# OPEN SOURCE CIRCULAR ECONOMY days MUMBAI

*Learn, Build & Connect for a Circular Mumbai with Talks, Workshops & Networking*

OSCE DAYS

## THEME: "Waste Management"

BLACKFOREST SOLUTIONS

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

VIVA Environmental Initiative Mumbai India

POWERED | ACCELERATOR

Implemented by:

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

On behalf of:

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

of the Federal Republic of Germany

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# Open Source Circular Economy Days

**Mumbai, November 12, 2018**

# 1. What we do

## TRADING & OPERATIONS

Worldwide waste trading and mediation to EU licensed disposal facilities (we act as their international representatives)

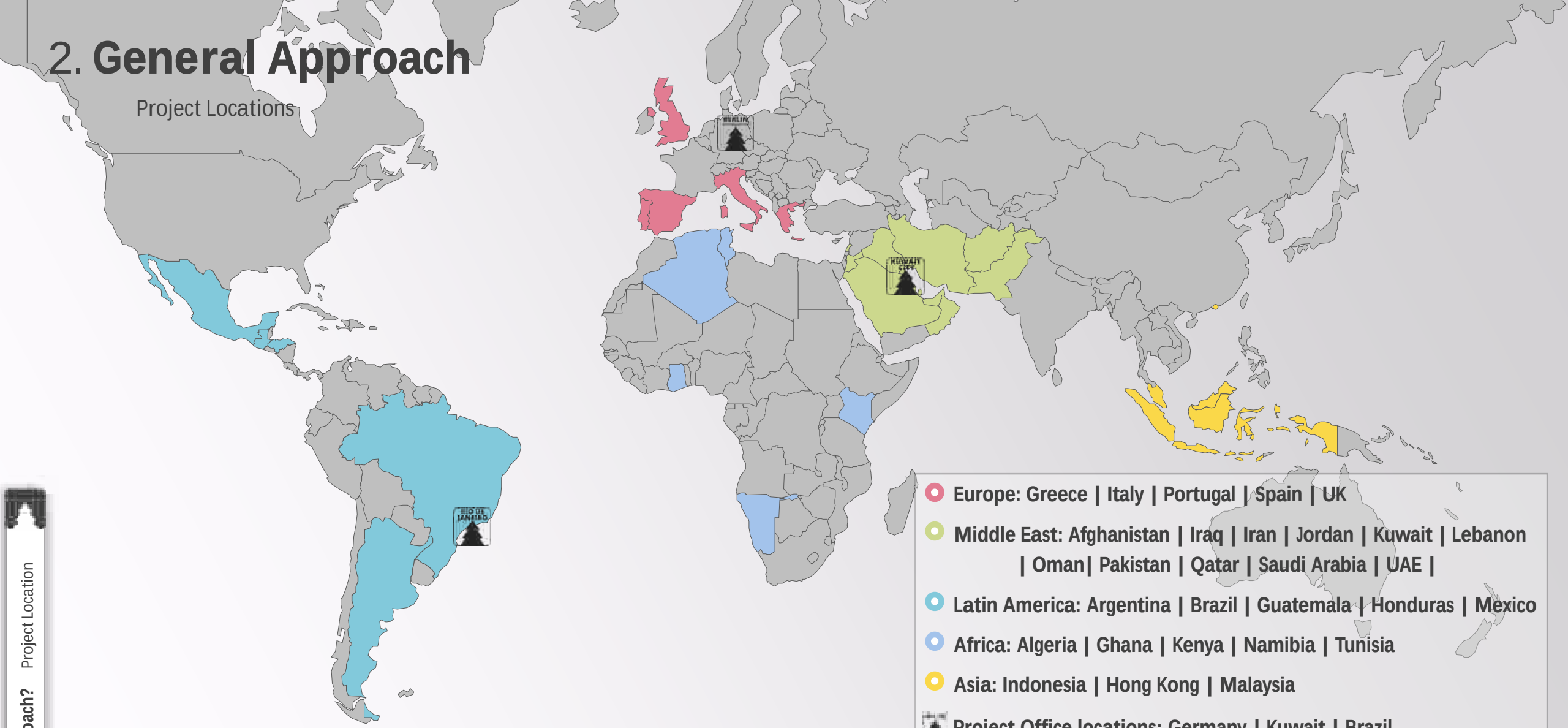
Worldwide in-situ operations for hazardous waste assessments, decontamination, repackaging, licensing

## CONSULTING

Technical waste management consultancy & project developers worldwide (hazardous & non-hazardous waste)

# 2. General Approach

Project Locations




- Europe: Greece | Italy | Portugal | Spain | UK
- Middle East: Afghanistan | Iraq | Iran | Jordan | Kuwait | Lebanon | Oman| Pakistan | Qatar | Saudi Arabia | UAE |
- Latin America: Argentina | Brazil | Guatemala | Honduras | Mexico
- Africa: Algeria | Ghana | Kenya | Namibia | Tunisia
- Asia: Indonesia | Hong Kong | Malaysia
- Project Office locations: Germany | Kuwait | Brazil

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# Open Source Circular Economy Days – (OSCE Days)

**OSCE Days is a global project and community about the development and use of open source solutions and methodologies to create a shift to a global sustainable circular economy**

**We invite people from across the globe to run local events to engage and connect a local community and start to create and share open source solutions with other cities.**

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# OSCE Days

**Open source means publishing how things are made, such as a recipe, software code, production data, or design files so that anyone can study, use, and build upon this information.**

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# What do we mean when we talk about an Open Source Circular Economy?

- Transparency in manufacturing processes and material production. We need products that can be understood, taken apart and repaired.
- We need to share knowledge of how resources flow throughout our system.
- When good solutions are developed, we need to be able to use them, to build upon them, and to improve them, for the benefit of our planet and our society.
- We need an open source approach to the circular economy!
- Our ecological problems are shared by all of us – any solutions need to be shared too.

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# Mumbai OSCE Days

- Megacity
- Ocean Plastics
- Ban on plastic bags
- Source segregation

- MUMBAI “IS UPGRADING”
- Traffic, mobility vs waste
- Example of a Circular City
- People, products, buildings
- Inclusion of scavengers

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# Mumbai OSCE Days

- Microlevel vs Macrolevel
- Ban on landfill?
- Why opposing the usage of calorific value?
- Extended Producer Responsibility (EPR)
- Urban Mining

- Lets get our hands dirty and start implementation in a pilot area in India
- Profitable Circular Economy
- Attract international stakeholders in a tender

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# Mumbai OSCE Days

https://oscedays.org/

# Circular Economy & Waste Management

## 12 NOVEMBER 2018 - MUMBAI

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# Objectives

- OSCE days is a non-profit , knowledge transfer platform
- OSCE days brings together people from business, science, technology, startup and NGOs to share, to discuss and to develop circular solutions
- OSCE days provides inspiration, new knowledge and showcase new possibilities of a circular economy in India
- OSCE days creates awareness on circular economy, especially for students and young professionals
- OSCE days facilitate companies and start-ups to discover new materials and new business opportunities through new and competitive ways of operating
- For more details, visit : *https://oscedays.org/*

# Organizers

**Black Forest Solutions GmbH (“BFS”) - German company**

- BFS consists of highly specialized consultants for recycling and waste management operations worldwide and offers services for MSW, medical waste, hazardous waste, food waste, biological waste treatment (MBT) and waste-to-energy etc. For more information, visit : https://www.blackforest-solutions.com/

**GIZ - German initiative in economic cooperation & sustainable development**

- GIZ works with partners in India for sustainable economic, ecological, and social development. In the areas of Energy, Environment, Climate Change and Biodiversity, Sustainable Urban and Industrial Development & Sustainable Economic Development. For more information, visit : https://www.giz.de/en/

**Yuva Environmental Initiative – Mumbai**

- Yuva Environmental Initiative focuses to bring about sustainable development in India through waste management, environmental protection, and renewable energy. For more information, visit: http://www.yuvaenvironment.com

# Waste Management

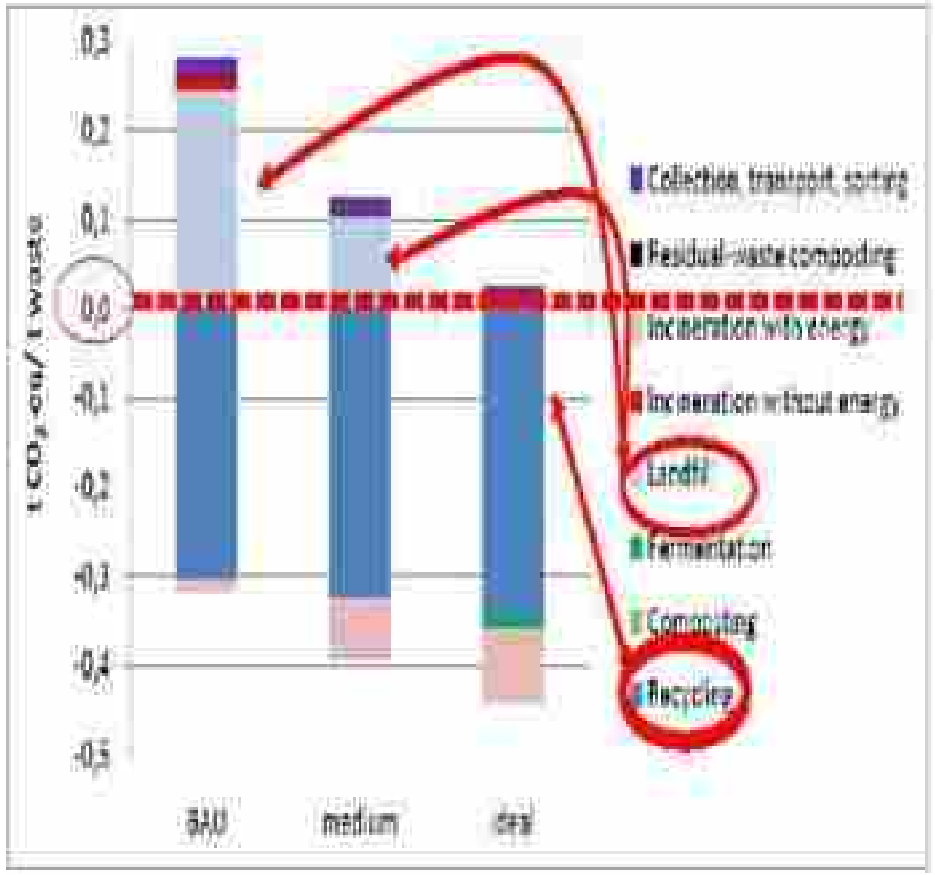
- First organized municipal solid waste management (MSW) system appeared in London in the late 18th century
- Early Waste management was focused on collection, transport, and disposal of waste (end-of-pipe solutions). Even today, It still is about Disposal Management
- The "3 R“ Reduce, Reuse and Recycle focuses largely on point of consumption
- There is an urgent need to find sustainable alternatives to existing Waste Management practices.

**Change in current solid waste management practices is critical**

- Current economic growth and development can not be sustained at current production and consumption levels
- Extraction of resources to produce goods is rapidly surpassing limit where the planet can replenish them
- There is huge scope for enhancing waste value chain through Circular Economy

**Focus need to shift from point of consumption to point of extraction and production**

# Climate change & SWM




- The current SWM practices produce GHG emissions leading to global warming
- 53.5 million tones waste generated in India, produces

**GHG Emissions of 16.68 Mt CO2-eq**

- Yet no significant action is taken to end the current landfill practices
- For the same amount of waste, the treatment of waste, reduces

**GHG Emissions of (- ) 4.6 Mt CO2-eq**

www.umweltbundesamt.de/sites/default/files/medien/378/publikationen/texte_56_2015_the_climate_change_mitigation_potential_of_the_waste_sector.pdf

**In Delhi alone Informal waste sector activities have saved around 962,000 tones CO2-eq. (Chintan 2009)**

# Circular Economy

- Circular Economy seeks to reduce waste and aims to prepare for reuse, recycle, and recovery
- waste management is part of the transition towards a circular economy
- circular economy improves the use of natural resources
- circular economy promotes design thinking and use of extended producer responsibility principle
- circular economy diverts municipal waste from landfills as landfills pollute soil, groundwater and air

# Sustainable Solutions

- **Reuse** - is extending the useful life through Repairing, Refurbishing, & Repurposing

- **Sharing** – allows individuals and groups to create value from underused physical assets, shared as services OR Manufacturers provide Product as a Service (PaaS)

- **Recycling** – is the process to change waste into new products. It prevent waste of potentially useful materials and reduce the consumption of fresh raw materials.

  - ✓ **Up cycling** – is converting waste into something useful by creatively refashioning it for a new purpose. Up cycling increases value, prolongs the life of materials and conserves resources and energy

  - ✓ **Down cycling** - involves breaking a product down by Harvesting parts / components OR Re-processing it to produce raw materials usually at a lower-value. Down cycling also conserves resources and energy

**Circular Economy in waste management benefits both Economy and Environment**

# Start Ups in Waste Management

- Waste management is a huge problem in urban India, but many startups are taking this challenge head-on and tapping this opportunity for bettering our life.
- Waste management is certainly becoming one of the hotter area for startup, in the rapidly cooling tech business in India. For example -

  - ✓ Saahas Zero Waste (SZW) offers products made from waste, including compost and a range of other products
  - ✓ Protoprint is converting plastic waste into filaments for 3D printing.
  - ✓ Code is recycling all kinds of cigarette butts to produce useful material
  - ✓ Chakr Innovation takes diesel soot from generators and converts it into inks and paints.
  - ✓ GEM Enviro Management collects PET waste from commercial organizations to recycle them into T-shirts, caps, and bags.

Several eco-entrepreneurs are entering into the largely untapped waste management space, which is expected to be worth $13.62 billion in India by 2025

# SDG Foundation

**SDG-Foundation** is a Non Profit Organization and develops programs built on the scientific expertise, to sensitize and educate Regulators, Businesses and NGOs for Sustainable Development.

Mentor for Startups @

ScaleMinds - an early stage seed funding, mentorship and business development driven accelerator for high growth startups

Startupbootcamp Energy Australia - leading global accelerator for innovative startups solving problems in Energy Efficiency, Energy Independence,

Circular Economy Club (CEC) is the international network of over 2,600 circular economy professionals and organizations from over 60 countries.

Reviewed 125 innovations from 36 different countries for the 2018 Innovation Challenge to spur sustainability organized by Launch Circular, supported by NASA, USAID, NIKE and the US Department of State

For more information, please visit: www.sdg-foundation.org

# Circular Economy
# Promoting Ec0—Entrepreneurship

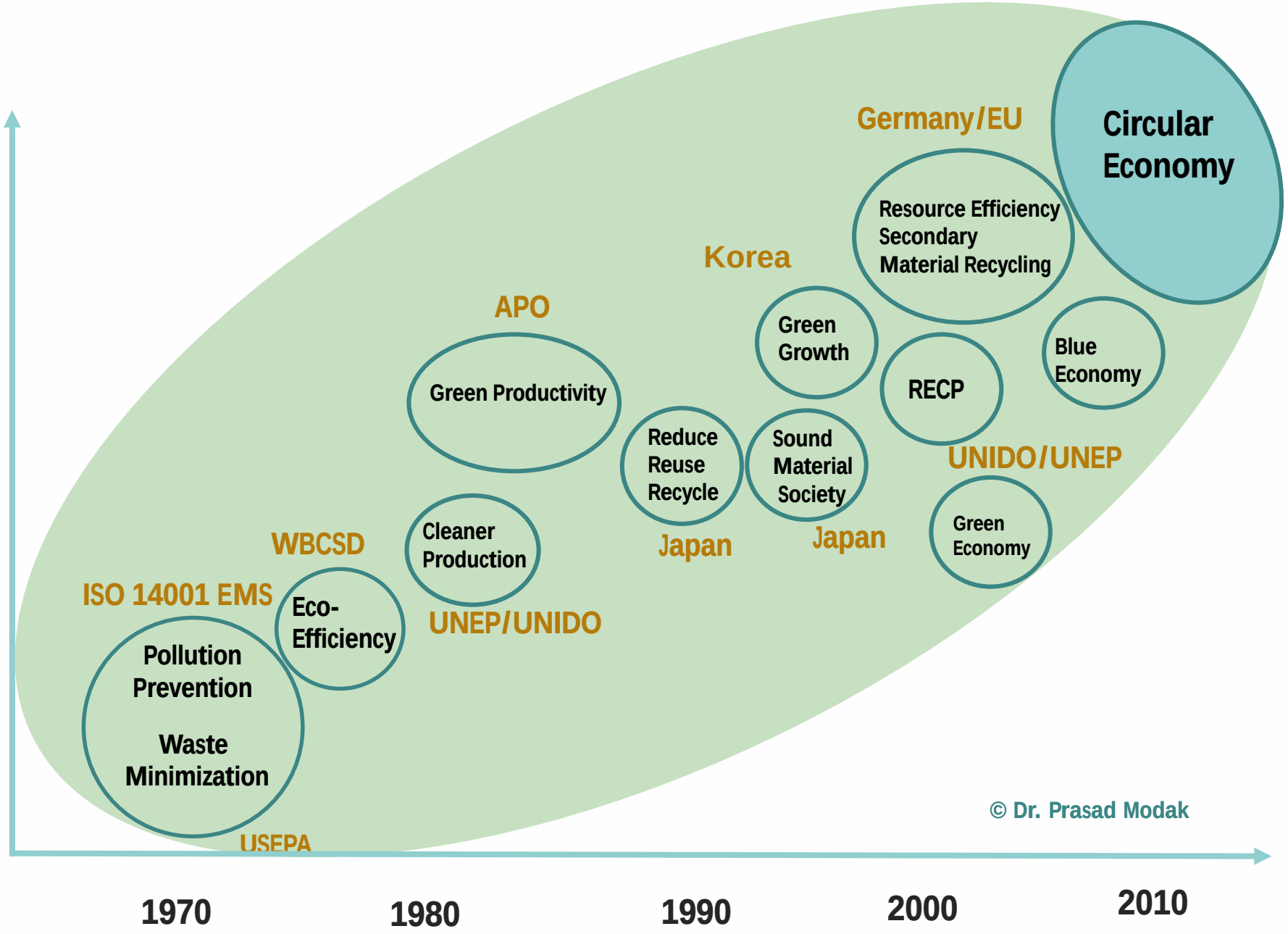

## Dr. Prasad Modak

**Executive President, Environmental Management Centre LLP and**
**Director, Ekonnect Knowledge Foundation, India**

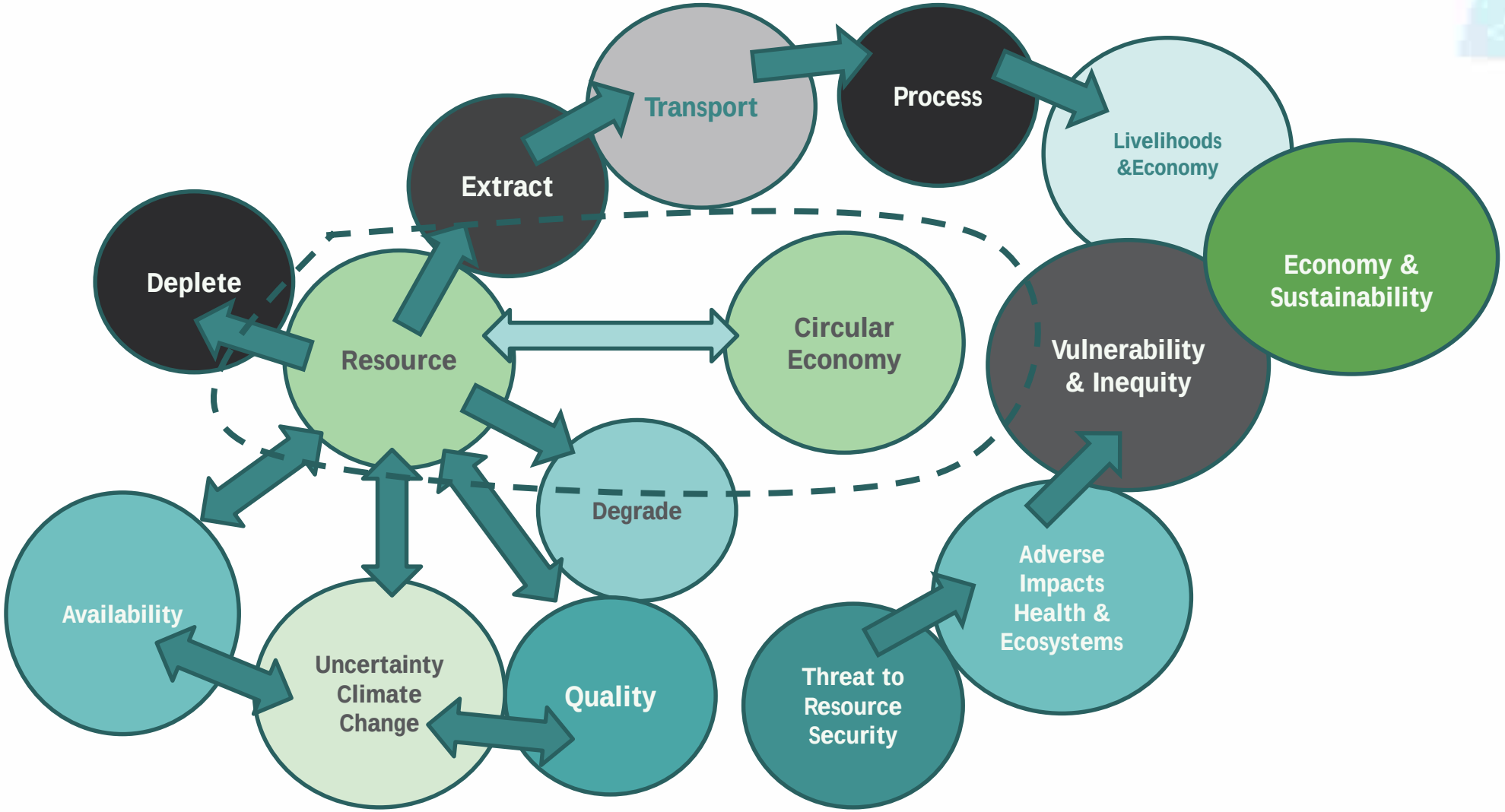
# Environmental Management Centre LLP

# Ekonnect Knowledge Foundation

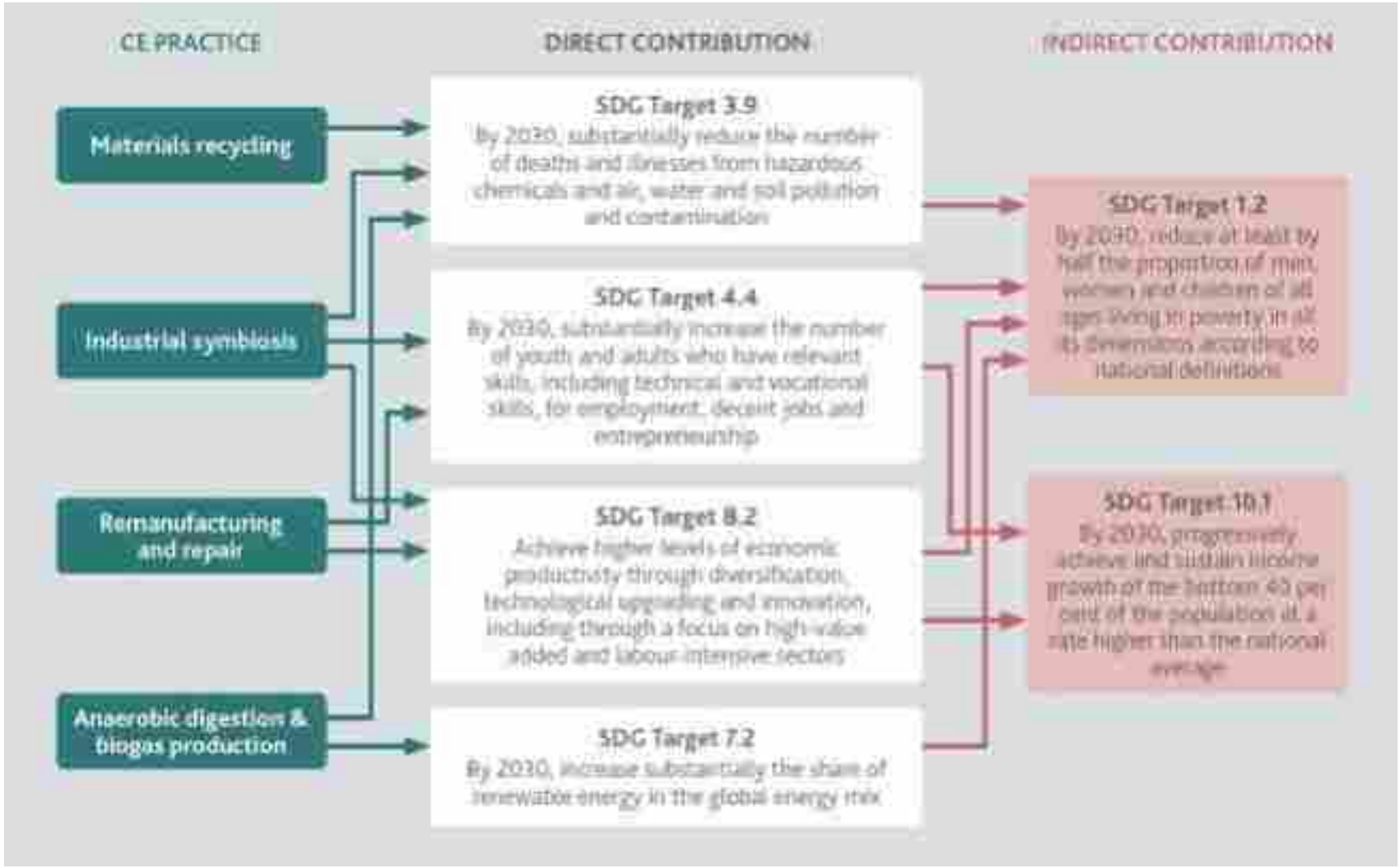
# Evolution of the Concept of Circular Economy



# The Canvas of Circular Economy



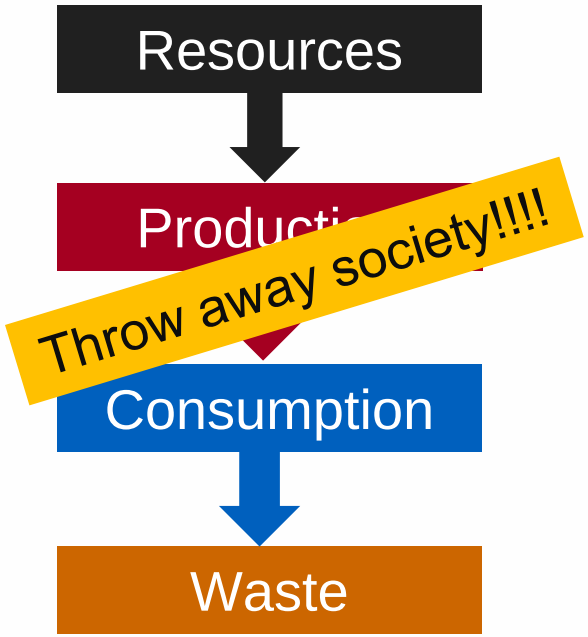
# Circular Economy and the SDGs




Source: Patrick Shroeder, Institute of Development Studies

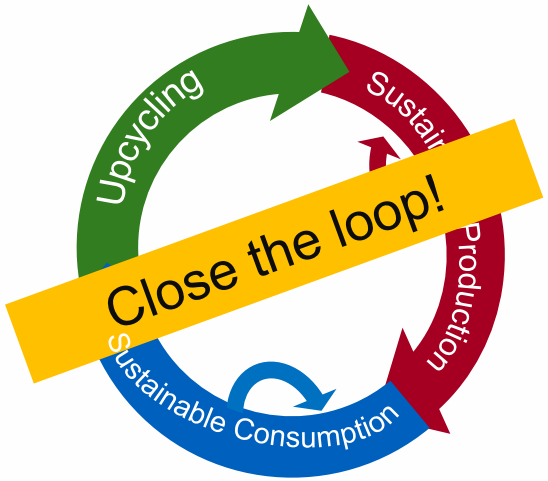
# Transitioning to Circular Economy

Linear economy



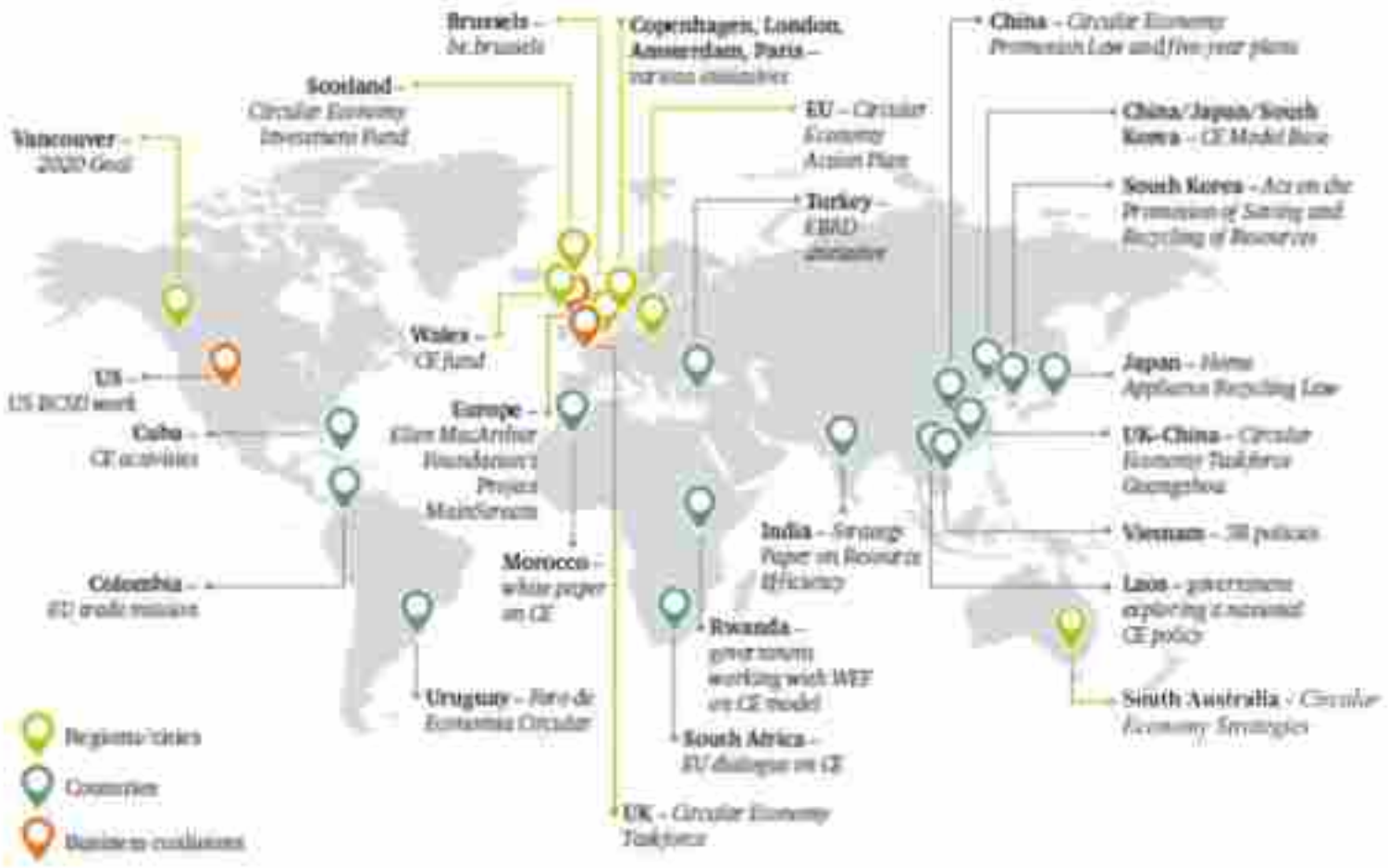

Recycling economy

Circular economy




From waste to resources

Bonnet , F. (2016). Circular Economy in cities. SwitchMed




# Circular Economy Initiatives World Wide

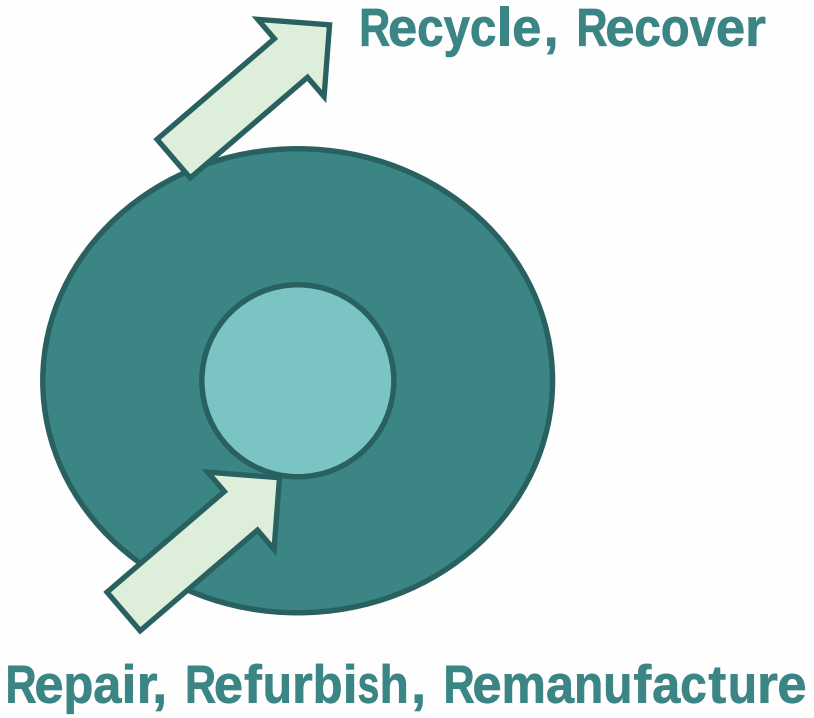
Source: Chatham House. (2017). A Wider Circle? The Circular Economy in Developing Countries. Briefing December 2017 Energy, Environment and Resources Department

# Circularity–3R Plus 3Rs

**Rethink**

© Dr. Prasad Modak

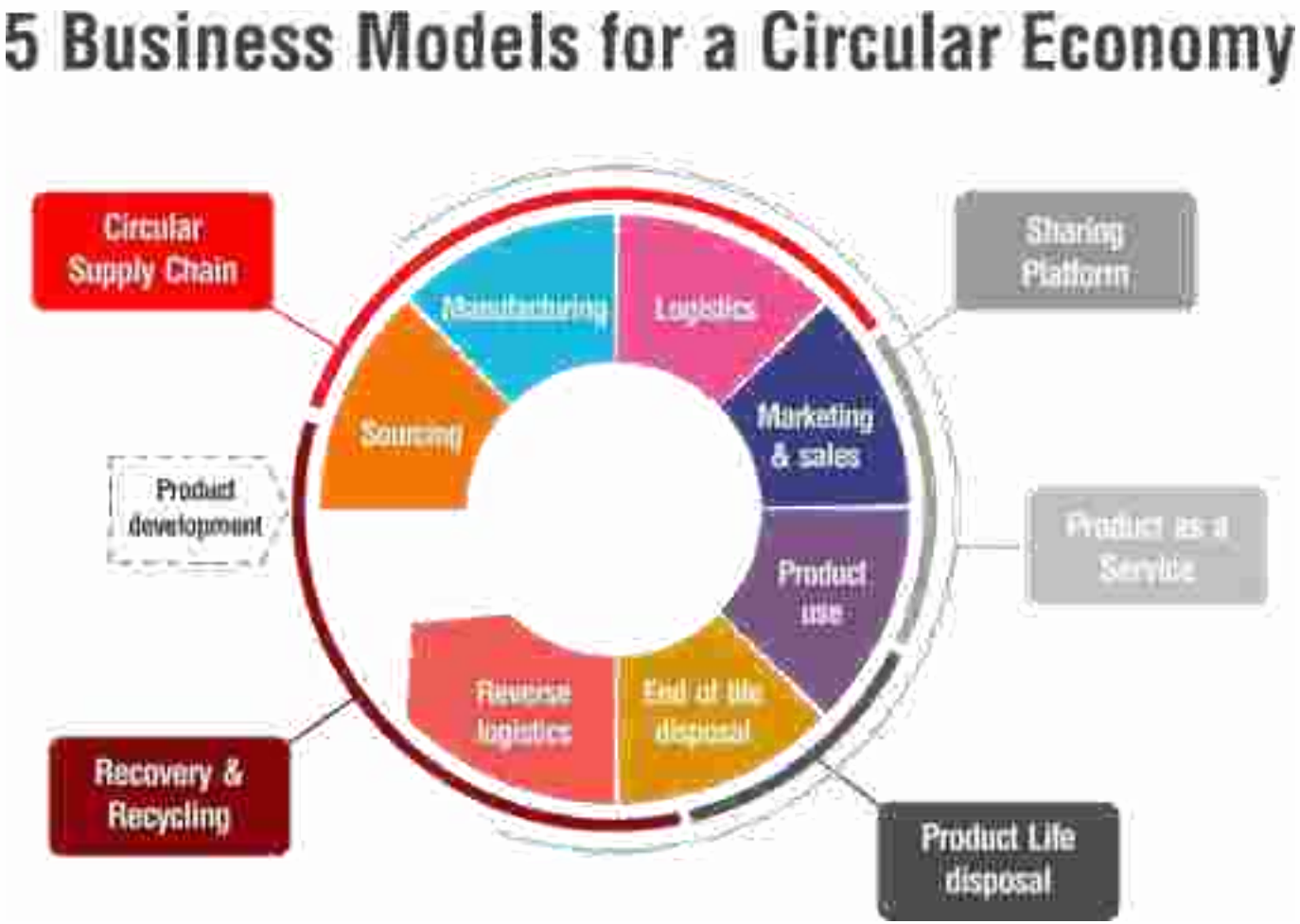
# Concept of Outer and Inner Circles




The "outer circle" –creates a closed loop of materials. More suitable for big businesses

The inner circle is people centric, it is for citizens, small companies and community initiatives to reinvent

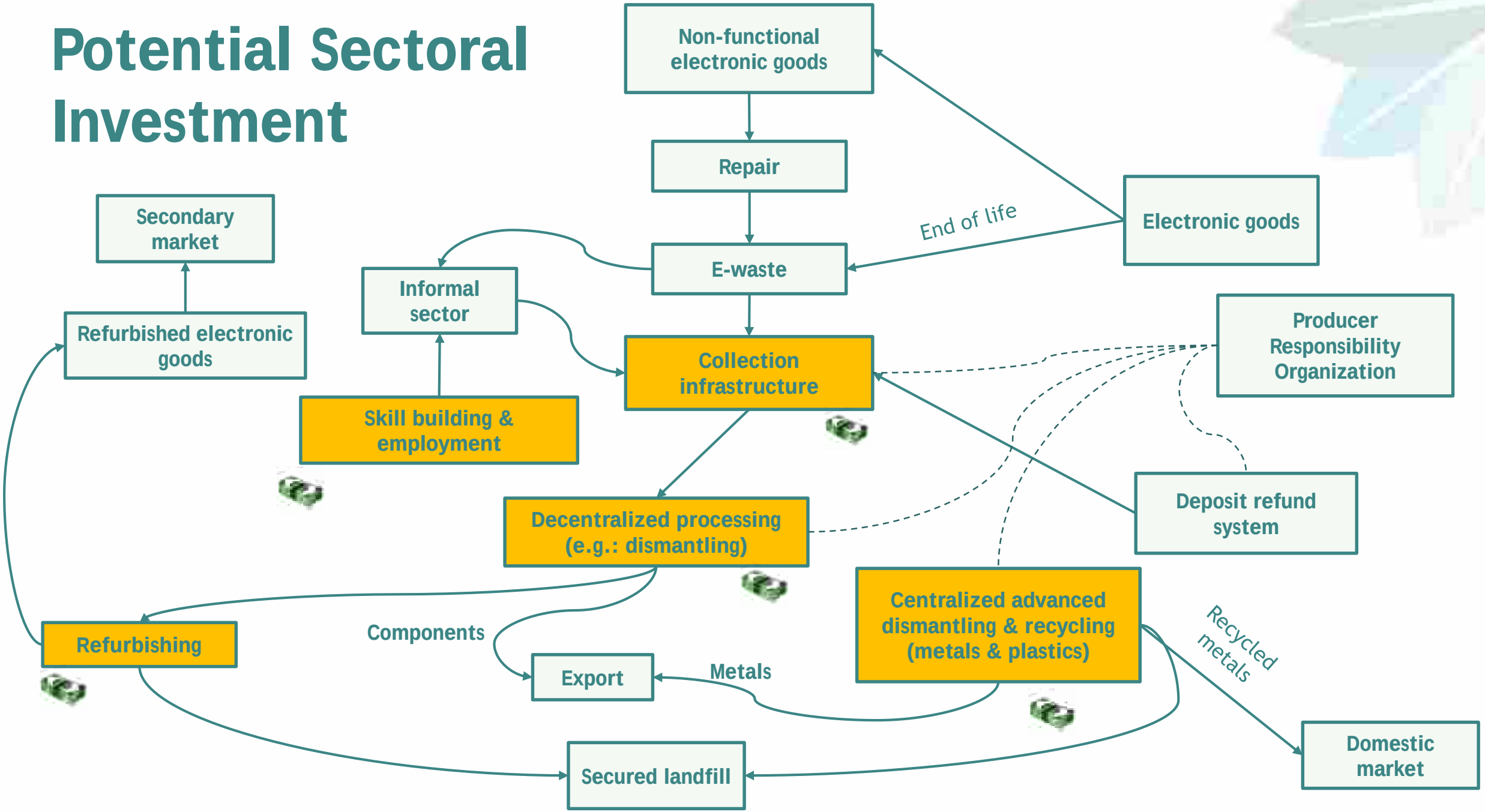
# Business Models for CE




- **Circular Economy is feasible only if we have viable and innovative business models encompassing the entire supply chain**

Source: https://www.accenture.com/t20150523T053139__w__/us-en/_acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Strategy_6/Accenture-Circular-Advantage-Innovative-Business-Models-Technologies-Value-Growth.pdf

# Potential Sectoral Investment



# Outer Circle Approach

- **Waste Ventures India** offers professional waste collection and processing services to households, corporate clients and waste pickers

- Since 2013, the company reverted over 3,000 tons of waste from Indian landfills

- Hyderabad-based plastic recycling startup **Banyan Nation** recently won the Dell PEOPLE'S CHOICE AWARD FOR CIRCULAR Economy

- **Encourages responsible plastic waste management through advanced, high quality recycling techniques**

Originally developed by Control Union Certifications in 2008 and ownership was passed to the Textile Exchange on 1 January 2011. The GRS is an international, voluntary, full product standard that sets requirements for third-party certification of recycled content, chain of custody, social and environmental practices and chemical restrictions.

**REMAKE**
**The new up-cycled paper from leather waste**

**Recycled Content Certification**
**For Products and Recycling Programs**
**SCS Global Services**

# SWaCH Cooperative in Pune

- SWaCH is the cooperative of waste pickers in Pune and it has 2700 members as of 2017 December
- Covers 550000 households daily and handles 50000 metric tons of recycled waste
- In 2016 SWaCH reduced 130,000 MTCO2E of green house gas emissions
- The collection of waste from Door to Door by SWaCH waste-pickers is estimated to have saved the PMC more than 51 Cr in 2016

http://www.cleanindiagreenindia.com/swach-waste-collection-in-pune/

# Zero Liquid Discharge in Textile Industrial Estate, Tirupur

- TWIC established 9 textile-dyeing CETP in the Tirupur textile industries cluster
- These CETPs are based on Zero Liquid Discharge, with a combined capacity of 53 MLD
- The effluent from various industries is conveyed to the CETP for treatment

The key benefits of the project are:

- Recycling and reuse of more than 98% of the water
- Reuse of more than 90% of Glauber salt
- Pollution prevention

# Zero Liquid Discharge in Textile Industrial Estate, Tirupur

CETPs are equipped with

- Pre-treatment system (Biological Oxidation system based on Activated Sludge Process)
- Reverse Osmosis (RO) system
- Mechanical Evaporator for RO reject handling

Pre-Treatment

Biological Treatment

Reverse Osmosis

Treated and Untreated Effluent

# Kalundborg Case study, since 1972

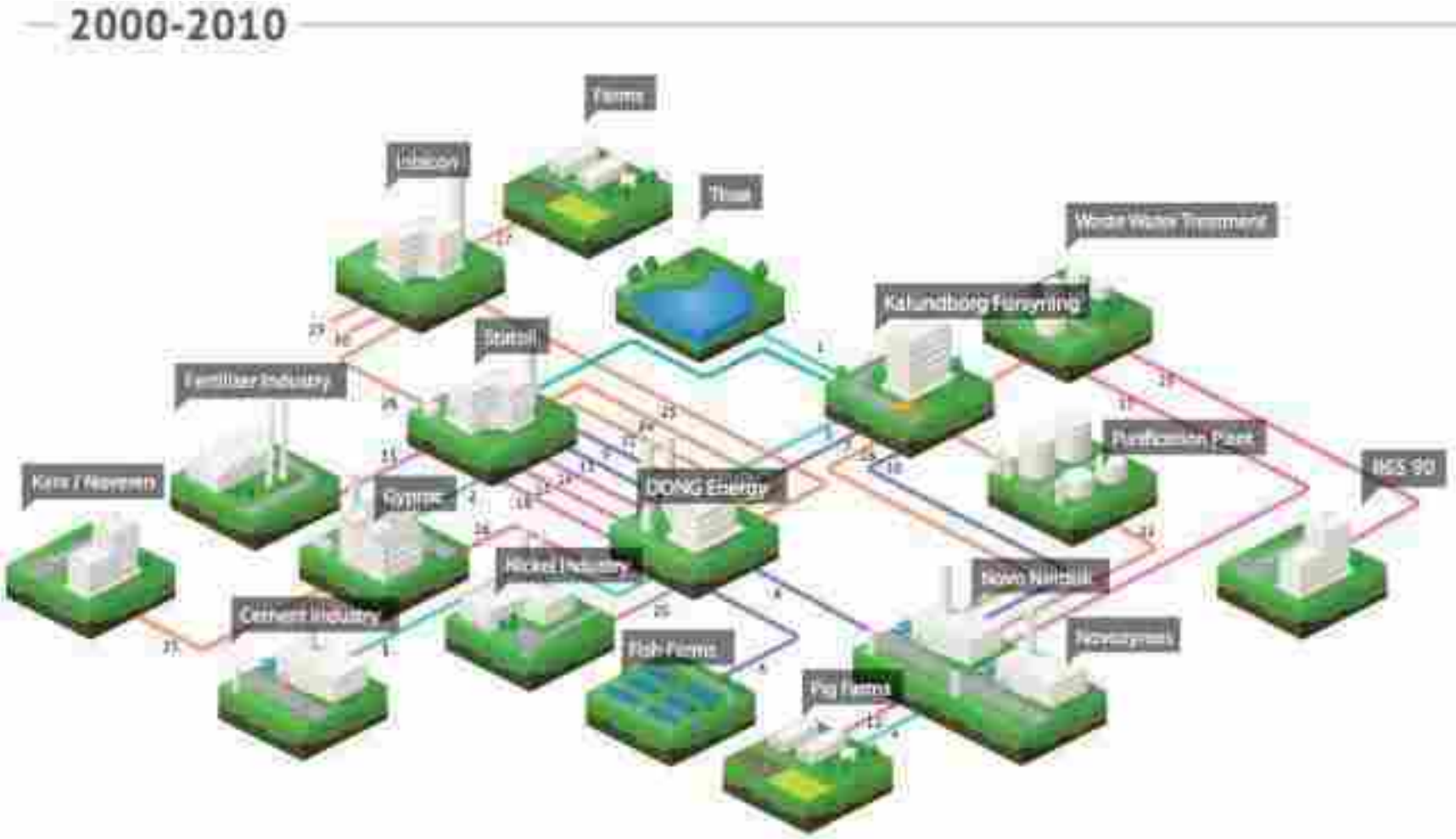
**The Kalundborg Symbiosis is a partnership between eight public and private companies in Kalundborg.**

**Principle- A residue from one company becomes a resource at another, benefiting both the environment and the economy. The Symbiosis creates growth in the local area and supports the companies CSR and the climate change mitigation.**

**Outcomes- 3 million cubic metres of water saved through recycling and reuse.**

Source: https://www.ellenmacarthurfoundation.org/cases-studies/effective-industrial-symbiosis
http://www.symbiosis.dk/en/business-strategy/

# Industrial symbiosis at Kalundborg




Source: https://www.ellenmacarthurfoundation.org/case-studies/effective-industrial-symbiosis

# Eco Town, Japan- Started by MITI IN 1997

Trigger – Waste treatment facilities and landfills were exhausted in Japan.

Principle- Involve both community and industry in waste management. The central government provides both technical and financial support to local governments

Outcomes- 10 projects working under this program benefitting from each other.

Improved public relations benefits from being members , easing the burdens associated with waste disposal, scarcity of

Source: www.indigodev.com/documents/IndigoEco-Japan.doc
https://www.researchgate.net/publication/23682591_Industrial_and_urban_symbiosis_in_Japan_Analysis_of_the_Eco-Town_program_1997-2006

# But Circular Economy is not just recycling

IT'S RETHINKING

Today, there are **more than 1,400 such cafés in 33 countries**, from the US to Japan.

Repairing **prevented about 250,000kg of waste** from heading to landfills in 2016

**Not accounting benefits of saving virgin resource, reduced GHG emissions, building skills, creating livelihoods and spurring innovations**

Social entrepreneur **Martine Postma**

The first Repair Café in **October 2009 in Amsterdam**.

Started **Repair Café Foundation** in 2011.

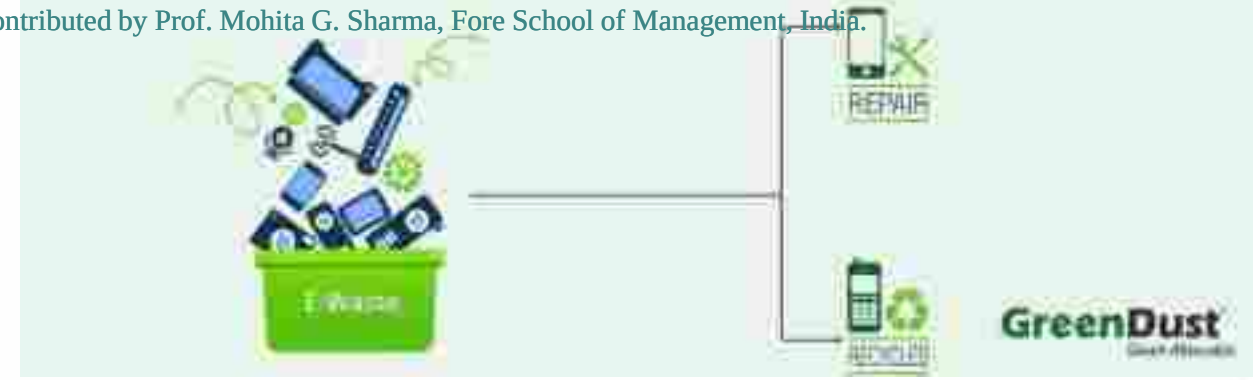
## REPAIR AND REFURBISH

Source: https://repaircafe.org/en/

AIR CAFE
NGALURU
TAILOR

Greendust case study. *Sustainable logistics and supply chain management*. Retrieved from Google Books. Contributed by Prof. Mohita G. Sharma, Fore School of Management, India.

# Green Dust




- Founded in 2008, Green Dust is a reverse logistics company
- Partnered with brands like Apple, Toshiba, LG, Samsung, Haier, Dell, Philips, Whirlpool and retailers like Croma to refurbish rejected or damaged electronics
- Re-selling at a 30% lower cost than the market price
- In three years, the company set-up 200 stores and 14 warehouses and repair units across the country
- Customer base of 250 million in India
- All the collected products undergo a 50-point quality check before re-sale with a Green Dust factory second certification.

Source: https://www.teleanalysis.com/news/greendust-17099-17099

**Khilonewala** is a start up venture, started from Indore in 2011. India's No. 1 Toy Library which rents out Toys, Games & Books to kids of age group between 1 to 12 years. Now operates in more than 12 cities in India

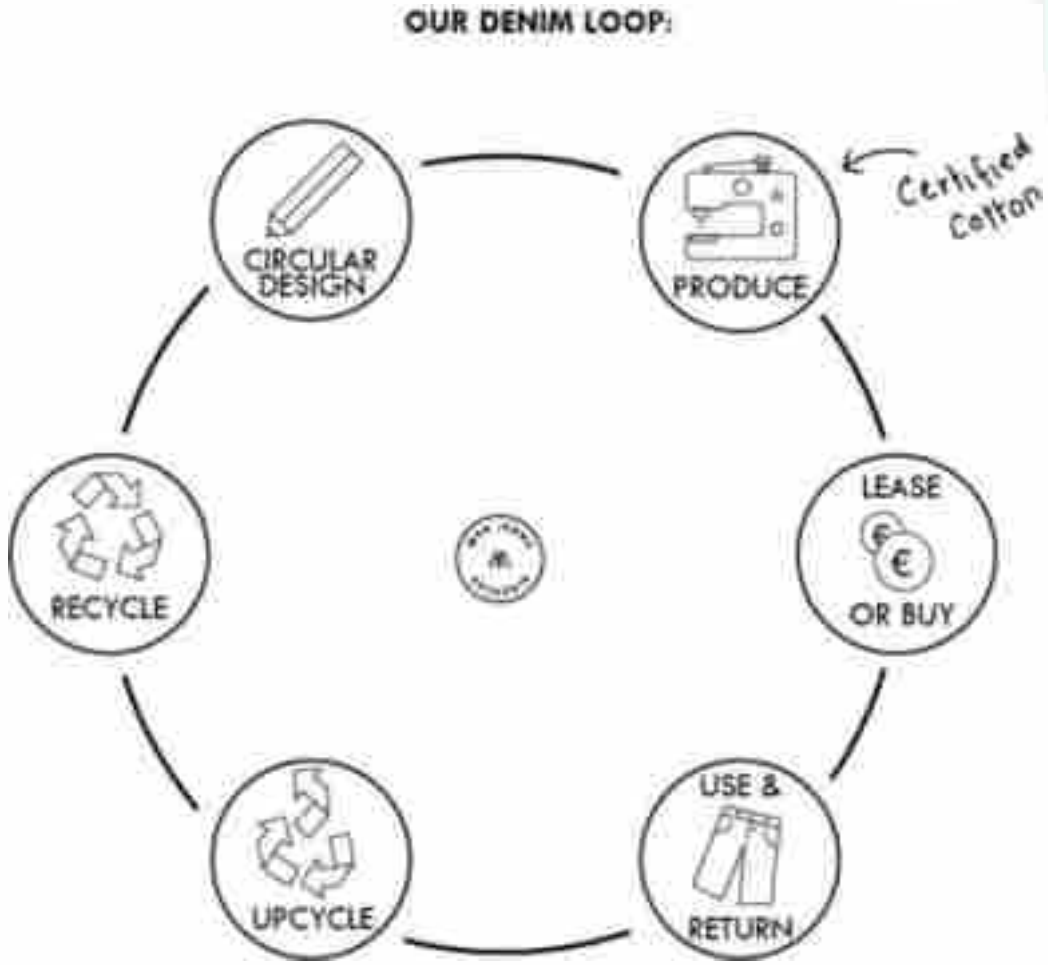
Source: khilonewala.in/

# SERVICE AS A PRODUCT

## MUD Jeans Circular Business Model

**There is no buying jeans anymore; only leasing jeans**

**Dutch circular firm- promoting recycling and extended life for denims**




Source: https://www.circle-economy.com/case/mud-jeans-designing-the-ultimate-pair-of-recyclable-jeans/#.WwueZUiFPIV

# Other perspectives

**Biodegradability**

FREE OF “TOXIC MATERIALS”

# “CIRCULAR ECONOMY PRODUCT”

Philips, H&M and Nike

https://www.theguardian.com/sustainable-business/2017/may/26/zero-hm-step-up-instore

The Bedol Water Clock is one case where clock operates on water without batteries or electricity.

The electrodes within the water reservoir of the clock convert ions into a current strong enough to power the clock for at least 3-months.

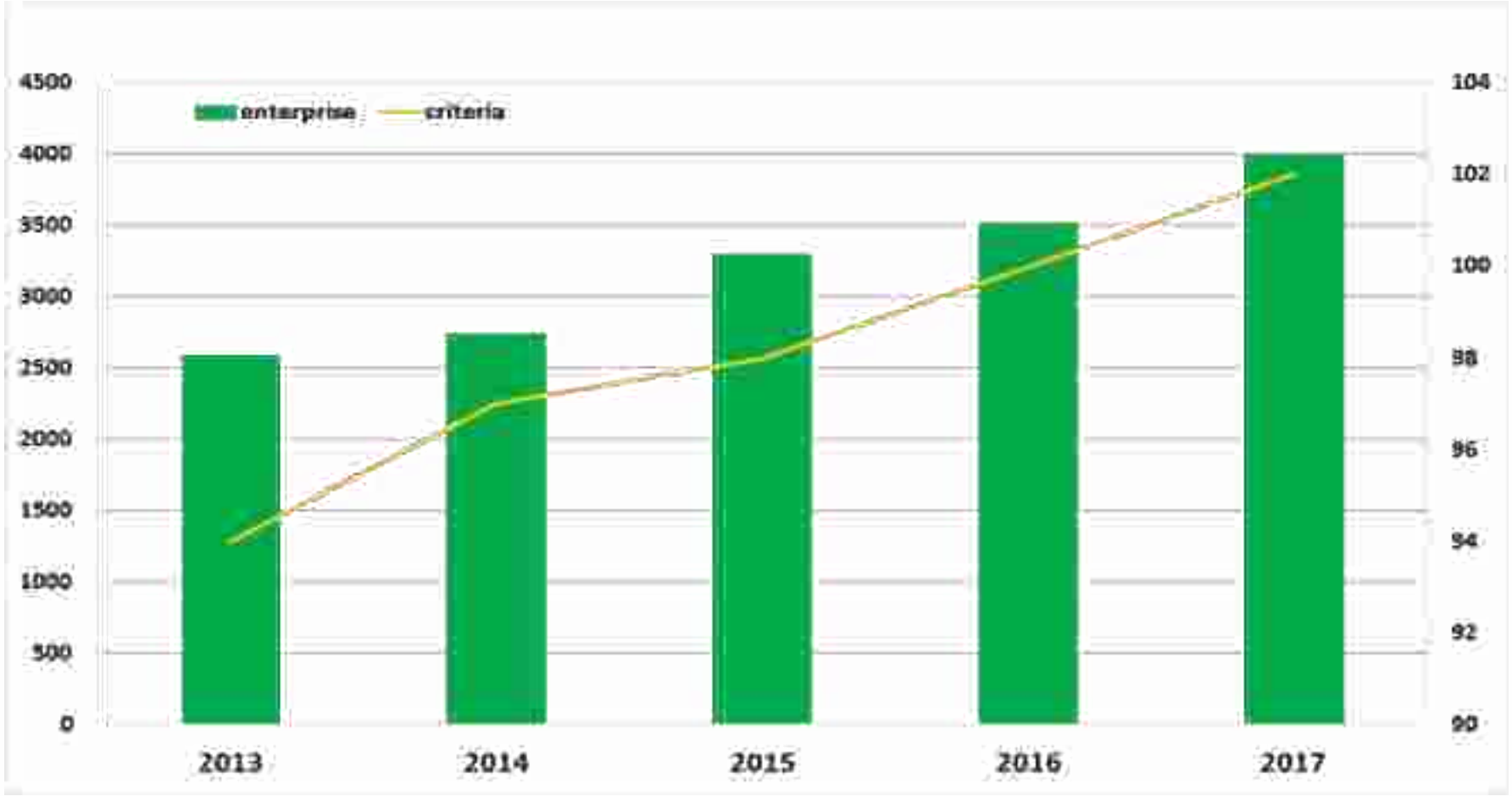
Green Products often demonstrate out of the box thinking

The Clever Little Bag from Puma shoe designed by Yves Béhar.

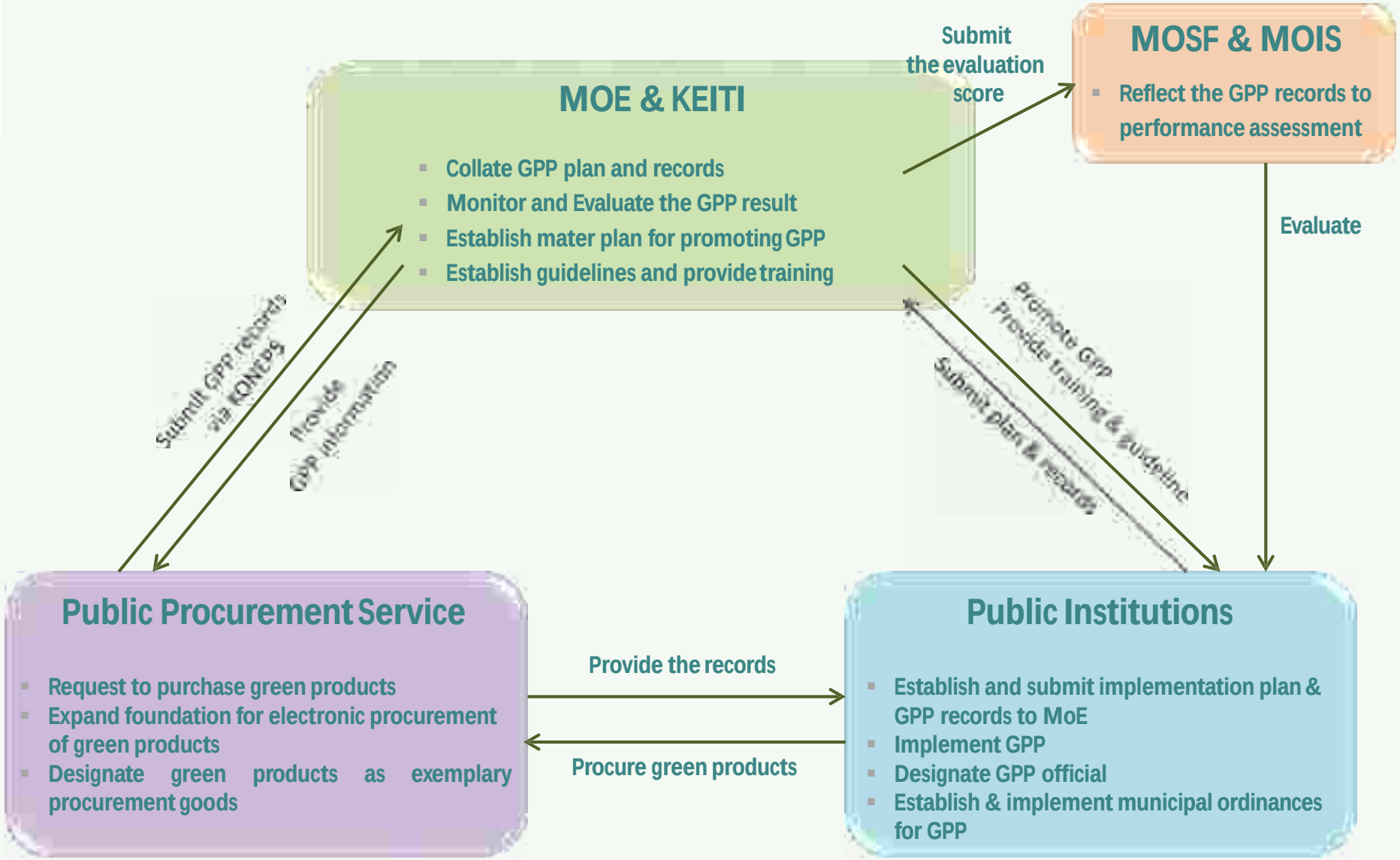
It was estimated that the new design reduced 8,500 tonnes of paper, saved 20 million megajoules of electricity and 1 million litres less fuel oil and water over a year. In addition, 500,000 litres of diesel and 275 tonnes of plastic was saved during transportation.

## Not just product – even the packaging matters

# Environmental Label Certified Product Evolution in China



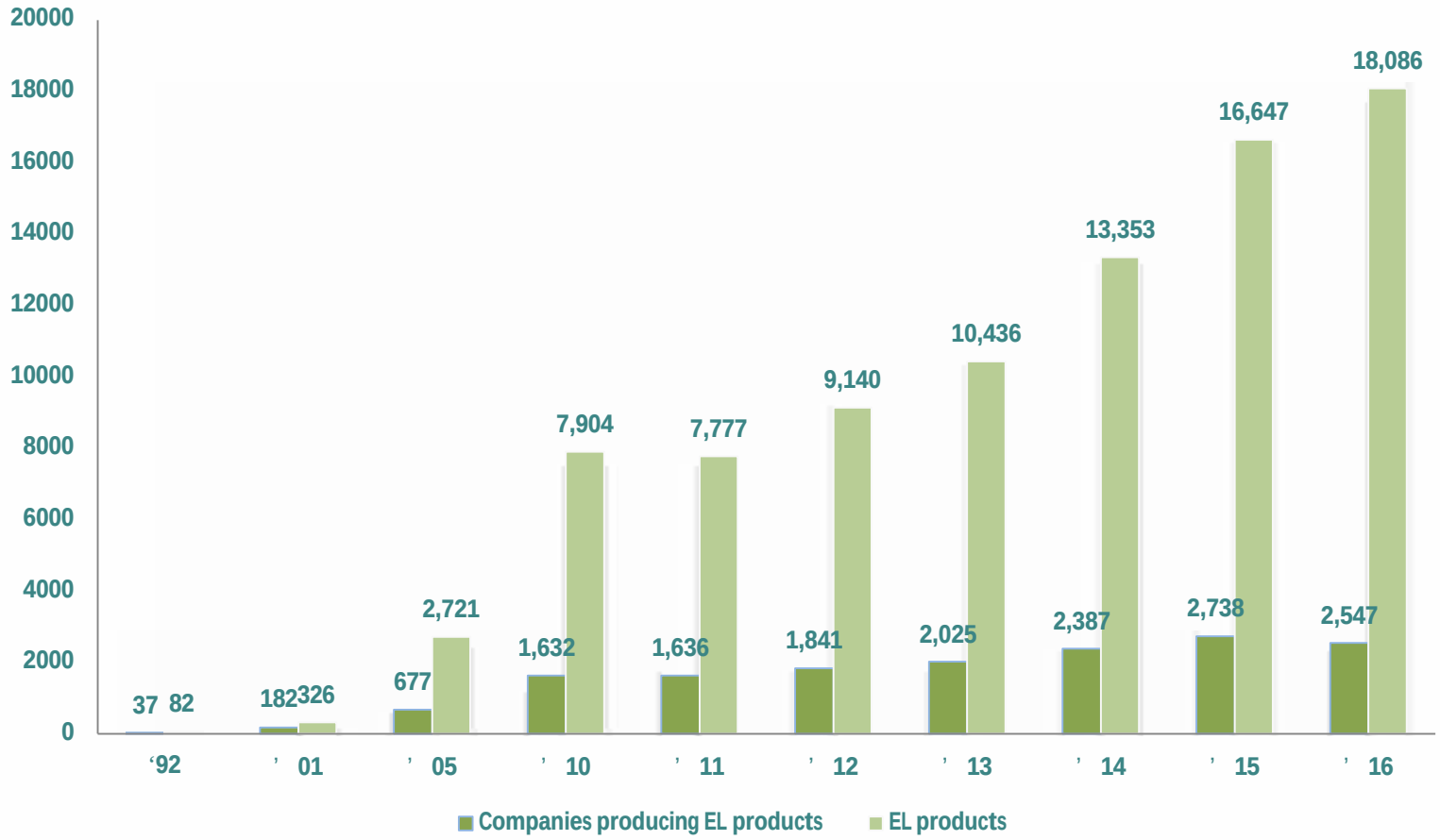
# Working mechanism of GPP in Korea



# Outcomes of GPP in Korea

## Growing market for eco-labeled products

- GPP extend the eco-labeled products market



# Sustainable Procurement Task Force (SPTF)

- In March, 2018 a Sustainable Procurement Task Force (SPTF) was constituted by Indian Ministry of Finance with following Terms of Reference

  - Review International Best Practices in the area of SPP;
  - Inventorise the current status of SPP in India across Government organizations;
  - Prepare a draft Sustainable Procurement Action Plan;
  - Recommend initial set of product/ service categories (along with their specifications) where SPP can be implemented

- Identification of few items where SPP can be started is the focus area of the Task Force

# EPR and Supply Chain

- **Extended Producer Responsibility- Embedded in the E-Waste and Plastic Waste Management Rules**
- **Guiding force towards circular management of electronics and e-waste and plastic waste**
- **Circularity in the entire supply chain is vital for ensuring compliance and sustained profitability in view of impending resource constraints**
- **Producer Responsibility Organization (PRO) is the new era of business**

IN INDIA'S **Circular Economy**

# Circular Economy in India

**Efforts by Indian Resource Panel**

**Emphasis on Resource Efficiency – GIZ and EU India Delegation**

**Lead from Niti Aayog**

**Resource Efficiency Cell at MoEFCC**

**FICCI, CII and BCCI Active**

**Several capacity building (GIAN) and entrepreneurship courses and mentoring programs expected**

# Launch of CE Entrepreneurship Program at Ekonnect Knowledge Foundation (January, 2018)

- Spanned over 12 Saturdays
- Guiding and mentoring start up projects on CE
- Connect with Investors and Potential Partners
- International faculty through webinars
- Successful candidates to go for international programs in the US, Europe and Australia
- Sweat equity model possible
- Web based mentoring option

# Contact

Prasad.modak@emcentre.com

Ministry of Environment and Forests
GOVERNMENT OF INDIA

Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
of the Federal Republic of Germany

giz

# Voluntary Carbon Market Opportunity for Enterprises Involved in Waste Management

**11th November 2018**

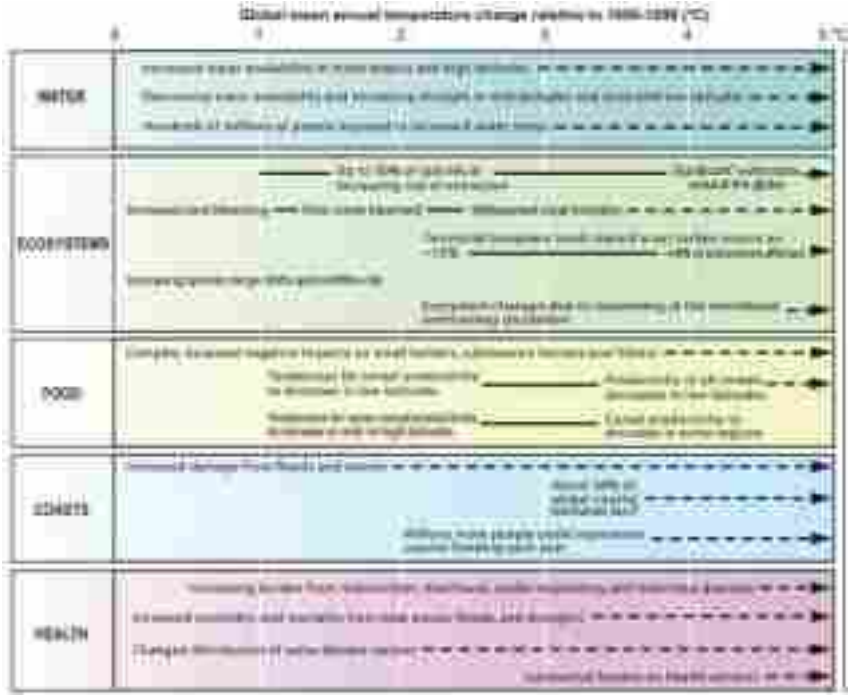
**Presentation by**

**Jai Kumar Gaurav**

**Technical Advisor, GIZ-India**

# Climate Change Challenge and Need for Mitigation

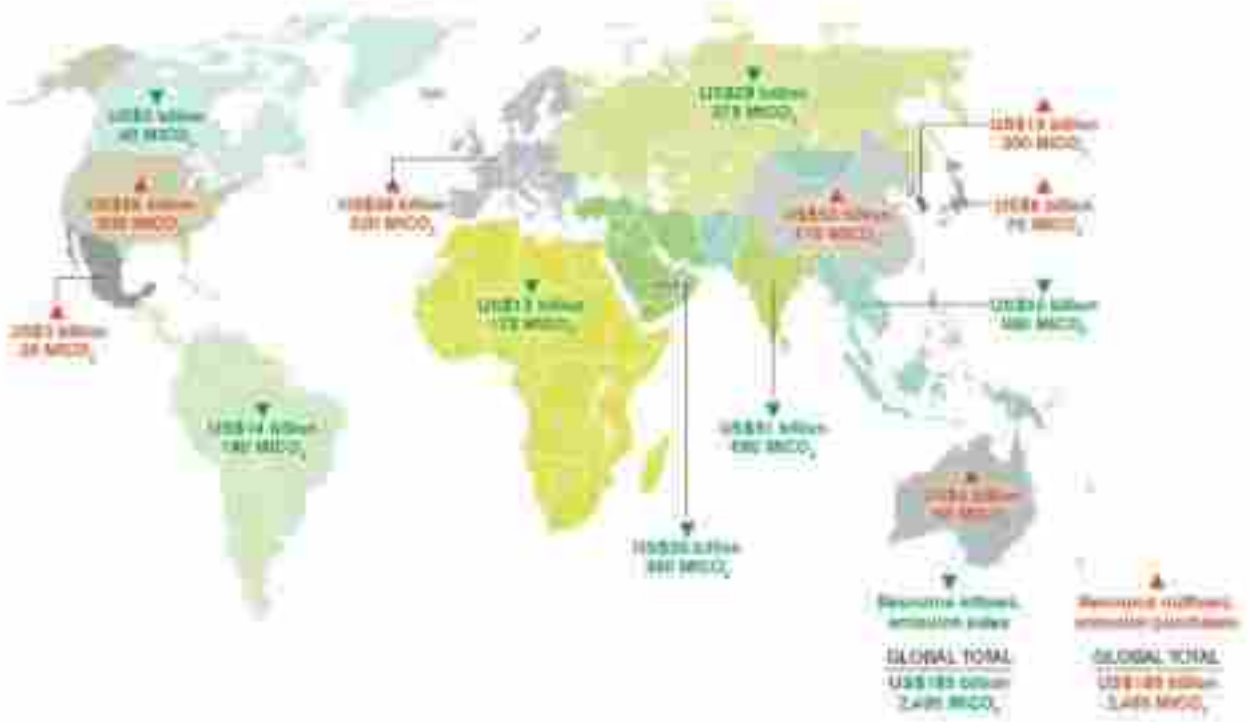
- Unabated climate change is expected to have adverse impacts.
- The Paris Agreement aims to limit the global average temperature increase to 2ºC above pre-industrial level.
- 163 parties have submitted "NATIONALLY determined CONTRIBUTIONS"(NDCs) but UNEP Emissions Gap report estimates that we are on track for global warming of up to 3.4ºC by 2100.
- Carbon Market is one of the measures to mobilize financing for emission reductions.



# Tax v/s Market

- A carbon tax establishes a price on emissions whereas a cap-and-trade program issues a set number of emissions "ALLOWANCES" each year that can be auctioned or traded.
- Market mechanism was used to reduce SO2 emissions from power plants in 1990 in USA saving US$250 million per year (Stavins, 2003).
- Cap and Trade offers certainty regarding emission reductions and flexibility in meeting those targets.
- NDCs of 84 countries call for markets and/or carbon pricing mechanisms – including 72 in developing countries.

# An International Carbon Market -2030



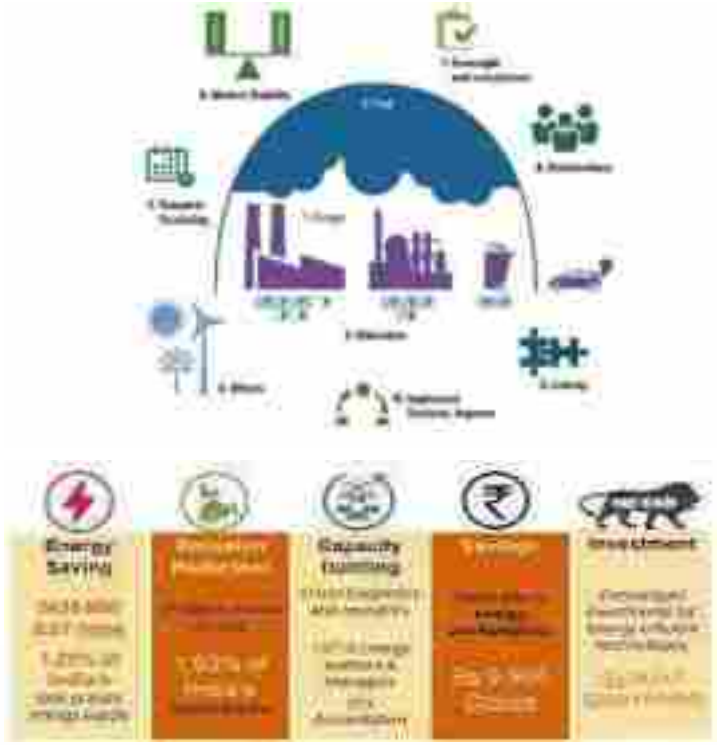

Source: World Bank, 2016

# INDIA'S NDC & CARBON MARKETS

- ✓ India has ratified the Paris agreement on climate change.
- ✓ Nationally Determined Contribution (NDC) target is to reduce the emissions intensity of GDP by 33 to 35 percent by 2030 from 2005 level.
- ✓ One of the key tools to mitigation is adoption of market mechanisms.
- ✓ India had success in Clean Development Mechanism and is suited for future carbon markets.

## Carbon Markets Potential in India

- ✓ Voluntary Carbon Markets worldwide: 84 Million tonnes of CO2eq worth US$ 278 Million in 2015 (Average ~US$ 4/tonCO2eq).
- ✓ MoEFCC is planning a voluntary Emission Trading Scheme Starting 2020.
- ✓ PAT is an existing market mechanism for energy efficiency in selected sectors.



# Transacted Volume, Value, and Average Price by Project Category, 2016

| | VOLUME | AVERAGE PRICE | VALUE |
|---|---|---|---|
| RENEWABLES | 18.3 $MtCO_2e$ | $1.4 | $25M |
| FORESTRY AND LAND USE | 13.1 $MtCO_2e$ | $5.1 | $67M |
| METHANE | 5.6 $MtCO_2e$ | $1.8 | $10M |
| EFFICIENCY AND FUEL SWITCHING | 4.5 $MtCO_2e$ | $2.9 | $13M |
| HOUSEHOLD DEVICE | 3.4 $MtCO_2e$ | $5.2 | $18M |
| TRANSPORTATION | 1.9 $MtCO_2e$ | $0.3 | $1M |
| GASES | 1.4 $MtCO_2e$ | $5.7 | $8M |
| OTHER | 0.5 $MtCO_2e$ | $4.0 | $2M |

Notes: Based on 217 transactions representing 48.8 $MtCO_2e$ in 2016.

# “GLOBAL CARBON MARKETS”

**Ministry of Environment, Forests and Climate Change (MoEFCC)**

07/2018 – 06/2021

## Project Objectives

Enhanced capacities of stakeholders **to use existing and emerging carbon market and climate finance instruments for the implementation of mitigation activities tailored to the national contexts and help in achieving NDCs**.

- Indian **government officials** are advised on carbon market instruments and climate finance.
- The **private sector** and other stakeholders (think tanks, NGOs, academia) are actively **participating in the development** and implementation of carbon market.
- The project **partners in India are internationally recognized** as active actors in the carbon market.

# The Offset Cycle, from Project Development to Retirement

Step 1: Choose a methodology

PPs must choose a pre-approved methodology or develop a new methodology

Step2: Describe and list the project

Project developer must open an account with VCS registry and submit a project description for listing on the VCS project pipeline

Step 3: Validation

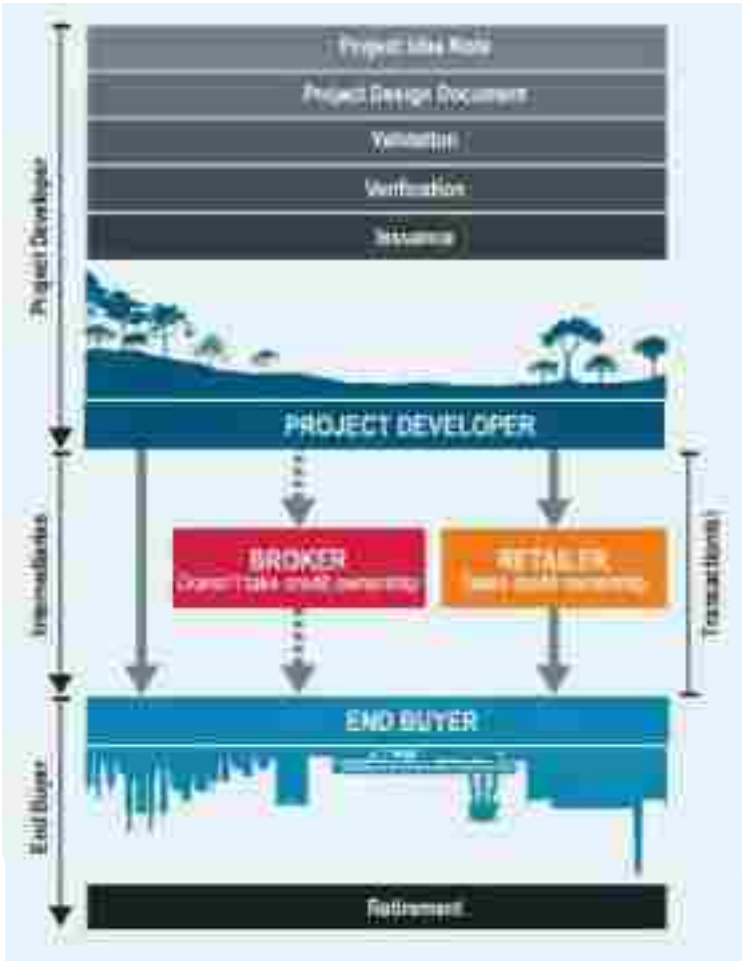
Project developers must contract a validation/verification body to validate their project description

Step 4: Verify emission reductions

Project developers must monitor and record Ers data in a monitoring report and contract a VVB to verify those ERs

Step 5: Issue Verified ERs

PDs must request VER issuance. Credits deposited into their accounts may be held, sold or retired



# Benefits

**Gain recognition by Investors/Civil Society**

**Monitoring of project & assurance**

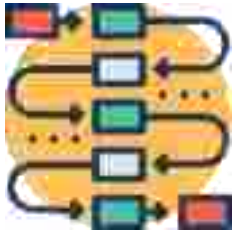
**Addition of one more quantifiable co-benefit**

**Climate Finance Revenue**

# Challenges

High Transaction Cost for Single Project

Time & Effort



Know How on Applicable Methodologies & Standards

Risk of non-sale or low price

Finding Buyers

## Programme of Activity (PoA) or Project

- Projects can be certified individually or as a group under PoA.
- PoA approach better for small-scale project activities as it reduces transaction costs and avoids duplication.
- 12 social enterprises have already declared intent to be part of a Gold standard certified waste management POA.

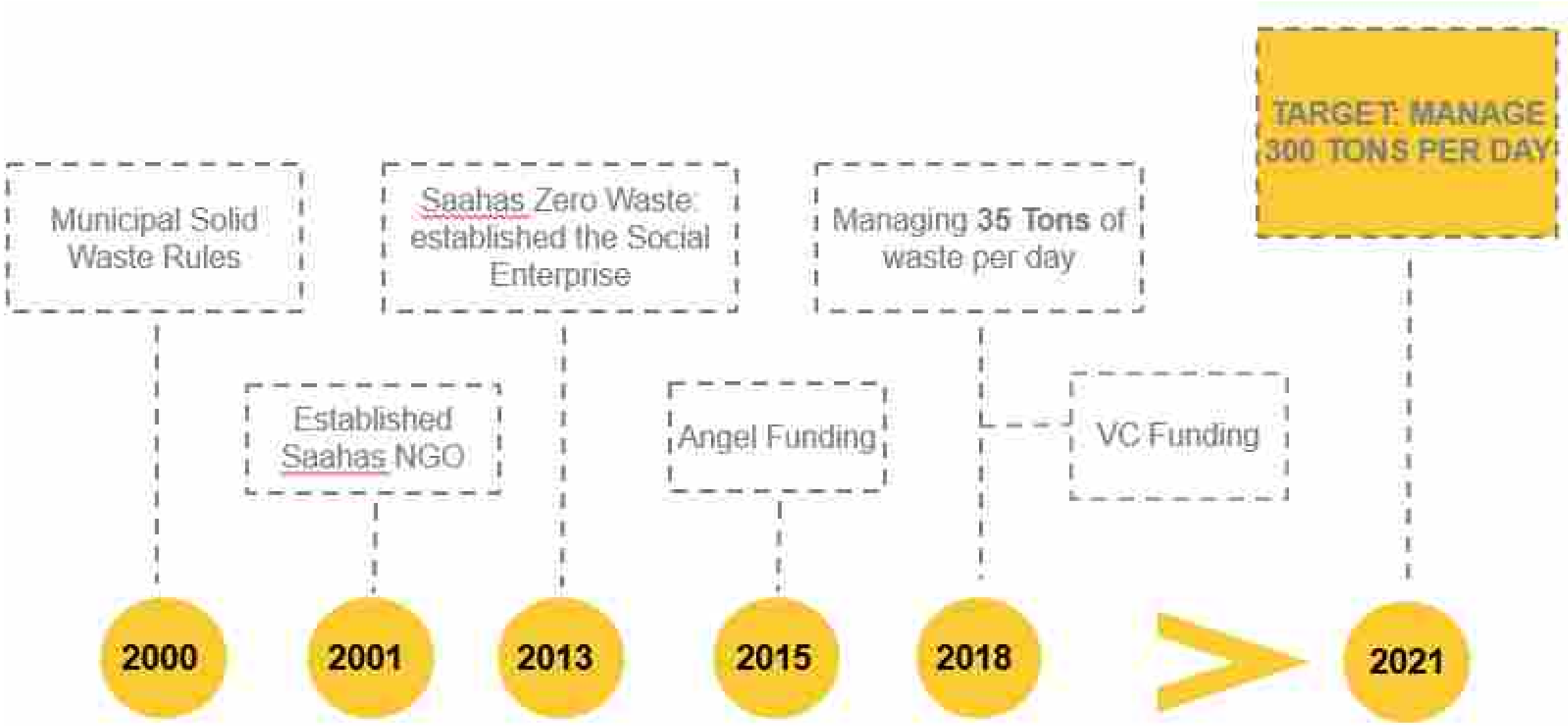
# Thank you for your attention!

# Economics of Waste Management
# 12th November 2018

**Circular Economy Because Nature Knows No Waste**

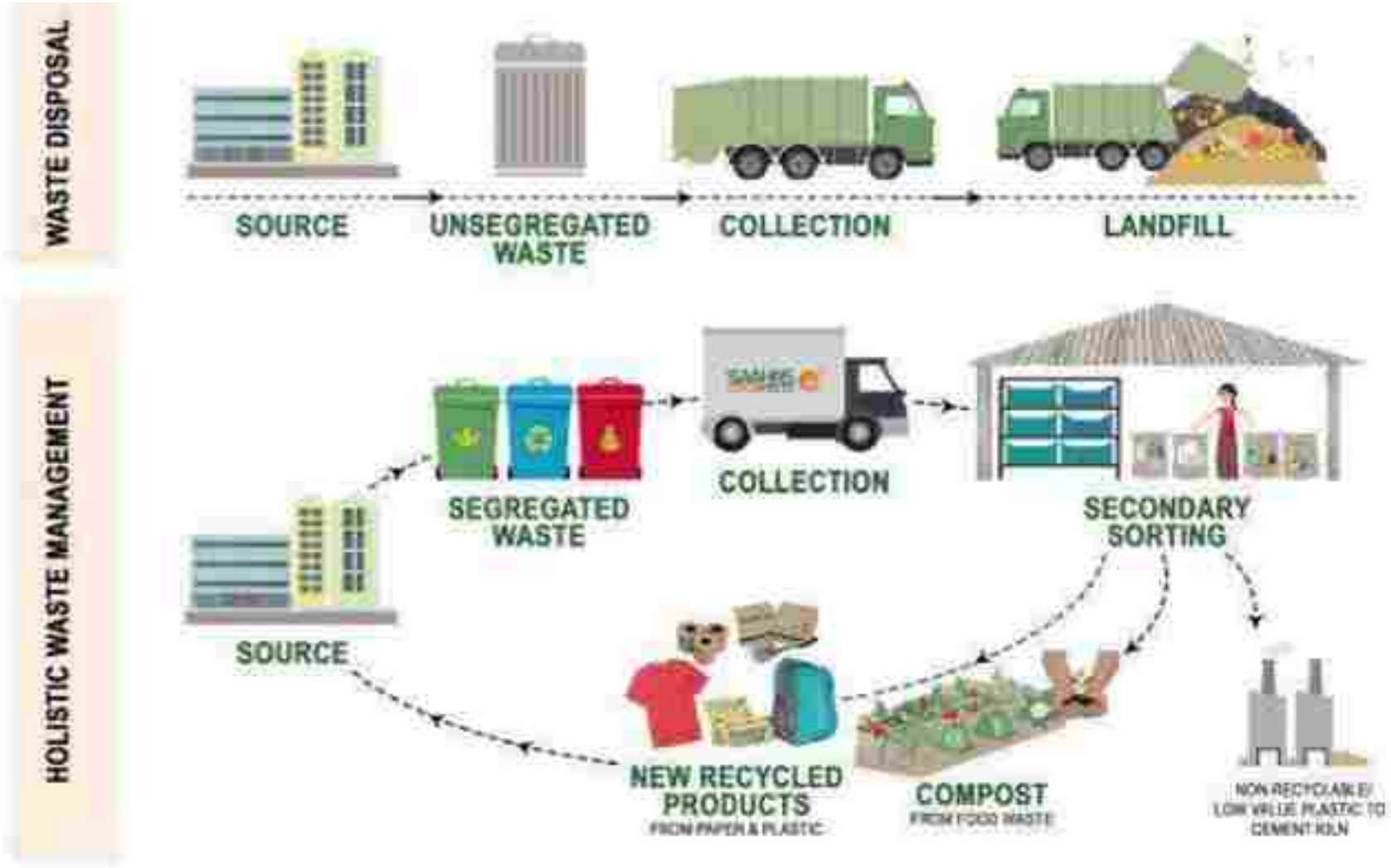
**Saahas Zero Waste** is a social enterprise that provides **end-to-end waste management services** to bulk waste generators based on the principles of **circular economy**

# Our Journey


Municipal Solid Waste Rules
Saahas Zero Waste established the Social Enterprise
Managing 35 Tons of waste per day
TARGET: MANAGE 300 TONS PER DAY
Established Saahas NGO
Angel Funding
VC Funding
2000
2001
2013
2015
2018
2021

# Circular Economy and Waste Management

**We strive to ensure zero waste to landfill by recovering value from waste**



# Problem = Opportunity

**Our country has poor systems to manage 2 lakh tons of waste per day.**

**90% of resources can be recovered from our waste.**

# Are you in compliance with the law?

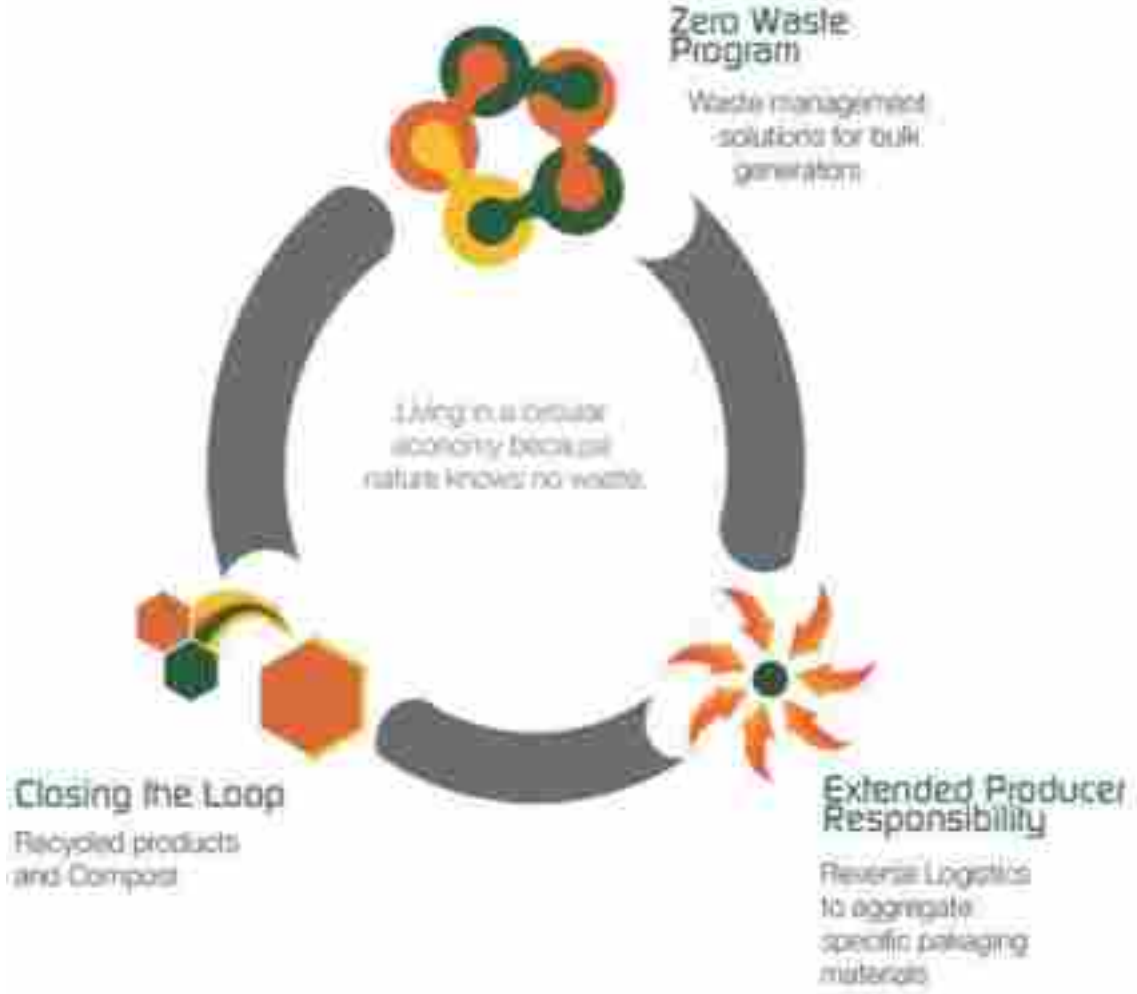
**Waste management is a much regulated but little understood industry.**

**HERE'S WHAT CORPORATES NEED TO DO TO COMPLY:**

| Relevant Law | Waste category | Legal Highlights |
|---|---|---|
| **Solid Waste Management Rules 2016** | Biodegradable (wet) | • **Segregation** at source is mandated<br>• Pay **user fees** for collection, processing and disposal<br>• Producers are responsible to collect and ensure safe disposal of plastic and e-wastes and **(EPR)**<br>• No waste shall be **dumped and/or burnt**<br>• If there is no space constraint bulk waste generators are required to **process wet waste onsite**<br>• Only non-recyclable, non-biodegradable (having calorific value of less than 1500K/cal/kg) and inert wastes and pre-processing rejects and residue to be landfilled. |
| **Solid Waste Management Rules 2016** | Non-biodegradable (dry) | |
| **Plastic Waste Management Rules 2016** | Plastic | |
| **E-Waste (Management) Rules 2016** | E-Waste | |
| **Construction and Demolition Waste Management Rules 2016** | Construction and Demolition | |
| **Solid Waste Management Rules 2016** | Domestic hazardous and sanitary wastes | |

# Our Solutions

## Our Approach




## Our Services

- Zero Waste Program
- Extended Producer Responsibility
- Recycled Products

# Business Approach

As a Social Enterprise our Business Model Includes

- Revenues from  Waste
- Revenues from Service Fees

# Zero Waste Program

Saahas Zero Waste won the **Swachh Bharat Award 2018** for this program

| Waste Streams Handled | Experience with multiple client formats | Value added service | Experience with facility management companies | Choice of operating models | Hassle-free engagement |
|---|---|---|---|---|---|
| Organic (wet) waste | Tech Parks | Zero waste to landfill solutions | JLL | Decentralised Solution | Customised Solution |
| Non-hazardous dry waste | Apartments | Bi-annual sustainability events | CBRE | Direct to Destination | Dedicated Project Manager |
| Sanitary Waste | Institutions | Client training and management | sodexo | Hub & Spoke | Data and Reports |
| E-Waste | | | CUSHMAN & WAKEFIELD | | |
| Construction and Demolition Waste | Government | | | Hybrid | |

# Our Wet Waste Facilities

**In-house facilities** (Kasa Rasa Model)

**On-Site Institutional facilities**

**Off-Site Biogas Plant Partners**

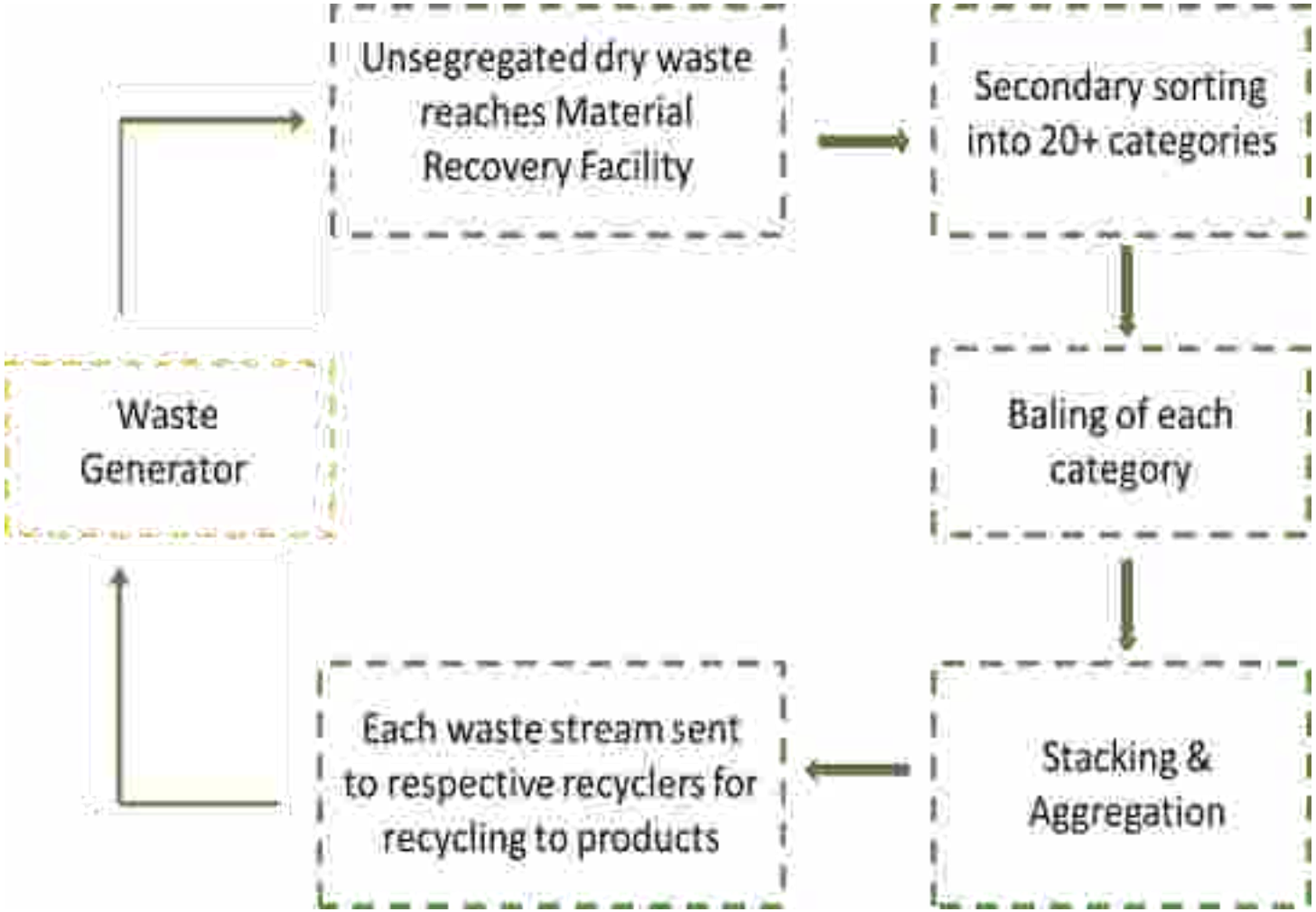
# Our Material Recovery Facility

**SZW owned and Operated Material Recovery Facility- a mechanized processing factory for dry waste**

**High Segregation Efficiencies**

**Recovered Waste Baled for Recycling**

# Process at our MRF

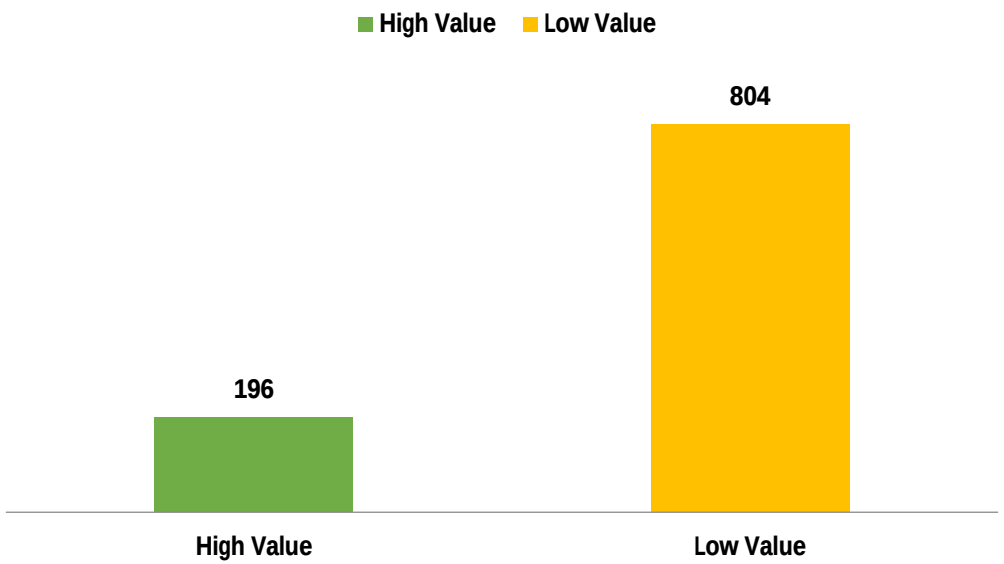


# Economics of Dry Waste

| Material | Offered Rate - MRF to ZWP (Rs/Kg) |
|---|---|
| Aluminium Cans (Tins) | 46.3 |
| PET Bottles | 22.7 |
| Aluminium Foil | 14.3 |
| Plastic Cans | 11.1 |
| White Paper | 8.7 |
| Plastic Milk Bags | 7.9 |
| Thermacol | 7.9 |
| News Paper | 7.1 |
| Magazines | 7.1 |
| Tissue Paper | 6.1 |
| Coconut shells | 4.7 |
| Carton Boxes | 3.9 |
| Colour Paper | 2.7 |
| Iron Sheets | 2.7 |
| Tetra Pak | 2.5 |
| MLP | 1.9 |
| Glass Bottle | 1.5 |
| Paper Cups | 1.1 |

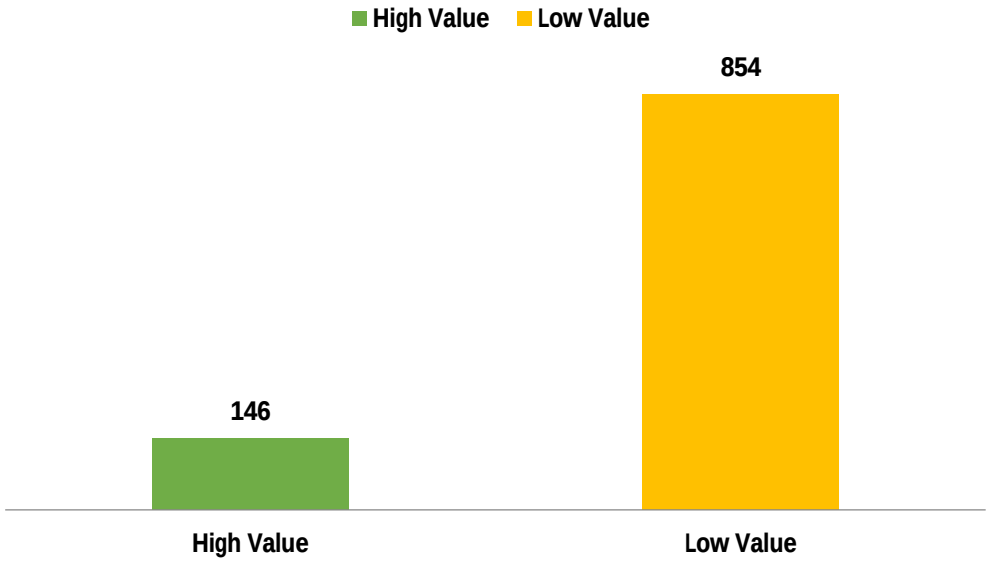
# Typical Snapshot of Waste at Our MRF

## Residential




**One tonne of waste collected from our housing locations consists of 196 kgs (20%) of high value waste and 854 kgs (80%) of low value waste.**

## Corporates




**One tonne of waste collected from our corporate locations typically consists of 146 kgs (15%) of high value waste and 854 kgs (85%) of low value waste.**

Based on one tonne of waste collected

# Zero Waste Program Clients

**60** clients, covering..

**6** formats, across..

**3** CITIES…

each one with an operating model **customised** to their individual needs.

# Our Strengths

17 years of domain expertise

Authorised end destinations for all waste streams

Data and technology driven processes ensuring transparency

Compliance with all laws on waste management and employment

Professional Team

Dignified and safe careers

# The Team

**Wilma**
**Founder and CEO**
17+ years exp in Waste Management

**Shobha**
**COO**
10+ years of corporate exp and 5 years with SZV. Cii Certified Sustainability Assessor

**Gopal**
**Business Consultant**
Ex-CEO WeP Solutions

**Kannika**
**Finance**
10+ years of expellence in social sector

**Arun**
**MRF and EPR**
5+ years of exp in UK waste management

**Malthill**
**Business Development and Marketing**
IIM A (PGP) with 5+ years of exp in sales and marketing

**Manjunath**
**Operations**
PGDRM from IRMA Anand with 4 years of exp in operations

**Annie**
**Policy and Regulatory Compliance**
9+ years exp in corporate law

**Tanuja**
**Products**
20+ years of corporate exp in sales and project management

**Vishal**
**E-Waste & Consultancy**
Material science graduate from IIT with 2+ years of exp

# The Team

- **230 permanent employee** strong field team
- **Trained** in waste management practices
- **Experienced** in dealing with corporate clients
- **Reliable** in terms of availability and security

to ensure **seamless experience** for our clients

# Our Impact

**Ecosystem Development**

Reaching **15,00,000** citizens

**Environmental Impact**

Diverting **33,800** tons of waste from landfills every year

**Social Impact**

Creating employment for **230** people, of which 85% are women, from the base of the economic pyramid

# Awards & Associations

Swachh Best Practice Award 2018 for our Zero Waste Program for Bulk Generators

Waislitz Global Citizen Award

Emerging Entrepreneur for Southern India

4th Annual Forum Award for Social Entrepreneurship

Recognized as 1 of top 12 Social Enterprises in India by NDTV

Indian Green Building Council MEMBER

CIRCULAR ECONOMY CLUB

Holistic Waste Management Solutions

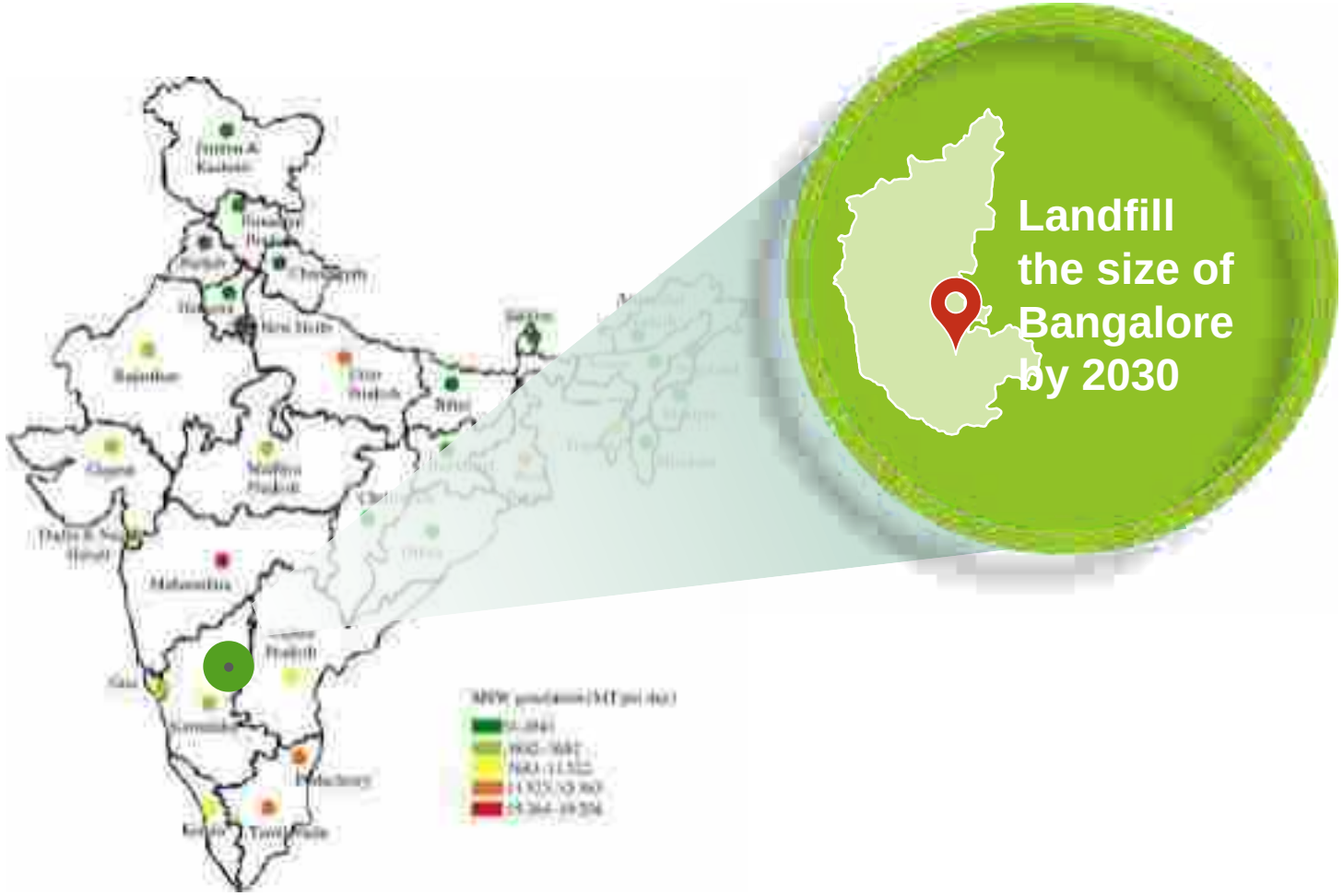
A brand of - Swachh Sustainable Solutions Pvt Ltd

# Current Scenario

**"AS PROSPERITY GROWS SO DOES GARBAGE. 62 MILLION TONNES OF** garbage is generated annually by the 377 million people living in urban India **– WORLDS 3 rd** largest garbage **GENERATOR."**

What a Waste: A Global Review of Solid Waste Management
The World Bank, 2012

# Going Ahead



# Why is this happening ?

## Lack of Awareness

- The waste generator has an out of sight out of mind mindset about waste.
- PEOPLE DON'T even know what is wet waste & dry waste.

## Informal Economy

- The unorganized sector which is probably the only good thing about our industry has been ignored.
- No steps taken to formalize the unorganized sector.

## Lack of Infrastructure

- Money only being spent on collection and transportation and not on building infrastructure for managing waste.
- Infrastructure need to be built to manage the waste at a decentralized level.

## Linear Economy

- Take -> Make -> Dispose
- Standardization required.
- Legislation required.

# Awareness

**Behavioural change programs with residential complexes, schools, offices & public places.**

# Informal Economy

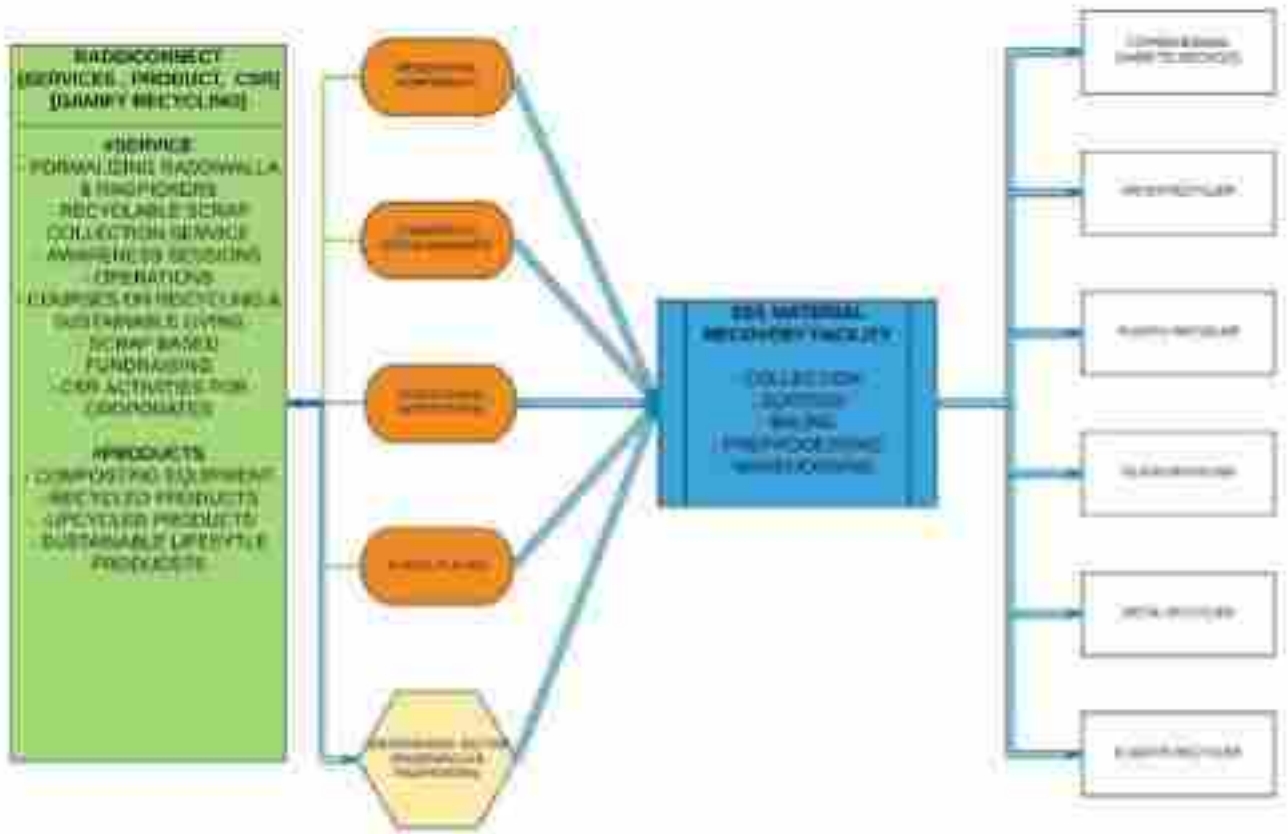
**We have an aggregated network of 150+ raddiwallas. We are now also working to provide dignified jobs to ragpickers.**

RADDI CONNECT

# Infrastructure

**Material Recover Facility setup in R-North Ward of Mumbai.**

# Overview


RADDICONNECT
[SERVICES, PRODUCT, CSR]
[GIANNY RECYCLING]
•SERVICE
FORMALIZING RAGDIWALLA
& RAGPICKERS
RECYCLABLE SCRAP
COLLECTION SERVICE
AWARENESS SESSIONS
OPERATIONS
COURSES ON RECYCLING &
SUSTAINABLE LIVING
SCRAP BASED
FUNDRAISING
CSR ACTIVITIES FOR
CORPORATES
•PRODUCTS
COMPOSTING EQUIPMENT
RECYCLED PRODUCTS
UPCYCLED PRODUCTS
SUSTAINABLE LIFESTYLE
PRODUCTS
MATERIAL
RECOVERY FACILITY
COLLECTION
SORTING
BALING
PREPROCESSING
WASTE DISPOSAL

Scrap Flow
Final Product
& Service
Raw Material
Formalizing
unorganized
sector
Infrastructure
Closing
the Loop
NGO

# Circular Economy – Paper

Awareness programs

Recycle Bins

Collection of paper waste through RaddiWalla network

We compress it into bales and send it for recycling

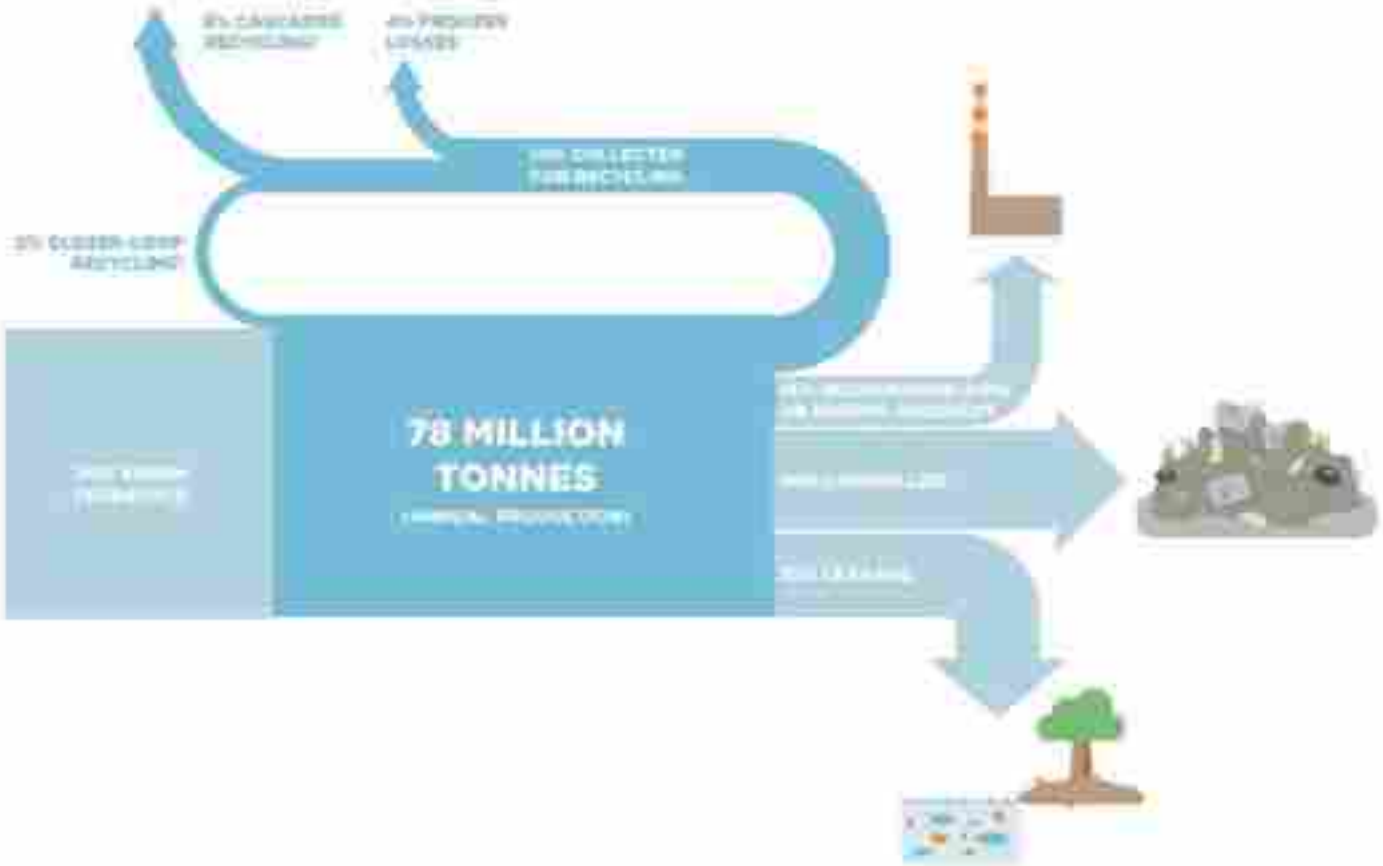
Give recycled stationery in exchange of paper they recycle with us

RADDI CONNECT .com

# Plastic Project

“RADDICONNECT PLASTIC PROJECT” AIMS TO **increase the awareness about disposing of plastic responsibly and at the same time ensuring all plastic collected by us is sent for recycling.**

# Global Flows Of Plastic Packaging Material in 2013




1 Closed-loop recycling: Recycling of plastics into the same or similar-quality applications
2 Cascaded recycling: Recycling of plastics into other, lower-value applications

**Source:** Project Mainstream analysis – for details please refer to Appendix A in World Economic Forum, Ellen MacArthur Foundation and McKinsey & Company, *The New Plastics Economy – Rethinking the future of plastics*, (2016, http://www.ellenmacarthurfoundation.org/publications).

# Go Plastic Neutral

**Principle**

- **Plastic is a practical material that should be valued as a resource, not discarded as waste.**
- **Collection channels need to be setup to recover and recycle plastic to minimize the need for new virgin plastic.**
- **Producers need to take responsibility and incentivize the collection of plastic.**

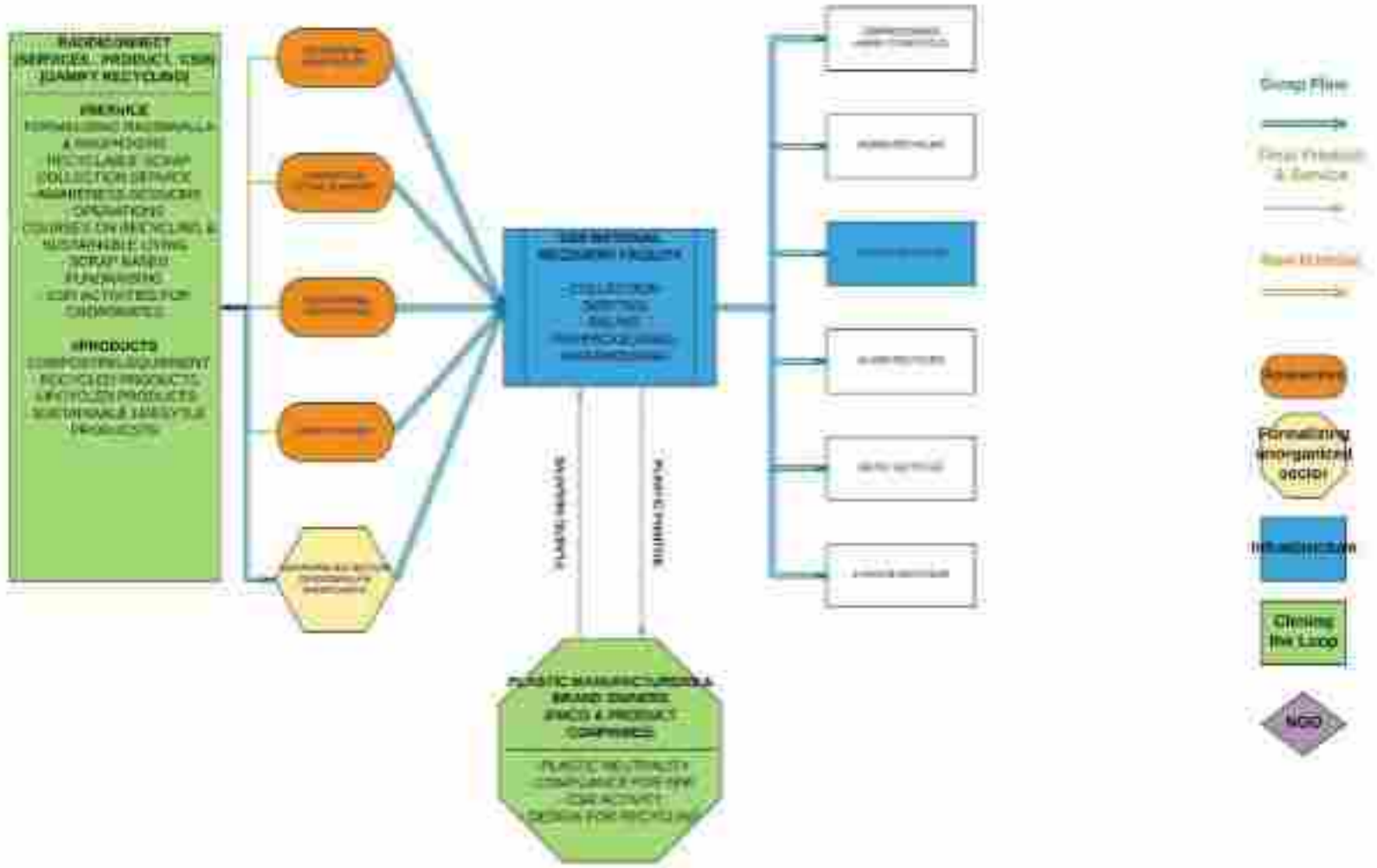
# Go Plastic Neutral

**Concept**

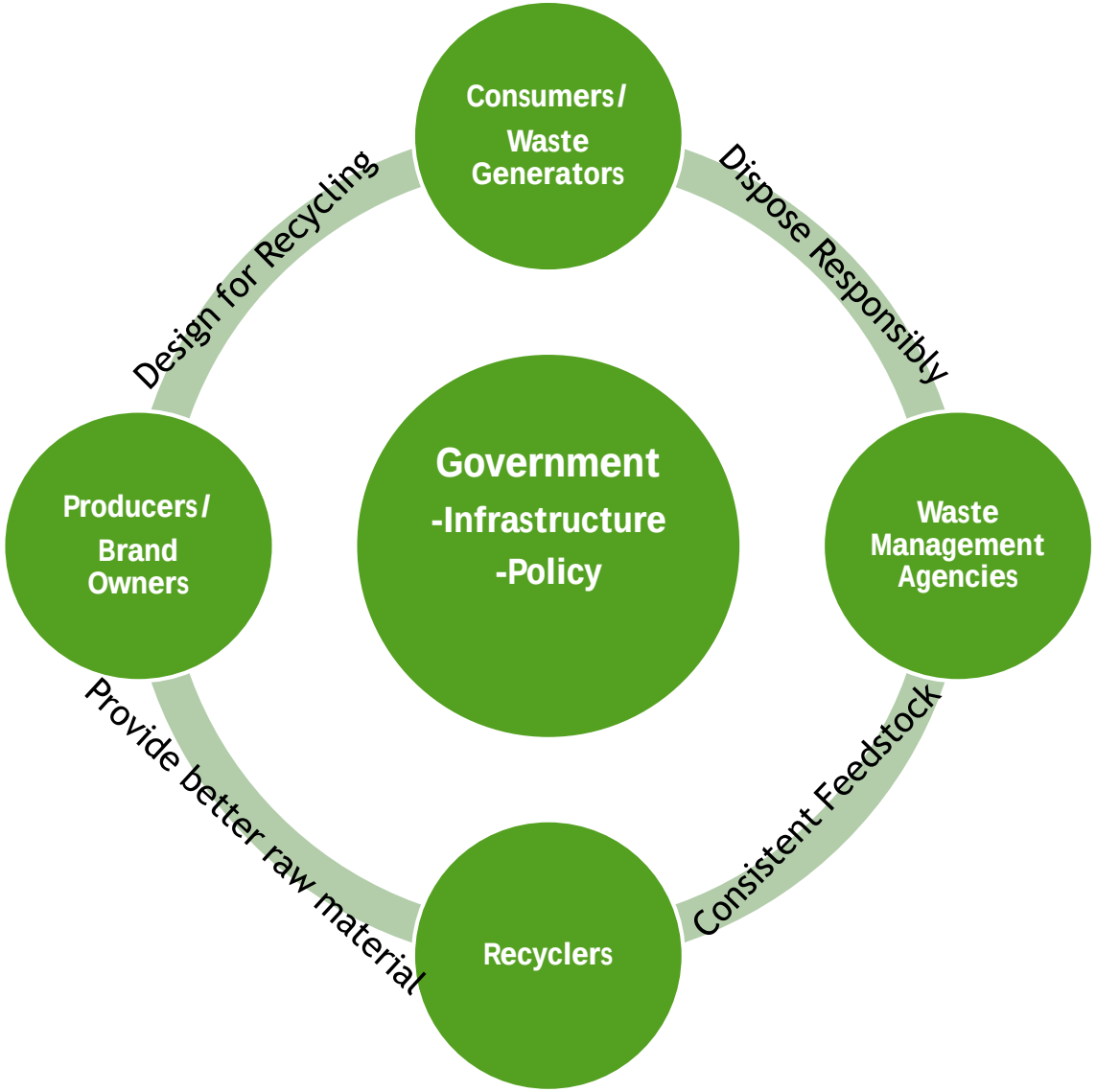
- **Plastic Neutral is a social, environmental and economic initiative that provides businesses and organizations with methods to reduce or offset their plastic consumption with programs which are directly aimed at eliminating waste plastics.**

- **The programs are customized based on the objective of the producer, aimed at setting up scalable recovery channels for different grades of plastic and transforming waste into resources.**

# Plastic Waste Management



# Closing the Plastic Loop



# Clientele

RADDI CONNECT

# Our Presence

Recycling Partner at event

MP Poonam Mahajan tweeted to Promote RC

Exhibiting at the BMC Zero Waste Fest

Recycling Program in schools

Priya Dutt showing keen interest

Imran Khan showing some support

# Mentions

Midday-13th Aug, 2016

HT - 29TH Aug, 2016

THE HINDU – 31st Aug, 2015

DNA – 9th Aug, 2015

Midday -11th May, 2016

The Sindhian – Jan 2018

# Thank You

**Swachh Sustainable Solutions Pvt. Ltd**
raddiconnect@gmail.com | **+91-9004240004**
Facebook | Instagram | Twitter

**Rahul Nainani**
**Co-Founder**
**Email: rahul.n.nainani@gmail.com**
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**Gurashish Sahni**
**Co-Founder**
**Email: gurashish.s.sahni@gmail.com**
**Mobile: +91 9769339769**

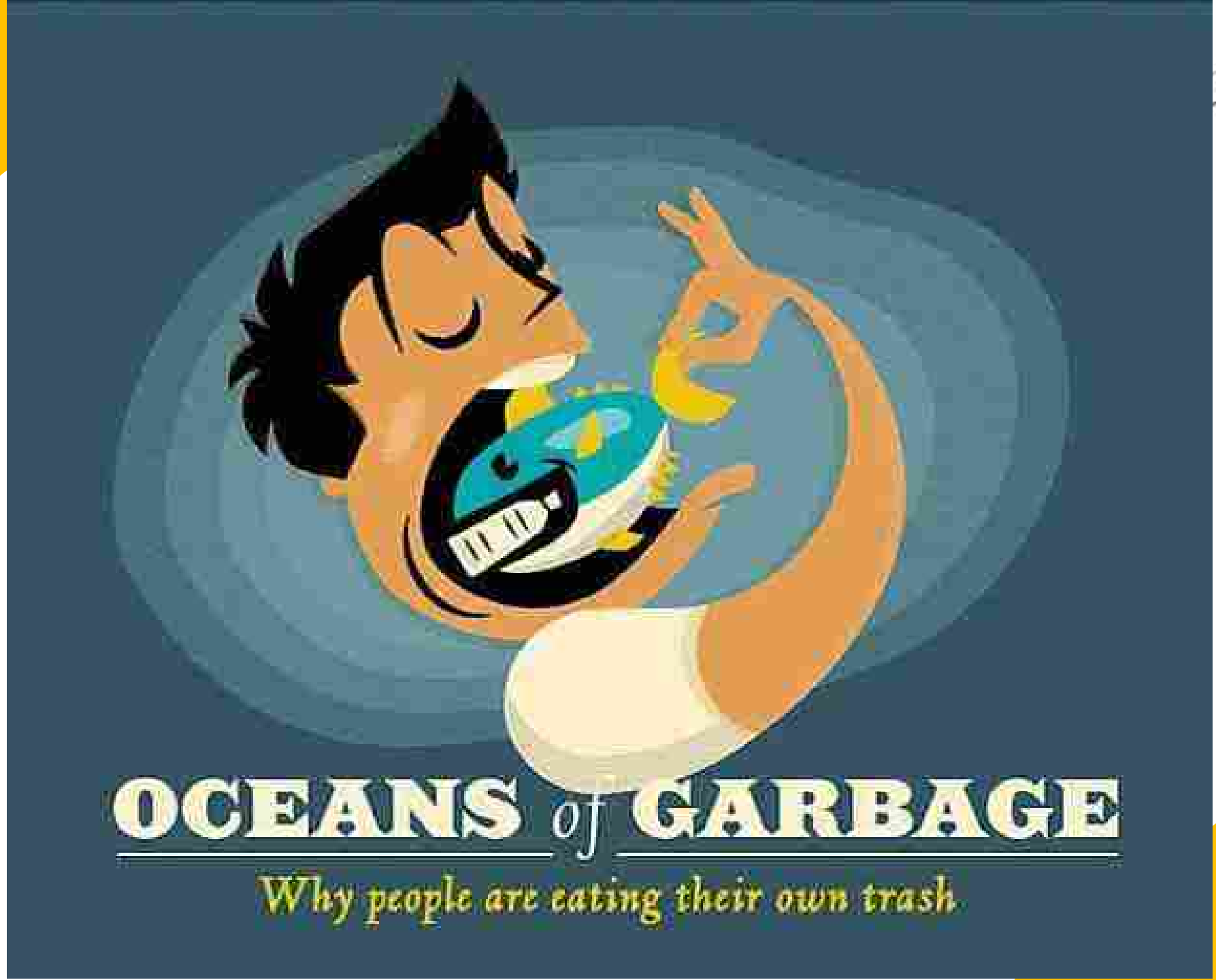
Live Happy

# Live Happy

Live Happy
- heritage experiences -

Live Happy

**7 million tons of weight; 15,000,000 square kilometers Up to 9 feet deep; In the Great Pacific Ocean … 2 TIMES INDIA.**


OCEANS of GARBAGE
Why people are eating their own trash

# 40kg plastic

11
SUSTAINABLE CITIES
AND COMMUNITIES

# Vision

**Discover the message within and share**

**PRESERVE PROTECT RESORTE**

# Mission

**Creating a Model for Sustainable Development in the community of Assagao implementing social, environmental & economic projects to improve the quality of life in the community using available resources.**

# For getting that...

Live Happy

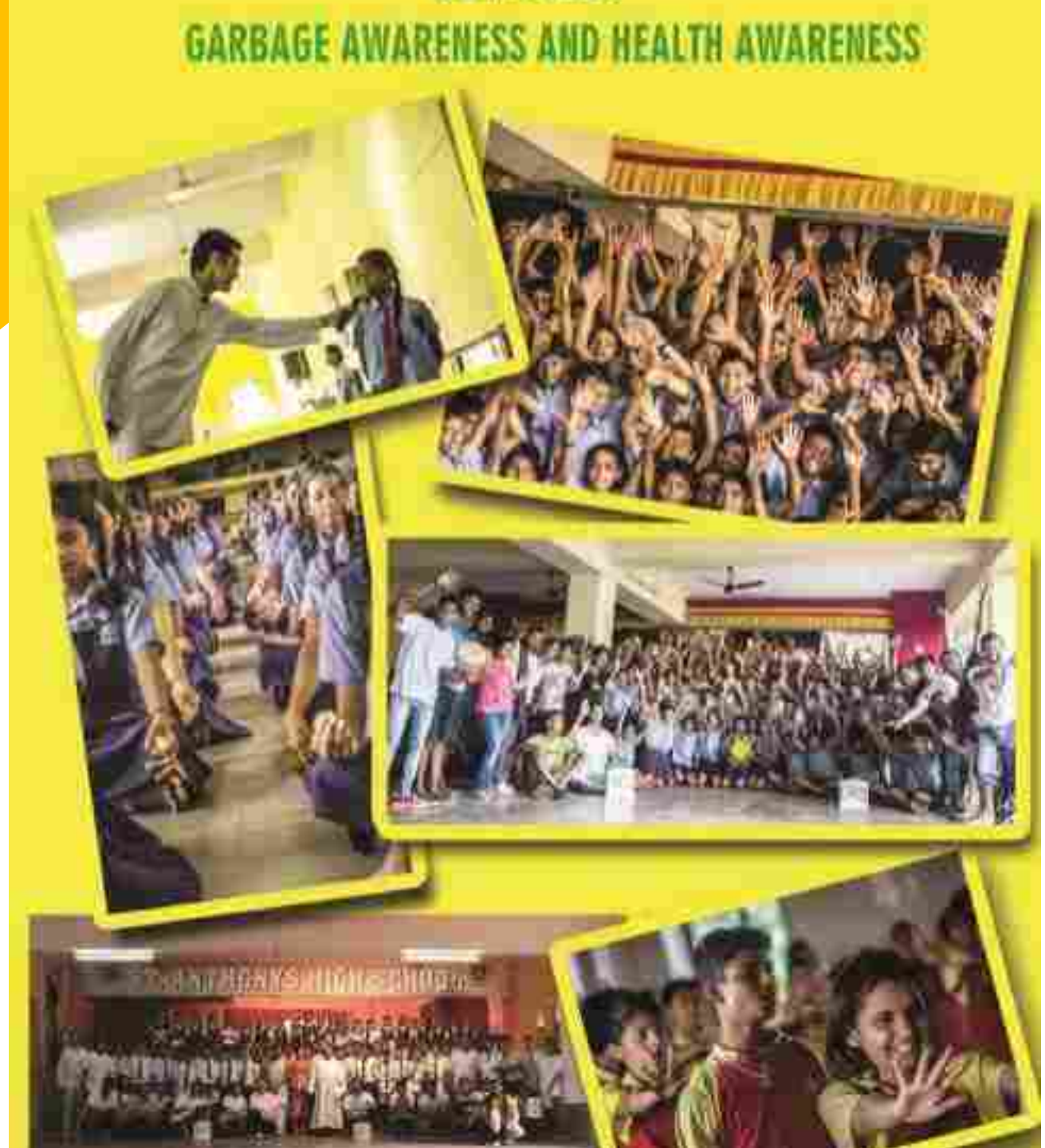
Live Happy

METAL
GLASS
NON
MATERIAL
LIVE CLEAN
LIVE HAPPY
GDE 2301

**Door  to door Collection in Assagao**

e Happy

Happy




Live Happy

**Live healthy**
**Awareness on health for modern generation era by sharing ancient yogic science in modern way initiation**
**WARNUP,**
**SURYANAMASKAR.**
**DANCING,RELAXATION**
**MEDITATION,**

Live Happy
Heritage experiences

Local school

# Thank You

## www.livehappygoa.com

## www.facebook.com/LiveHappygoa

# Sociotech Innovation4Change

**Sangeeta Venkatesh**
**Research Programme Director,**
**Sociotech Innovation4Change (www.sti4change.com)**
**email: sangeetavenkatesh7@gmail.com**

# About Sti4Change

**Section 8, Not for Profit Research company**

- **Research**
  **Sti4changes undertakes research projects to increase social welfare via improved sanitation coverage and waste management.**
- **Stewardship**
  **Sti4change can curate appropriate strategies and actions in the area of waste management/sanitation/hygiene relating to small/medium enterprises (SMEs), educational institutions, local municipal bodies etc**
- **Workshops**
  **Sti4change works with interested organizations, including education institutions  Our workshops aim to promote understanding of problems and solutions and the complexity of the context in general, with a view to attaining specific goals**

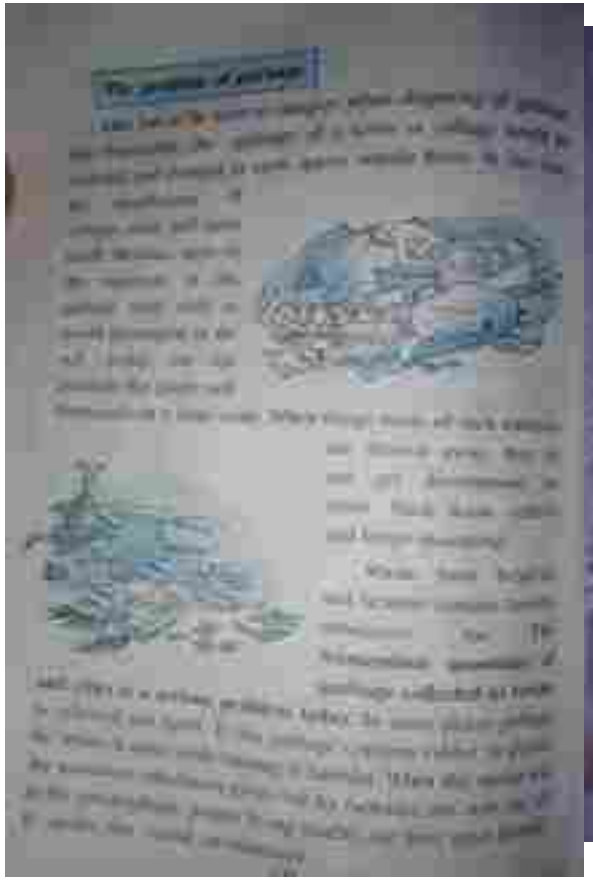
# Research Questions- with WASTE, Netherlands

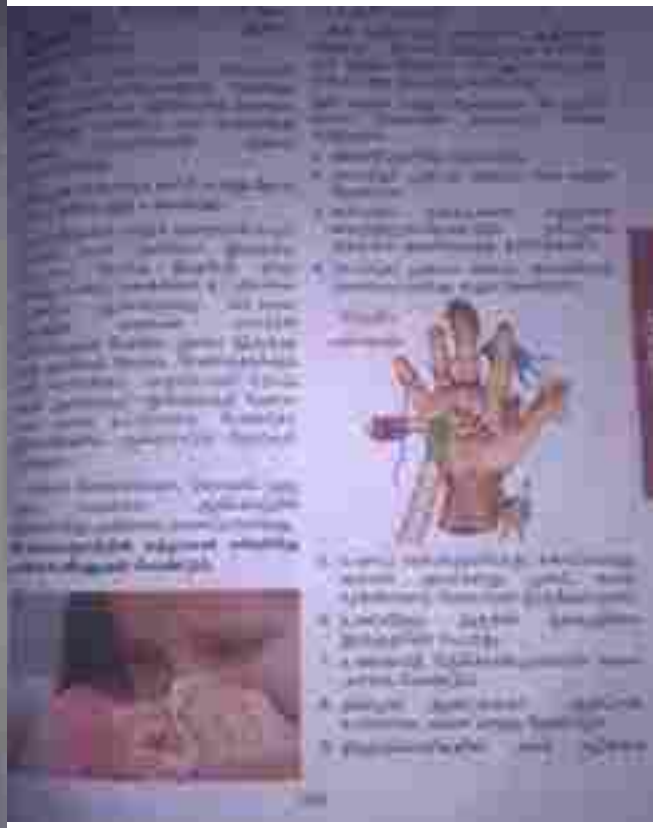
- **What is meant by a Swachh School? What are the indicators?**
- **How can schools motivate students to observe hygiene behaviour?**
- **Results of our Research- 25 schools ( Tamil Nadu, Karnataka, West Bengal, Maharashtra, Rajasthan)**

**https://www.cleanindiajournal.com/wash-strategies-of-schools-what-is-and-what-can-be/**

# Phase 1

- Market study of school books of various curriculums
- Survey on sanitation facilities and waste management practices in the same schools
- Internet search of  online study material
- Survey of books in the market





# Learning needs Innovation

- A preliminary, exploratory study (baseline survey) conducted by us in 25 disparate schools in different states of India, showed that there was little or no mention about waste management and sanitation in the school curriculum.
- Learning material present in text books is very basic and unimaginative.
- This is an enormous gap. Effective education programmes in sanitation and waste MANAGEMENT ARE NEEDED FOR BOTH GENDERS TO ACHIEVE ASwachch BHARAT'.

It requires innovation to make waste management, sanitation and hygiene learning exciting and a priority in learning

# Objectives

**O1. To develop a child friendly and appropriate resource system in the form of a book/digital tools for middle school (6th, 7th and 8th) students and teachers on the different aspects of Waste Management, Sanitation, and Hygiene using effective means of communication for rural and urban schools.**

**O2: To build Knowledge, Awareness, Attitudes and Skills on the links between sanitation, waste management, behavioural change and better health and remove existing stigmas about cleaning and physical work associated with the same to keep public spaces clean.**

**O3: To develop a plan to help accompany and create passionate teachers who will deliver the above two objectives successfully through the school calendar.**

**O4: To improve and standardise the curriculum for waste management, sanitation and hygiene.**

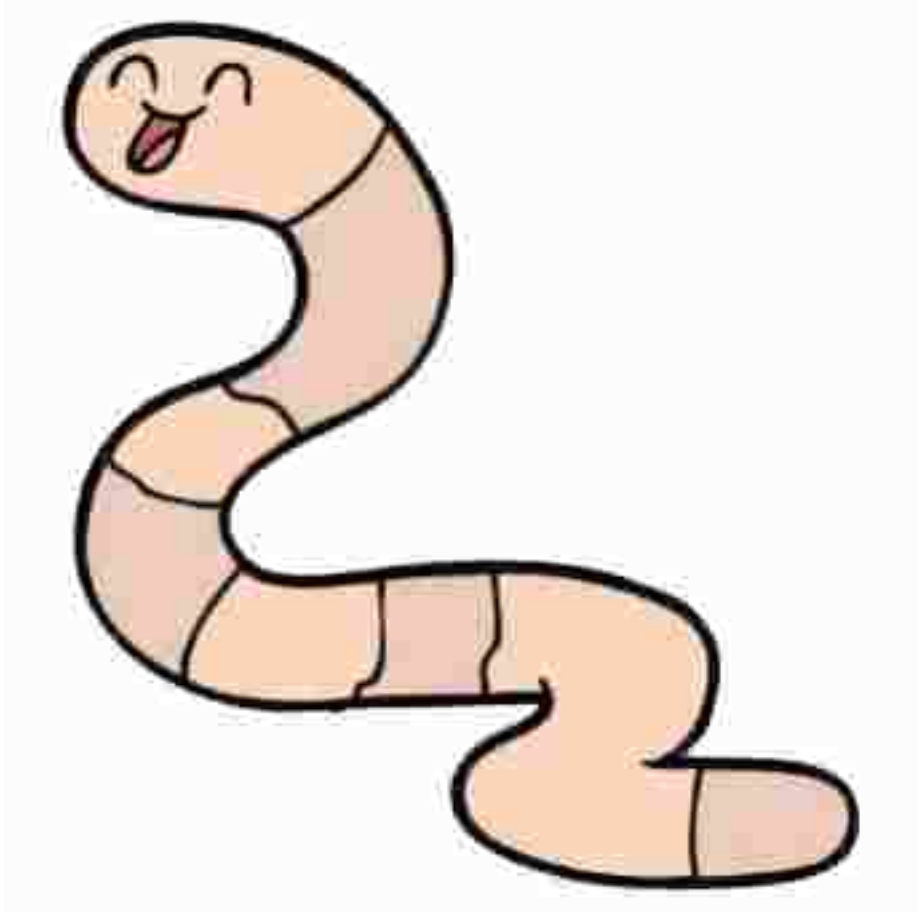
**O5: To create a generation of students and youth who will receive an education programme that will cover identification of waste, different handling mechanisms, and understand fallout of bad waste management**

# #TheWasteIssue

- THE OUTCOME WAS THE DEVELOPMENT OF "THE WASTE ISSUE" a comprehensive workbook that takes you through a journey from the history of waste to the challenges faced in present times
- The workbook also reveals easy solutions to a complex problem.
- So if you are a school/ organisation who is interested in imparting environment literacy to your students/ employees, then The Waste Issue is an easy tool that will help you in your quest.

# #TheWasteIssue

- This workbook has been created in order to acquaint you with the extent of the problem and possible solutions to alleviate the issue.
- Throughout the book, you will come face-to-face with some key facts with regards to solid waste, and Wriggly, our favourite earthworm, will ask you some though-provoking questions about your role amidst the issue.
- The book is filled with stories, activities, information, puzzles  and more.



# SDG Goals

**SDG GOAL 4….Ensure inclusive and equitable quality education and promote life-long learning opportunities for all**

**4.7 by 2030 ensure all learners acquire knowledge and skills needed to promote sustainable development, including among others through education for sustainable development and sustainable lifestyles.**

**SDG 6….CLEAN WATER AND SANITATION**

**SDG 11…SUSTAINABLE CITIES AND COMMUNITIES**

# Collaboration - to create WASH Smart Schools

# Expert committee

# Thank you!

- Prof. T V Ramachandra, IISc, Bangalore
- Mr. Anslem Rosario, WasteWise, Bangalore
- Ms. Padma Sastry, Samam Vidya
- Ms. Sangeeta Venkatesh, Sti4Change

# GREEN COMMUNITIES FOUNDATION

www.greencf.org

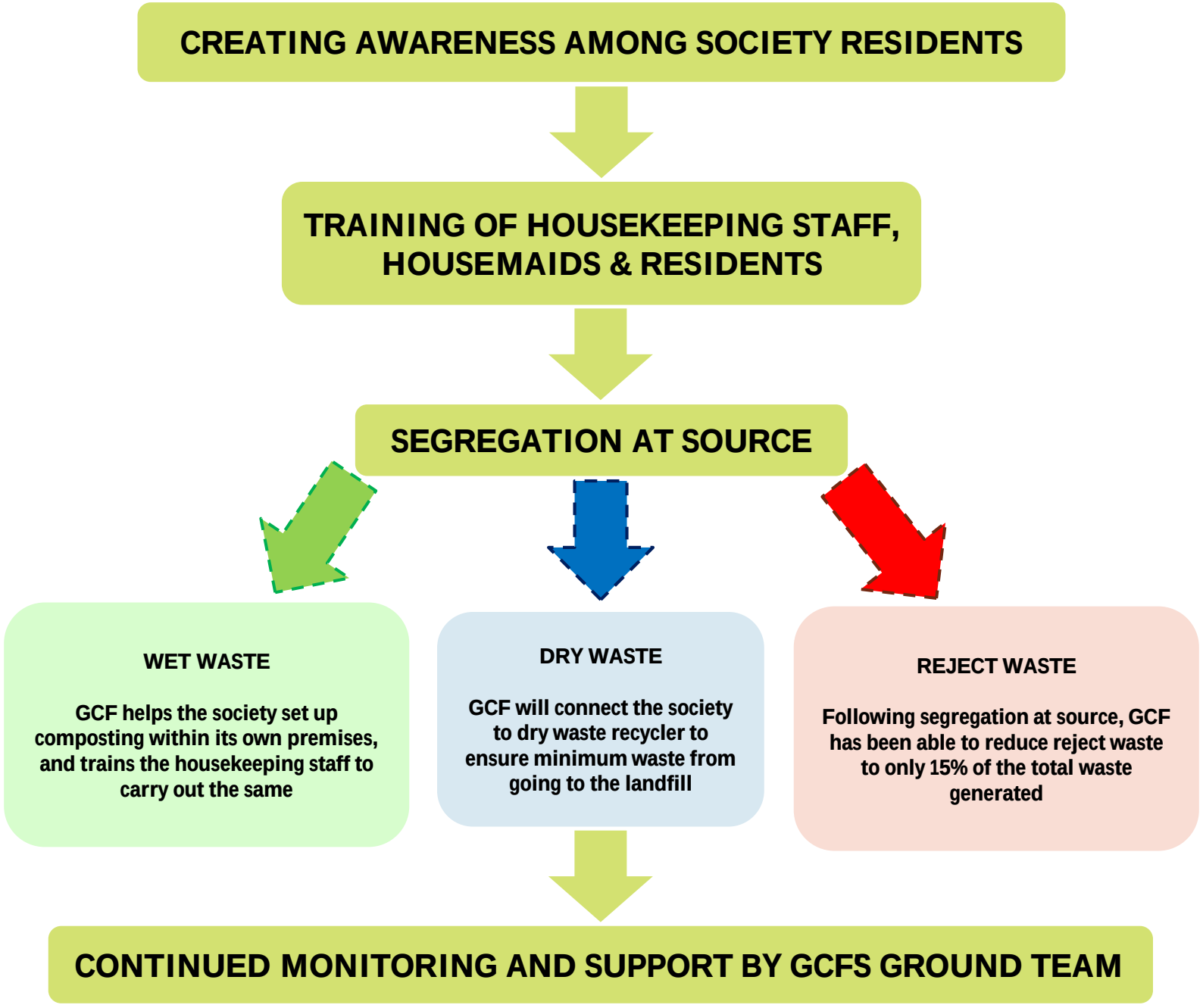
# OVERVIEW

- What is Green Communities Foundation?
- GCF Workflow
- Segregation at Source
- Partnerships
- In the Pipeline
- Contact Information

# WHAT IS GREEN COMMUNITIES FOUNDATION?

- **Green Communities Foundation is a not-for-profit organization which helps societies become Waste-Free.**
- **Green Communities Foundation has created a process, system and an affordable service to convert a society into a Waste Free Society.**
- **It consists of experts and practitioners who have worked on waste management in their own localities and put together a framework to solve the waste management problem at a community level.**

# GCF
# WORKFLOW


CREATING AWARENESS AMONG SOCIETY RESIDENTS
TRAINING OF HOUSEKEEPING STAFF, HOUSEMAIDS & RESIDENTS
SEGREGATION AT SOURCE
WET WASTE
GCF helps the society set up composting within its own premises, and trains the housekeeping staff to carry out the same
DRY WASTE
GCF will connect the society to dry waste recycler to ensure minimum waste from going to the landfill
REJECT WASTE
Following segregation at source, GCF has been able to reduce reject waste to only 15% of the total waste generated
CONTINUED MONITORING AND SUPPORT BY GCFS GROUND TEAM

# SEGREGATION CHART

RAHEJA CLASSIQUE 5

WET WASTE

## 3-WAY SEGREGATION

DRY WASTE

REJECT WASTE

## COMPOSTING

# Partnerships

- Karo Sambhav School Program - Create awareness on critical environmental issues inspiring students to adopt preventive environmental strategies - 50+ schools enrolled in Mumbai.
- DEF – Create awareness about electronic waste and HEALTH HAZARD OF ITS HANDLERS THROUGH GREEN
- Sofies Group – E-waste workshops in societies
- Xynteo – Behavioral change analysis with respect to source segregation.

# In the Pipeline

VOCATIONAL COURSE IN WASTE MANAGEMENT

THE OBJECTIVE IS TO CREATE SUSTAINABLE LIVELIHOODS AND ADDRESS THE ISSUE OF WASTE IN A SYSTEMATIC MANNER

THE COURSE WILL INCLUDE TOPICS SUCH AS

SUSTAINABILITY,

WASTE MANAGEMENT,

SEGREGATION AT SOURCE,

TOOLS AND TECHNOLOGIES PERTAINING TO WASTE MANAGEMENT.

IT WILL BE A MIX OF CLASSROOM SESSIONS AND FIELD EXPERIENCE.

THE COURSE WILL BE CONDUCTED IN MUMBAI

JAN 2019 - MARCH 2019

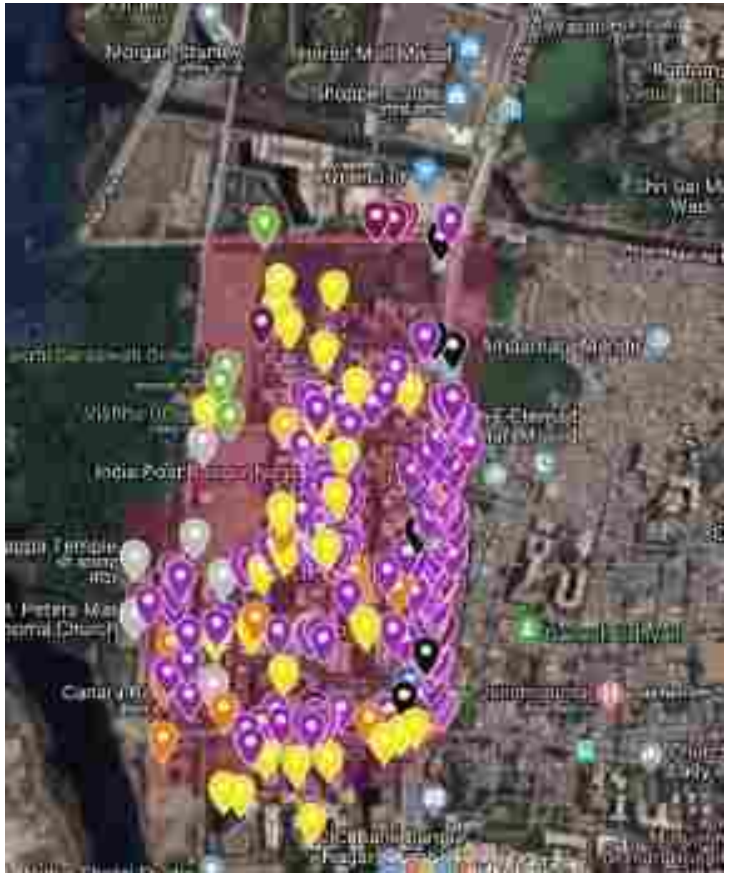
WITH A BATCH SIZE OF 20 CANDIDATES.

# In the Pipeline

- **Project NIL (Nothing Into Landfill)**
- **Objective – NIL in the area under consideration**
- **Systemic integration of all stakeholders (BMC, Residents, Educational Institutions, Commercial Establishments, CSR, Brands)**
- **Key learnings from other such implementations in the country (Saahas, ITC WOW, CSE)**

# Project NIL

- Identify areas for intervention
- Get corporation, local influencers, residents on board
- Waste audit
- Sign up Societies in a phased manner
- Create the workflow
- Set up infrastructure (society level + area level)
- Implementation of SOP
- Monitoring



# Our Client List

- Daffodil CHS (Powai)
- Silver Oak (Powai)
- Tulip CHS (Powai)
- Zinnea, Nahar Amrit Shakti (Chandivali)
- Raheja Classique 2 A,2B,5 (Andheri W)
- Sheffield Towers (Andheri W)
- ICICI quarters (Andheri W)
- Vinit Towers (Andheri W)
- Kalpataru Estate 5&6, (Andheri E)
- IndusInd Bank (Andheri E)
- Bank of Baroda CHS, (Andheri E)
- Lok Raunak (Andheri E)
- Raheja Solitaire (Goregaon W)
- SRPF (Goregaon E)
- Anmol Pride (Goregaon W)
- Green Ridge (Borivali W)
- Vrindavan CHS (Borivali W)
- Venus, Evershine Millennium (Kandivali)
- Sea Glimpse (Worli)
- Rustomjee Elanza (Malad)
- Dev Chhaya (Khar)
- Police HQ (Colaba)

# YOU MAY GET IN TOUCH WITH GCF OVER MAIL OR CALL

**Call (+91) 99674 07356**

**Mail us at info@greencf.org**

**Visit www.greencf.org**