

The best time to build a green building was 20 years ago.  
The second best time is now.



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# Yusuf Turab

Managing Director, Y T Enterprises

IGBC AP , LEED AP, GRIHA Trainer & Certified Associate in Project Management

A self motivated Ecopreneur and an accredited Green Building Consultant with a vision of a greener world and a passion for smarter living, an overwhelming desire to make Y T Enterprises a one stop shop for carbon neutral living.

## Specialties

Green Building Consultation, Rainwater Harvesting, Green Roofs, Waste Management, Energy Simulations, Web Marketing, Project Management, Business Development, IT, Computer Networking & Security and HR



<http://in.linkedin.com/in/yusufturab>

## On the Web

Press Coverage: <http://www.ytenterprises.com/home/inthepress>

Blog: <http://www.ytenterprises.com/the-blog>

Facebook: <https://www.facebook.com/buildscape>

# We provide technical and strategic sustainability services to support high level of performance, quality and value in the built environment

The company's offerings have been divided into three primary areas of work

## Green Building Ratings Facilitation

IGBC Green Homes  
TERI GRIHA  
TERI SVA GRIHA  
LEED India  
IGBC Green Factory

## Green Building Architecture & Design

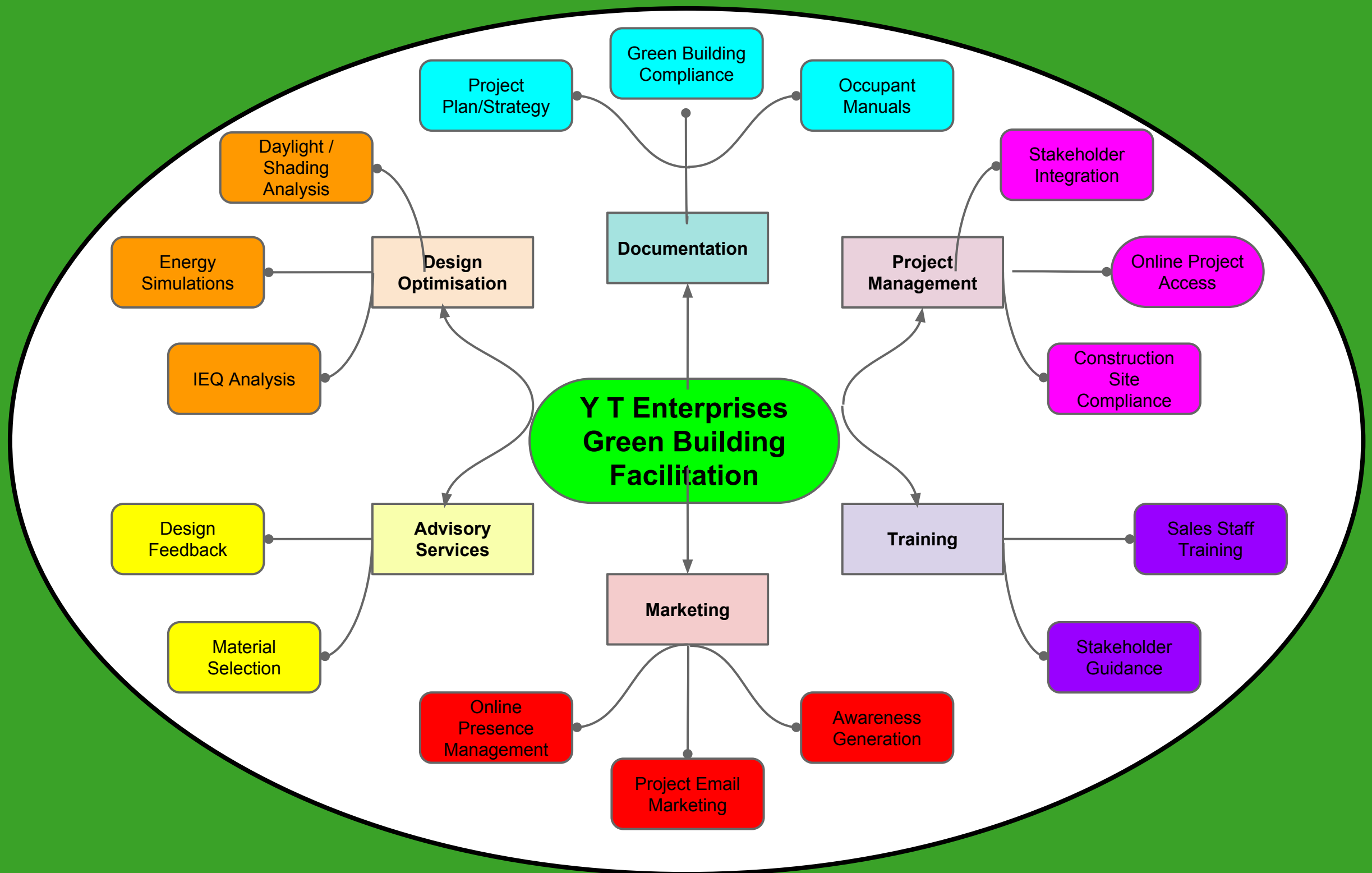
Green Building Architecture  
Interior Design  
Waste Water Treatment  
Rainwater Harvesting  
Energy Simulation

## BuildScape

Cool Roofs  
Living Walls  
Landscaping  
Green Roofs  
Auto-Watering Pots



# Our Facilitation Process





# Green Buildings are not just the next big thing. They are the only option we have.

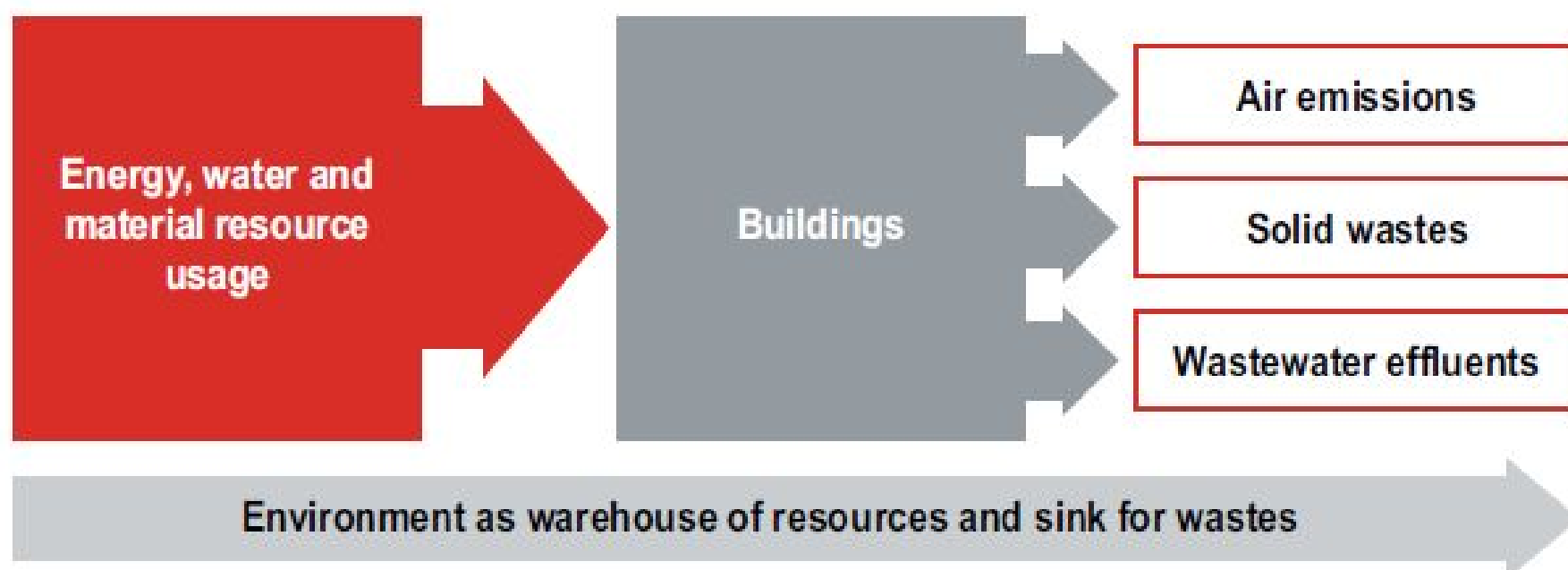
India is the second largest green building market in the world

The market size including materials and services is expected to touch \$100 billion by the year 2015

Many infrastructure analysts believe that over 60% of the country is yet to be built

Our longages in demand for resources need to be controlled urgently and green building is the most viable solution

Green buildings are easy to design, build, operate and the do not cost significantly more



Source: Jones Lang LaSalle Meghraj Research

Easy to design and construct

Don't cost much more

40% of electricity consumption

Major water consumer

Large used water and waste generator

Contributes significantly to GDP

Huge employment generator



Water Efficiency

Energy Efficiency

Site Sustainability

Indoor Environment

Green Materials

Waste Management

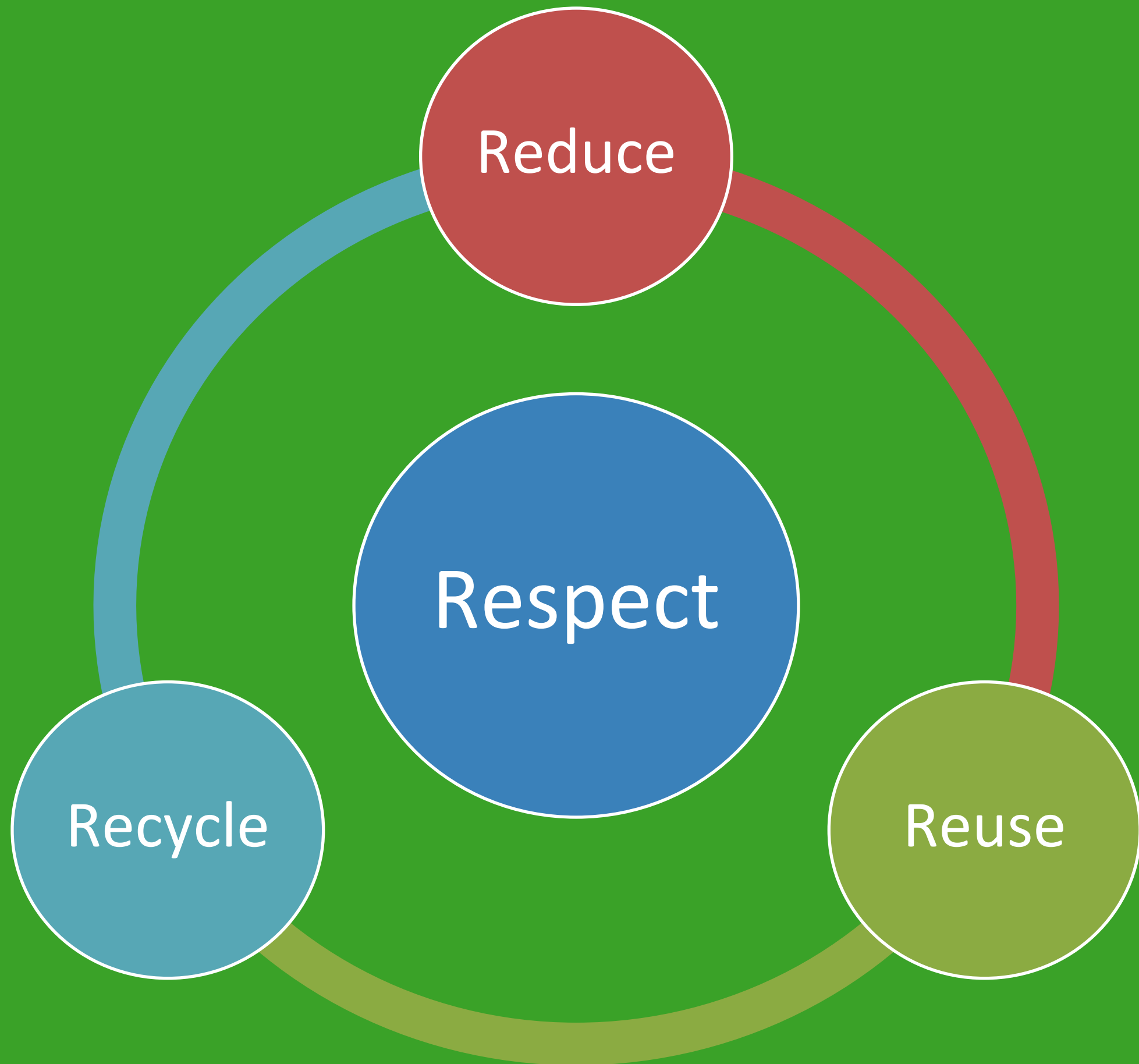
Durability

Measurement, verification and action

Make it easy for occupants to be green

Show off

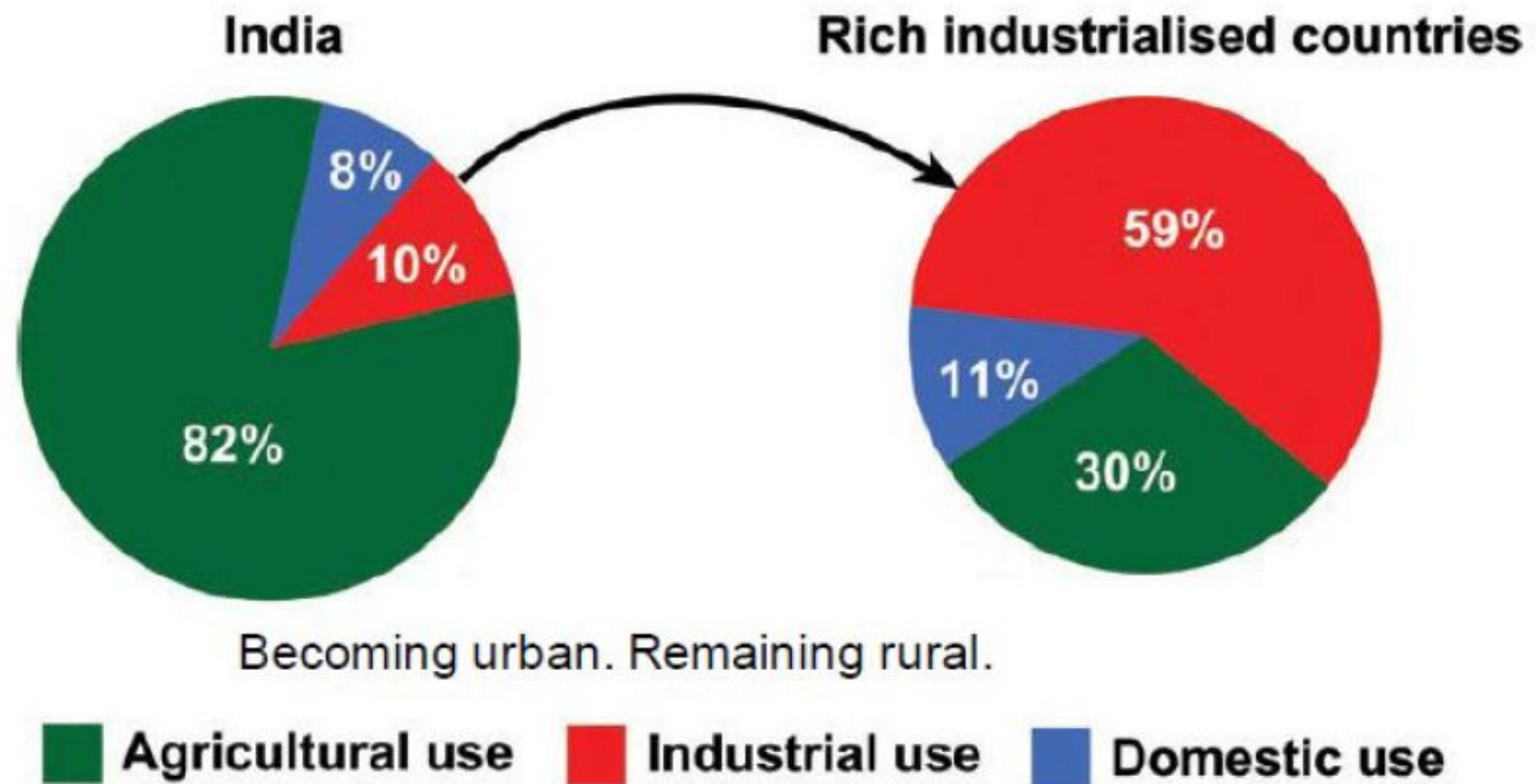
**AREAS OF  
FOCUS  
WHEN  
BUILDING  
GREEN**





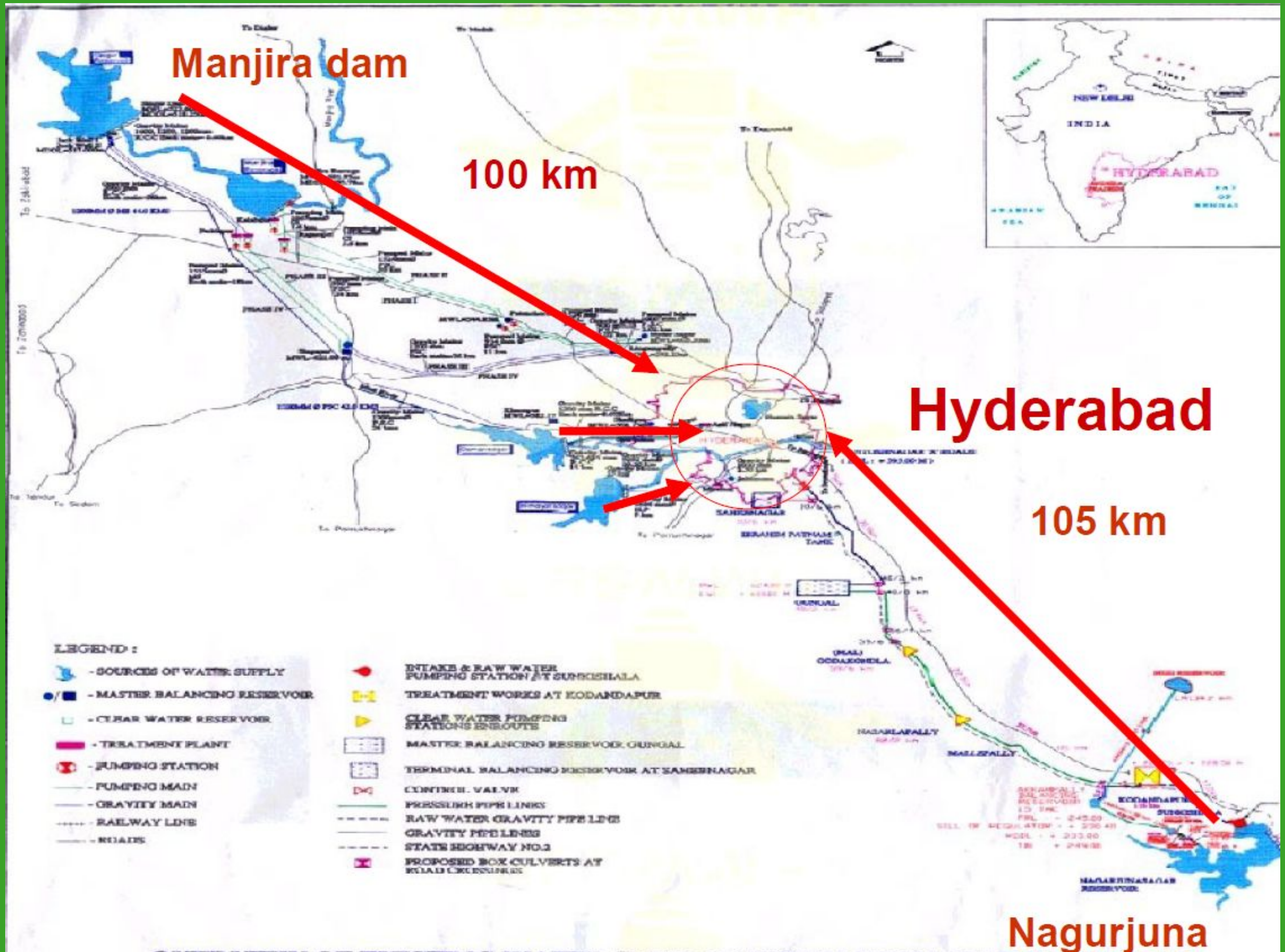
# Urban areas are new users of water

## Take water give waste



**Pollution will add to water stress. Cannot allow it.  
Have to build cities without pollution.**





# **Technology choice and distance makes for inefficiencies**

Long transmission lines, higher costs of delivery + High distribution losses in water supply – between 20-50%

- Cost Recovery is difficult.
- Water costs double as half is 'lost'.
- Full costs are high. Few can pay

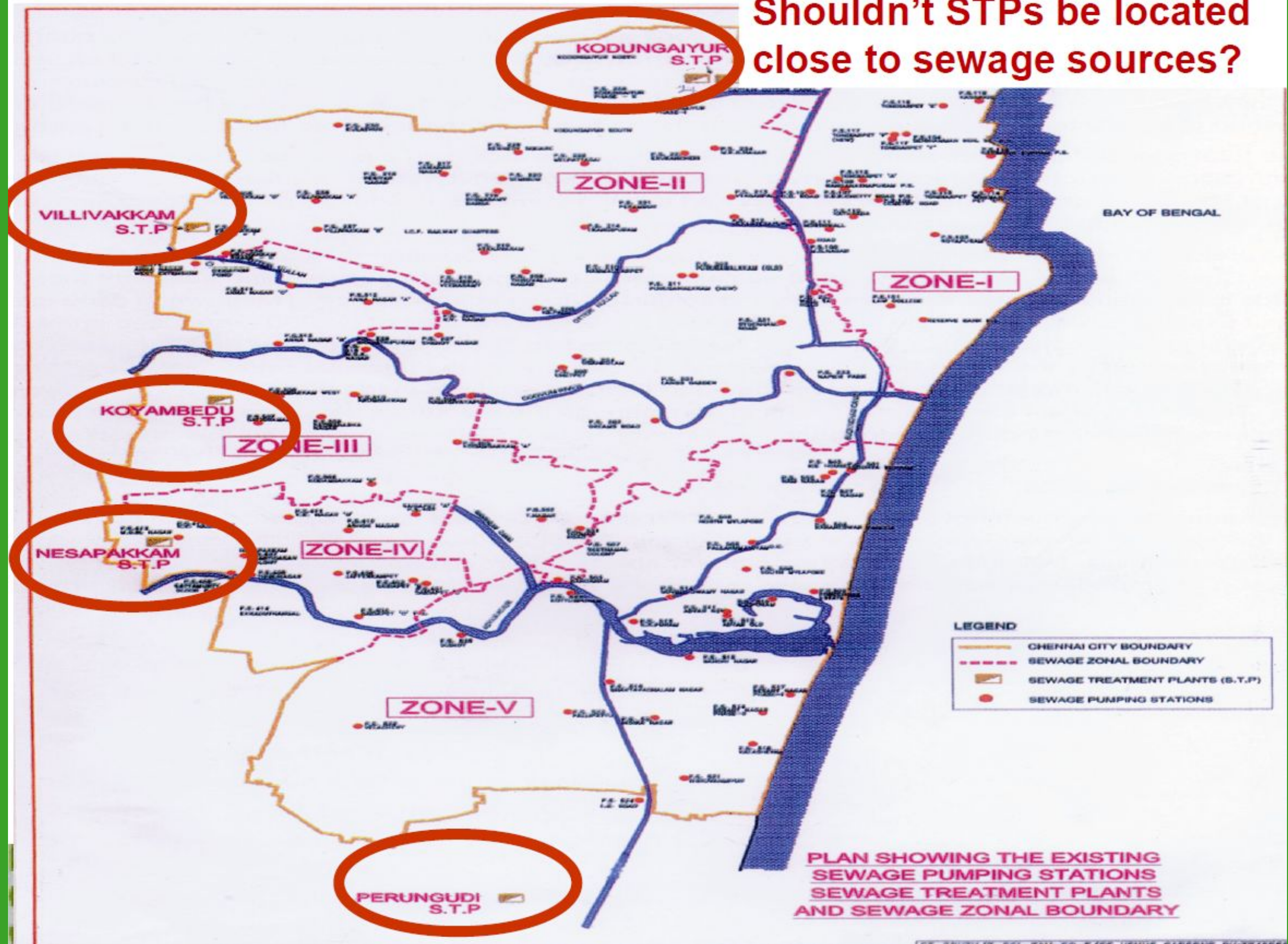
**INVESTMENT IN WASTE MANAGEMENT SUFFERS**



<b>City</b>	<b>Production cost Rs/kl</b>	<b>Water charges Rs/kl</b>
Delhi	8.95	2.00
Mumbai	5.74	2.25
Jodhpur	20.00	1.21
Indore	9.50	2.00
Bangalore	13.00	5.60



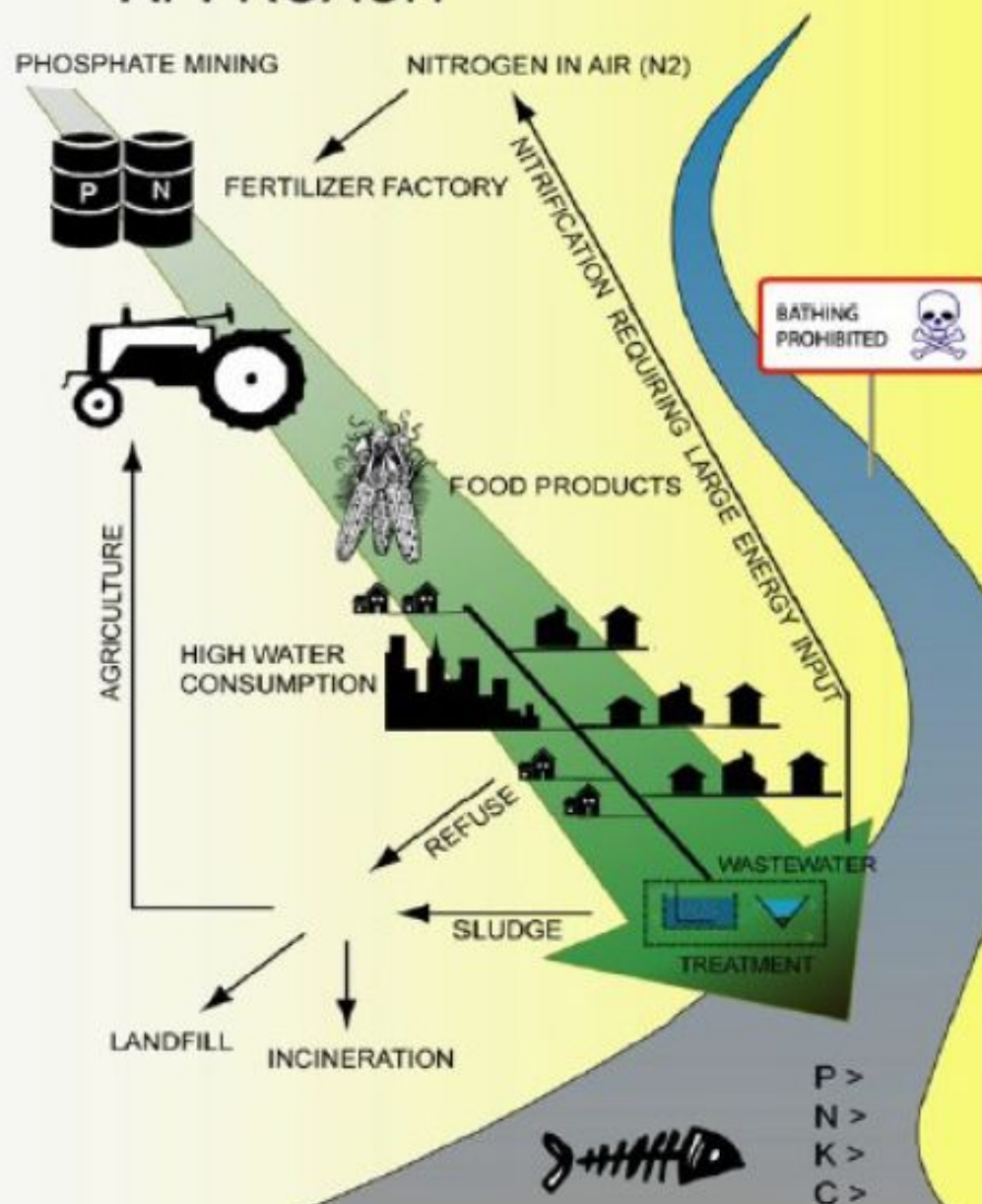
Shouldn't STPs be located close to sewage sources?



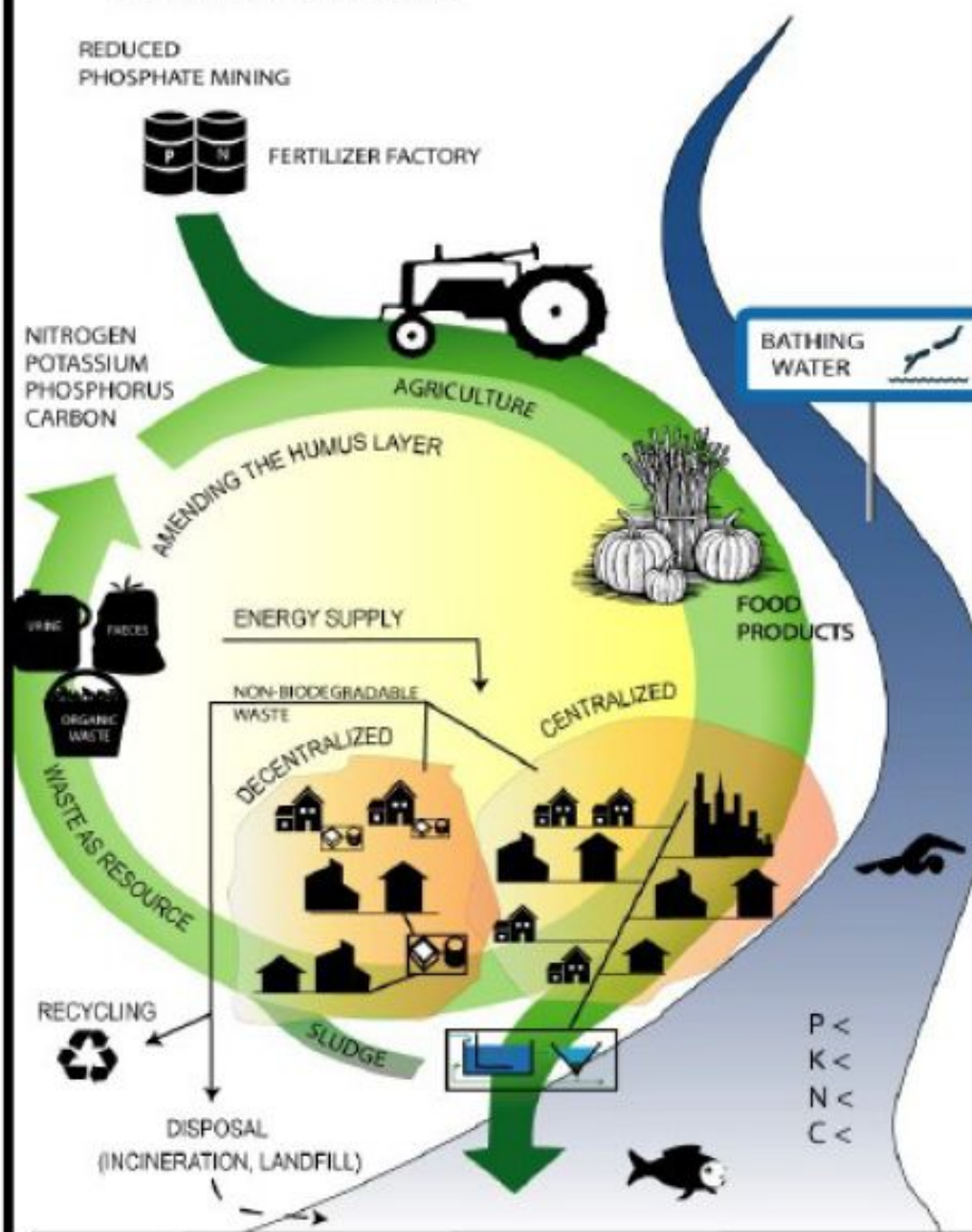


# From linear to closed loop

## CONVENTIONAL SANITATION APPROACH



## ENVIRONMENTAL SANITATION IN THE FUTURE





## Guiding Principles –

- 1) Cut / Reduce the length of pipeline
- 2) **Water frugality is not poverty** ( prudent / wise use must be promoted)
- 3) Design systems for affordability and legal rights to 'clean' water for all
- 4) **Design to treat all waste** ( treat waste in open drains, do not wait to build all drains)
- 5) Treat waste to recycle and reuse water and excreta ( treat waste to generate wealth - not use water as carrier for waste disposal)
- 6) **Treat waste locally so that reuse is possible locally** ( cut costs of pumping/piping,treat using microbes/separation/biotic oxidation systems etc. , treat to reuse, not to waste)

Separate Water Types Based on End Use

High Efficiency Plumbing Fixtures

Introduce Waterless Technologies

Rainwater Harvesting

Decentralised Wastewater Treatment

Wastewater and Rainwater Reuse

Drought Tolerant Landscape Design

High Performance Irrigation

Measure Verify and Act

Educate, Make Water Savings Easy

**AREAS OF  
FOCUS  
WHEN  
DESIGNING  
FOR  
WATER  
EFFICIENCY**



# Y T Enterprises Decentralised Waste Water Treatment & Reuse System

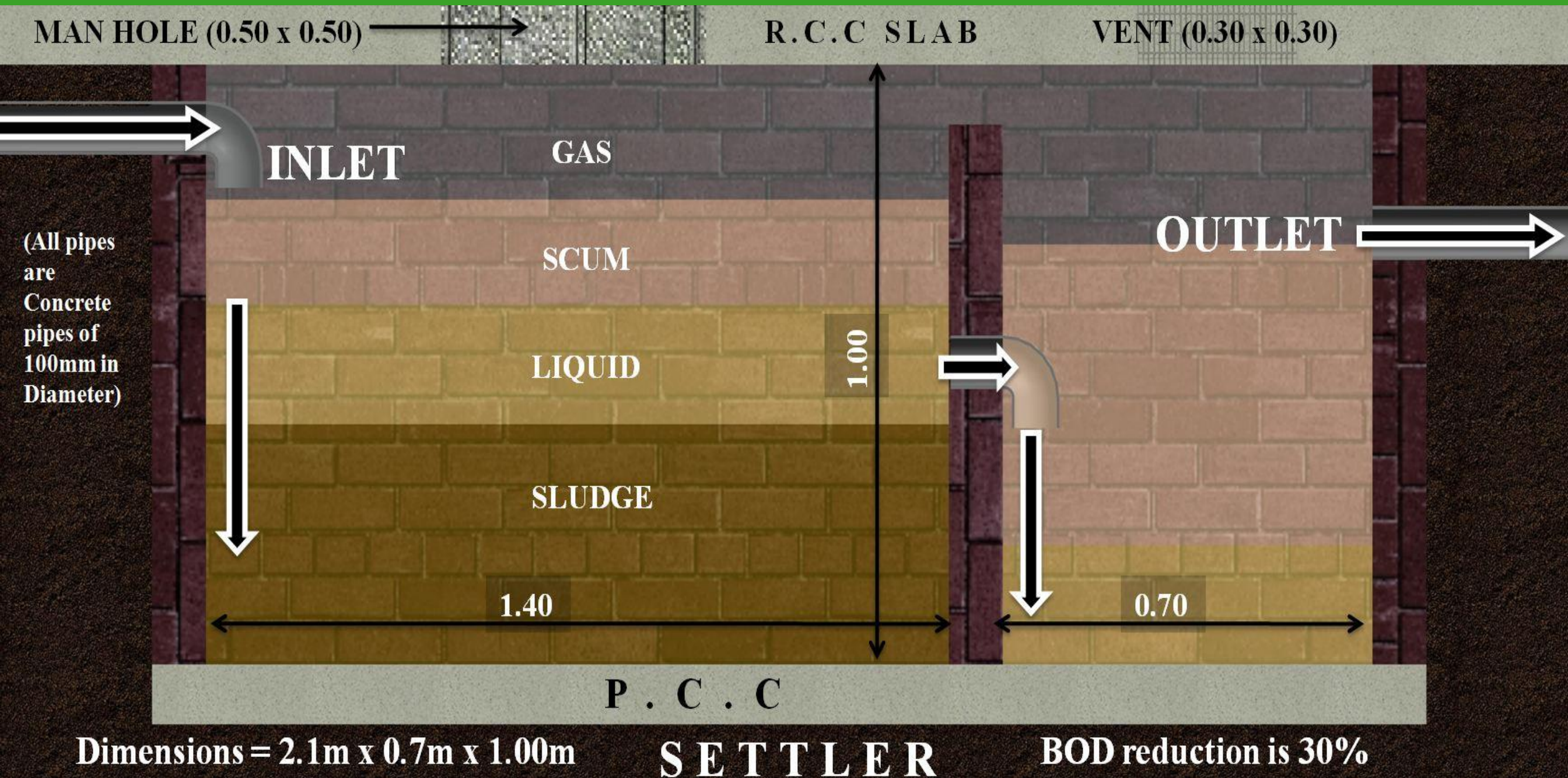
Closed Loop Used Water Treatment Using Nature in a Man Made Setting



# 1. Improved Septic Tank

Area Required =  $0.5 \text{ SqMt} / \text{CUM}$

BOD Reduction = 25% to 40%





## 2. Anaerobic Baffle Reactor

Area Required = 1 SqMt / CUM  
BOD Reduction = 70% to 80%

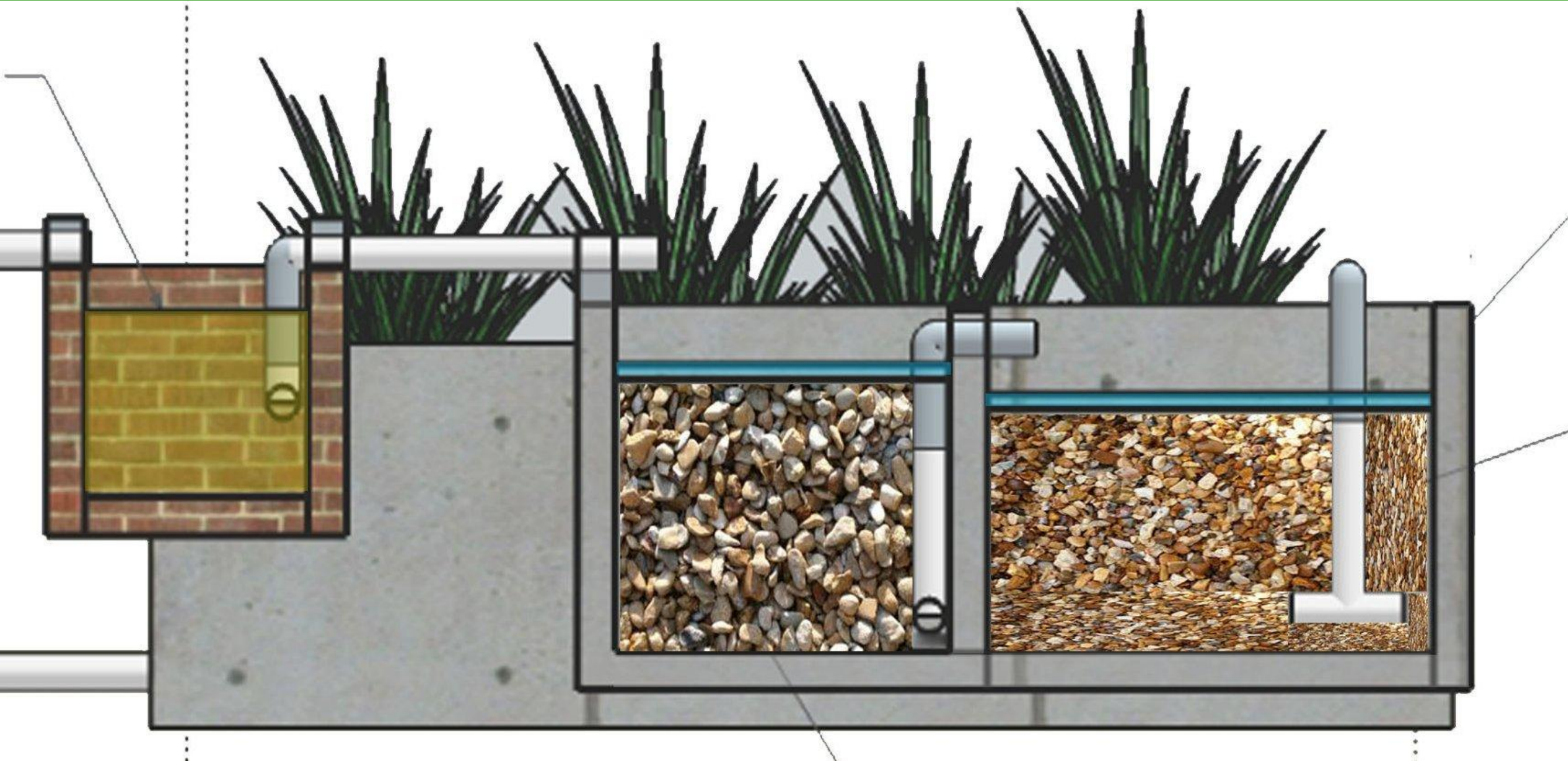




### 3. Grease Trap and Bio-Gravel Filter

CPCB norms are met at this point

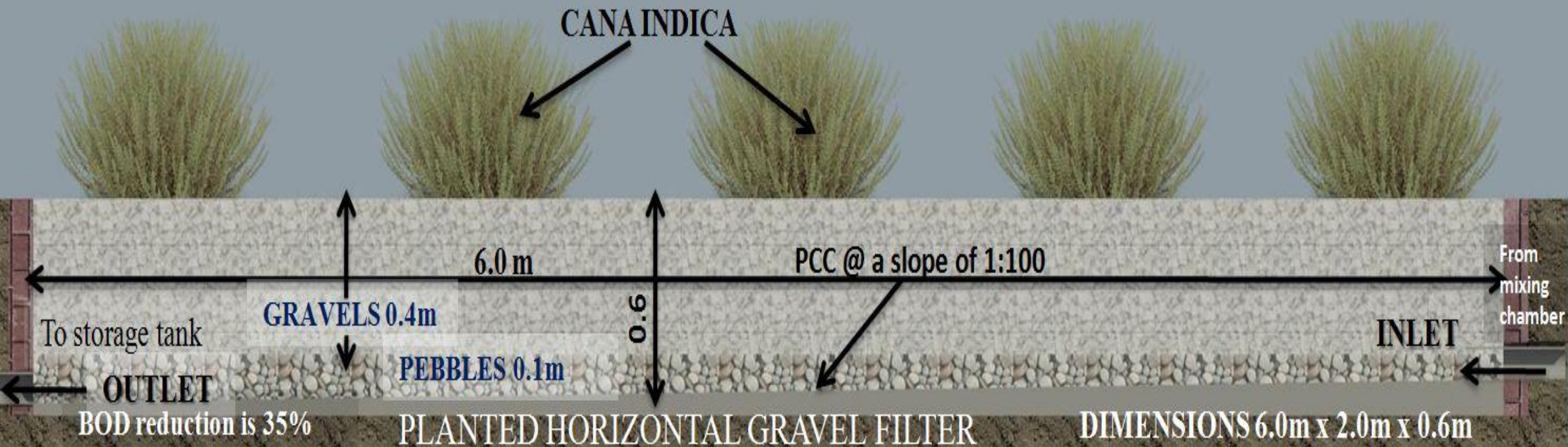
Area Required =  $0.2 \text{ SqMt / CUM}$   
BOD Reduction = 80% to 90%





## 4. Planted Filter / Reed Bed

Area Required = 5 SqMt / CUM  
BOD Reduction = 90%  
Removes Odour



The microorganisms in the soil kill the odour causing bacteria and the roots of the cana indica plant quickly oxidises the input water

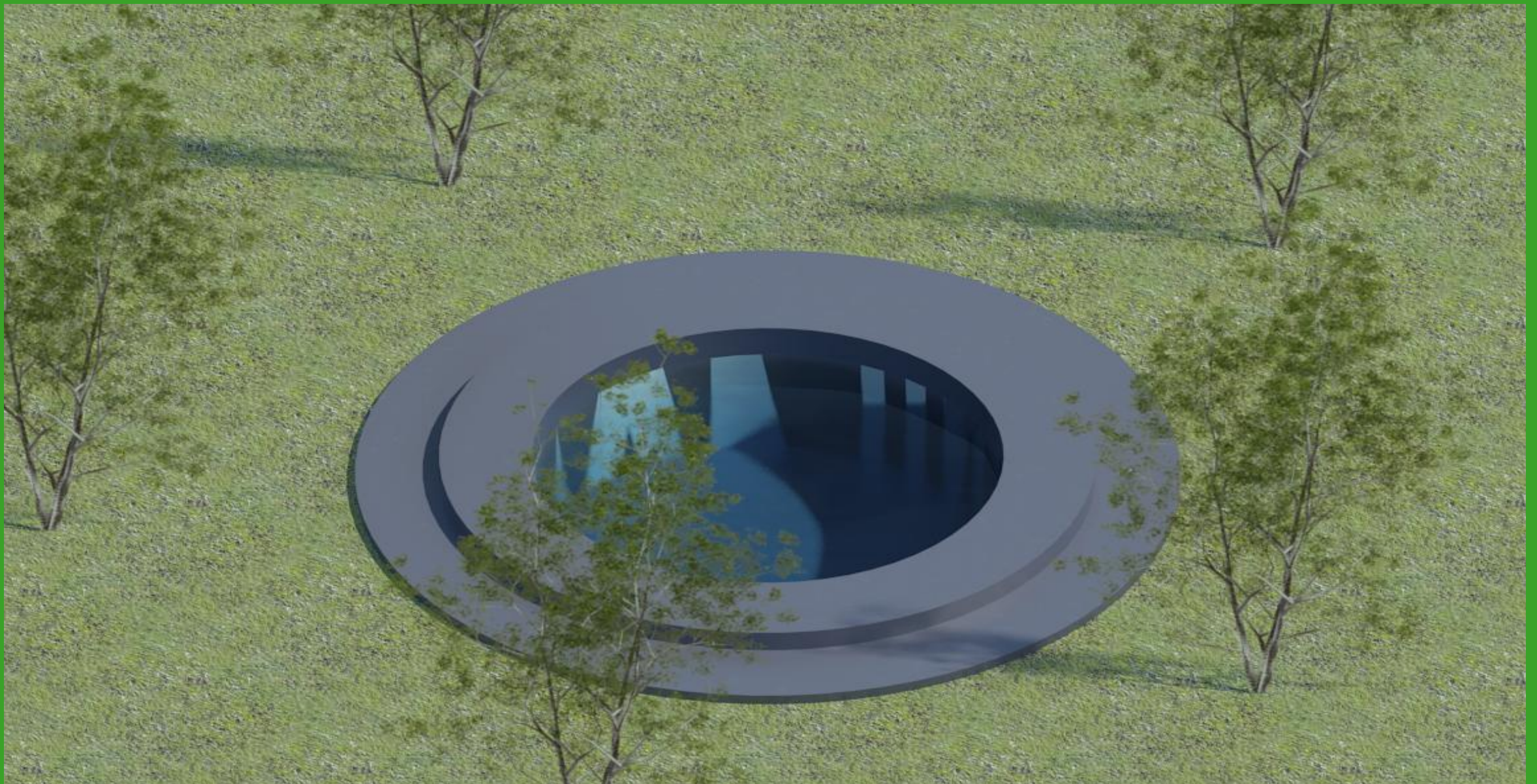


## 5. Polishing Pond

Area Required = 1.2 SqMt /  
CUM

BOD Reduction = 95%

Removes Odour Completely



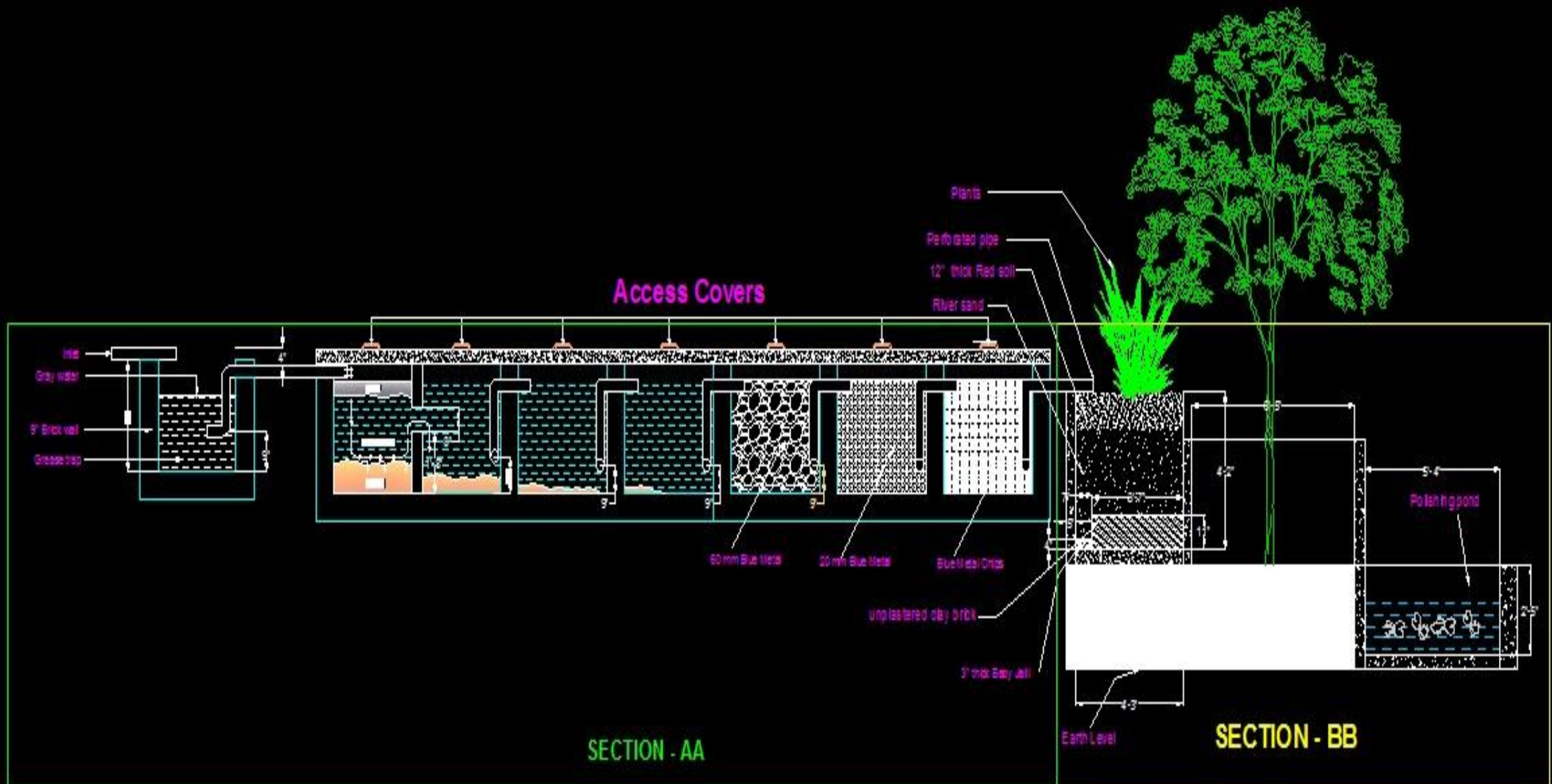
DWWT is an approach, not a technical hardware package. This approach is practically limitless.

Further filtration is possible using:

- Chlorination
- Reverse Osmosis
- UV Filtration
- Activated Carbon Filtration

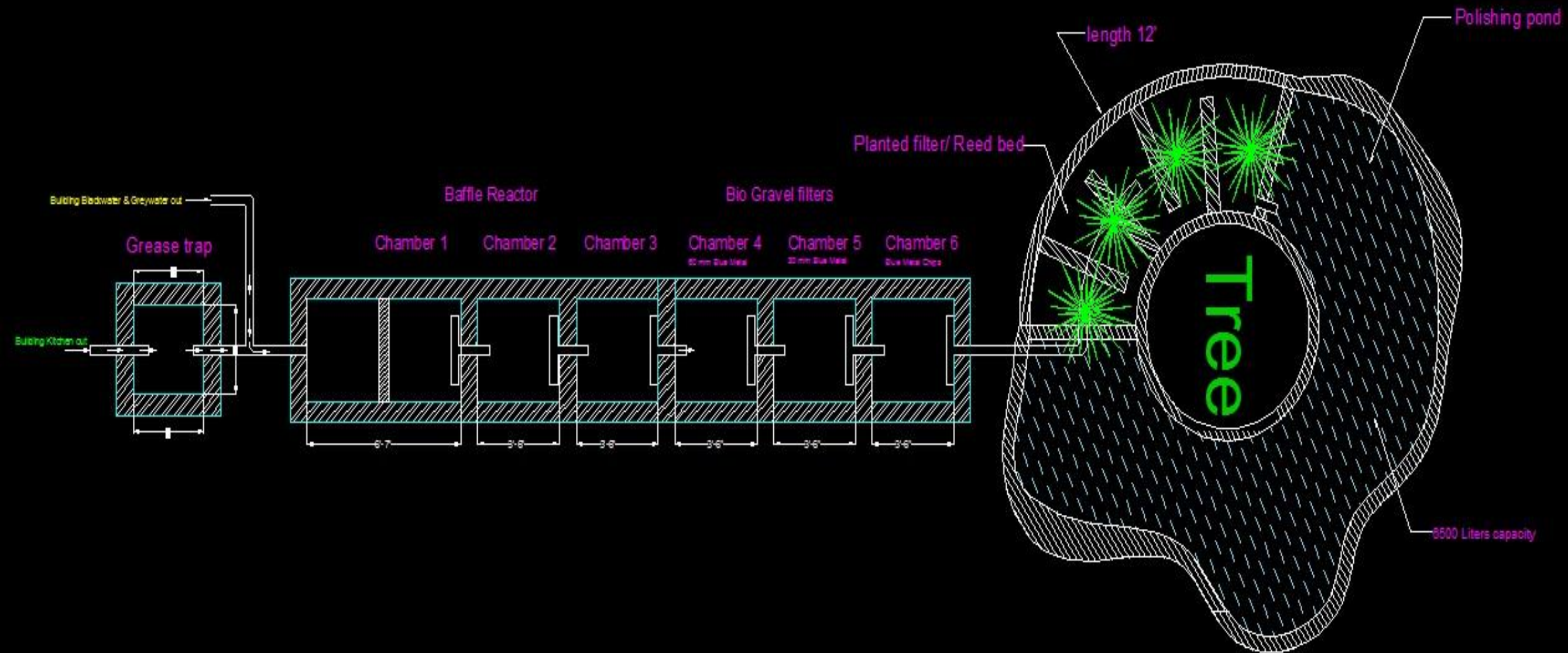


# Mrs. Uma Rathnam Residence





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THANK YOU