Waste management in context of SDGs

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Increasing complexity of waste streams

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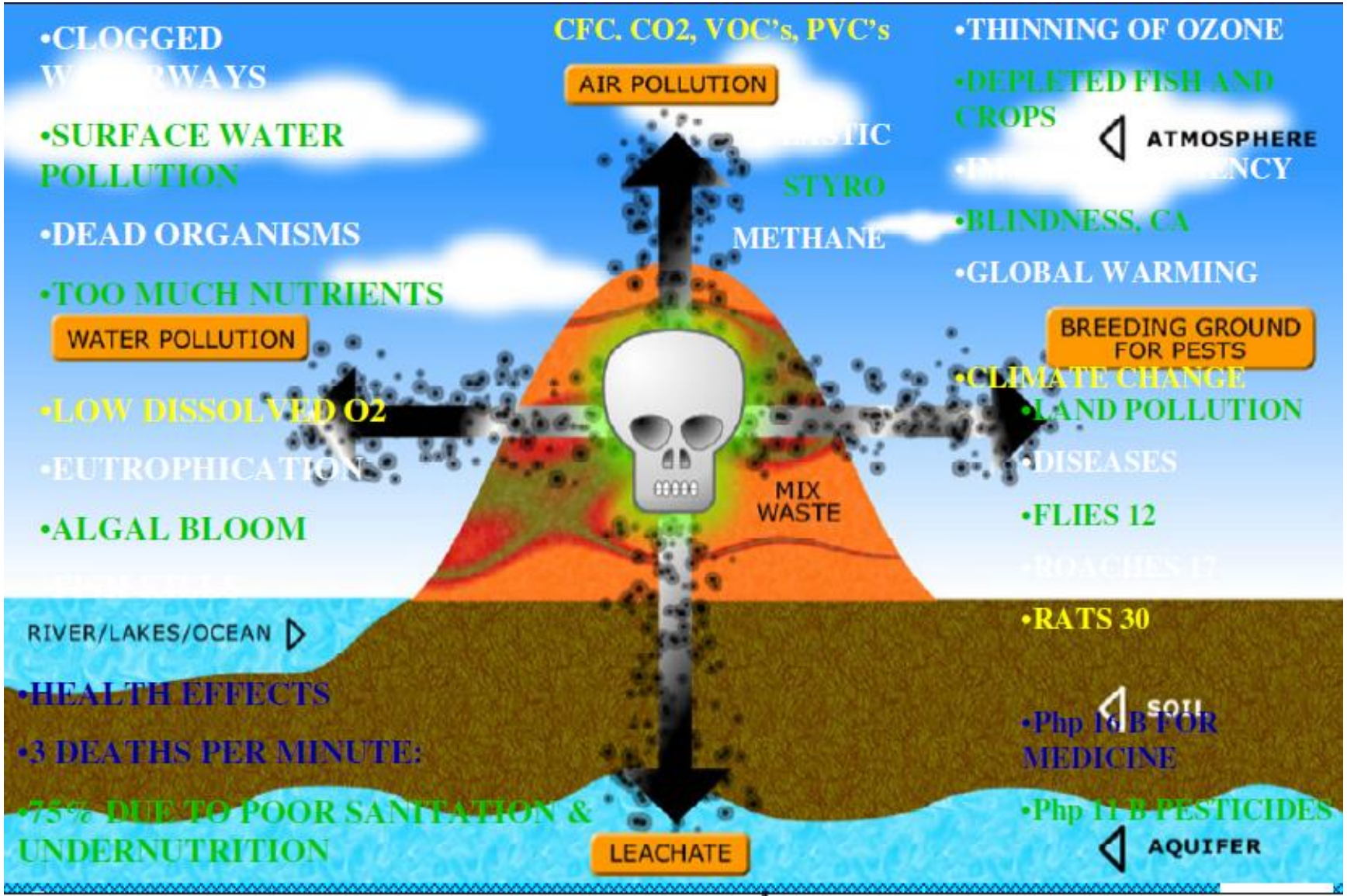
Upto 1980s	Upto 1990s	Present
• Municipal solid waste • Industrial hazardous and nonhazardous wastes	• Construction and demolition debris • Plastic waste • Hospital waste	• E-waste • Packaging waste • Exhaustive PV waste
• Municipal sewage • Industrial wastewater		
• Air pollution from stacks	• Emission from incinerators	

Varied impacts of disposal



Municipal solid waste – Indian scenario

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- Present generation - 62 MT
- In efficient collection – efficiencies range from 50 to 90% in major metros; smaller cities, it is around 50%
- Inadequate transportation facilities in more than 70% of the cities
- Inadequate disposal – very few sanitary landfills
- Biomedical waste, slaughter house waste, industrial waste often reaching the MSW dumpsites posing potential hazard to sanitary workers and rag pickers

Land requirement

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- As per the CPCB report 2012-13
  - **If all the waste is disposed, it will need 3,40,000 m^3 of landfill space every day**
  - **In the present situation the municipal areas generate 1,33,760 TPD waste, of which only 25,884 TPD is treated and 1,07,876 TPD is disposed on land requiring around 2,12,752 m^3 of land fill space**
  - **Requirement of land for next 20 years could be as high as 66,000 ha (1240 ha per year)**

Background - SDGs

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- Environmentally sound management of Chemicals and Waste
- 10 focus areas cover the issues with suggested 24 targets & indicators to measure the progress

Focus areas

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- (1) Poverty - 1
- (2) Sustainable agriculture, food security & nutrition - 2
- (3)Health & Population dynamics - 2
- (4) Education & life long learning - 2
- (6) Water & sanitation - 3
- (8) Economic growth, employment & infrastructure - 2
- (9) Industrialization & promoting equality among the nations - 4
- (10) Sustainable cities & human settlement - 1
- (11) Sustainable consumption & production - 6
- (15) Means of implementation - 1

Scope in relation to waste sector for the year 2030 (1)

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- Management with life cycle focus to minimize impact on human health and environment and reduce poverty
- Reduce burden of disease from exposure including poor, women, children and indigenous population
- Awareness raising on benefits and risk of managing waste
- Promote research in cleaner technologies & processes
- Reduce release to receiving environment due to anthropogenic activities
- Reduce contamination of surface and ground water
- Improved ecosystem management by addressing contamination of receiving environment

Scope in relation to waste sector for the year 2030 (2)

- Increase number of safe and decent jobs
- Ensure sustainable formalization/organisation process of the micro and small scale waste management sector
- Ensure sustainable management of waste in urban areas
- Safe working conditions to all workers
- Improved compliance with legal obligations under international, regional and national law in sustainable management of waste and other relevant international regimes (IMO; ILO; WHO)

Life cycle perspective

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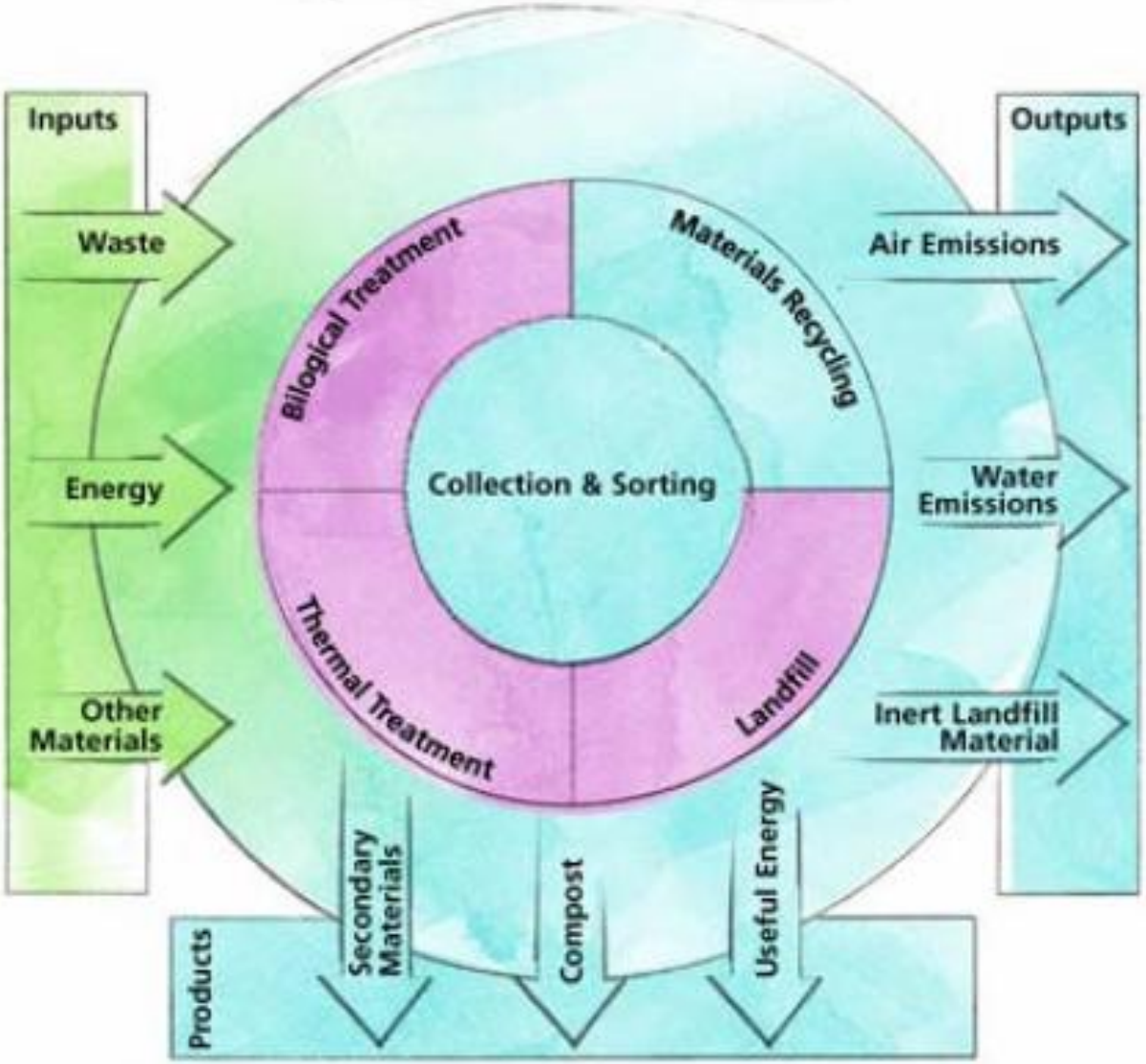

Stakeholder engagement

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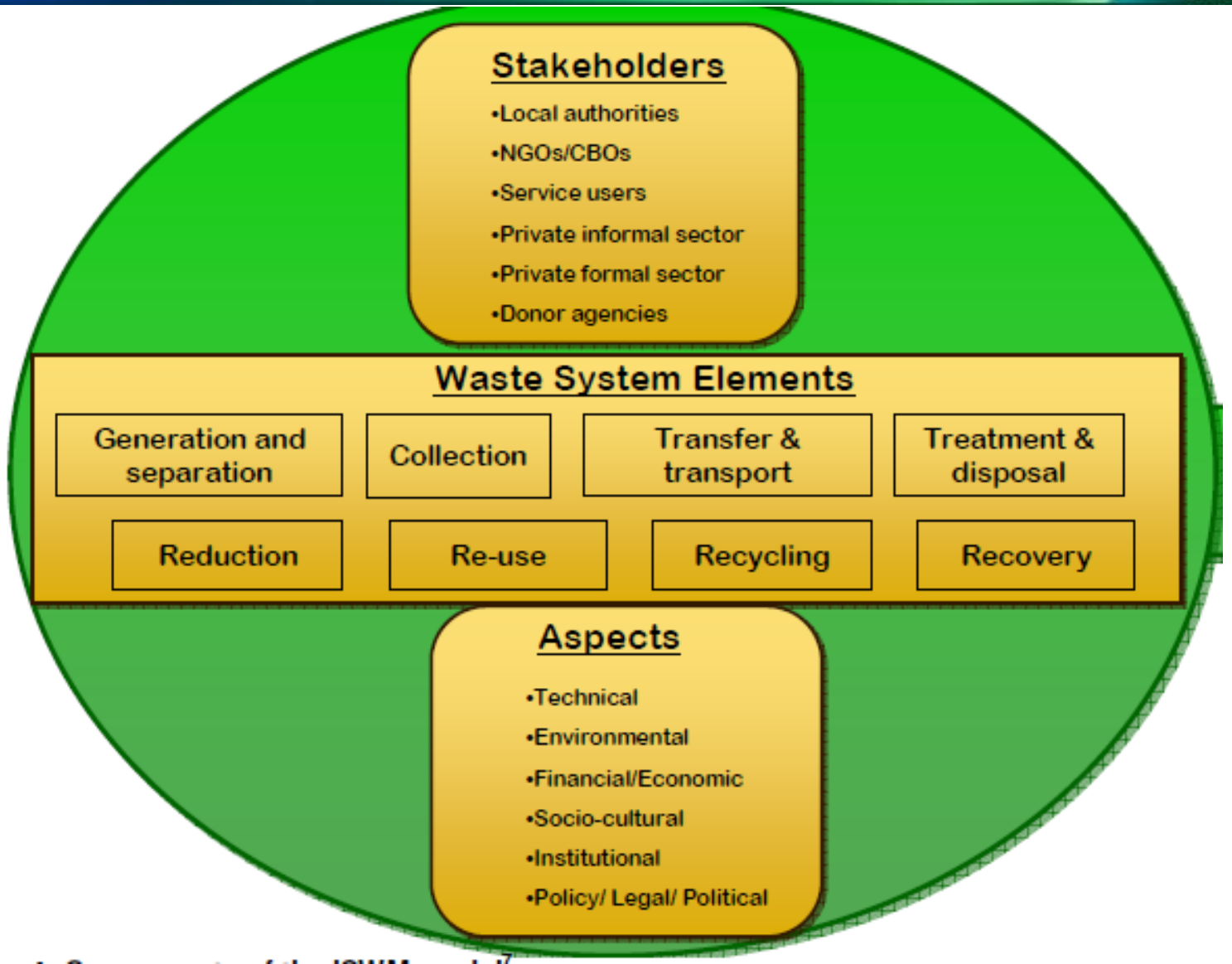
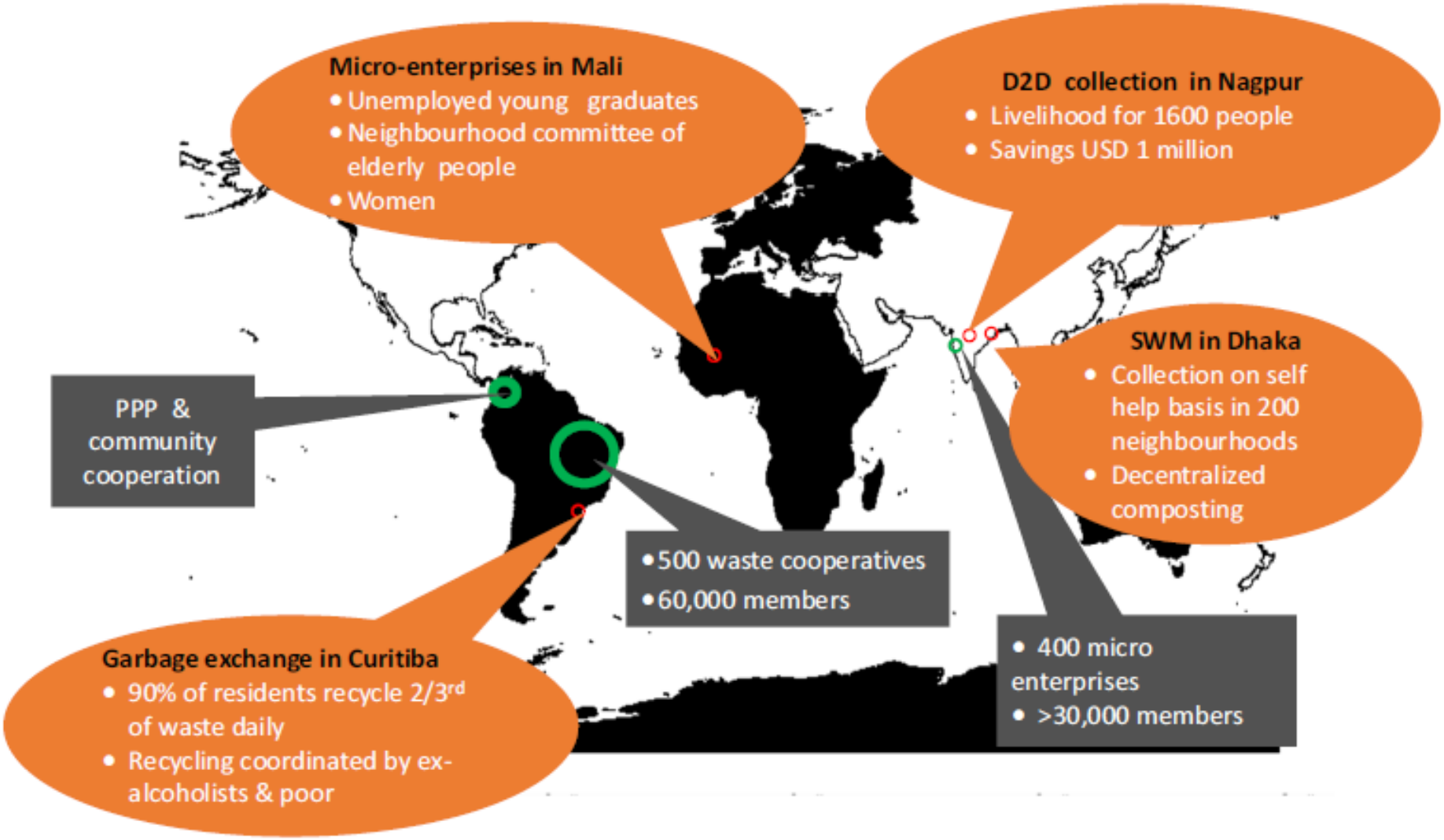


Partnerships



Source: P Modak

Benefits of investing in waste sector

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- Resource & energy conservation
- Job creation
- Resource production – compost & energy
- Reduced GHG emission
- Equity and poverty reduction

Type of material	Energy savings[1,2] (%)	GHG flux saving from recycling[3] (kg CO_2 eq. per tonne of recycled material)	Savings on carbon price in US$ (13.4 US$ per tonne of CO_2 eq.)
Aluminium	90-95	95	1273
Ferrous	74	63	844
Textiles	NA	60	804
Steel	62 - 74	NA	-
Copper	35 - 85	NA	-
Lead	60 - 65	NA	-
Paper	40	177	2,372
Zinc	60	NA	-
Plastic	80 - 90	41 (HDPE)	549
Glass	20	30	402

NA: Data not available

Estimated waste market

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2006

World Waste Survey
by Veolia

OECD municipal waste market is $ 125 billion

Emerging economies like China, India & Brazil account for $ 25 billion

VEOLIA ENVIRONMENTAL SERVICES

2007

Waste Market Assessment
by Keynote, UK

UK waste market estimated at $ 11 billion

Global MSW market estimated to increase by 37.3 % between 2007 and 2011

Key Note

2008

World WMR market estimated at $ 41 billion

In France, half of the employment in environmental sector was in solid waste and waste water management

Roland Berger Strategy Consultants

Thank you