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
(1530-1700 Hrs, December 18, 2017)
Introduction
Eco-Inno-Vision Group

SMART n GREEN

ENHANCED WAPP SYSTEMS

Technology
Solutions
Upgradation
Services

EXERGY ENGINEERS

A Consultancy Company
Water / Waste water Consultancy
Water IoT

A Full Service water Company

A Mfg./Automation/IoT company

Products
Automation
Electrical

Moving & managing water Efficiently
### Enhanced Wapp Systems India

- 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 & Ms End Customer

### Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Location</th>
<th>Details</th>
</tr>
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<tbody>
<tr>
<td>CETP-IV-Pali</td>
<td>12 MLD</td>
<td>Tata Trif, Kochi O&amp;M of RO/STP</td>
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<tr>
<td>Kalpataru, Thane</td>
<td>600 KLD</td>
<td>NIIT Neemrana O&amp;M-STP</td>
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<tr>
<td>CETP-IV-Pali</td>
<td>12 MLD</td>
<td>ITC-Chola, Chennai O&amp;M-RO+Multifiltration+STP</td>
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<tr>
<td>HMDA, Hyderabad</td>
<td>5 MLD STP</td>
<td>HMDA, Hyderabad 5 MLD STP</td>
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<tr>
<td>Medanta Hospital-Gurgaon</td>
<td>800 KLD-RO</td>
<td>Medanta Hospital-Gurgaon 800KLD-RO</td>
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### Moving & managing water Efficiently
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

**Smart n Green Technologies**

**IoT Products-Water Manager**
- Water manager-4.0
- Real Time Monitoring/Level Alerts/Quality Alert
- Daily Water Accounting/Water Cost/Trends

**Electrical Panels/Automation**

**Pump panels/RO panels**

**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

- 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

Namami Gange
STP Evaluation- with Atkins-ongoing

One Horizon Center

DLF
9MLD

Imperial Hotel, Delhi

Moving & managing water Efficiently
PARTNERSHIPS AND ALLIANCES- during the journey

Shristhi 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

**INDUSTRY**

**Audits** - 55 (Water/Energy)
- Daurala Organics
- Escorts Mahele, Patiala
- Escorts Mahele, Bangalore
- Khasa Distillaries, Amritsar
- Goetze India
- Mahaveer Spinning Mills
- Century Laminating Co. Ltd
- Whirlpool India

**ETPs** - 35
- 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
- Mahaveer Spinning Mills

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

- **200+ Projects**
  - WTPs
  - STPs
  - Recycling & Reuse
- **ITC Hotels - 40 Projects**
- **Oberoi Hotels - 20 Projects**
- **HRH Group-Jsrl
  - Indian Hotels - 5 Projects**
- **Innmar bangalore**
- **Today Hotel**

**RESIDENTIAL**

- **190+ Projects**
  - STPs
  - Recycling & Reuse
- **L&T - 20+ Projects**
- **DLF - 60+ Projects**
- **K.Raheja - 20+ Projects**
- **Mani Group - 15 Projects**
- **Smart City, Kochi**
- **Prestige Misty**
- **Bhartia City**
- **TATA Trif, Kochi**
- **Mahagun**

**CETPs & Large STPs**

- **25 Projects**
  - CETP, Pali - 12 MLD x 2Nos
  - DLF Phase V - 9MLD
  - DLF Cyber City - 7 MLD
  - JDA - 7.8 MLD
  - HSIDC - 14 MLD

**Soil Biotechnology/Air Pollution Prev./Automation**

- Wapp has worked with National organizations for Technology Research
  - Soil Biotech - 19
  - Automation - 25
- **Vedanta Aluminium, Odisha**
- **NTPC, Faridabad**
- **ONGC, Noida / Sona Koyo, GGN**
- **L&T automation - 20 Projects**

Moving & managing water Efficiently
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, JK, 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

Moving & managing water Efficiently
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: 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 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 became 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)

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**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**

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Moving & managing water Efficiently
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???
Sustainable Water Management: Affordable Solutions
An approach for New ‘Indian Cities’

Low Cost Housing in India-PMAY,AHP,JNNURM,RAY,...& developments in Residential sector

Challenges-Drinking Water & Sanitation

Policy level

Society level

Technology & Service

Empowering the Poor - Pradhan Mantri Awas Yojana - Urban
A home for every Indian

Over 6.8 lakh houses constructed
2 Cr houses to be constructed by 2022
95% of the beneficiaries would be from Economically Weaker Sections.
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
3. **Innovative ways** to Reduce /Reuse-Demand side management
4. **Less dependency on Govt.**
5. **User-friendly / Low cost / Sustainable** technologies
TOTAL WATER MANAGEMENT

We take care of the whole Water Management Cycle

- **DOMESTIC USE**: Urban demands on reservoirs and rivers redirect the natural flow of freshwater.
- **ENERGY**: Hydroelectric dams disrupt river ecosystems.
- **AGRICULTURE**: Heavy irrigation, fertilizer and pesticide runoff from farms pollute rivers and groundwater.
- **EXTRACTION**: Removing groundwater in coastal areas reduces water pressure underground, allowing saltwater to intrude and mix with freshwater reserves.
- **SEWAGE**: Untreated effluent can infect water supplies, but treatment of wastewater is energy intensive and increases carbon emissions.
- **CARBON EMISSIONS**: Carbon dioxide in the atmosphere is sequestered by the oceans, raising water acidity levels.
- **SHIPPING**: Boats release ballast water thousands of miles from where it was collected, introducing potentially harmful species to new ecosystems.

SAVE WATER, SAVE ENERGY ------ SAVE ENVIRONMENT
DEMAND SIDE MANAGEMENT

- Flushing
- Horticulture
- Cooling tower
- Car wash
- Drip Irrigation
- Water Metering

To Minimize Water Consumption in various Applications

SAVE WATER , SAVE ENERGY ------- SAVE ENVIRONMENT
GREYWATER TO DRINKING WATER

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Hence, we could source our water need locally and achieve zero discharge!!
Energy can be recovered from the wastewater & solid waste in the form of biogas. !!

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.
SUSTAINABLE WASTE MANAGEMENT SOLUTIONS WITH RESOURCE RECOVERY

SAVE WATER, SAVE ENERGY ------ SAVE ENVIRONMENT

- Source Reduction
- Reuse
- Recycling
- Resource Recovery
- Incineration
- Landfill

WASTE DISPOSAL

Segregation at source

100% Solid waste

10% to 20% waste to land fill or appropriate technology for Zero Land fill possibility

20% to 30% are Recyclable from DWCC

50% to 60% is the WET GARBAGE

- Composting
- Biogas cum composting

MOST PREFERRED

LEAST PREFERRED

50% to 60% is the WET GARBAGE

20% to 30% are Recyclable from DWCC

10% to 20% waste to land fill or appropriate technology for Zero Land fill possibility
For all new urban development, it makes sense to Integrate Sewage/Solid Waste System.
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SAVE WATER, SAVE ENERGY ------- SAVE ENVIRONMENT
1. Rainwater Harvesting - Ground Water recharge/Make up for grey water
   Good source of drinking water - 50L/family/day x 30 x 12 = 18000L (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
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
Come, join us & contribute towards self reliant & sustainable water management practices.

Thank You