❑ Focus on OEMs
- ❑ IoT Products/data Analytics

Electrical Panels/Automation



Pump panels/RO panels

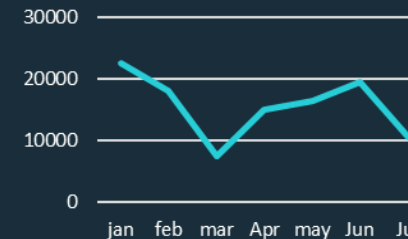


IoT Products-Water Manager



Real Time Monitoring/Level Alerts/Quality Alert
Daily Water Accounting/Water Cost/Trends

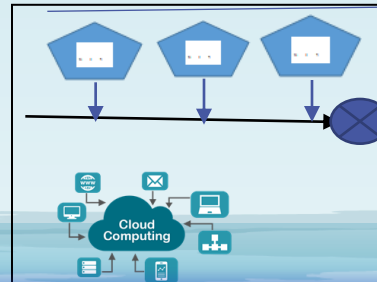
Purchase Cost



Recycled-av.



IoT Product-Cooling Tower manager



Moving & managing water Efficiently



Exergy Engineers

- ❑ Founded in the Yr 2000 as Water Consulting firm
- ❑ Senior Consultants /BEE Certified Auditors/Utilities & Boiler Operation Engineers –on board
- ❑ 50+ audits /Evaluation/ Consulting services for large infra-Projects

Namami Gange

STP Evaluation- *with Atkins-ongoing*

NAMAMI GANGE

INTEGRATED GANGA CONSERVATION MISSION

"A National Mission encompassing every Indian, right from the Prime Minister to the NRI living in America. If we can't do it now, we shall never be able to swear by our mother, Ganga Maiya Ki Kasam."

- ✓ Selection of Technology for waste water
- ✓ Evaluation of WTPs/STPs/ETPs
- ✓ Water Audit/Recommendations for Economical use
- ✓ Project Planning-New or existing facility
- ✓ Recommendation on Total water management
- ✓ Smart city & Smart Water planning
- ✓ Water Pricing/Policy Research
- ✓ Zero Liquid Discharge –project development

One Horizon Center



DLF
9MLD



Imperial Hotel, Delhi



Moving & managing water Efficiently

PARTNERSHIPS AND ALLIANCES- *during the journey*



Shristi Eco-research
Institute



The Energy Research
Institute



Kirhe Energy Saving
Services Pvt. Ltd.



NISHANT Bio-Energy



IIT - Delhi



IIT - Mumbai



Bureau of Energy
Efficiency



Indian Green Building
Council



CII-Confederation of Indian
Industry

..... Grooming Indigenous Technologies

Eco-Inno-Vision Group-Our Track Record

INDUSTRIAL



**Audits-55
(Water/Energy)**

KEY REFERENCES

- *Daurala Organics
- *Escorts Mahele,Patiala
- *Escorts mahele,Bangalore
- *Khasa Distillaries,Amritsar
- *Goetze India
- *Mahaveer Spinning Mills
- *Century laminating Co. Ltd
- *Whirlpool India

ETPs-35

KEY REFERENCES

- *Yamaha,Chennai /Toyota-Gujrat
- *Jindal Stainless Steel Ltd / Britannia-Gujrat
- *HSIDC,Bawal & Manaser
- *Daurala Organics
- *Flex Foods Ltd,Dehradun
- *Dr Reddy lab Ltd,Hyderabad
- *Pioneer Industries, pathankot
- *Dewan Bros

HOSPITALITY (Hotels, Hospitals, Comm Buildings ,IT Parks)



200+ Projects
*WTPs
*STPs
*Recycling & Reuse

KEY REFERENCES

- *ITC Hotels-40 Projects
- *Oberoi Hotels-20 Projects
- *HRH Group-Jslr
- *Indian Hotels-5 Projects
- *Innmar bangalore
- *Today Hotel

RESIDENTIAL



190+ Projects

*STPs
*Recycling & Reuse

KEY REFERENCES

- *L&T-20+ Projects
- DLF-60+ Projects
- *K.Raheja-20+ Projects
- *Mani Group-15 Projects
- *Smart City,Kochi
- *Prestige Misty
- *Pharos City

CETPs & Large STPs



25 Projects

KEY REFERENCES

- *CETP,Pali-12 MLD x2Nos
- *DLF Phase V-9MLD
- *DLF Cyber City-7 MLD
- *JDA-7.8 MLD
- *HSIDC-14 MLD

Soil Biotechnology/Air Pollution Prev./Automation

*Mahagun

Wapp has worked with National organizations for Technology Research
Soil Biotech-19
Automation-25

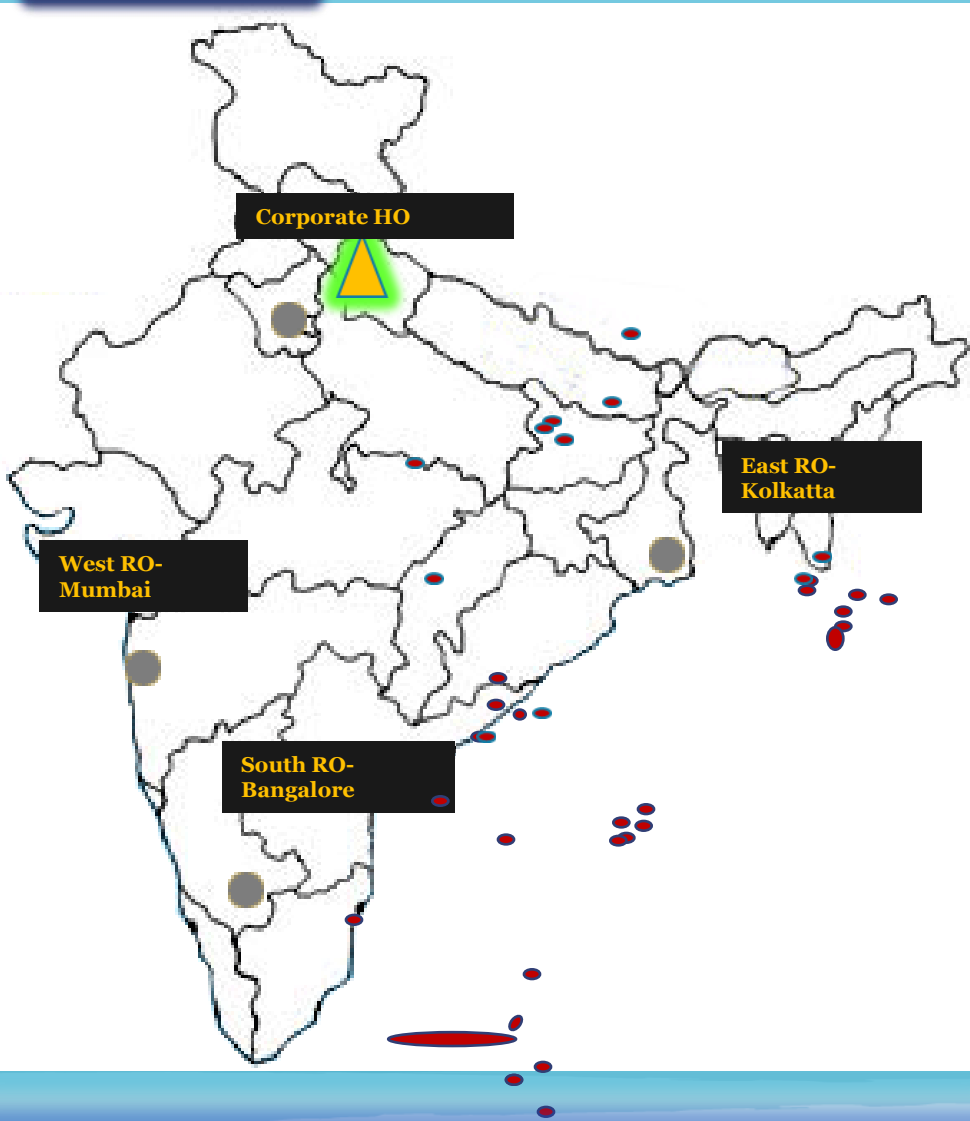
KEY REFERENCES

- *Vedanta Aluminium,Odisha
- *NTPC,Faridabad
- *ONGC,Noida / *Sona Koyo,GGN
- L&T automation-20 Projects

Moving & managing water Efficiently

Our Presence across geographies

Every part of India-Either we are locally present or access within few hours



- Corporate HO @ Gurgaon - Corporate affairs, Design & Engg. Center, Marketing/HR
- North –Regional Office in Delhi- NCR, Haryana,UP, MP,Panjab,Raj, J&K, Uttrakhand
- East- Regional Office-Kolkata-WB/Bihar/Odisha/NE States/Bangladesh
- South- Regional Office-Bangalore-TN/KN/Kerla/AP/Telengana/Maldives
- West- Regional Office-MH/GJ/Goa

- All India Presence-Digitally connected Corporate Office & Regional offices
- Focus- India, SAARC countries i.e. Bangladesh / Maldives
- Empowered Regional teams for prompt support
- Strategic tie ups in Bangladesh/Maldives for execution
- Offices to be opened soon in – Central India/Kochi



Our learnings-*past few years*

(1) **Fragmented Mandate:-**Water is a **state subject** , comes under the preview of multiple ministries & water policies are **not data driven**

(2) Water becomes **political issue** instead of remaining socio-economic issue. This is preventing anyone to take consistent decisions to solve the water problems. Water pricing is also a sensitive issue.

(3) Climate change is impacting the water availability/Risk of disasters

(4) Poor water resource management-All rivers , storm water bodies are polluted. Ground water is contaminated & depleting at a rapid rate

(5) **Poor focus of demand side management** /Recycling because of poor pricing /policy structure.

(6) **Fragmented market:-**Drinking water, Water Treatment, waste water, Plumbing Services, Desalination, Industrial, Urban etc.

(7) Water Demand, Supply & Quality Scenario varies from region to region a lot- For drinking/Domestic use, Commercial use, Agriculture, Industrial etc

(8) Very few cities /towns have a well planned **water supply networks** with proper Metering/Billing. Tanker water supply is growing in every city & water quality assurance is poor.

(9) **Water Technologies** are continuously **evolving**

(10) Businesses shutting down due to lack of water. In long term with new water challenges, water security may become a big concern.

(11) **Poor sanitation**/Sludge/Solid waste management hampering water management

(12) **Ever expanding cities** putting a huge pressure on city/public infrastructure

(13) Market is not a matured one . Lot of **projects fail to deliver** desired results/performance because of **poor benchmarking/tendering process.**

(14) **RO Technology** for safe drinking water has become too popular causing a **lot of wastage of water.**

(15) India is adopting **De-centralized approach** towards water management which will lead to **heavy demand of quality services**/Infrastructure/Water managers

Moving & managing water Efficiently



Our Renewed Approach based on our past Experience, Knowhow & Learnings

Resource to Consumer **(End-to- End)**

Water– Resource Management/water Security issue
(Rain fall/Ground water/Surface water/River/lakes/Sea water/tanker water etc.)

Water Supply & Distribution
(Automation/ Leak detection/Flooding issues)

Water /Waste water Treatment & Reuse
(WTPs/STPs/ETPs/CETPs/ZLDs)

Demand side Management
(Saving/Reuse/Recycling)

Smart water
(Distribution Network (Equitable distribution)

Safe Drinking water
(All human beings get safe & sufficient drinking water)

A Full Service water Company Approach

- ✓ **Water Demand Estimation**
Drinking water /Bulk water/Recycled Water / Agriculture /Urban / Industrial
- ✓ **Demand & Supply Mapping**
Houses/Societies/Industries/Cities/State/Country etc.
- ✓ **Compliance needs & desired water quality standards for all applications**
Total water management/ water Chemistry/Technologies
- ✓ **Testing/Quality assurance/online monitoring**
- ✓ **Water/waste water treatment technologies**
From source/inlet to end use/compliance needs
- ✓ **Zero Liquid discharge**

Moving & managing water Efficiently

Sustainable Water Management: Affordable Solutions

Facts

- Water is a finite resource & reused every time we consume it after nature treats it
- Industrialization/Urbanization /High growth has challenged nature for its capacity & capability
- Nature cannot treat water at the rate we are polluting it and some of the pollutants are beyond nature's ability to treat and are very dangerous for human health
- **Can we compromise Industrialization/Urbanization or country's growth????**

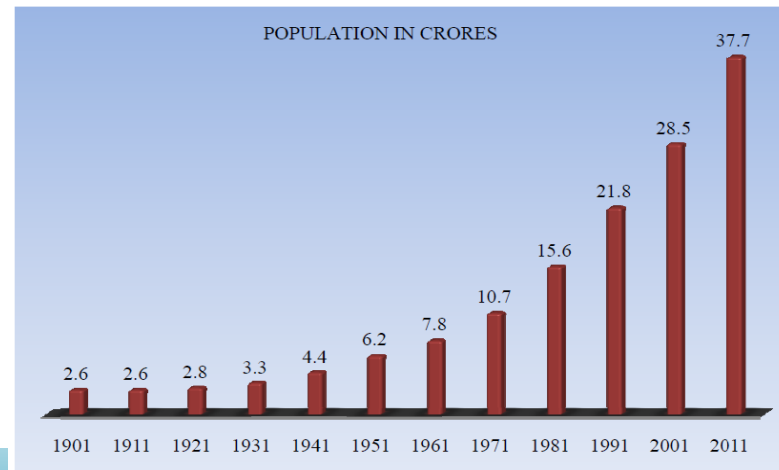
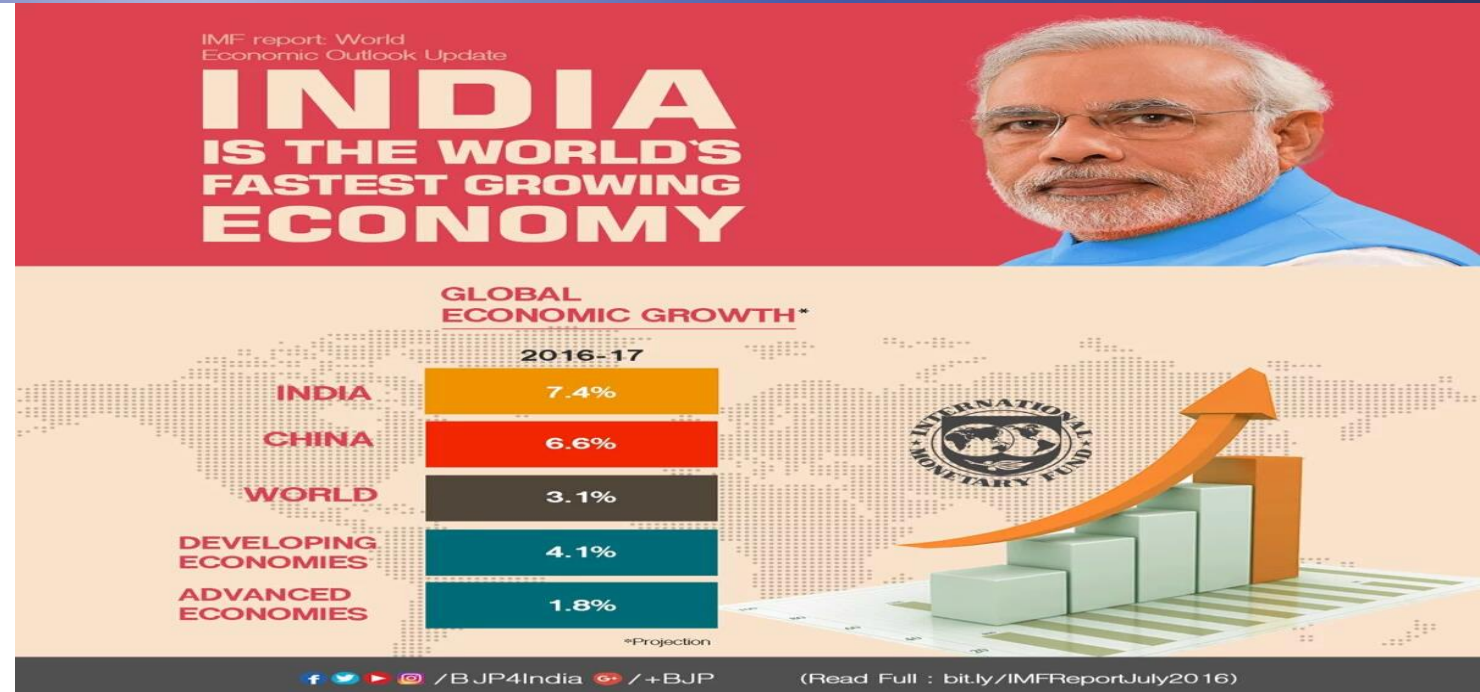


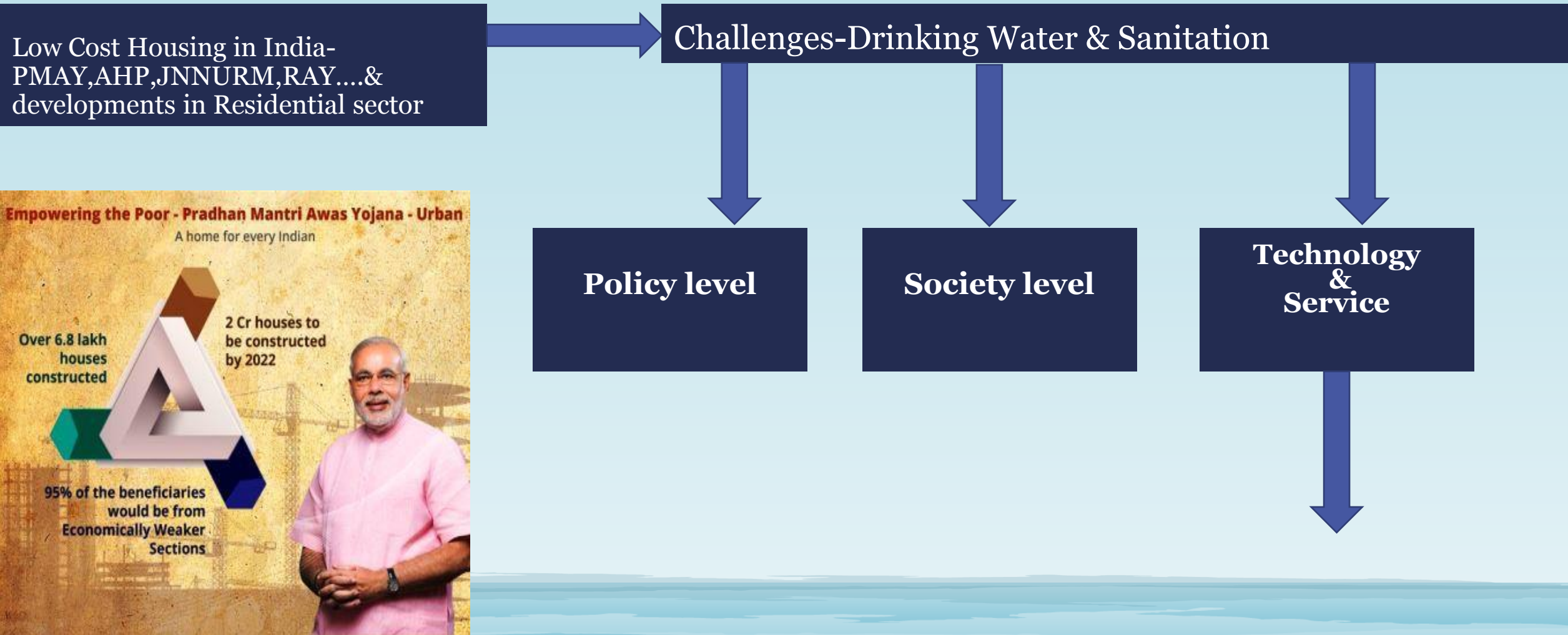
Figure 1: Bar diagram shows growth of urban population 1901-2011

Table 1: Decadal Urban Population Growth Since 1901



Sustainable Water Management: Affordable Solutions

An approach for New 'Indian Cities'



Sustainable Water Management: Affordable Solutions

Technology & Service could play an important role for Sustainable water management

- Major challenges are

Continuous supply of water for Drinking/Domestic application (Meeting Demand Treatment/ Distribution)

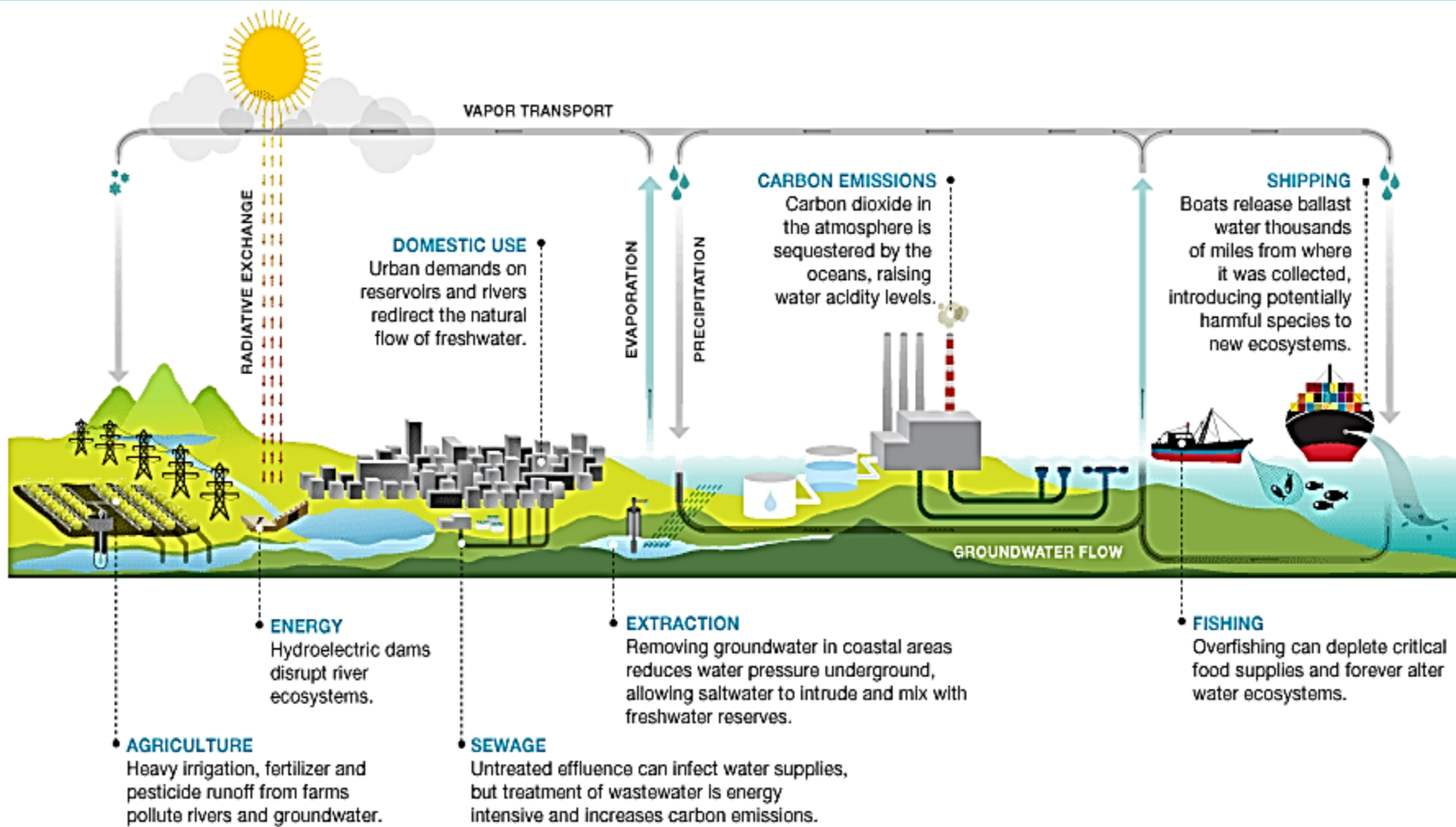
&

Sanitation (Collection/Treatment/Reuse/Discharge)

Suggestive Solution Steps

1. **Holistic approach** –Total water management –right from inception of dwellings
2. **Overcoming Apprehensions** about water reuse & maximizing reuse points
2. **Innovative ways** to Reduce /Reuse-Demand side management
3. **Less dependency on Govt.**
4. **User-friendly /Low cost/Sustainable** technologies

TOTAL WATER MANAGEMENT



We take care of the whole Water Management Cycle



DEMAND SIDE MANAGEMENT



Flushing



Horticulture



Cooling
tower



Car wash



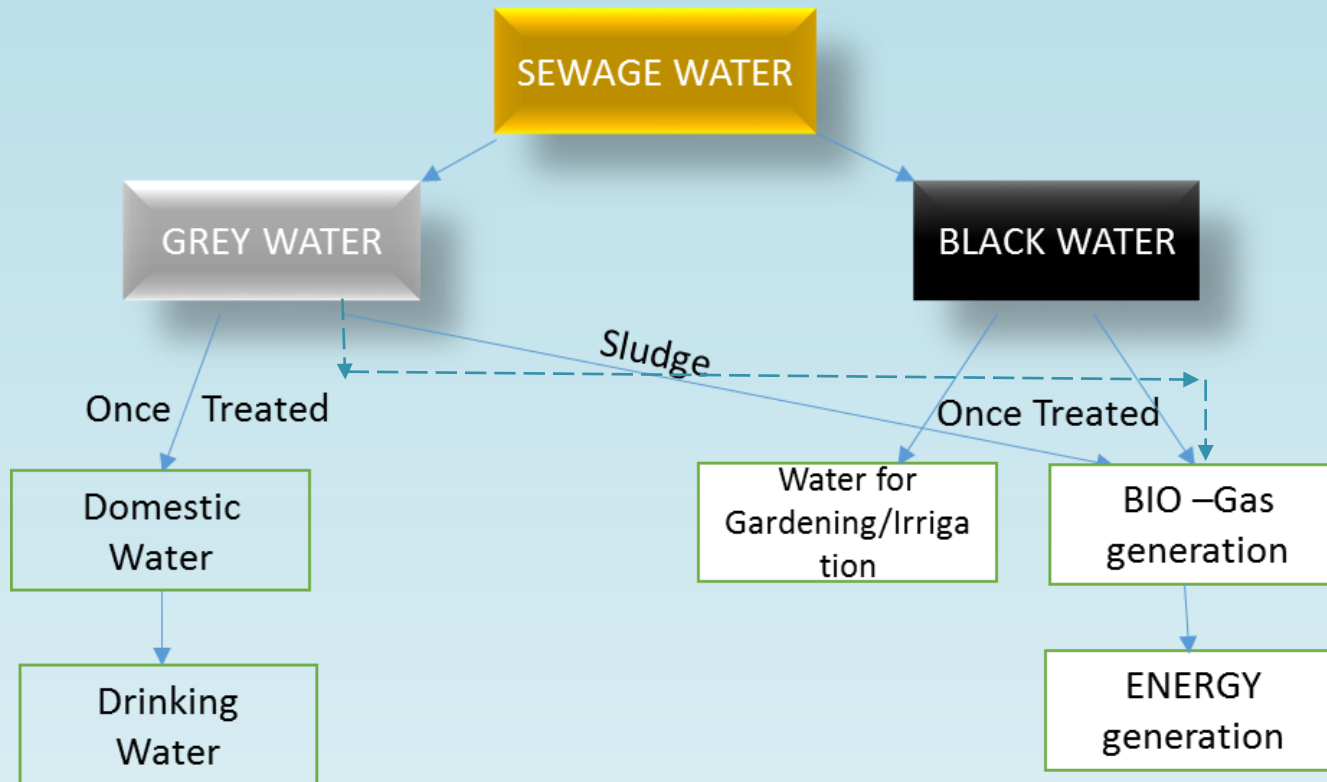
Drip
Irrigation



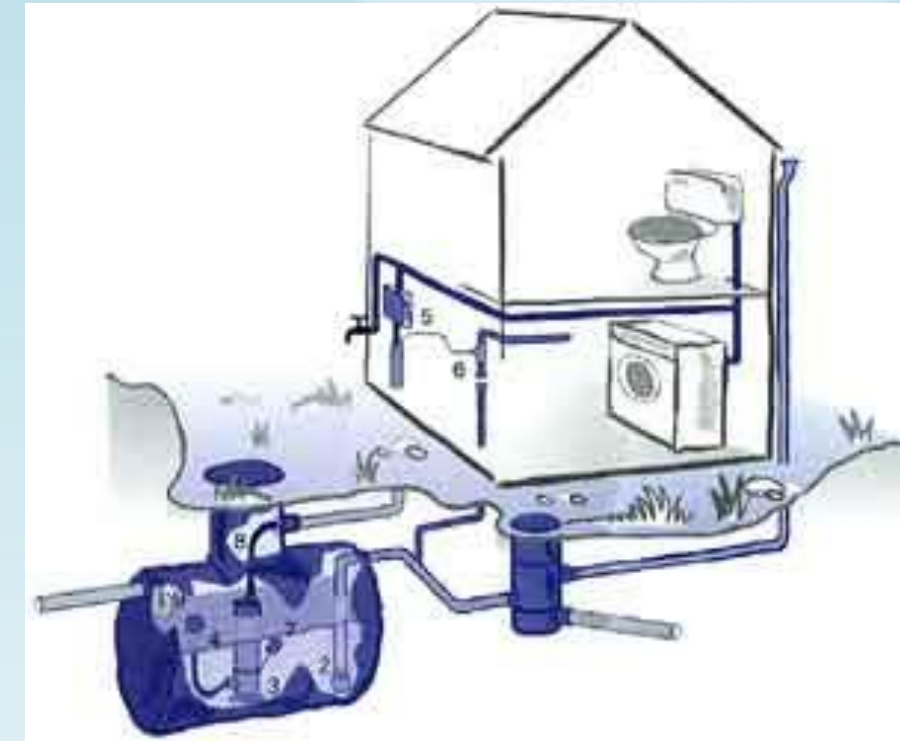
Water
Metering

To Minimize Water Consumption in various Applications

GREYWATER TO DRINKING WATER

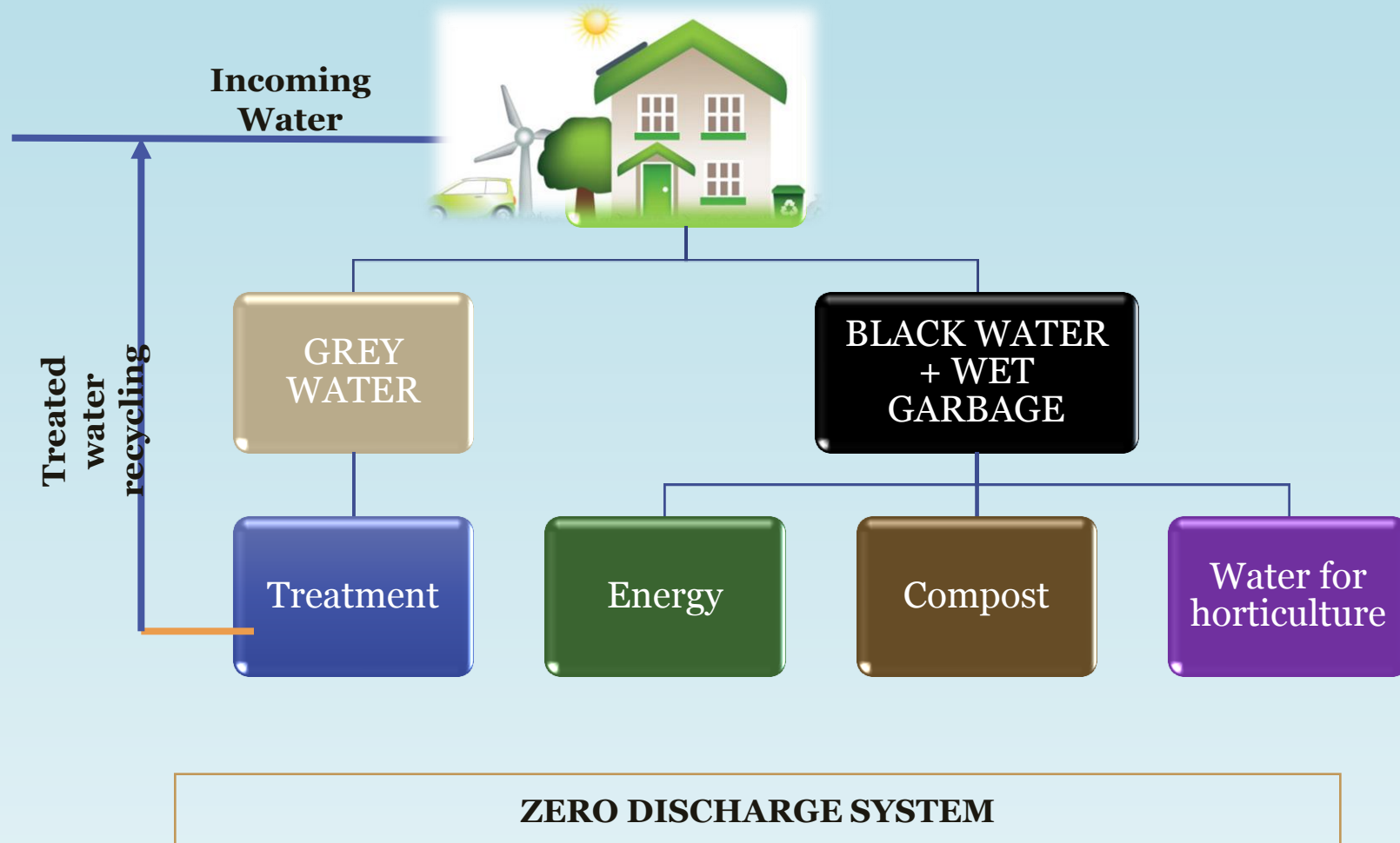


Distribution of black and grey water in a household



Hence, we could source our water need locally and achieve zero discharge!!

SUSTAINABLE WATER /WASTE MANAGEMENT

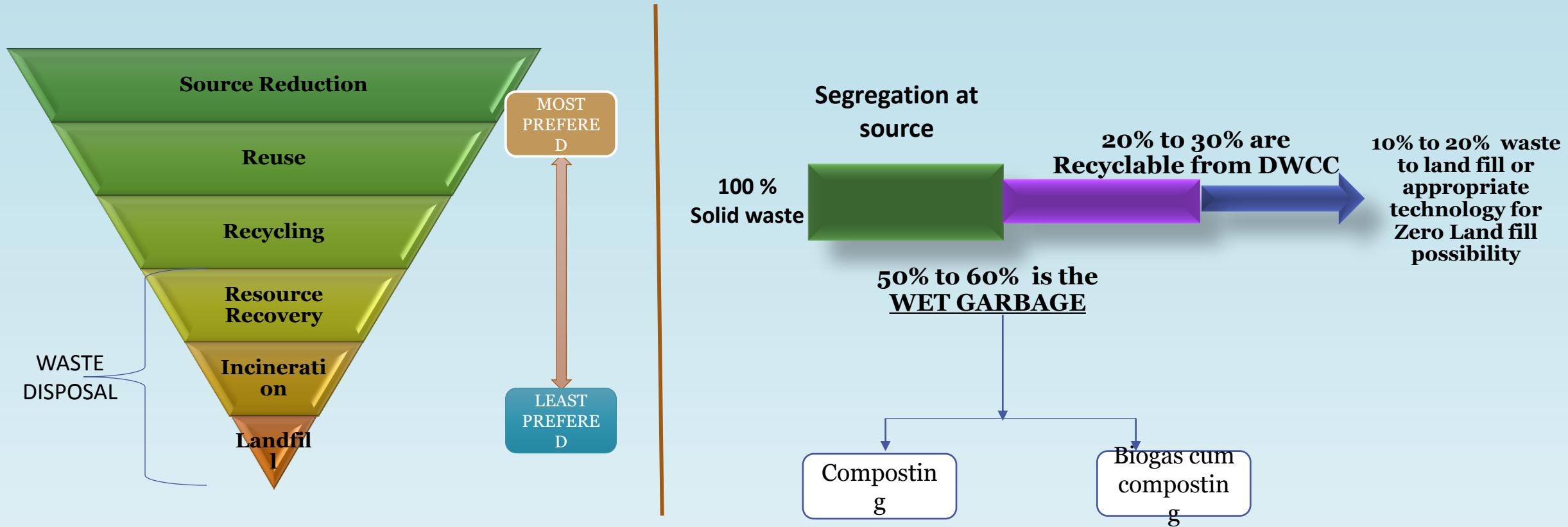


ADVANTAGES

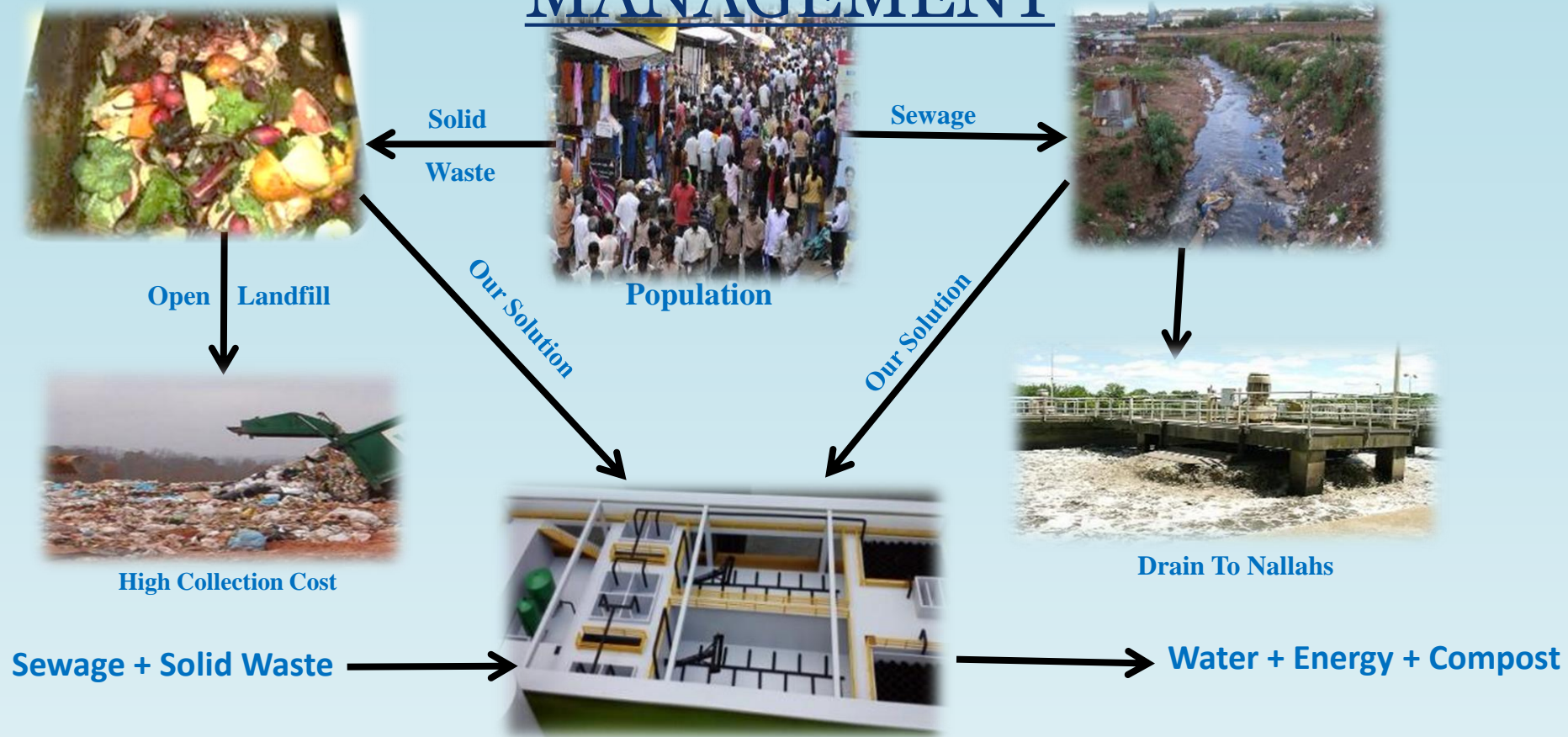
- Sustainable water management will not require Water to be Pumped from long distances which in turn will save a lot of CAPEX & OPEX.
- Any of the Existing or New development once integrated results into Energy generation and Zero Discharge System

Energy can be recovered from the wastewater & solid waste in the form of biogas. !!

SUSTAINABLE WASTE MANAGEMENT SOLUTIONS WITH RESOURCE RECOVERY

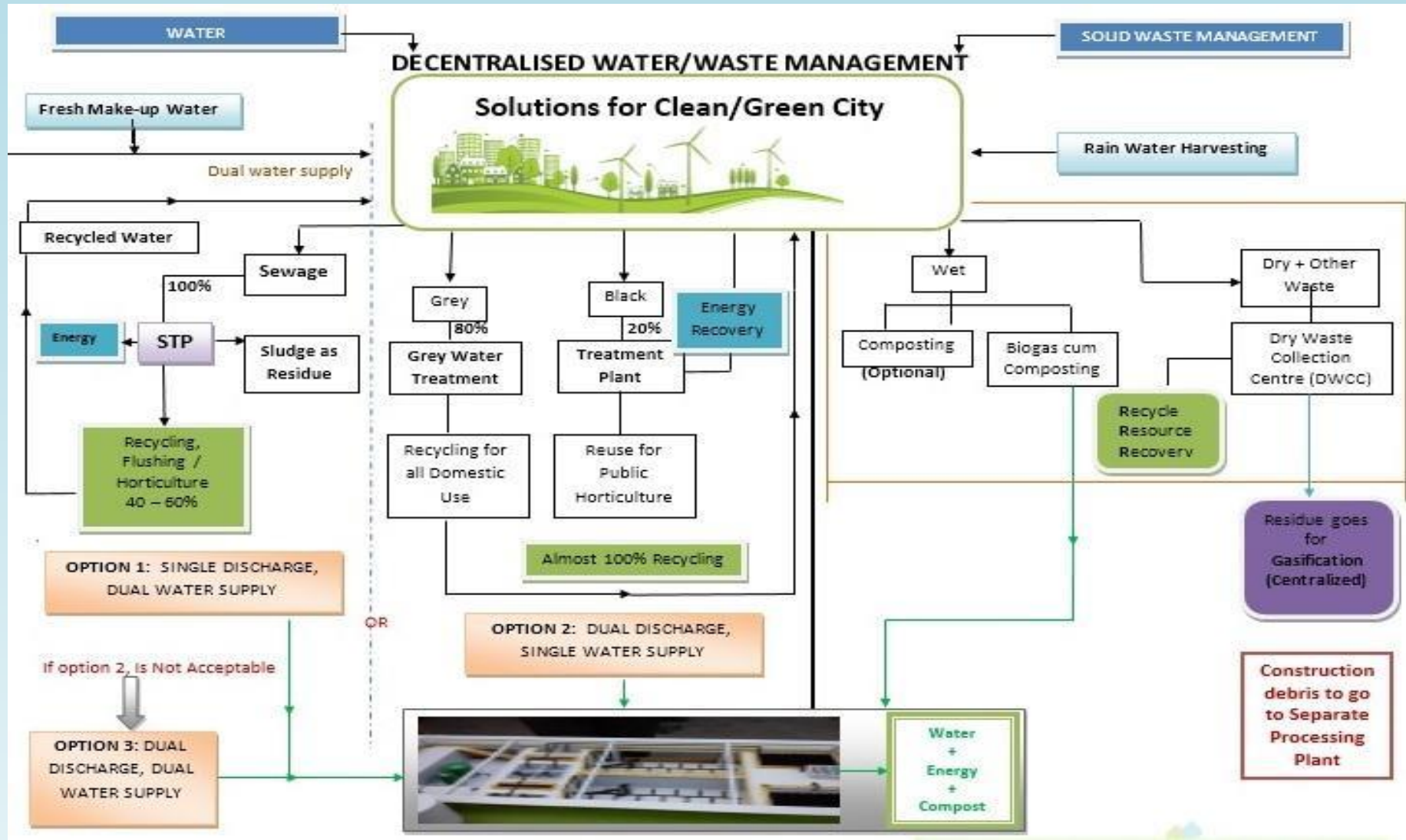


INTEGRATED SEWAGE & SOLID WASTE MANAGEMENT



**For all new urban development, it makes sense to Integrate Sewage/Solid
Waste System**

SMART CITY : Options for Retrofit / New Development



For all new urban development, it makes sense to Integrate Sewage/Solid Waste System

India Need-Low cost & practical solution

1. Rainwater Harvesting-Ground Water recharge/Make up for grey water

Good source of drinking water-50L/ family/dayx30x12=18000Liter(which is possible)

2. Green technology option for grey water recycling

Example-SBT-low capex/opex/3-5 yrs payback

3. Black water + Wet Garbage=Energy+ Compost+ water for Horticulture

4. Concept of kitchen garden -

capex -10k-25k per family //Opex-Rs100-250 per month per family

India Need-Low cost & practical solution

5. Study & Adoption of world class proven low cost technologies

- Brazil-self managed low income housing

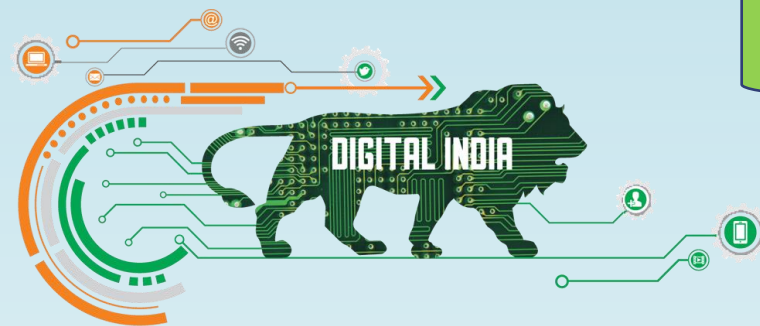
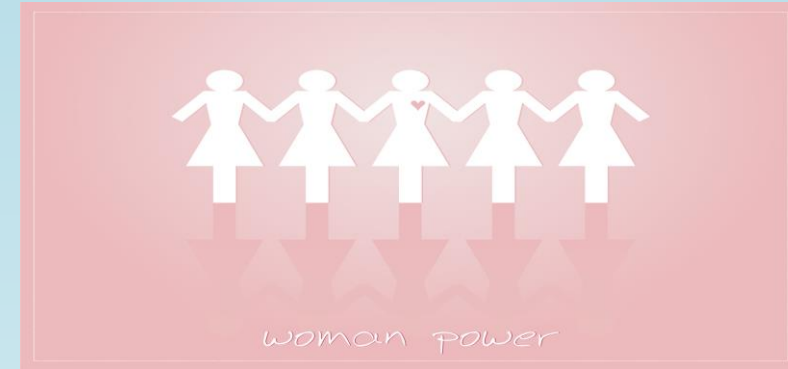
 - (Canaa housing development in Passo Fundo urban area

- Singapore-maximum reuse of recycled water

6. Policy level reforms



Eco-Inno-Vision focused Water management Group



Come , join us & contribute towards self reliant & sustainable water management practices.

Thank You



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