3R for Circular Economy

Healthier & Happier Society

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SUSTAINABLE DEVELOPMENT GOALS

SDG 12

Responsible Consumption and Production - & Waste Management (basis for circular economy)

12.3 - By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses

12.3.1 - Global food loss index

12.4 - By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment

12.4.1 - Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement

12.4.2 - Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment

12.5 - By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

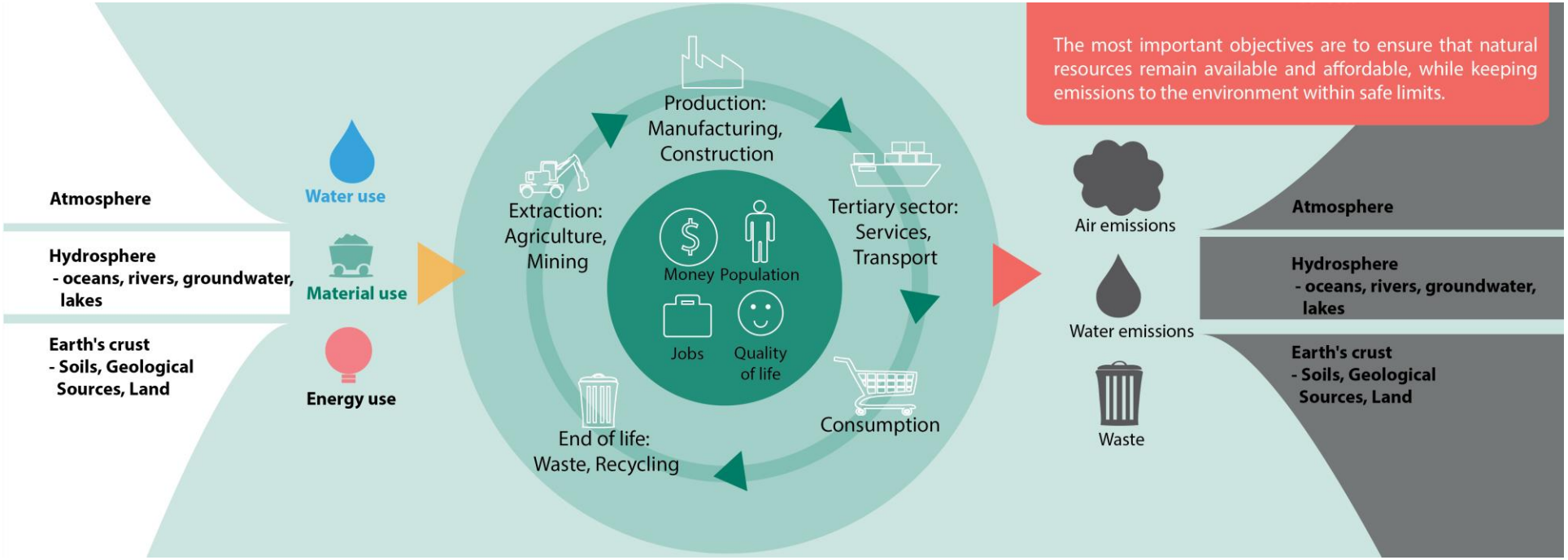
12.5.1 - National recycling rate, tons of material recycled

OVERVIEW

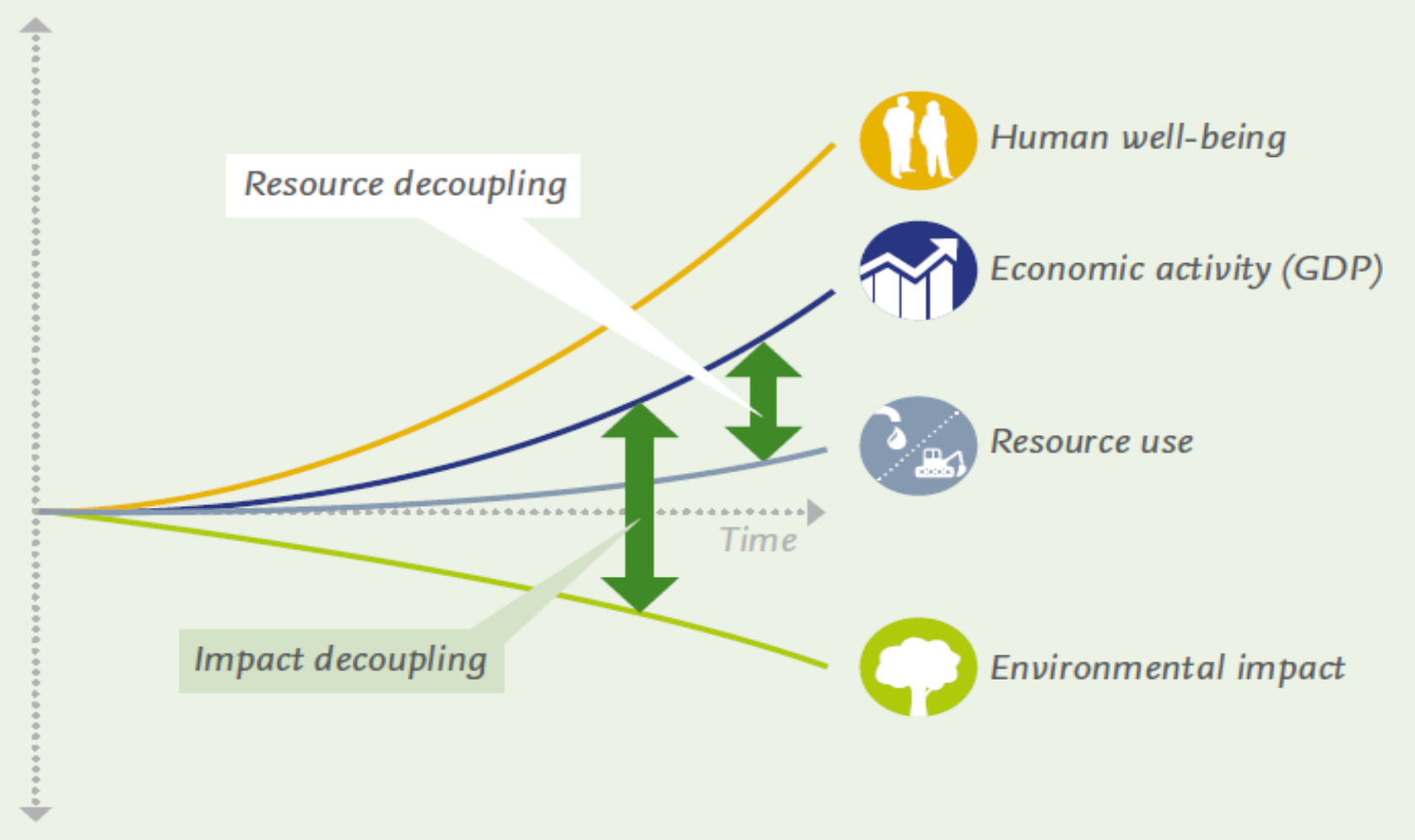
Asia Pacific home to 16 of 28 megacities

Asia Pacific home to < 4.2 billion people

The region's share of global gross domestic product (at purchasing power parity) rose from 30.1% in 2000 to 42.6% in 2017,



WHAT IS DECOUPLING……



CHANGING SCENARIO….

Growing population from 7 billion today to 9 billion by 2050

Economic development and increasing global trade

Growing middle-class with **changing consumption patterns**

Increasing **consumption of biomass**

WHAT IS HAPPENING IN ASIA!

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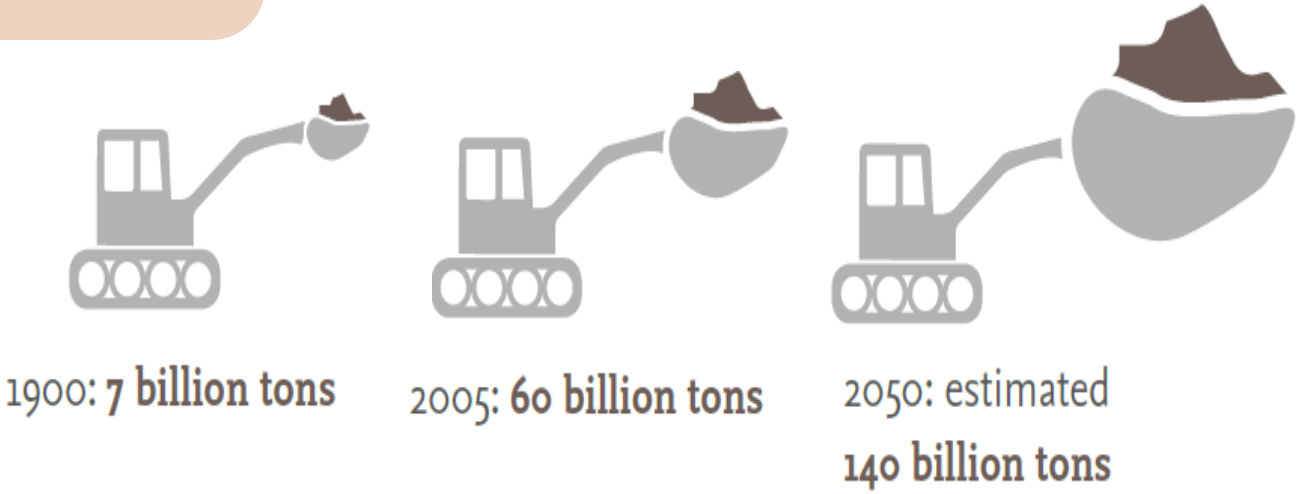
80 billion tonnes of global extraction of natural resources if consumption stays at current developed country rates.

60% of ecosystems damaged or being used unsustainably



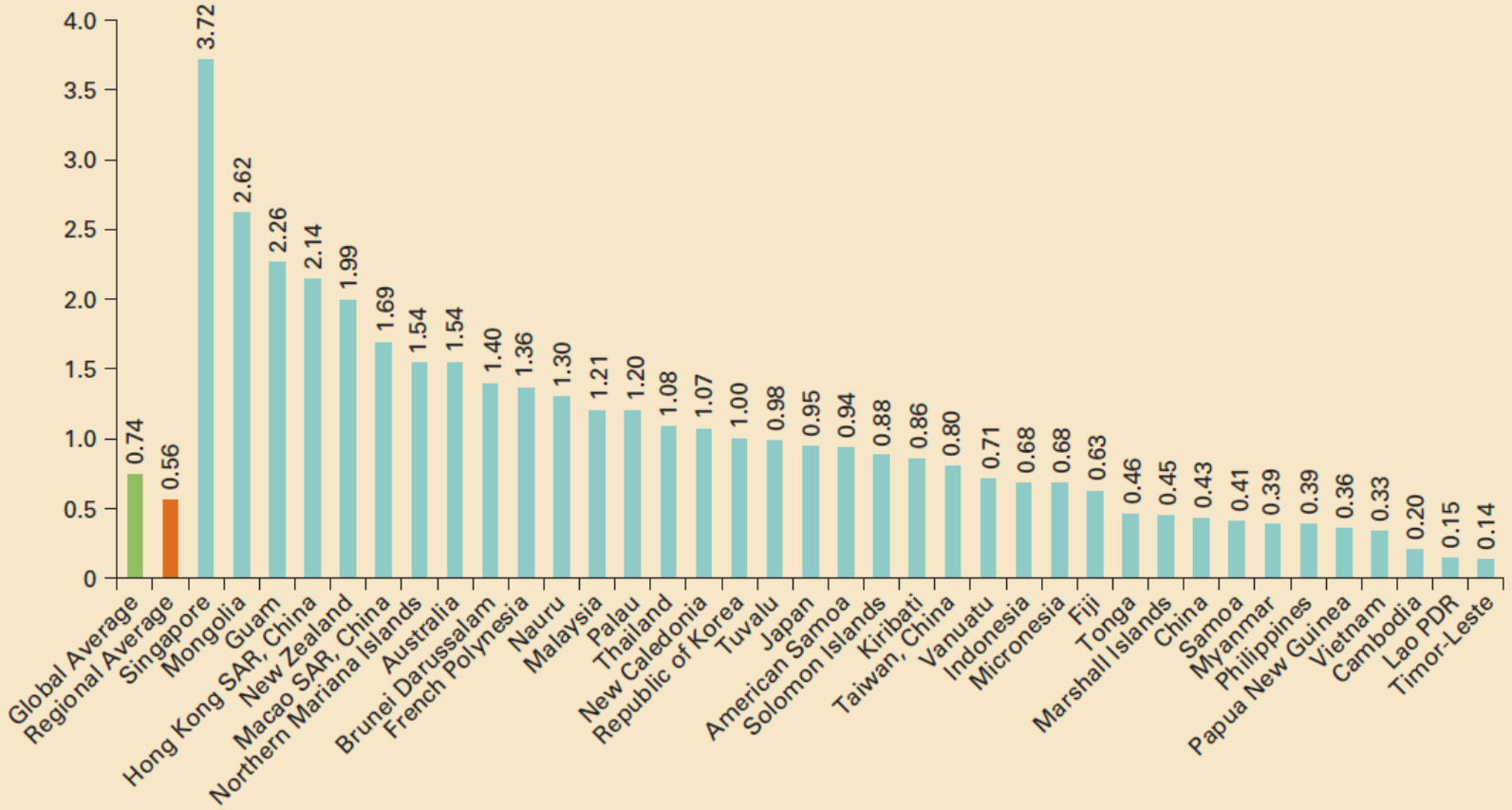
* *Materials = fossil fuels, minerals, metals and biomass.*

Two-thirds of the global middle class will be residents in Asia-Pacific by 2030

3°C or more rise in Temperature by the end of the century, due to doubling of GHG Emissions by 2050 (BAU)

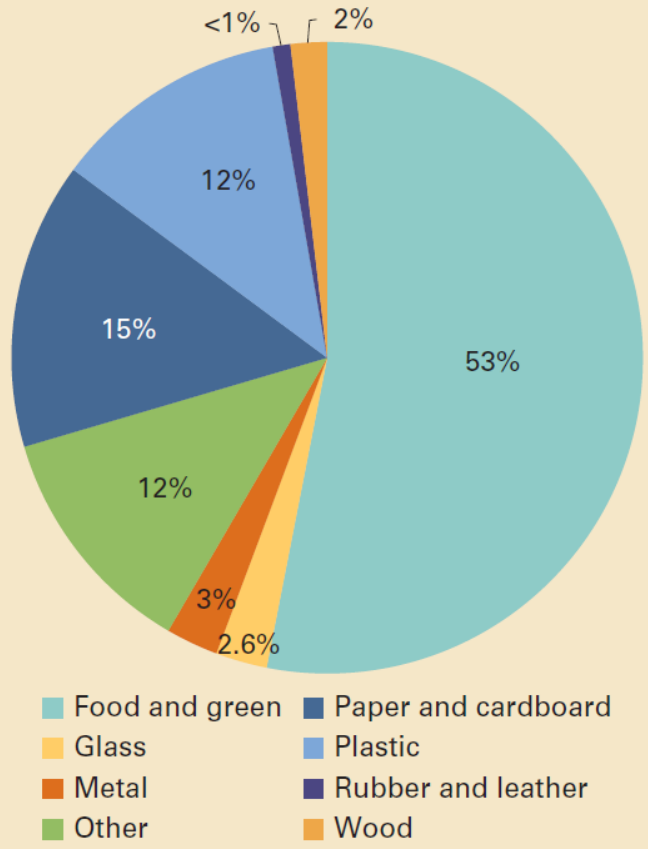
SOUTHEAST ASIA AND PACIFIC

Figure 3.1 Waste Generation Rates: East Asia and Pacific Region
kg/capita/day



Note: Data adjusted to 2016 as described in box 2.1; kg = kilogram.

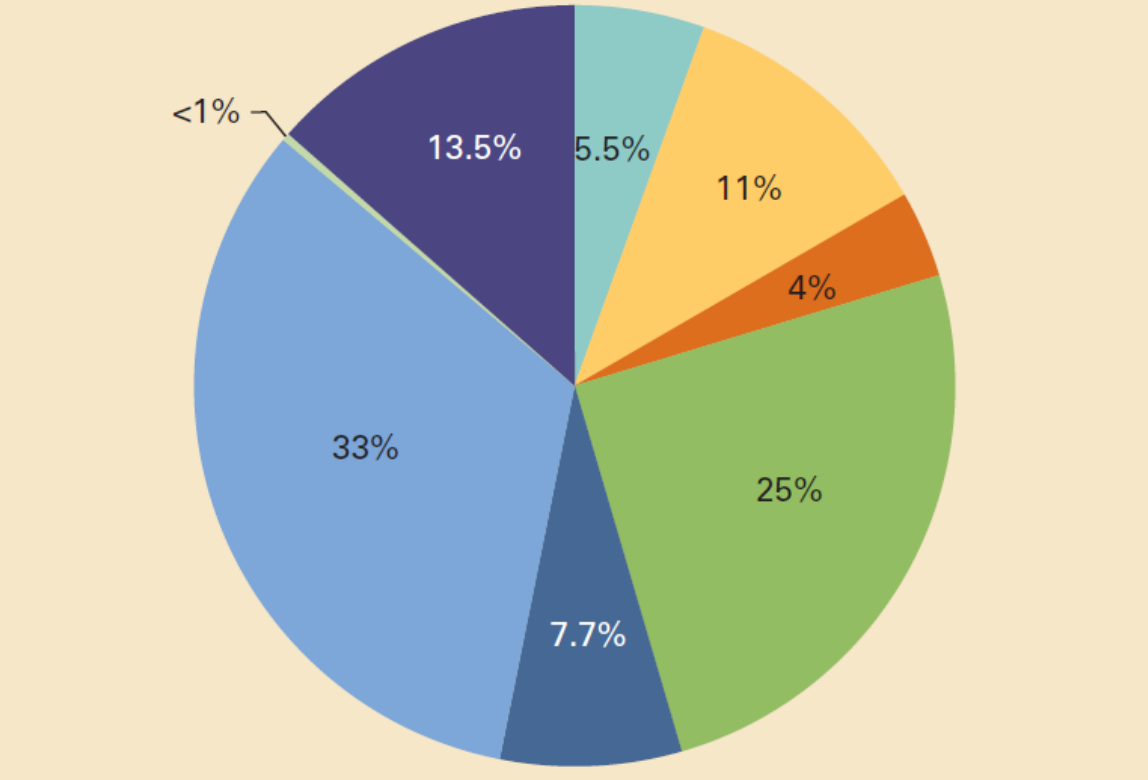
Figure 3.2 Waste Composition in East Asia and Pacific
percent



Source: The World Bank 2018
What a Waste: A Global Snapshot of Global Municipal Waste to 2050

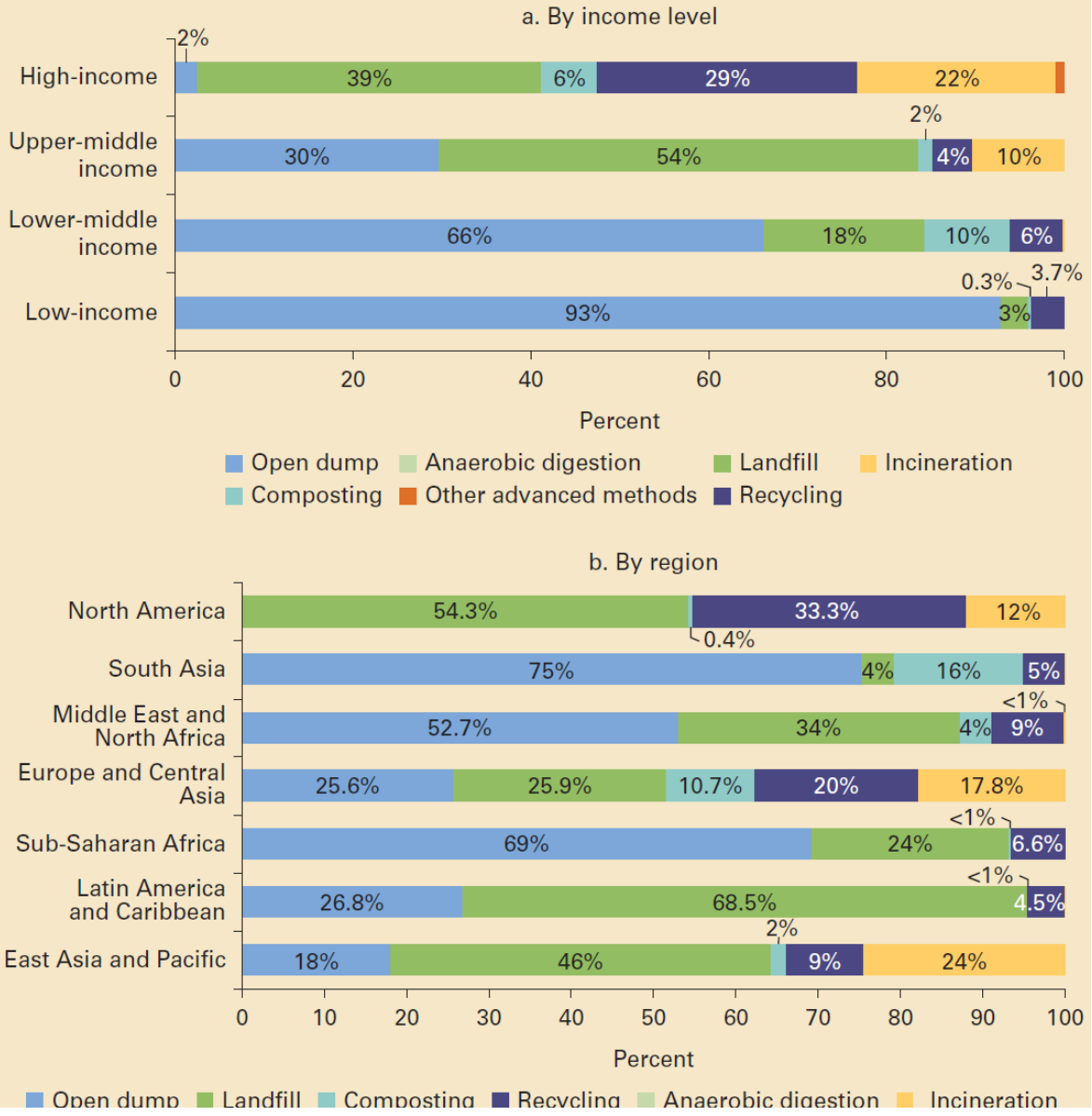
RECYCLING STATUS

Figure 2.12 Global Waste Treatment and Disposal
percent



Source: The World Bank 2018
What a Waste: A Global Snapshot of Global Municipal Waste to 2050

Figure 2.13 Disposal Methods by Income



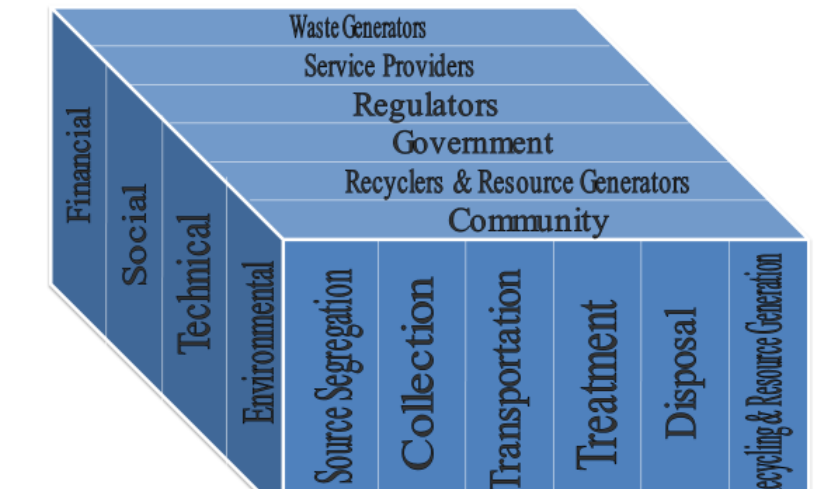
RECYCLING TARGETS

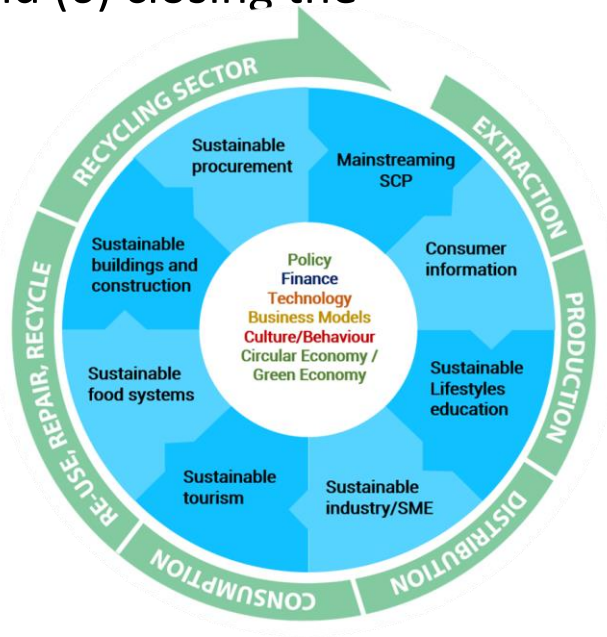
According to a report compiled by Eunomia, Germany is leading the world recycling chart, with an impressive recycling rate of 56.1%. Austria comes second, with 53.8%. These countries recycle between 52% and 56% of their municipal waste, with Switzerland recycling almost 50%. To support their country's impressive recycling rates, paper suppliers in Germany provide environmentally-friendly, biodegradable, and recyclable products, including Kraft paper, newsprint and wood-free.

Accessed on 27 October 2019
https://www.pgpaper.com/global-recycling-rates/

UNEP SUPPORT ON WASTE MANAGEMENT SYSTEM

- UNEP produced guidelines and training materials with pilot support to assess the waste management system and gaps there in for regulations, financing, technology, institutionalisation, and stakeholders' roles and engagement for integrated waste management and for major waste streams including municipal waste, waste plastics, E-waste, and waste agricultural biomass.
- For pilot cities, capacity were built on waste data, assessment of waste management system, target setting, stakeholders' concerns for achieving targets and formulating integrated waste management plan to strengthen current waste management system.
- Major lessons learned from UNEP's capacity building and pilot projects including (1) political will, (2) stakeholder engagement, (3) raising awareness on health and environment impacts of waste, (4) waste management shall be based on polluter pay principle, (5) waste is not a resource worthy of generating but to manage waste efficiently, it has to be treated as a resource, and (6) closing the loop as local as possible to reduce negative impacts of even recycling.





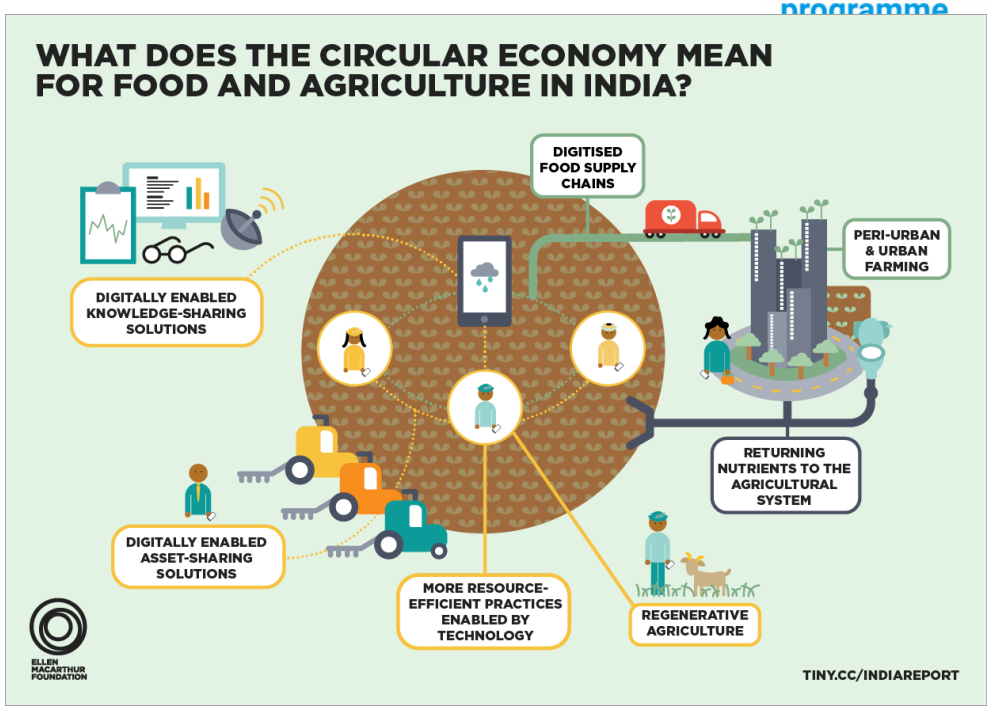
SUPPORT ON FOOD WASTE MANAGEMENT

- UNEP's focus on upstream to reduce food waste and downstream to convert food waste into a resource to close the loop.

- UNEP, under the Circular Economy concept, is supporting circular economy in agriculture and food sector to reduce food loss and food waste and to recycle back waste food into agricultural process and animal feed.

- UNEP has comprehensive support on waste agricultural biomass.

- Through SDG 12 and 10 Year Framework on Sustainable Consumption and Production, UNEP provides support on sustainable food systems.



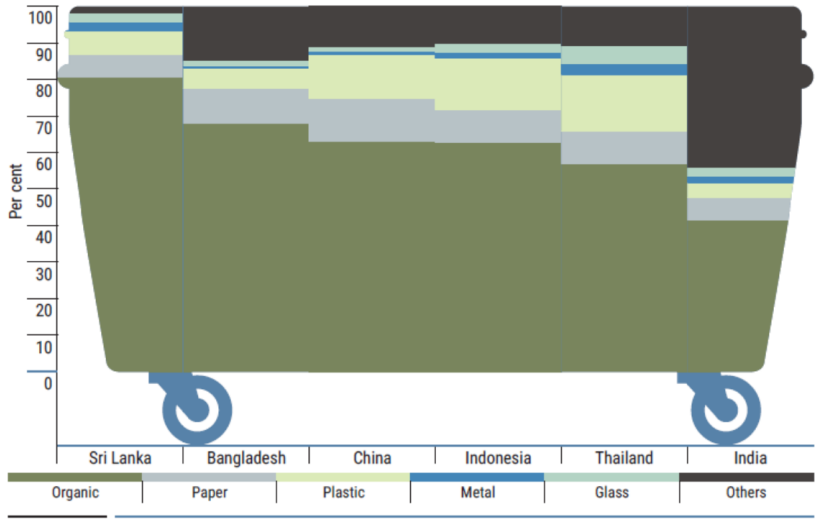


Figure 2.5 : Waste Composition in Various Countries in Asia

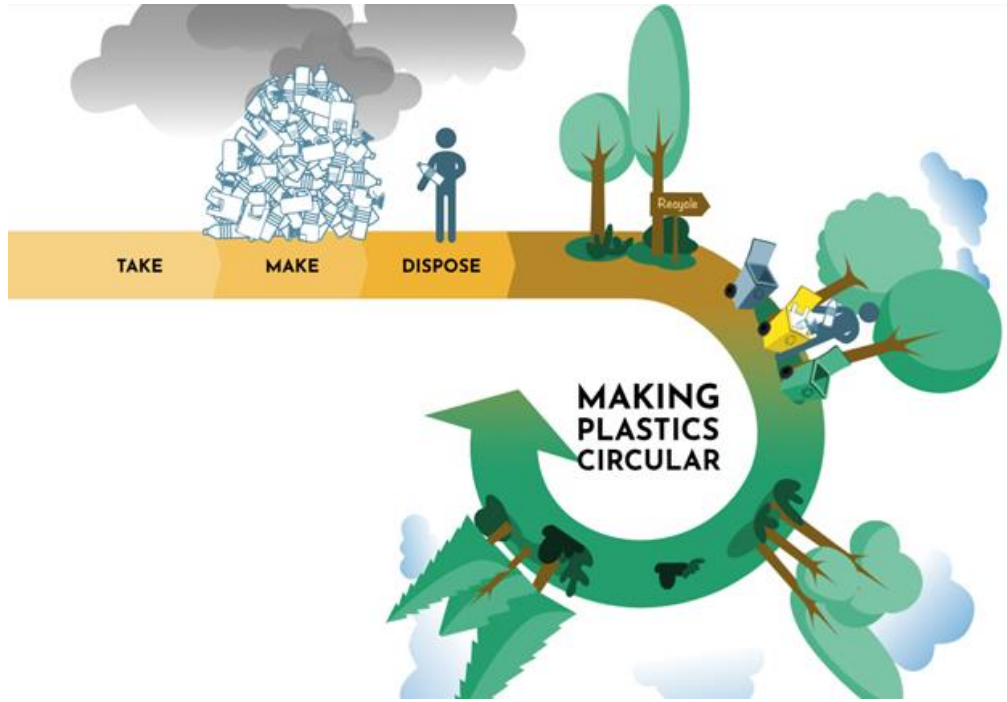
Source: Seventh Regional 3R Forum in Asia and the Pacific (Nov 2016).

SUPPORT ON WASTE PLASTICS MANAGEMENT

- UNEP's focus on upstream to reduce waste plastics and downstream to convert waste waste into a resource to close the loop.

- UNEP, under the Circular Economy concept, is supporting circular economy for plastics to assist in reducing wasted plastics and to increase cycling value of plastics by continuous recycling.

- UNEP has comprehensive support on waste plastics through various offices and initiatives including lifecycle initiative, Norwegian supported initiative on marine litter, SIDA supported project on plastic pollution and marine plastics, Japan supported counter-measure project for marine plastics, and EU funded SWTCH projects



CIRCULAR ECONOMY ASIA PACIFIC (CEAP)

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The Challenges

Natural Resources

In 2015, Asia and the Pacfic represents 63% of global material use.

GHG emissions

330% GHG emissions from the region grew by 330%, including increase in short-lived climate pollutants

Plastic

6,300 Mt of plastic waste has been generated as of 2015. Of this waste, 9% has been recycled, 12% incinerated, and 79% has accumulated in landfills or the natural environment.

Air pollution

70% Air pollution is responsible for more than 6.5 million deaths annually, the bulk of which – 70 %– occurs in Asia Pacific.

Source: APCAP, 2018

Circular Economy and the 2030 Agenda

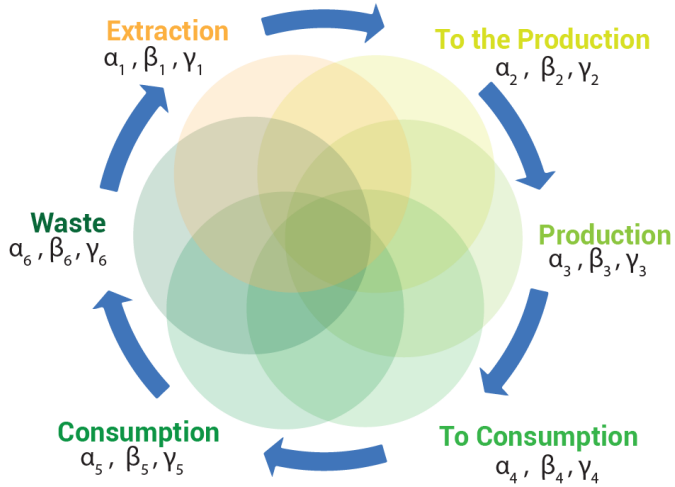
SDG 12 Responsible Consumption and Production

Current

Linear & Inefficient

Extraction $\alpha_1, \beta_1, \gamma_1$ → Transport $\alpha_2, \beta_2, \gamma_2$ → Production $\alpha_3, \beta_3, \gamma_3$ → Transport $\alpha_4, \beta_4, \gamma_4$ → Consumption $\alpha_5, \beta_5, \gamma_5$ → Waste $\alpha_6, \beta_6, \gamma_6$

Circular Economy



Benefits

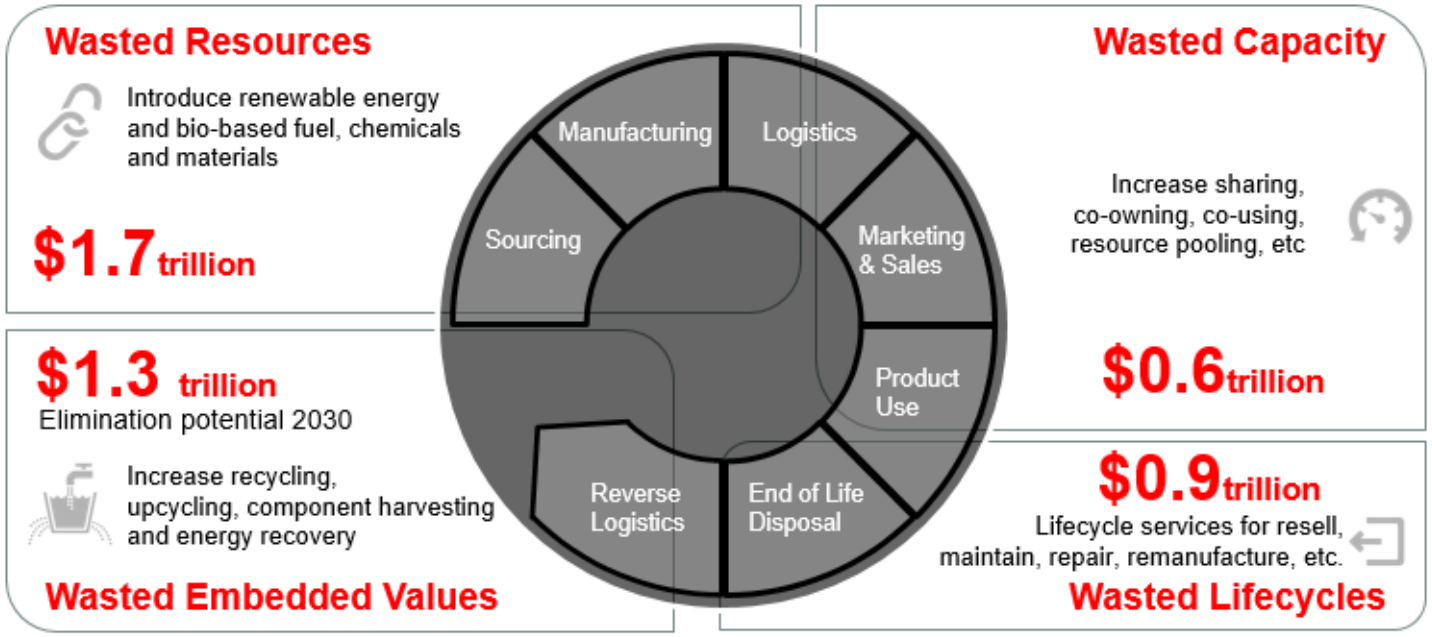
1. Efficiency in Cycle
2. Extended Life including 2nd (Refurbishment) & 3rd (Remanufacturing)
3. Green Supply Chain
4. Efficiency of Product Use

Improvement $\alpha - \Delta$, $\beta - \Delta$, $\gamma - \Delta$

Legend

- α = Resource Required
- β = Environmental Damage
- γ = Waste
- Δ = Reuse , recycle

Benefits of Circular Economy - India

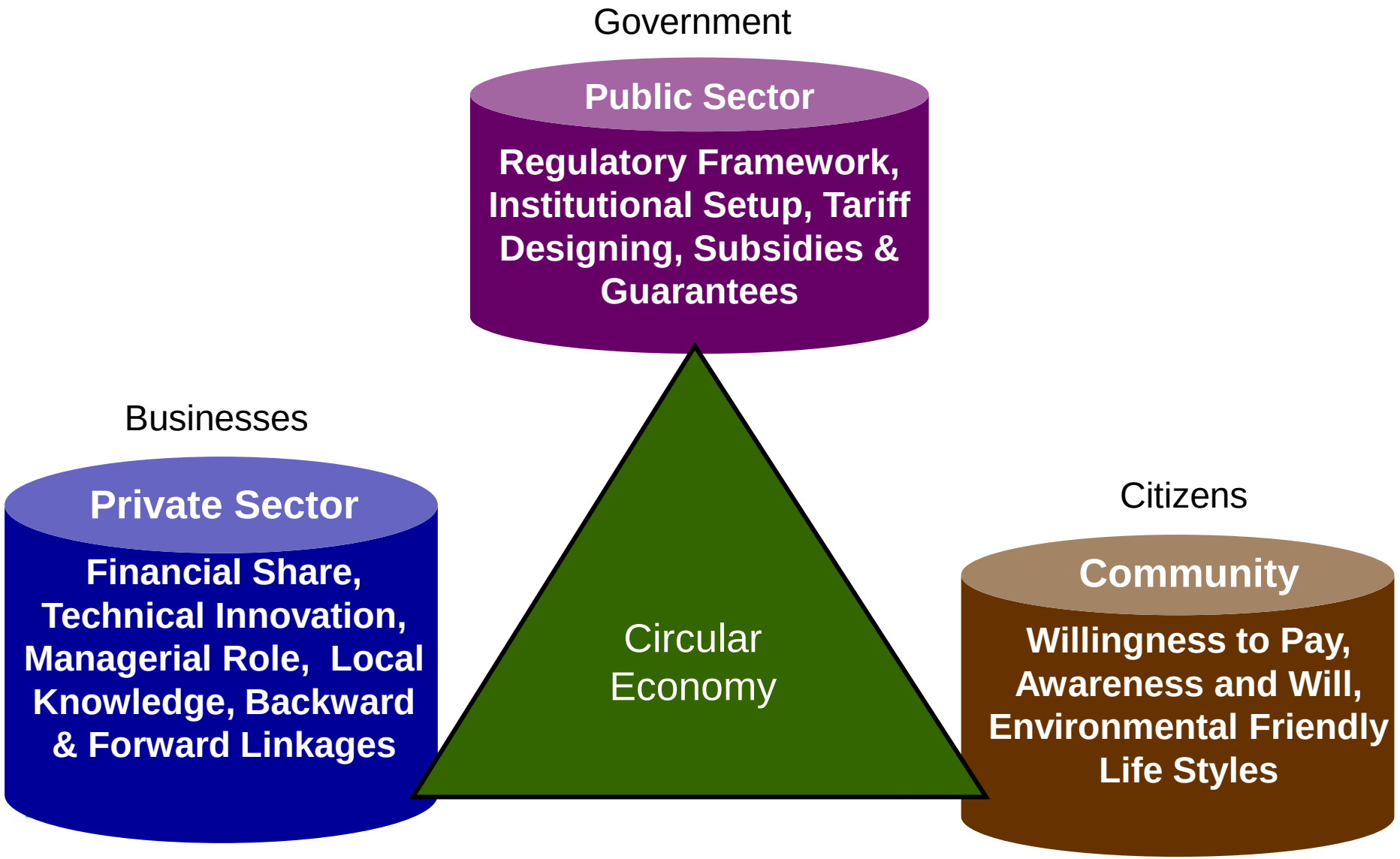


- **Wasted resources** are materials and energy that cannot be continually regenerated, but instead are consumed and forever gone when used.
- Products with **wasted lifecycles** have artificially short working lives or are disposed of even if there is still demand for them from other users.
- Product with **wasted capacity** sit idle unnecessarily; for instance, cars typically sit unused for 90% of their lives.
- **Wasted embedded values** are components, materials, and energy that are not recovered from disposed products and put back into use.

Creating Enabling Environment

- To bring member states on common “definitions” and “understanding” for all the aspects of waste management chain covering all the waste streams
- To assist member states in identification of gaps and solutions for sound waste management focusing on SMM
- To build regional and national capacity on legislative framework and financing mechanisms for supporting trade and investments across countries or within countries in waste management services and technologies
- Assist in developing B2B (business to business), B2C (business to consumer) and B2G (Business to Government) partnerships leading to build effective and efficient waste management service sector

UNEP support to Stakeholders



UNEP's toolkits and training

- Guidelines for Holistic Waste Management at national and city level
- Guidelines for Framework Legislation for Integrated Solid Waste Management
- Sustainability Assessment of Technologies
- Waste agricultural biomass to a resource
- Converting waste plastics into a resource
- Technologies for waste oils
- Treatment/Destruction of healthcare waste
- WEEE/e-waste management
- Waste and climate change
- Wastewater reuse
- Water use efficiency – every drop counts

- Quantification and characterisation of waste
- Assessment of current waste management system and gaps therein
- Target setting and stakeholders' concerns
- How to develop integrated solid waste management plan
- Sustainable Public Procurement (Green Public Procurement)
- Compendium of Technologies
- Assessment of waste plastics
- Assessment of E-waste
- Assessment of value chain for E-waste management and take-back system

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Global Waste Management Outlook 2024

Beyond an age of waste: Turning rubbish into a resource

Presenter Name
Location and date

The Global Waste Management Outlook 2024

- Developed in response to Resolution 2/7 from the second session of the United Nations Environment Assembly (UNEA-2)
- Reaffirmed in Resolution 4/7 from at UNEA-4
- GWMO 2024 provides:
  - updated assessment of global waste management and an analysis of data concerning municipal solid waste management
  - evaluates three potential scenarios of municipal waste generation and management
  - Forecasting waste's impact on society, the environment, and the global economy.
  - strategies for waste reduction and enhanced management

The triple planetary crisis and waste

Climate crisis	Pollution	Biodiversity loss
The collection, processing and disposal of solid waste generates carbon dioxide (CO_2) and other greenhouse gases and air pollutants, including methane (CH_4) released from waste disposal sites and black carbon emitted from open waste burning.	**Long-term pollution by waste, one of the main drivers of biodiversity loss, puts the integrity of ecosystems at risk**. For example, waste disposed of on land can cause long-term pollution of freshwater sources by pathogens, heavy metals, endocrine-disrupting chemicals and other hazardous compounds.	**Open burning of waste releases Unintentional Persistent Organic Pollutants (UPOS)**, "forever chemicals" that can be transported long distances in the air, concentrate in the food chain, and have significant negative effects on wildlife and human health including cancer and infertility.

The three scenarios and their assumptions

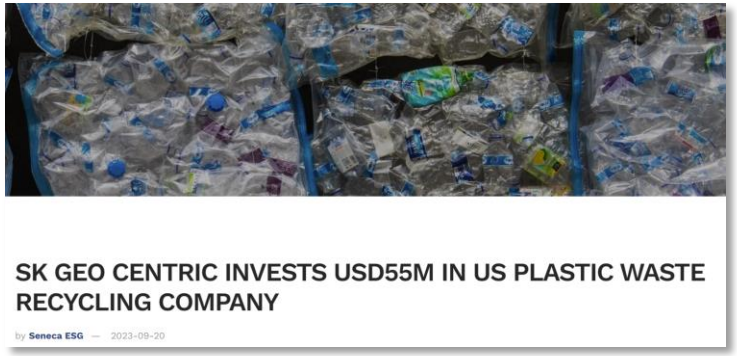
Waste Management as Usual (WMU)	Waste Under Control (WUC)	Circular Economy (CE)
Practices continue as today, with waste generation projected to grow fastest in regions without adequate waste management capacity.	A midway point, with some progress made towards preventing waste and improving its management.	Waste generation decoupled from economic growth, with the global MSW recycling rate reaching 60 per cent and the remainder managed safely.

Capacity Building on Plastic Waste Management and Circular Economy

- **Target countries and participants**
  16 participants from East Timor and Thailand, from waste-related governmental institutions and civil society

- **Modality and Duration**
  - Face-to-face meetings, field visits and workshop sessions
    - 2 days of technical/theoretical sessions led by UNEP
    - 3 days of visits to facilities and local government institutions dealing with plastic waste management in Ulsan and Busan
  - Special session on financing, open to the public, with the participation of private sector, industry associations, academia and other related stakeholders.

- **Republic of Korea to host INC-5 and WED 2025**



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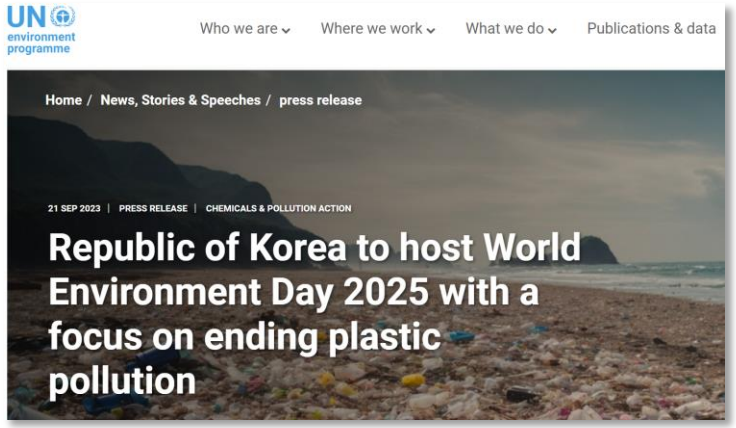

Thank you

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