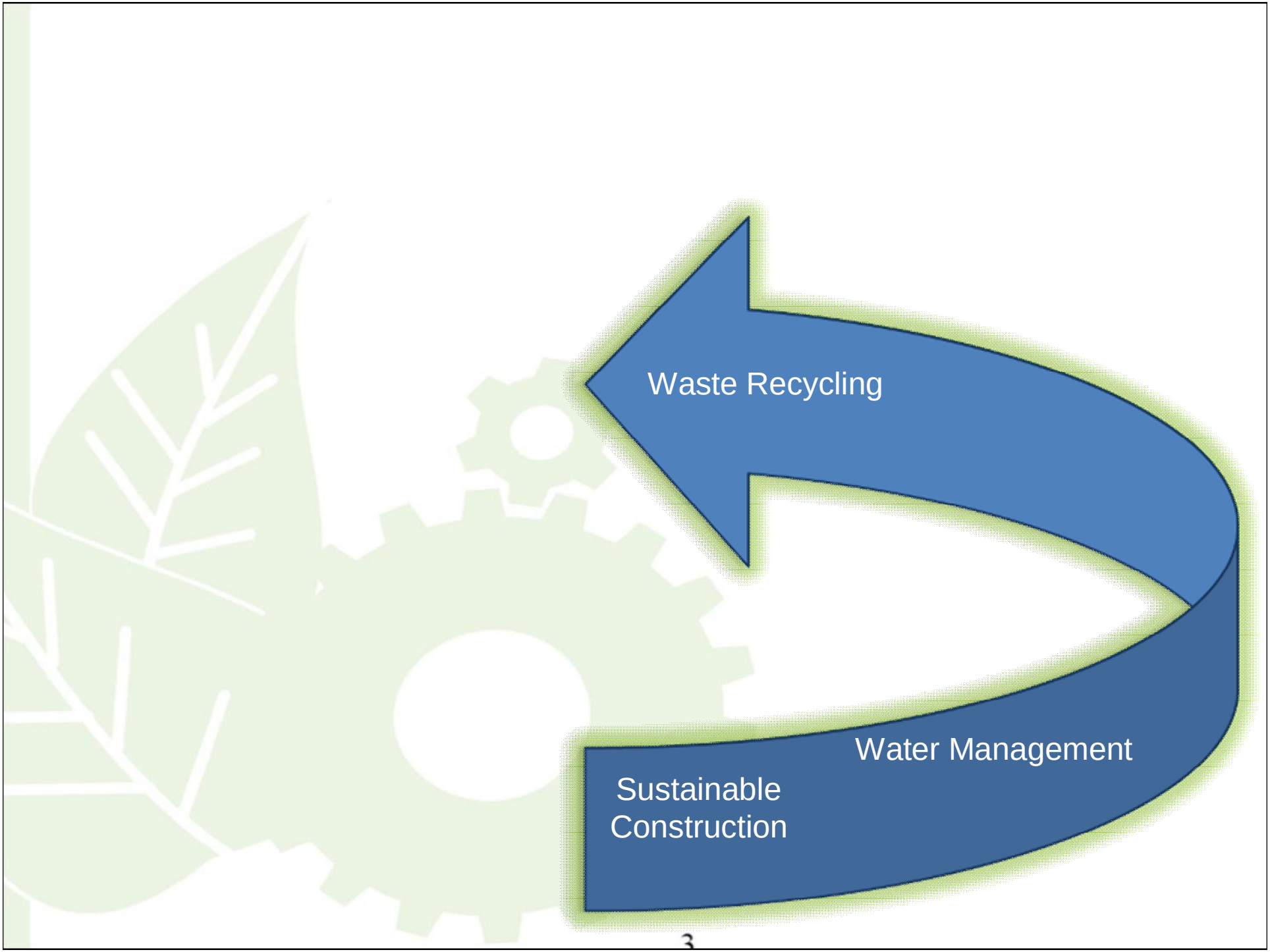

Towards Green Economies
scalable solutions for people and our planet
TARAgram
YATRA 2010
inspiring sustainability
18 September 2010


SCHOOL WASTE ACTION CLUB
REDUCE REUSE RECYCLE
TARAgram
YATRA 2010
inspiring sustainability


Waste Recycling
Water Management
Sustainable Construction

Waste Recycling

Roles & Responsibilities

Generators

Cooperate with the implementation staff

Practice

Key beneficiaries of the solid waste management project

The Implementation staff

Elected Representatives

Regulatory authorities

Stakeholders

Stakeholders

Markets

Schools / Institutions

Generators

Households

Commercial establishments, Industries

Bulk generators

Restaurants/ hotels

Marriage Halls

S t a k e h o l d e r s

Key stakeholders

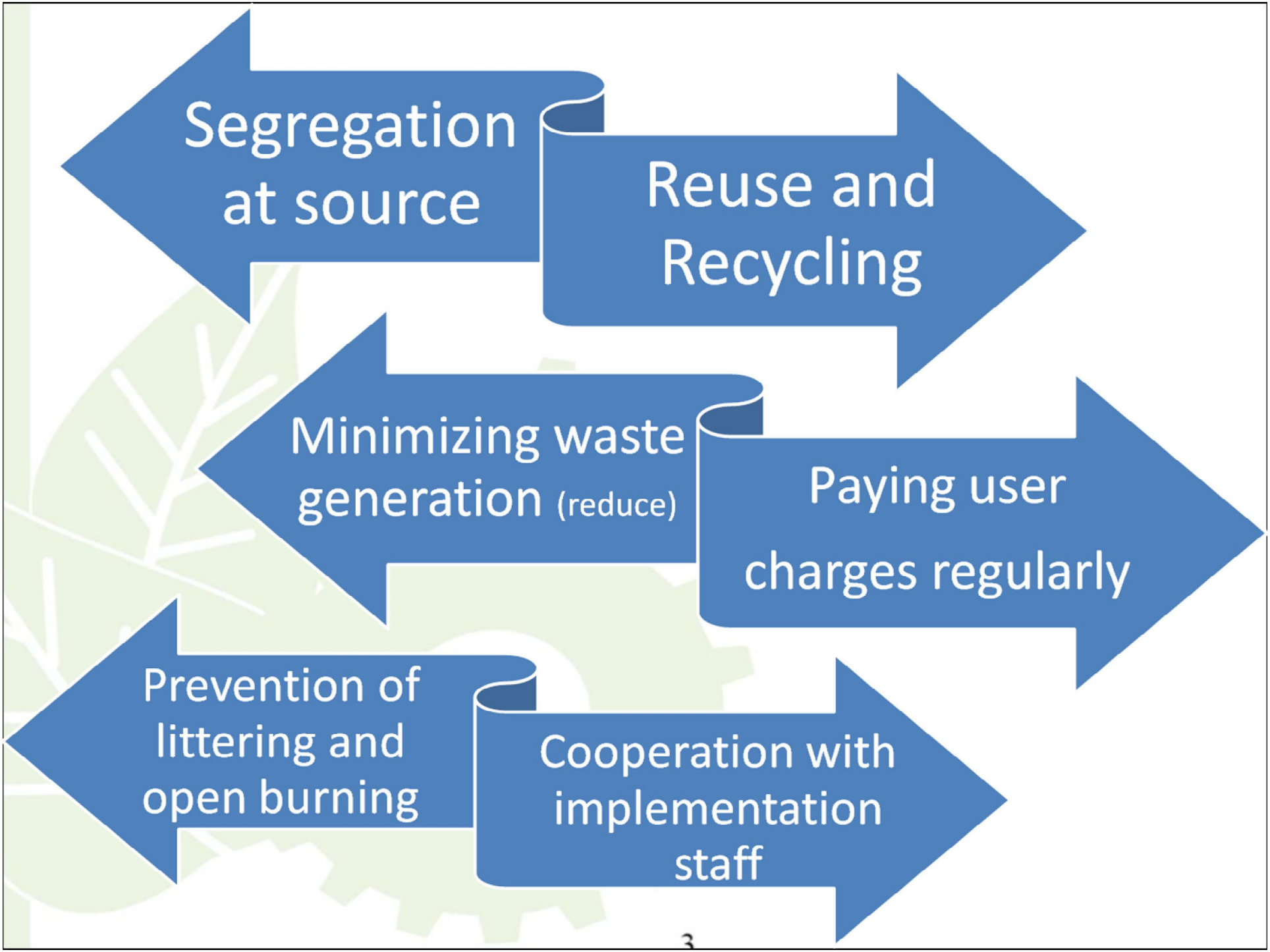
In a SWM plan are those who can significantly influence the plan and who are important to its success.

Primary stakeholders

Are those people and groups ultimately affected by the integrated solid waste management plan. This includes intended beneficiaries or those negatively affected (for example, those involuntarily resettled).

Secondary stakeholders

Are the intermediaries in the process of delivering a waste management service to primary stakeholders. They can be divided into funding, implementing, monitoring and advocacy organizations, or simply governmental, NGO and private sector organizations

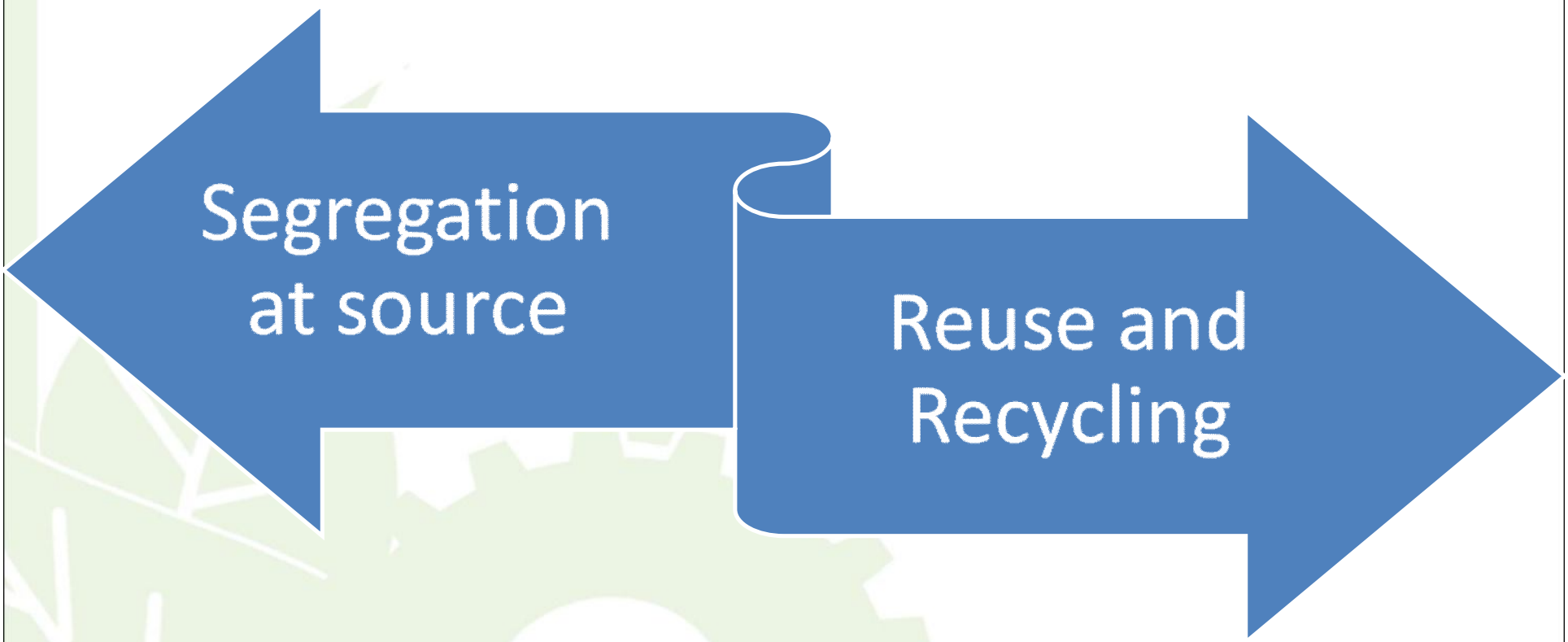

Segregation at source
Reuse and Recycling
Minimizing waste generation (reduce)
Paying user charges regularly
Prevention of littering and open burning
Cooperation with implementation staff

Roles & Responsibilities

Using it as resource

Segregation of waste at source

Provide systems and services


Segregation
at source
Reuse and
Recycling


Segregation at source
Reuse and Recycling


FRIENDS OF VENDHAN

Cooperation with implementation staff

Handover the segregated waste to the safai Karmachari regularly

See to it the bins are not approachable by stray animals

Place the garbage bins in an appropriate place so that it can be collected conveniently

Domestic Waste Management Systems

Two systems possible

Door to door collection system

D2D – ideal system

Intermediate storage bins – st

narrow

Pay user charges

Pay the user charges regularly, these charges are at nominal rate

The benefits we get by paying is much more than the amount paid

It will help to keep the city clean

Segregation

Dispose the wet waste such as vegetable waste, food stuff in the GREEN BIN

Dispose the dry waste such as paper, plastic bottle, etc. in YELLOW BIN

OWZONE

Create OZero Waste Zones

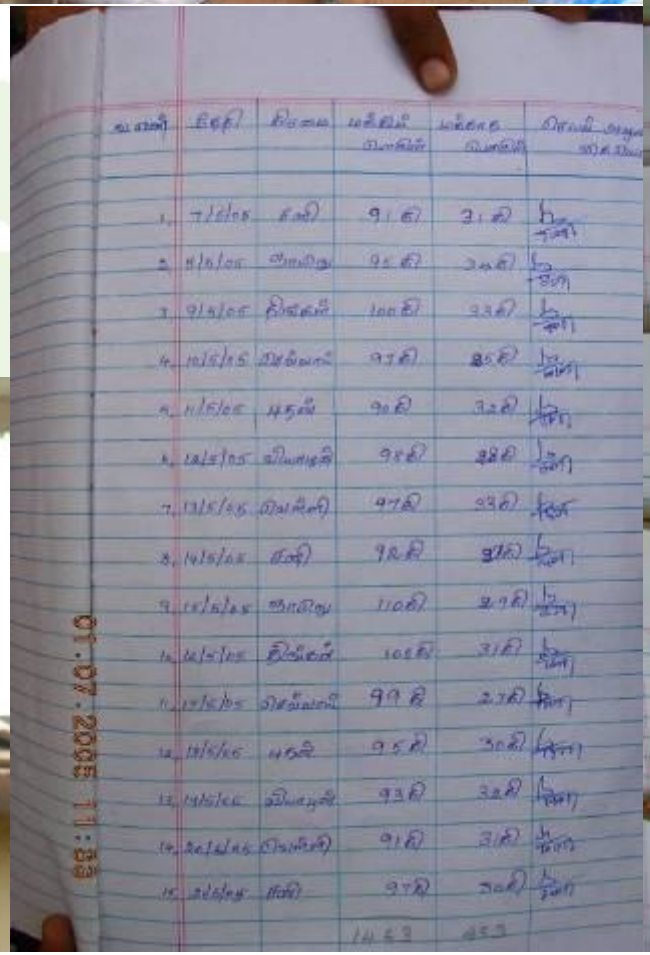
Promote schemes to encourage public to deposit recyclables

Act as collection centre recyclable or reusable waste


THE SWEEP OF THE WINNER
COMPUTER CASE


EXNORA

Segregation done well
can be
a resource for
livelihood option











Vermi composting and Bio pesticide in the backyard

Another Livelihood option developing a rooftop kitchen garden

Encourage terrace garden for growing vegetables

Get the greens free from pesticides

Use the compost generated from kitchen waste

Plastic carry bags as a resource

Use of plastic in making road, products


Baskets from plastic carry bags and wrappings from cycle tyres

Recycling Thermocol

Products: Fruit trays
Jewel boxes, containers,
Decorative trays, etc….

Reuse and Recycling

Make wealth out of waste

Remember one man's waste is another man's resource!

Electronic gadgets can be given to authorized recyclers

Prevention of littering and open burning

Do not throw waste in open or public places

Do not burn the waste

Do not throw wrappers, plastic bottle, etc. on the road / drains

Handover the waste to the Safai karmachari regularly

Monitoring and exert peer pressure

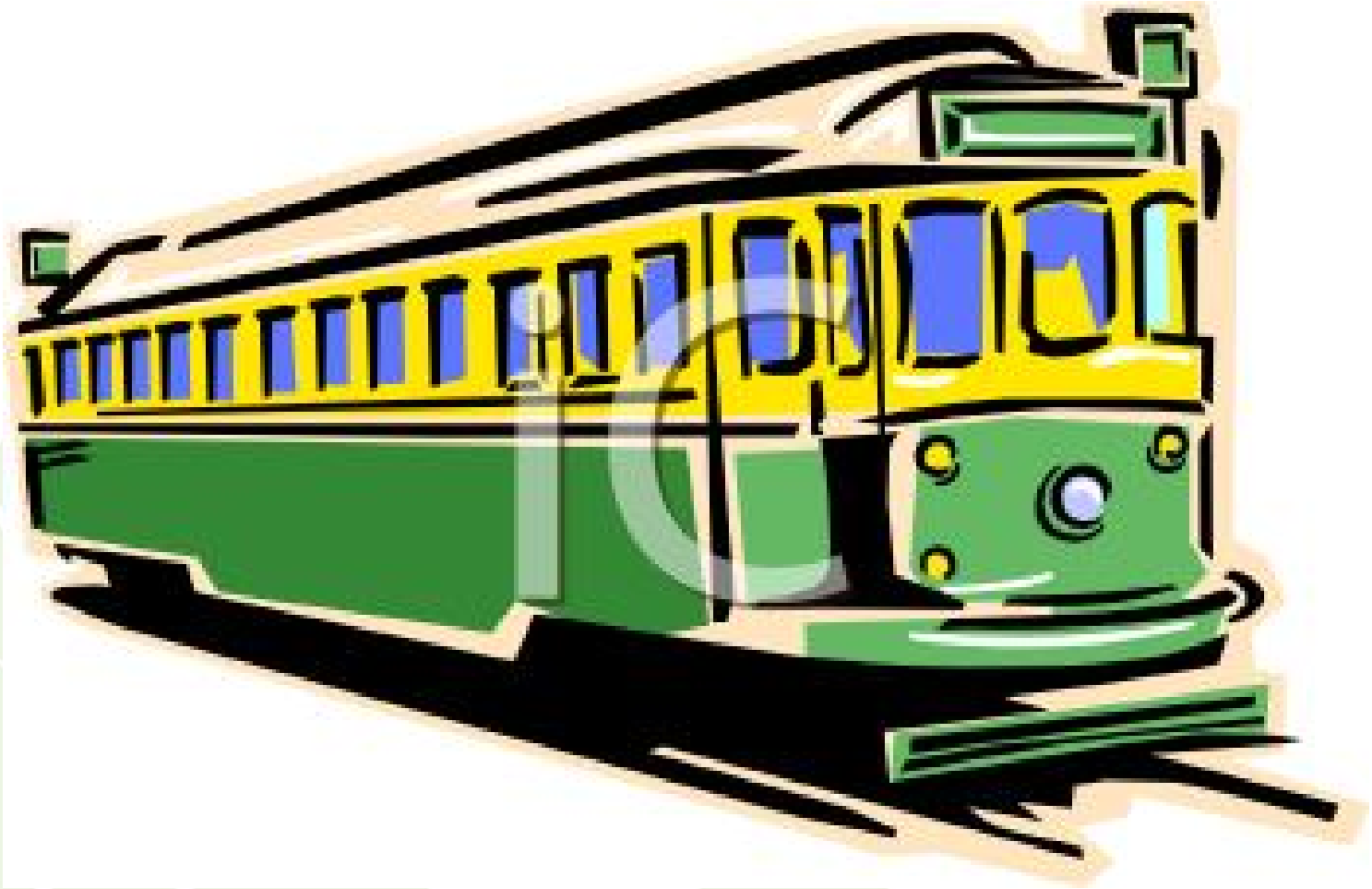
Support the implementation staff by monitoring littering in your neighborhood

Motivate wrong doers not to litter

Inform the concerned officials to take necessary action if the person repeats

Motivate and educate neighbours on source segregation

Help the peers in handling the waste



Waste management at a Railway Station

Waste management at Railway Station creating a livelihood option while managing waste

- Passengers on trains, these days at least carry a PET water bottle and definitely leave some waste behind.

- Railway yards at Junction stations can have a waste handling facility. Waste can be collected from the compartments and taken to the Waste handling unit within the Yard space.
- PET waste still is being imported by industry , using it for processing

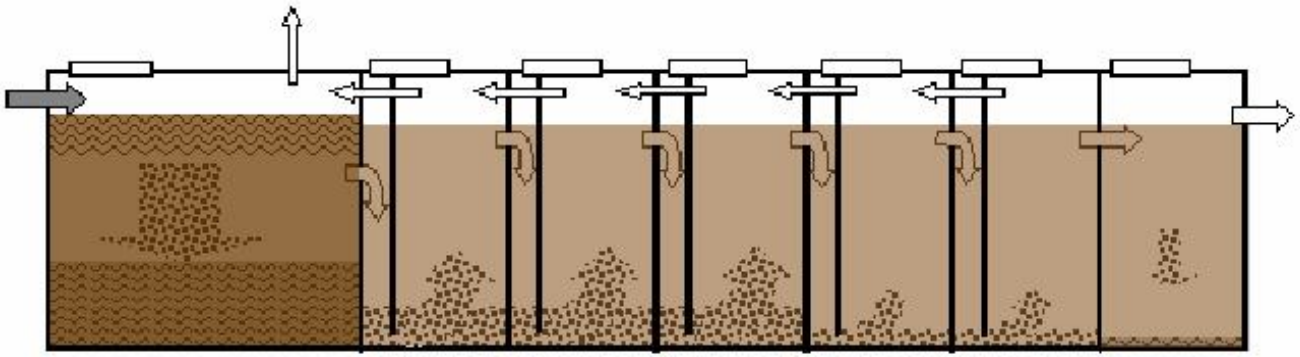
- PET handling like separating the bottle lid and the bottle. The PET can be further made into smaller chips. This will help transport it in more economical way. There is a huge demand for this as resource for Futura Industry making Recron and yarn for T shirts.

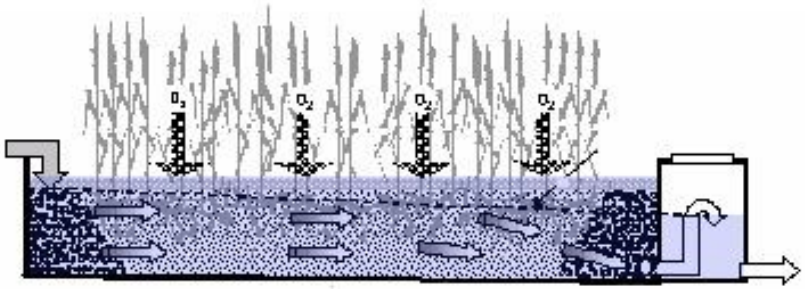
Waste management at a Railway Station

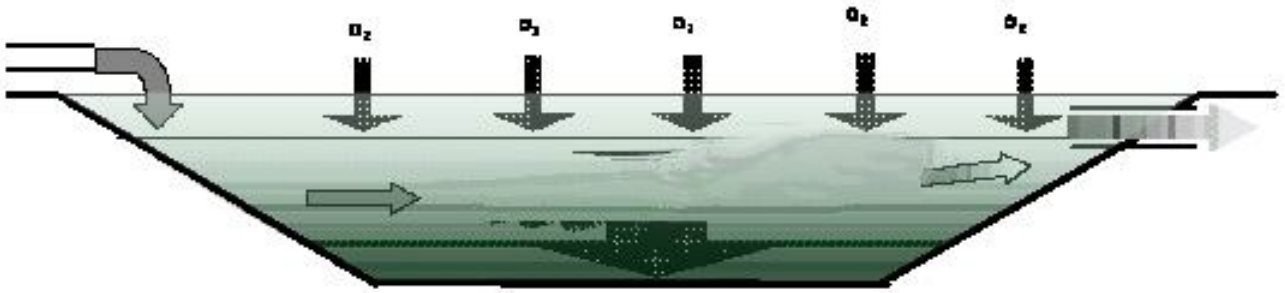
Decentralised Waste Water Treatment System DTS

Guiding principles of DTS

- Low energy – gravity flow
- No chemicals
- Competitive initial cost
- Low maintenance cost
- Simple to construct
- Water conservation and reuse







DTS Modules

Treatment Efficiency very good

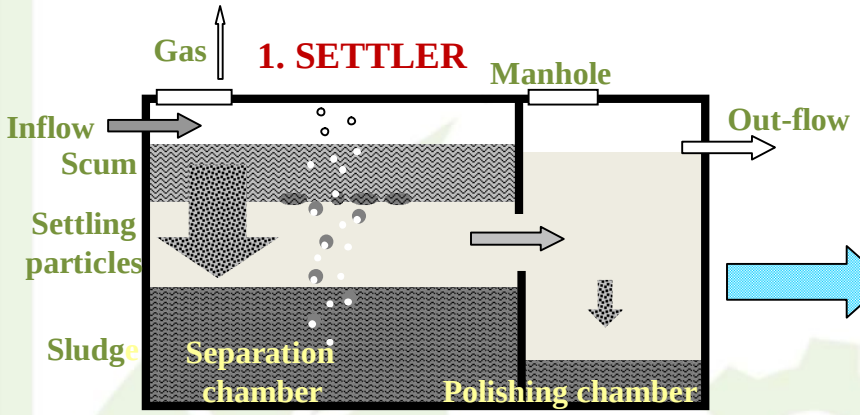
BOD
COD
Pathogens
Oil & grease
Colour
Odour

<u>If Re-use</u>
Nitrate
Phosphate

Very low maintenance costs

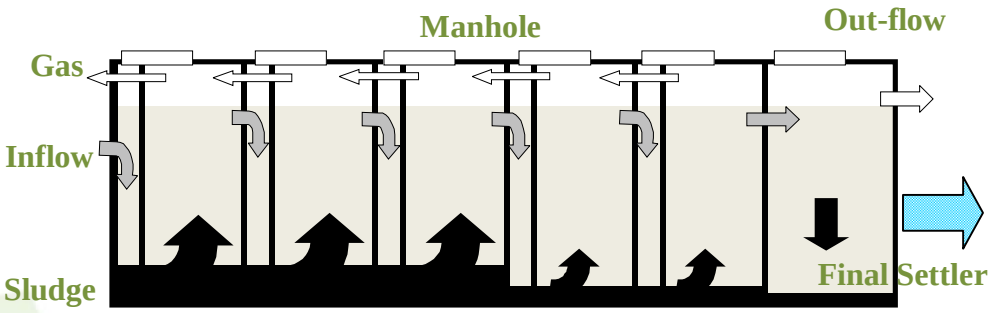
COMPARISON PROCESS WISE IN DTS

1. SETTLER



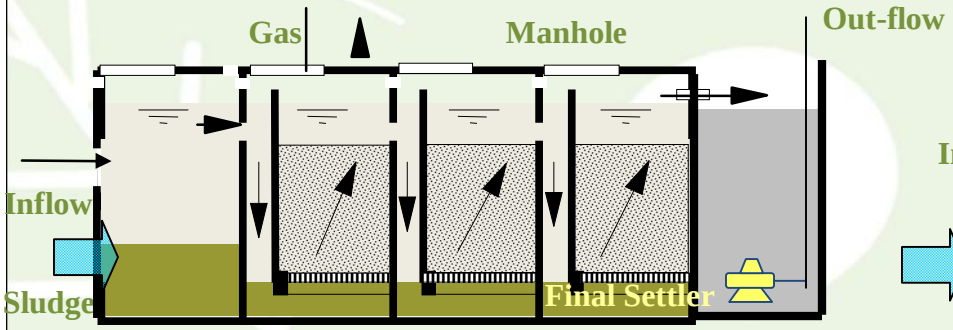
Here sediments get settled & are de-composed using Micro-organisms

2. ANAEROBIC BAFFLED REACTOR



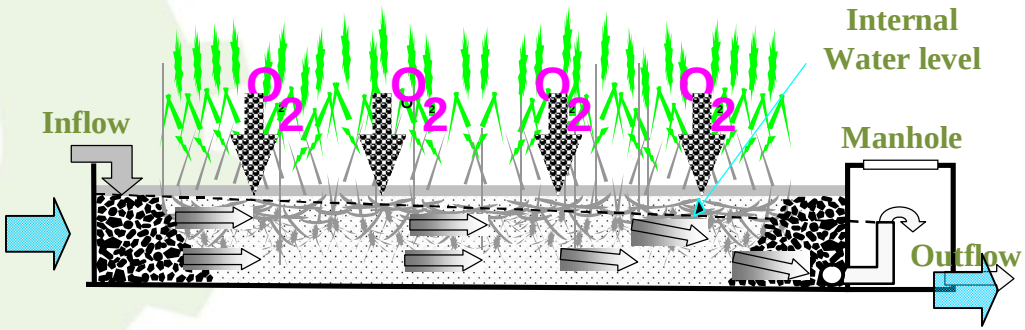
Here with activated sludge the easily degradable & less decomposable materials are broken Down

3. ANAEROBIC FILTER



The bacterial mass lodged on filter materials treats the Non-settleable solids.

4.PLANTED GRAVEL FILTER



The reed(helophytes) planted filter bodies treat through Biological conversion, filtration & Absorption.

MERITS OF DTS

Sl No.	Conventional Scheme of Treatment	DTS Scheme of Treatment
1	All Sewage generated has to be pumped involves regular maintenance of the pumps & also risk of breakdowns.	The sewage flow is by gravity & only the treated water is pumped out, chances of breakdowns are minimized greatly.
2	Since huge lengths of underground piping blockage chances are high it's investigation & rectification is time consuming.	Underground piping is very low since the Treatment units are located close to the toilets, hence there is minimum possibility of blockage.
3	All process is mechanical, hence continuous monitoring for daily Operations	All process is by gravity, no monitoring operation wise is required.
4	Occasional Floating Sludge pumped to the Filter results in choking of filters	The filter media is plants & hence there Is no concern of the filter choking.

CONSTRAINTS FOR IMPLEMENTING DTS

Sl No.	What was the Constraint?	How it was resolved ?
1	Lack of adequate time for Implementation since the bacteria requires time to grow.	The time required for bacterial growth (4 – 6 weeks) was made up by adding in already grown bacteria.
2	Customer understanding DTS & supporting it's implementation.	User made aware of the system & it's benefits & approval obtained.
3	Locating DTS without affecting the utility lines, future layout & deriving all the benefits of the system.	Locations identified with minimum disturbance to utility lines & future expansions considered during planning.

POST IMPLEMENTATION OF DTS

In working condition, located adjacent to the National Parts Centre (Warehouse).

Treatment plant - 1

Treatment plant - 2

In working condition, located adjacent to the National Parts Centre (Office).

SUSTAINABLE CONSTRUCTION

3D Panel Technology in construction.

SICP – Structurally Insulated Cement Panel

- **A Superior Solution** - Strength, Cost and shorter construction period
- **Proven Technology** - Over a time span of quarter century
- **Certified** - European and US Standards ICBO-ER-3509
- **Versatility** - To meet any architectural/engineering requirements
- **Energy efficient** - Superior thermal & sound insulation qualities

- The 3D Panel technology is basically structured around panels and the panel consists of three dimensional welded wire
- frames resembling a space frame, integrated with a modified expanded polystyrene insulation core. Each panel consists of a
- steel structure and an insulator.
- The three dimensional wire panel are made of, High tensile (700-750 Mpa), 12 gauge galvanized steel, with self
- extinguishing EPS (density 15-20 Kgs/Cum) kept in its core and shot created with 1:4 mortar on either sides. Cement Sand
- Mortar shot Crete done on site.
- The result is a stronger, monolithic, seismic resistant wall that also has thermal and acoustical insulation

T5 Lighting