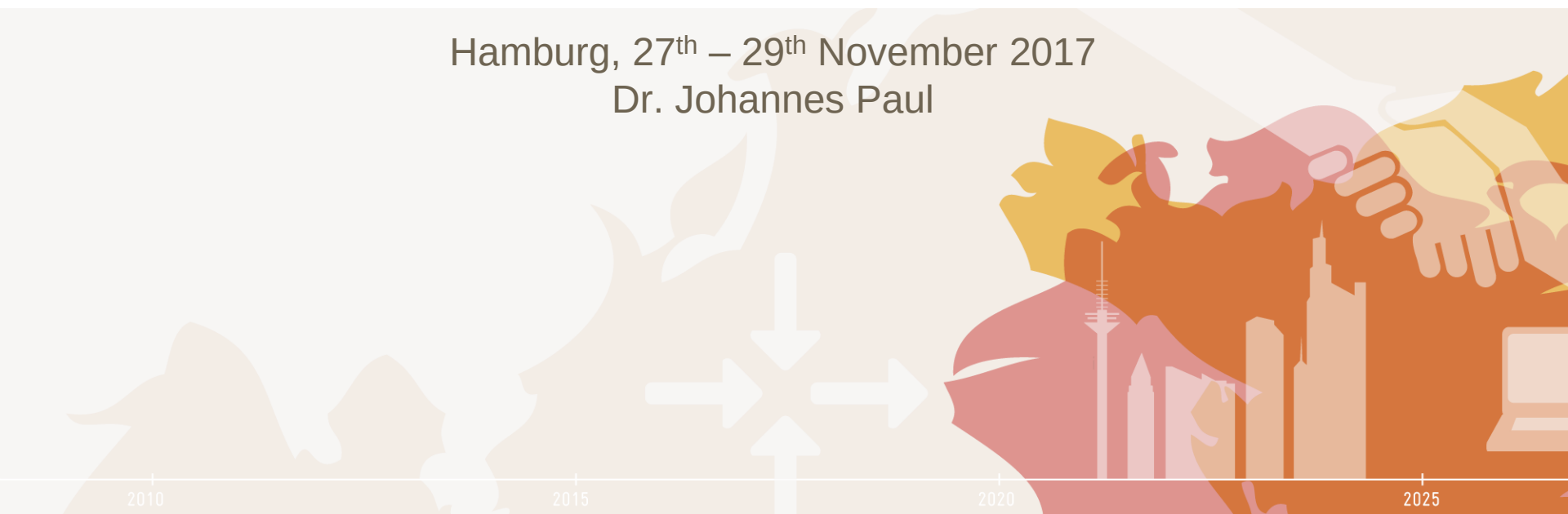




From waste dumping towards circular economy: Challenges and Opportunities in cities of the Global South

Hamburg, 27th – 29th November 2017
Dr. Johannes Paul





Agenda

1. GIZ-Portfolio in Waste Management
2. Waste Management and Circular Economy
3. Challenges and Opportunities
4. Outlook & Publications



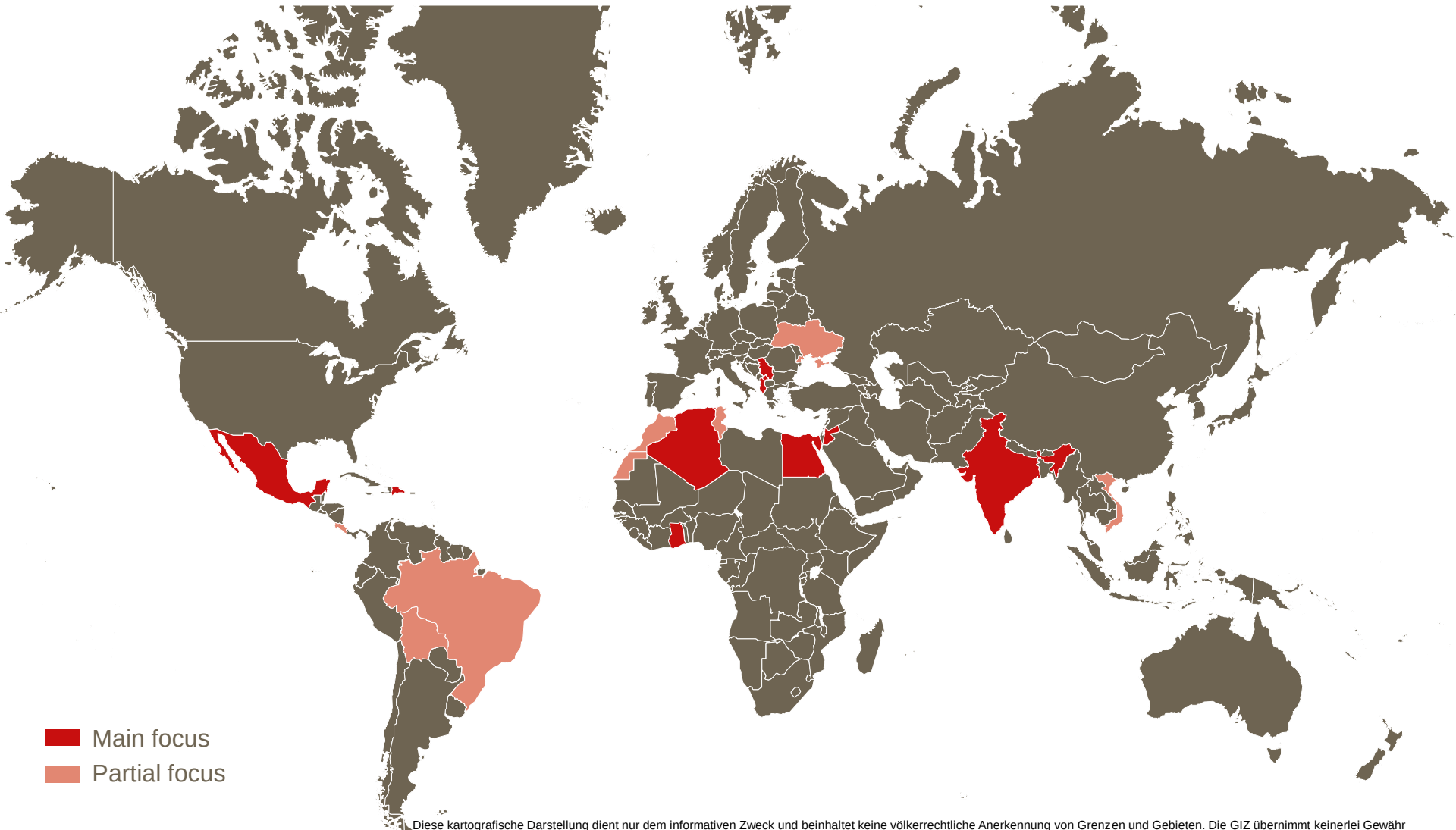
Sector Project „Concepts for sustainable waste management and circular economy“



- Based at **GIZ headquarters in Eschborn**, Germany
- **Policy advice** to the German Federal Ministry for Economic Cooperation and Development (BMZ) on circular economy and waste related issues
- **Conceptual work** for supporting bilateral and regional cooperation projects on:
 - **Climate-friendly and resource-efficient urban solid waste management**
 - **Marine litter prevention**
 - **E-waste management**
- **Knowledge exchange:** organization of events; compilation of studies, presentations; networking with IGOs, NGOs, research institutes, private sector

GIZ Portfolio Waste Management and Circular Economy

Bilateral and regional projects with activities in solid waste management – ranging from individual studies to areas of main focus

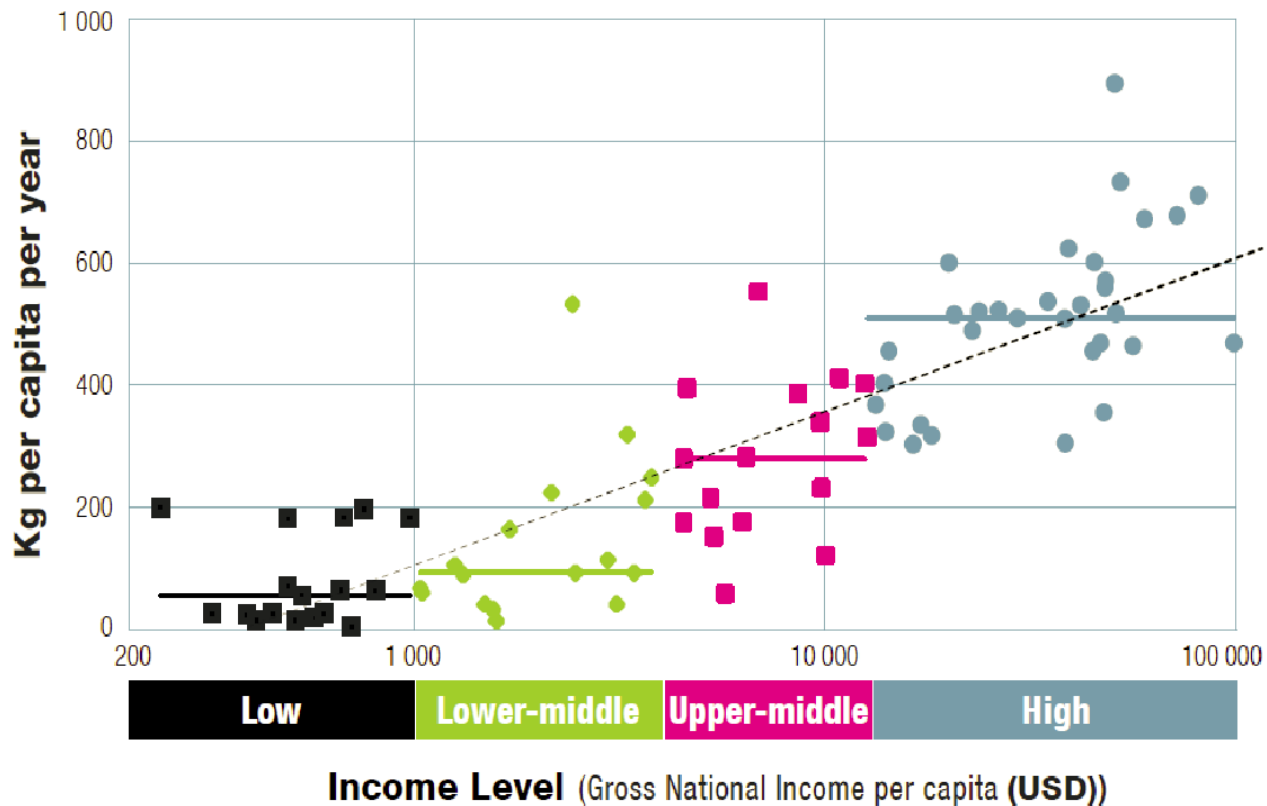


Diese kartografische Darstellung dient nur dem informativen Zweck und beinhaltet keine völkerrechtliche Anerkennung von Grenzen und Gebieten. Die GIZ übernimmt keinerlei Gewähr für die Aktualität, Korrektheit oder Vollständigkeit des bereitgestellten Kartenmaterials. Jegliche Haftung für Schäden, die direkt oder indirekt aus der Benutzung entstehen, wird ausgeschlossen.



Key challenges: Increase of SW generation outpaces efforts

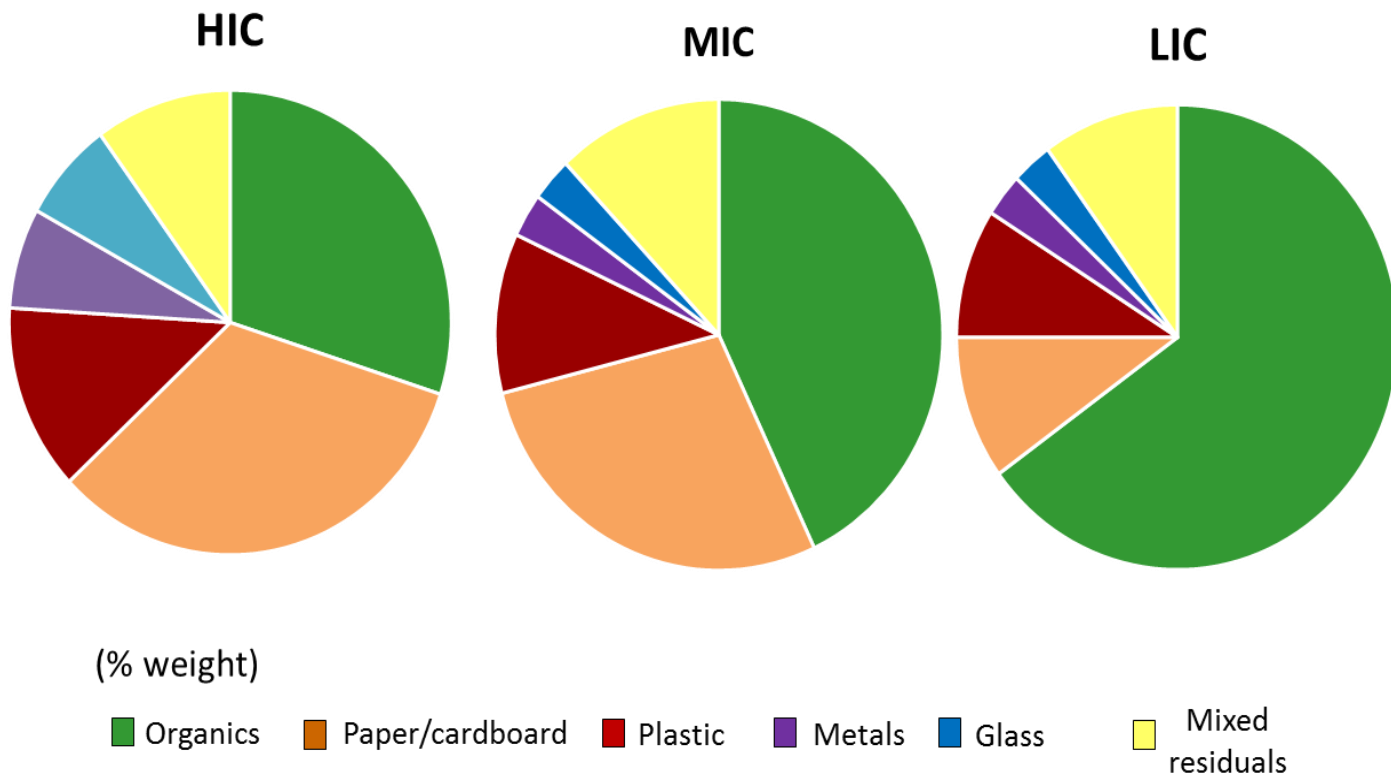
Municipal solid waste per capita increases with income level



Source: UNEP (2015)



Key challenges: Waste composition impacts SWM systems



HIC – high income country MIC – middle income country LIC – low income country

Source: UNEP (2011)

Key challenge
Switch from Linear supply flows to
Circular Economy

Agriculture:

decreasing organic matter, soil deterioration, decreasing yields, increasing use of chemical fertilizer

Solid waste management:

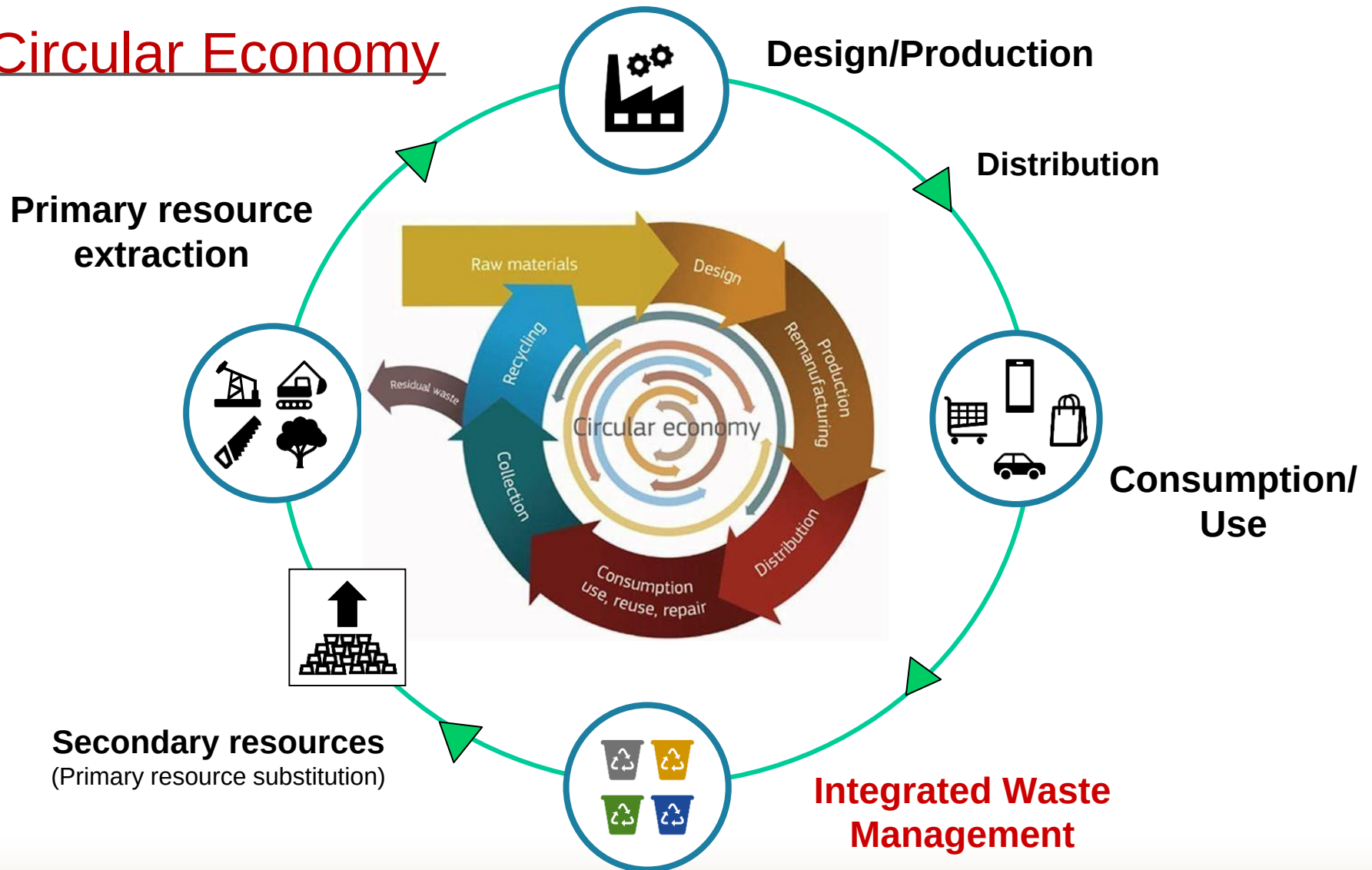
Increasing waste generation, predominating waste disposal, lack of waste segregation & treatment options, low quality of recycling products

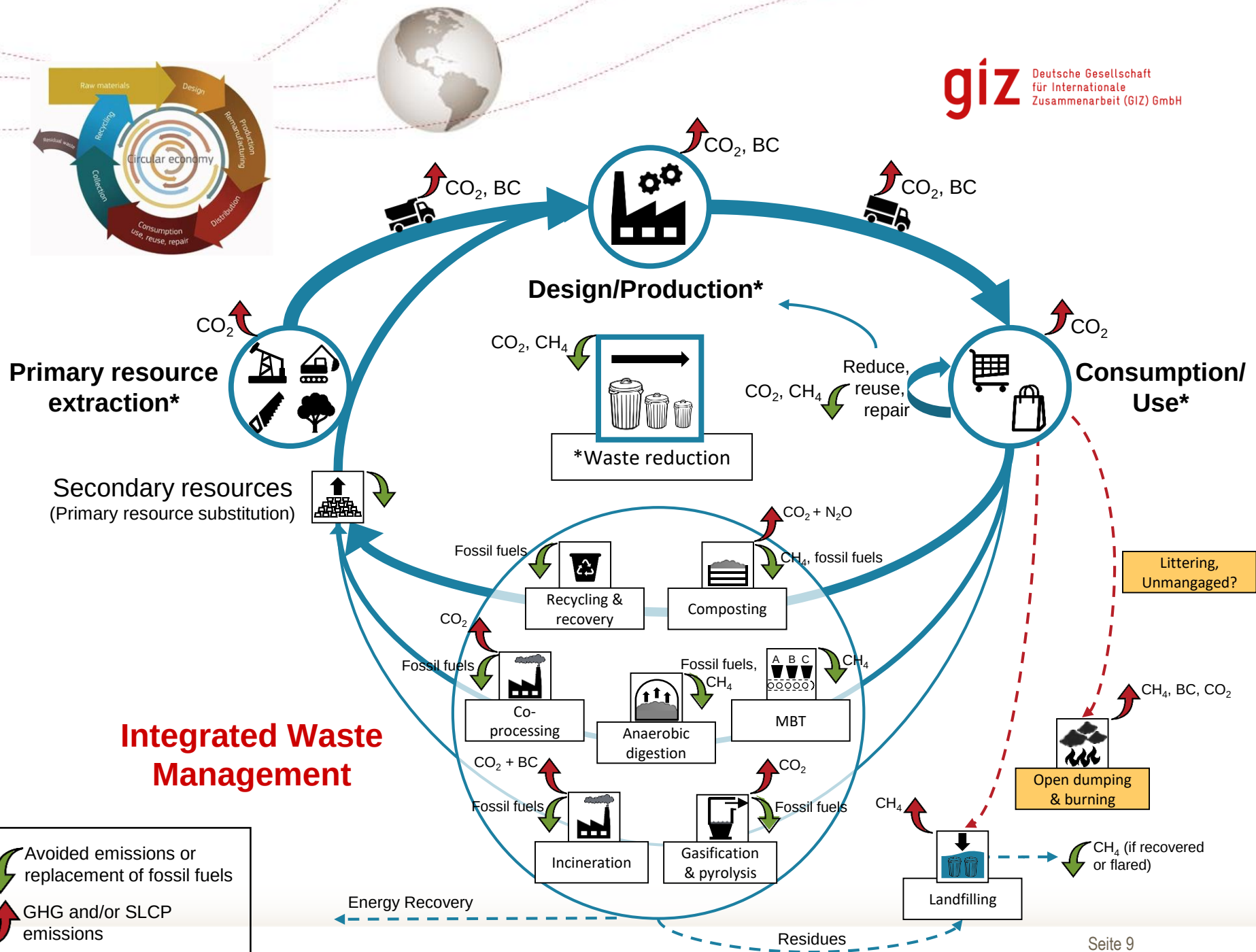
Sanitation:

Lack of central sewerage systems, scattered on-site sanitation systems, lack of treatment facilities, uncontrolled disposal of FS from tank cleaning

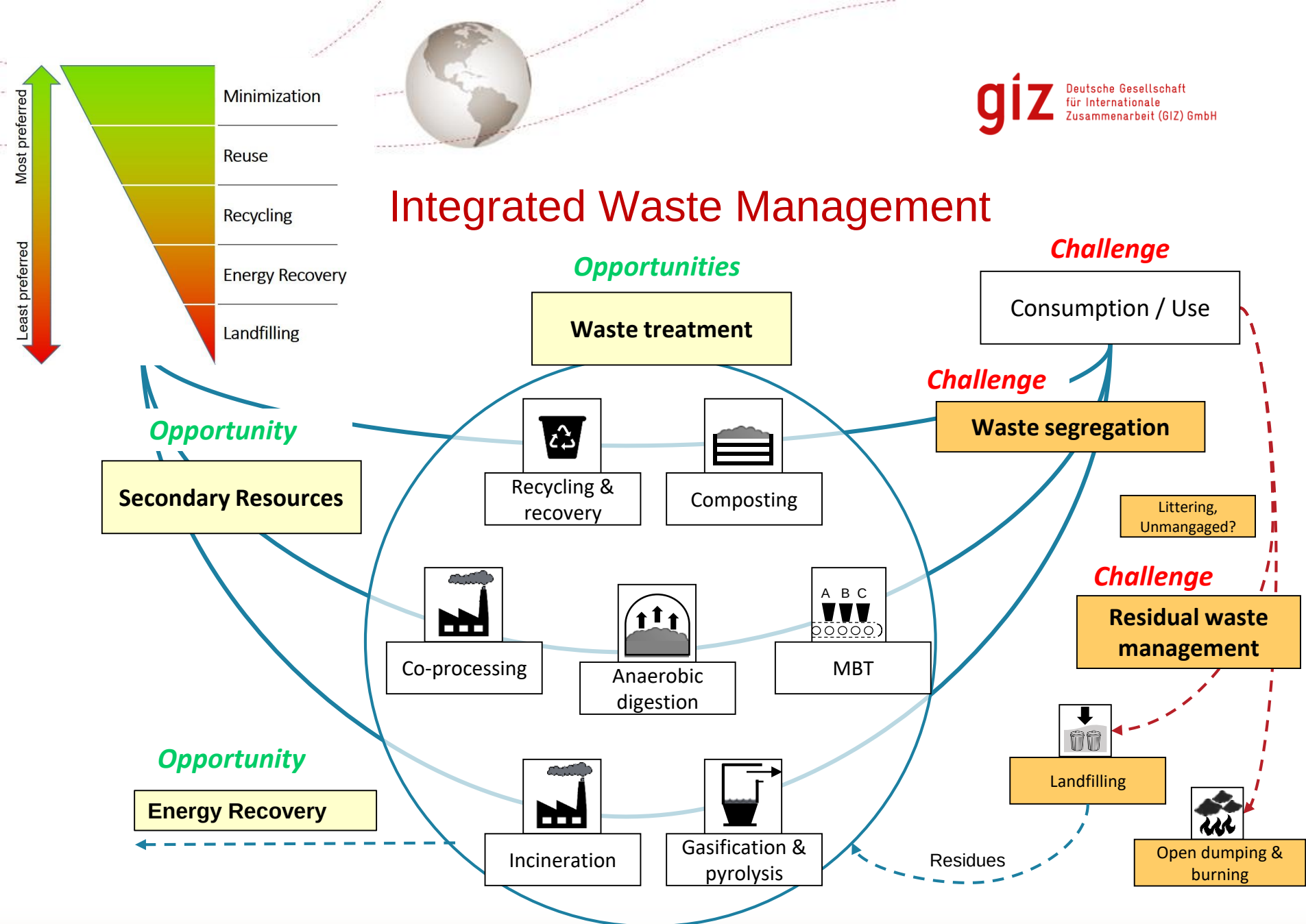


Circular Economy





Integrated Waste Management





Key challenges

How can

- **Economical development**
- **Population growth**
- **Urban concentration**

be decoupled from waste generation?



How to enhance framework conditions?

- gaps & weaknesses in legal framework, e.g. lack of targets and law enforcement
- insufficient budget for SWM services
- lack of expertise and capacity development
- “NIMBY” and lack of land for new facilities
- dominating practise of waste dumping
- informal sector involvement
- low private sector involvement
- lack of capacities in waste treatment





Key challenges: Public participation & waste collection

- Low awareness and wrong practises at household level
- waste collection efficiency low, mostly unsegregated
- waste littering, burying, burning at backyards
- Low refinancing by local user's, e.g. through gate and user fee's





“Uniform” waste collection systems?





Collected: to dumpsite



Uncollected: to waterways



Marine litter?



Loss of resources



Status of waste dumping



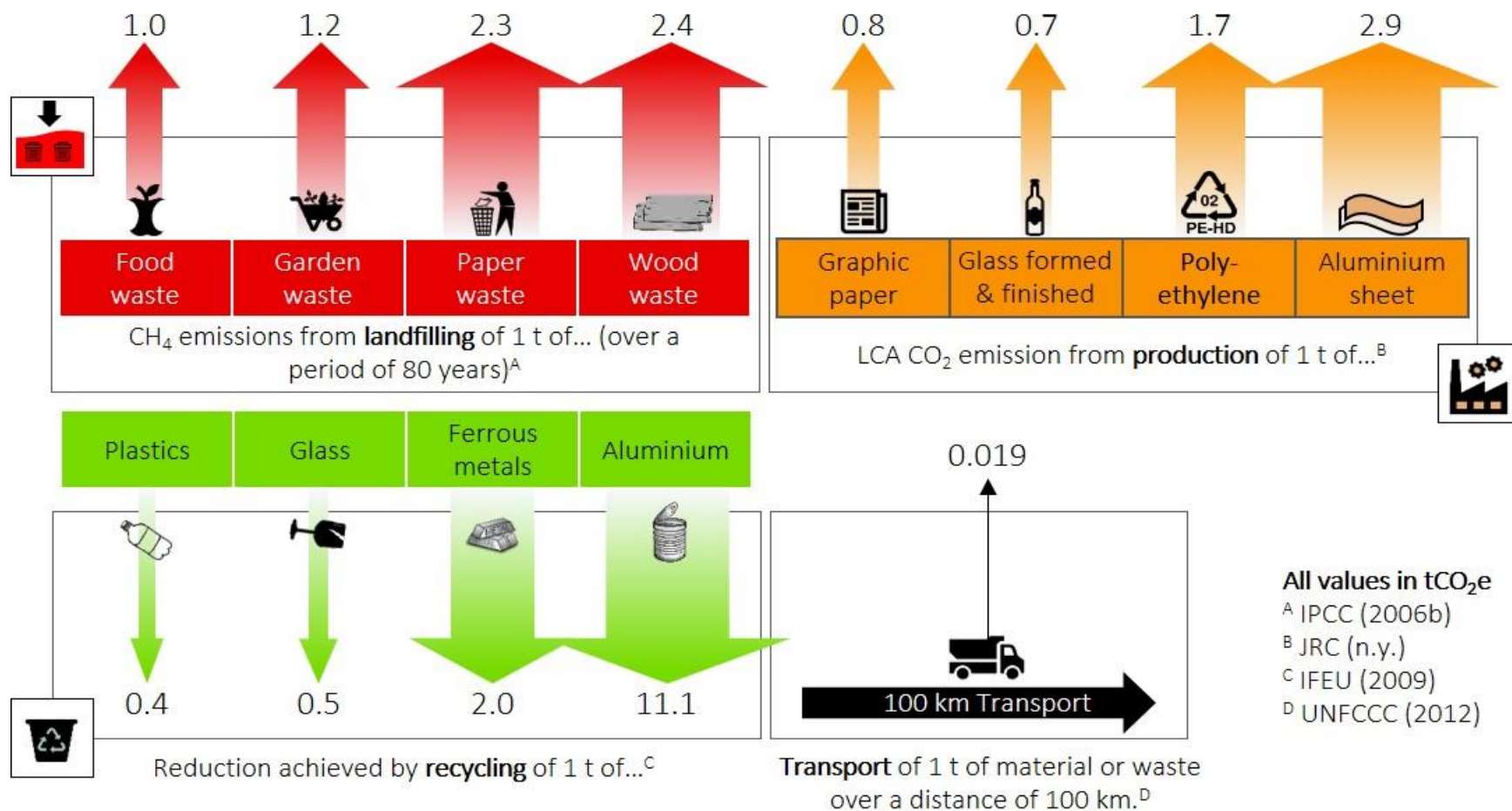
GHG emissions?



Leachate emissions?

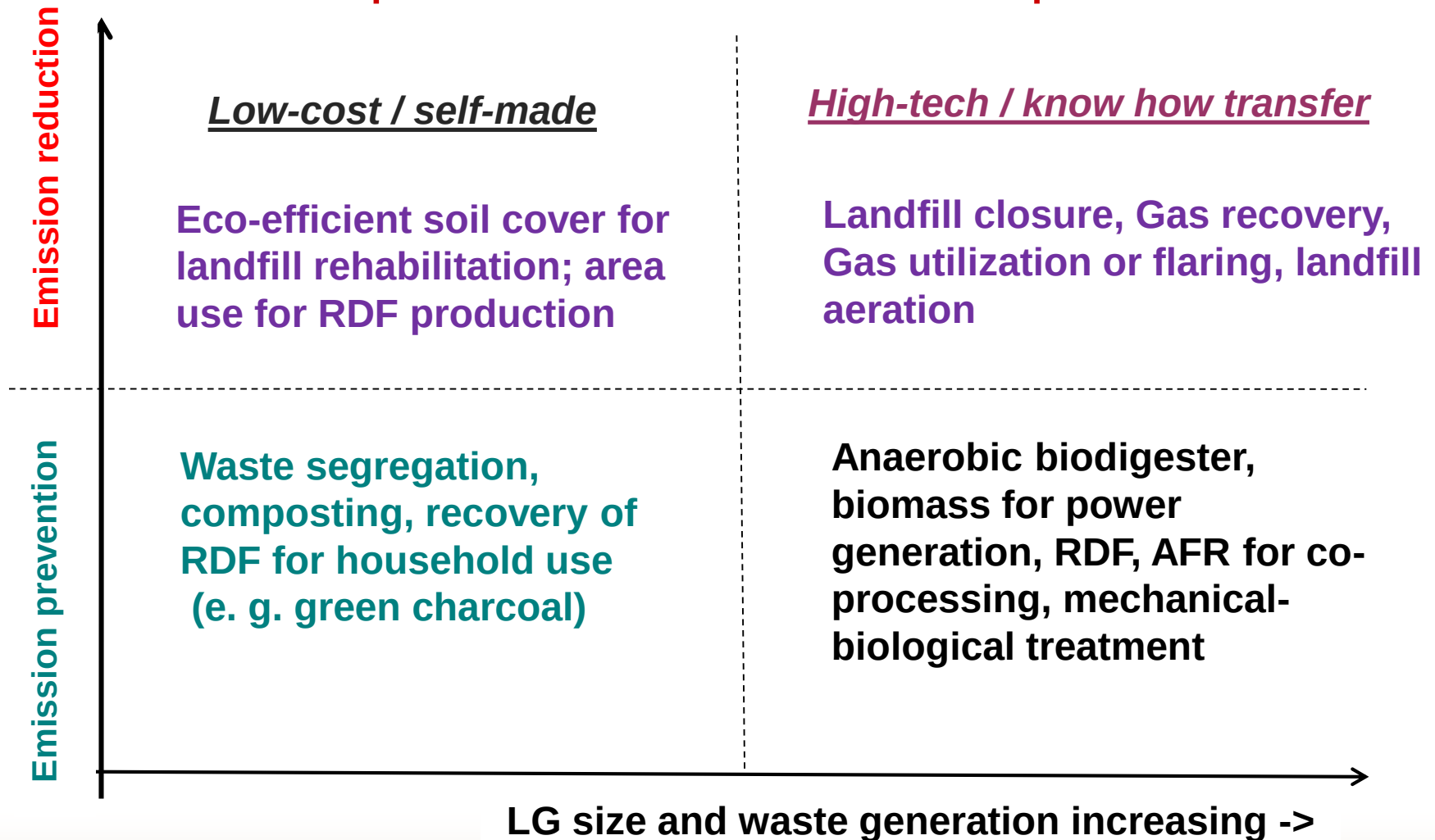


Samples of climate mitigation potentials in the waste sector





NAMA options for various municipal scenarios



GHG mitigation options

High-tech / know how transfer



Mechanized sorting, material recovery, anaerobic biodigester, biomass for power generation, RDF, AFR for co-processing, mechanical-biological treatment



Emission reduction

Emission prevention

LG size & waste generation increasing ->

Low cost option Eco-Center San Carlos City, Philippines



First SLF unit



Windrow composting



Leachate treatment



Sorting plant "Gravity-MRF"



Office

The Material Recovery Facility San Carlos uses gravity force

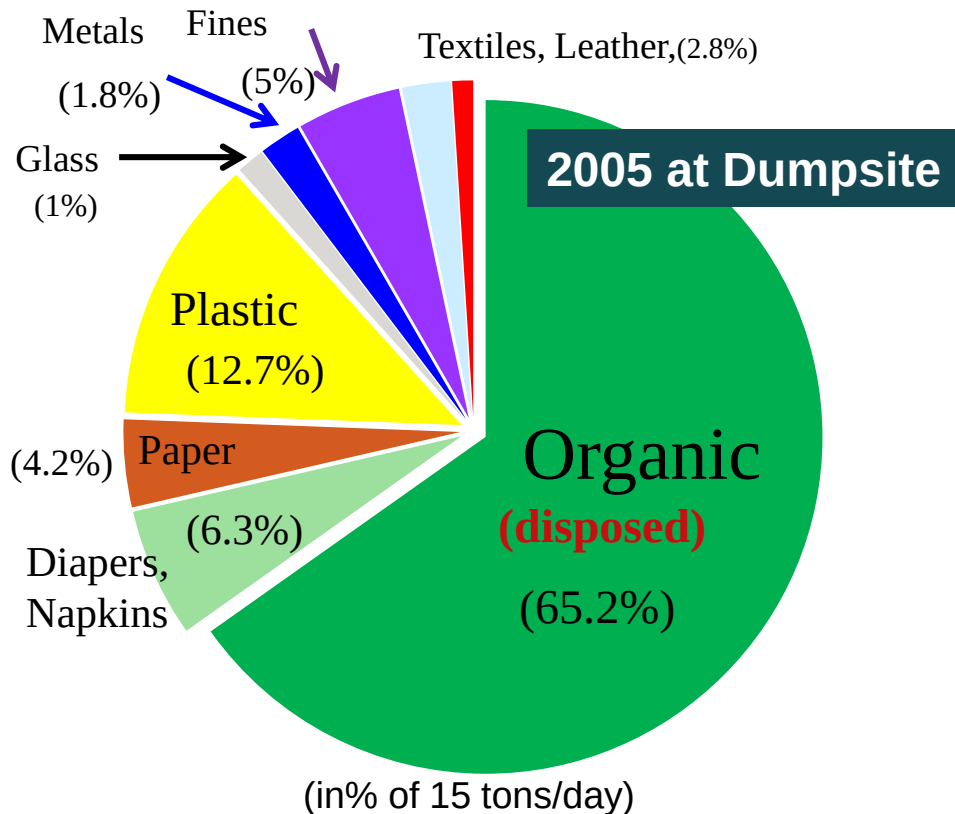
Bio-waste processing of 28 m³ or 9.5 tons/day

Processed non-organic waste 37 m³ or 7.5 tons/day

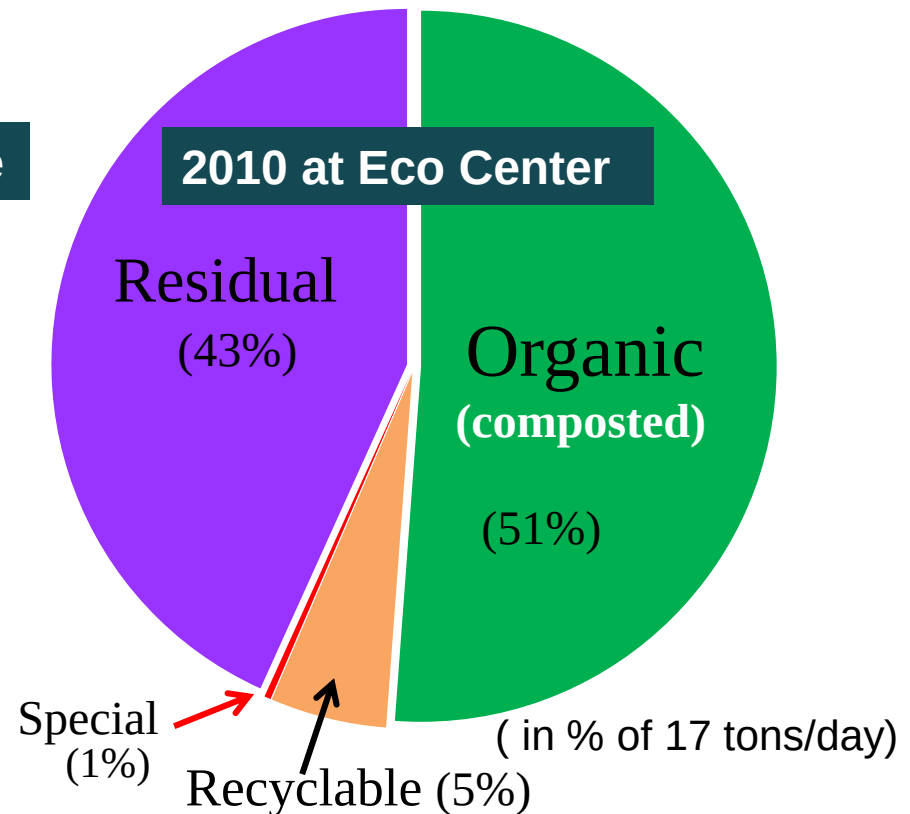




Performance of Eco-Center San Carlos



Total SW collection 2005: 5,475 tons
Biowaste **disposed** in 2005: 3,570 tons
Non-organic recycled 2005: 345 tons (6.3%)



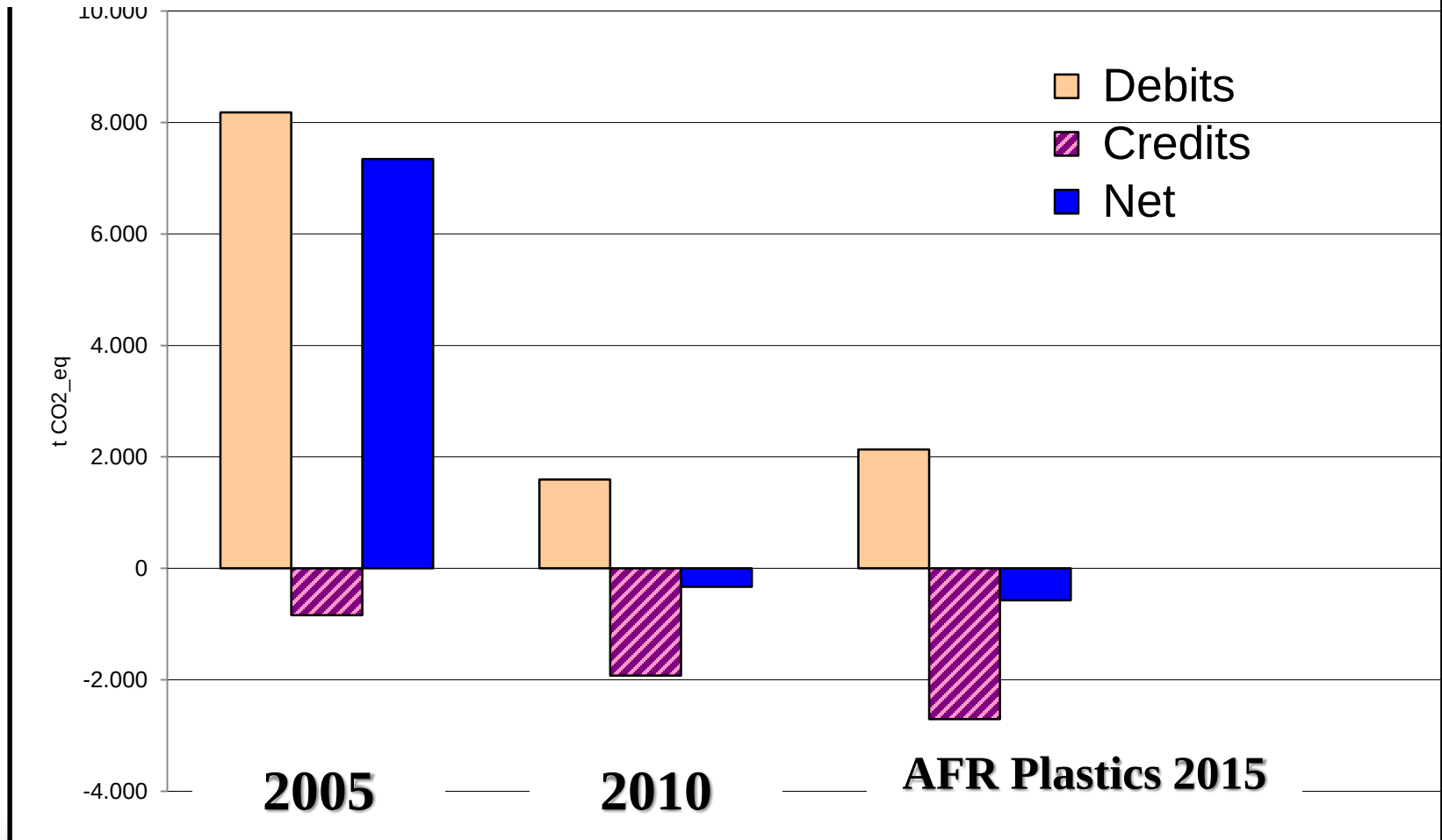
Total SW collection 2010: 6,586 tons
Biowaste recovered 2010: 3,395 tons
Non-organic recycled 2010: 329 tons (5%)



Assessment of GHG emission scenarios San Carlos City

tons CO₂-eq /year

GHG emissions



(based on GIZ-KfW Climate Calculator; Giegrich & Vogt, 2009)



Balangoda, Sri Lanka

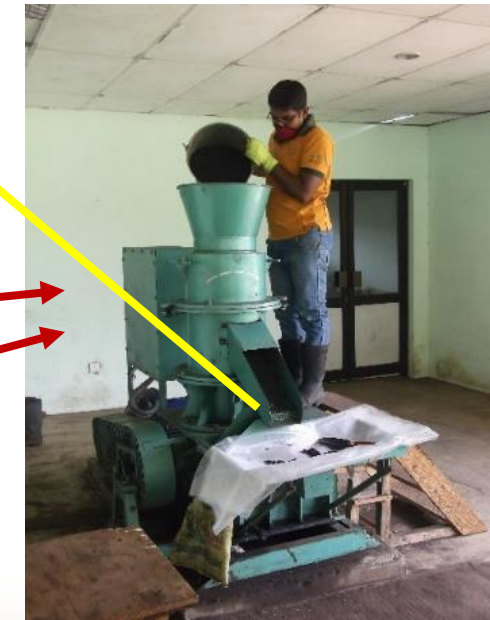
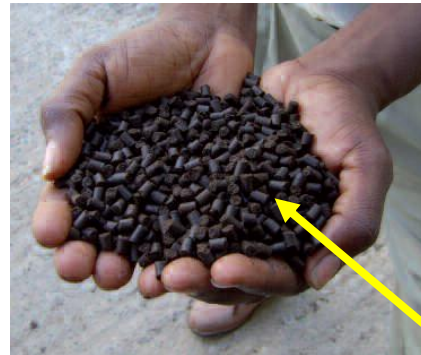
(low cost organic waste treatment)





Balangoda, Sri Lanka

- Municipal compost enhanced by manures and dried fecal sludge
- Combined treatment of organic input materials enhances fertilizer value
- Option for additional palletization (grinding, binding, enriching)





GIZ – Flyer ‘Publications’



Marine litter prevention



GIZ (2016) Marine Litter. Causes, impacts and potential Solutions
<http://bit.ly/2zqcEBF>



GIZ (2016) Reducing the input of plastic litter into the ocean around Cozumel
<http://bit.ly/2zpH3xU>



GIZ (2016) Reducing the input of plastic litter into the ocean around Grenada
<http://bit.ly/2jayAdV>



Informal sector integration



GIZ (2017) Building the Link: Leveraging Formal-Informal Partnerships in the Indian E-Waste Sector



GIZ, SWEEP-Net (2015) Valuing Informal Integration: Inclusive Recycling in North Africa and the Middle East
<http://bit.ly/2ztr8Pt>



GIZ/Gerdau S.A. (2013) Strategic Alliance Gerdau-GIZ: Integrating the Informal Sector into the Steel Value Chain in Brazil, Chile, Peru and Uruguay
<http://bit.ly/2zrsuMF>



CWG/GIZ (2011) The Economics of the Informal Sector in Solid Waste Management
<http://bit.ly/2hP5nSx>

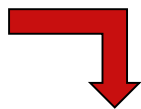


GIZ (2011) Recovering resources, creating opportunities - Integrating the informal sector into solid waste management
<http://bit.ly/2ye5hdk>

- Publications -

**Concepts for
sustainable solid
waste management
& circular economy**

Contact



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Thank You!

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