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PROMOTING DECENTRALIZED AND INTEGRATED RESOURCE RECOVERY CENTERS IN SECONDARY CITIES AND SMALL TOWNS OF ASIA-PACIFIC



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UN-ESCAP and the Asia-Pacific region

- 53 members of UN-ESCAP
- 9 associated members
- 58% percent of world population
- 60% of the world's poor population
- 40% of the world's land area territory
- Rapid economic growth
- High population density
- ESCAP is the regional development arm of the United Nations and fosters:
 - Cooperation between its 53 members and 9 associate members for social and economic development in Asia-Pacific
 - Policy, normative and technical cooperation at the regional level

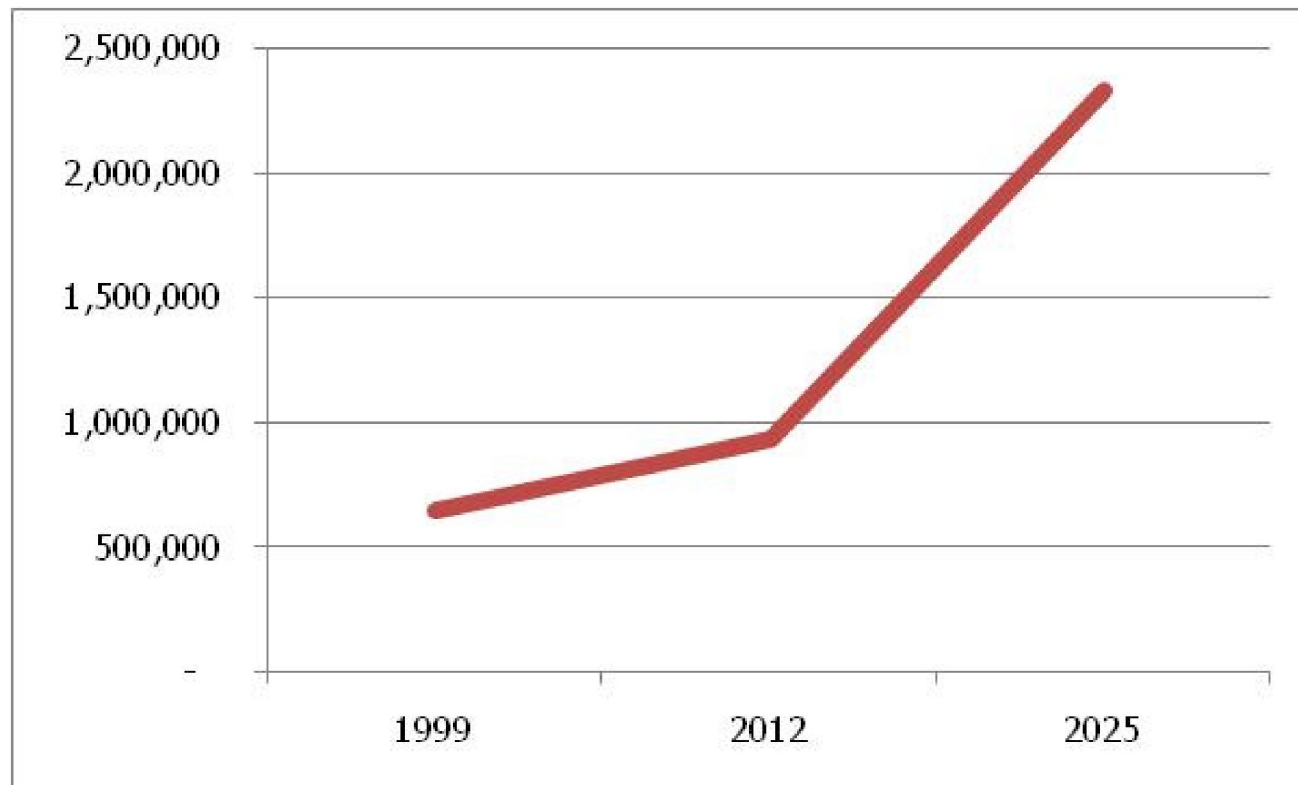


Urbanization in Asia-Pacific

- Asian cities are home to over half of the world's urban population, or 1.76 billion people (2010)
- Asia is estimated to reach 50 percent urbanization by 2026
- Two main trends in the urbanization rate of Asian cities:
 - The rapid demographic expansion: the Asian urban population is foreseen to almost double from 1.8 billion in 2010 to 3.3 billion by 2050
 - Asian urbanization is broad-based rather than concentrated in just a few cities
- 60% of the region's urban population lives in small and medium-sized cities, and will continue to do so for the next two decades
- Urbanization of poverty: 33% of urban citizens live in slums without proper housing, sanitation, water, electricity, waste collection and other services.

Municipal Solid Waste Trends

The rapid urbanization and economic growth accompanied by high consumption patterns is leading to increased solid waste generation in urban areas of Asia-Pacific.

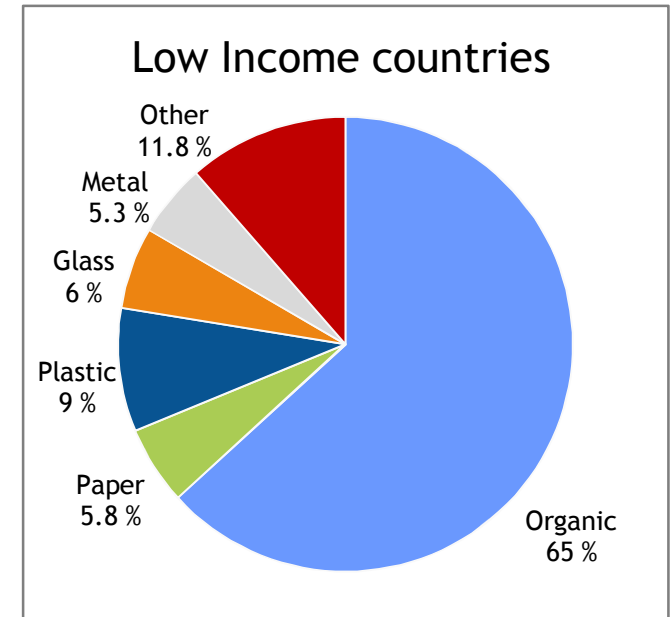
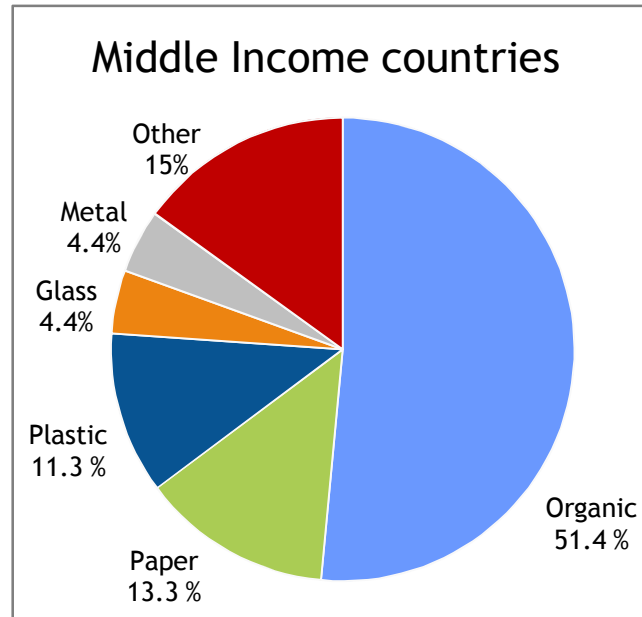
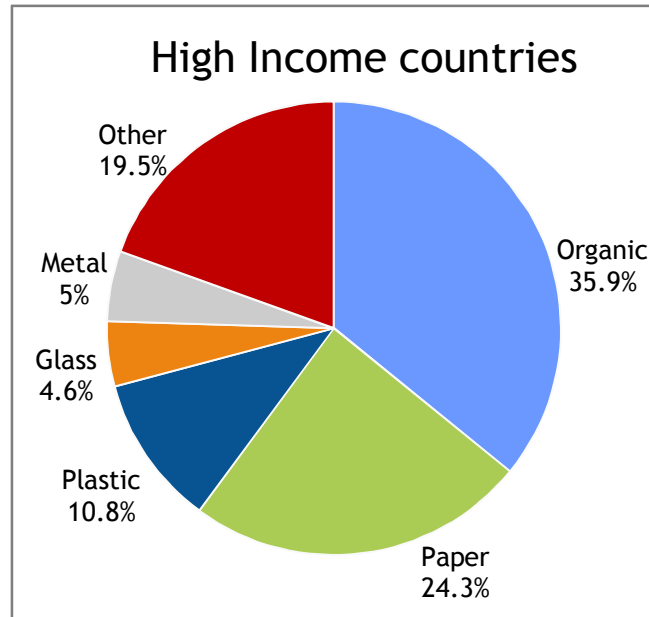


Solid waste generation (tons/day) in middle income developing countries in Asia-Pacific

Waste Composition patterns in Asia-Pacific

The high percentage of organic waste (50-70%) and recyclables (20-35%) in low and middle income countries of Asia-Pacific means that the majority of waste (85-90%) can be converted into valuable resources such as:

- Compost through aerobic treatment
- Bio-gas/electricity through anaerobic digestion
- Recycled materials



Current Solid Waste Management Practices

Current approaches to Solid Waste Management (SWM) focus on end-of-pipe solutions, such as open dumping and landfilling, which are not sustainable



Negative Externalities

Vermin and other disease vectors

Leachate
(pollution of water sources)

Odor Nuisance

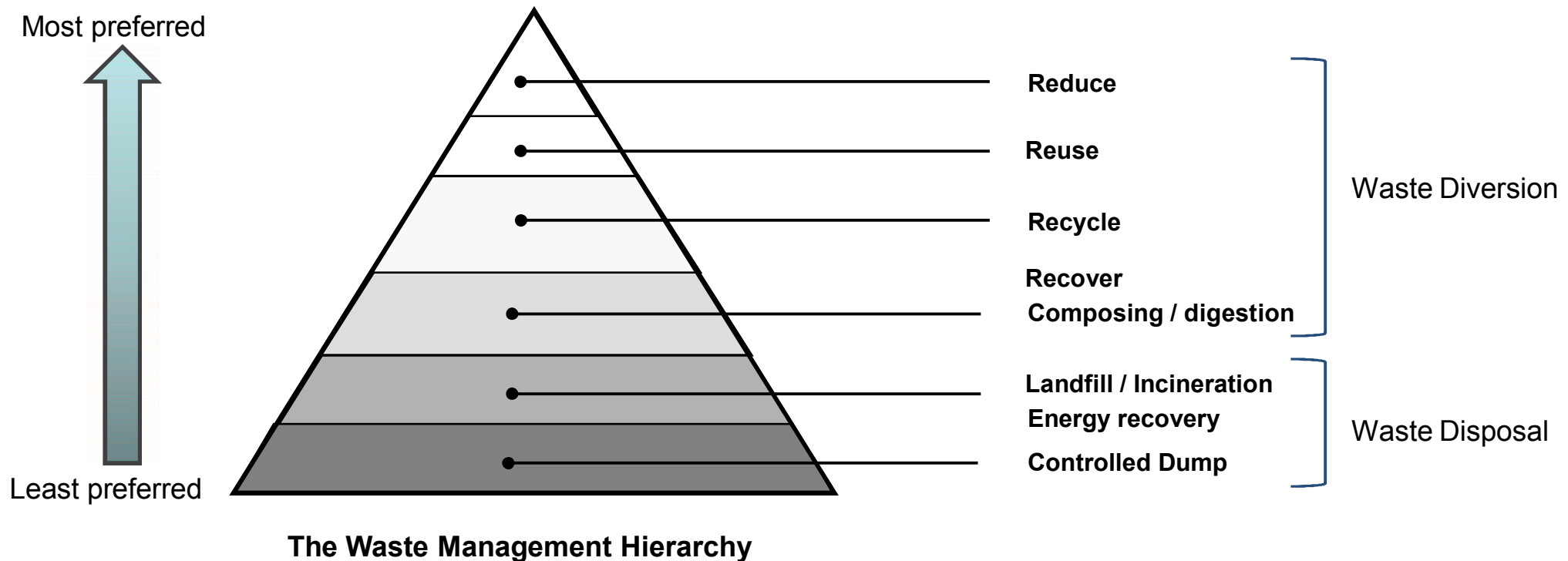
Methane Emissions
(a Greenhouse gas)

More Land Required for landfilling

▶ **The current paradigm is not sustainable and overlooks the enormous potential for turning waste into resources**

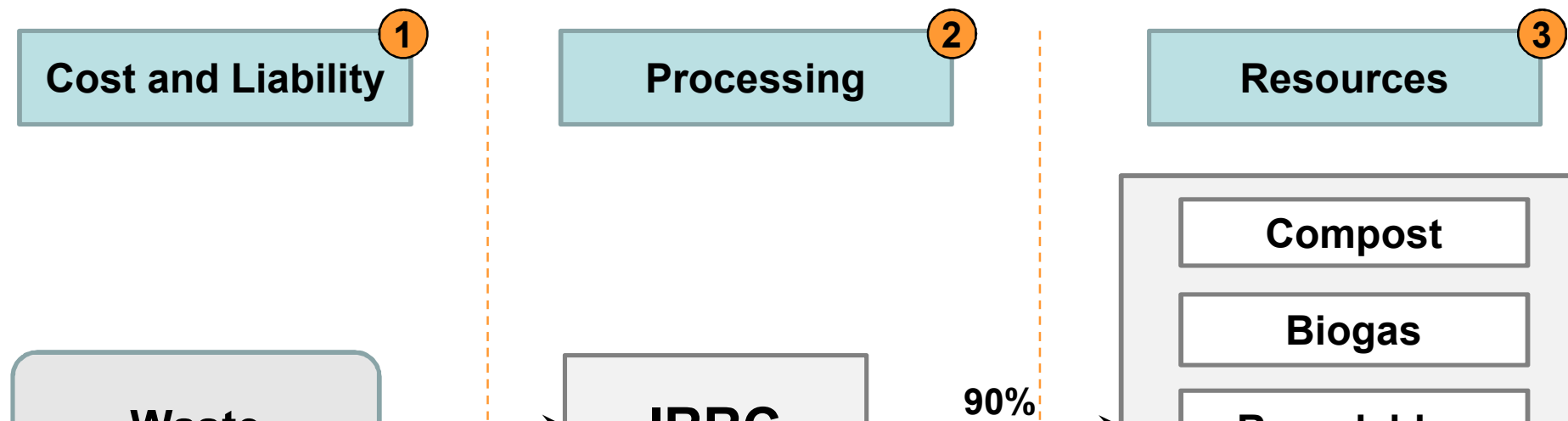
Paradigm shift and need for system change

There is a need to change towards a more systemic approach based on 3R principles, where value can be generated from waste, with potential for co-benefits along the three dimensions of sustainable development



The IRRC Approach and Concept

An **Integrated Resource Recovery Center (IRRC)** is a facility where a significant portion (80-90%) of waste can be processed in a cost effective way, in proximity to the source of generation, and in a decentralized manner. The IRRC concept is based on 3R principles.



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https://www.yunbaogao.cn/report/index/report?reportId=5_6567

