



## **Introducing Regional 3R Forum in Asia and the Pacific & Outcomes of Hanoi & Surabaya 3R Forum**

**NAGOYA PUBLIC FORUM ON 3Rs**

**24 April 2014,**

**Nagoya International Centre (NIC), Annex Hall**

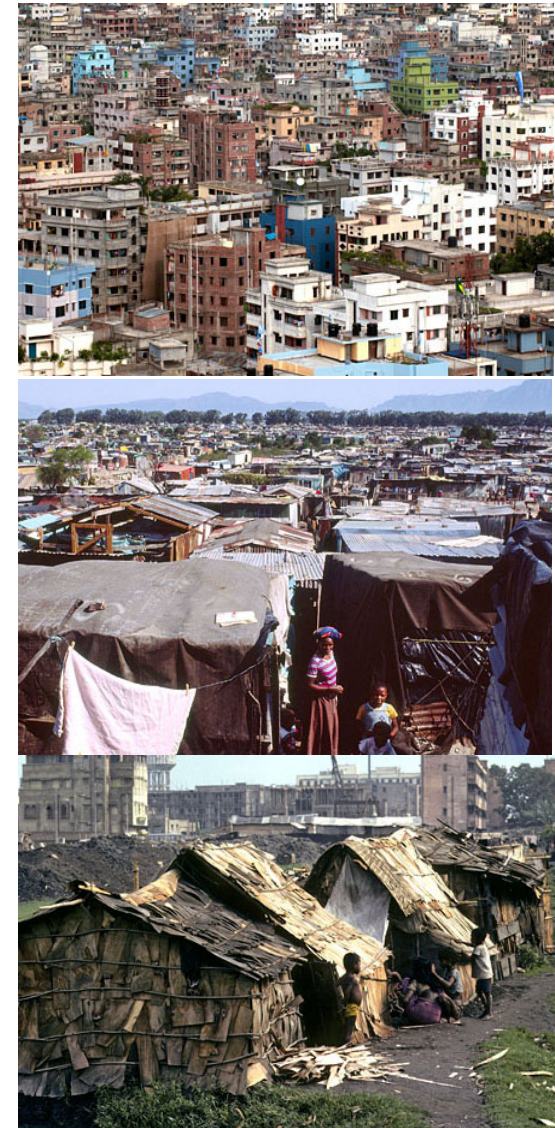
**Choudhury Rudra Charan Mohanty**

**Environment Programme Coordinator, UNCRD**

# Shared issues & challenges - urbanization trend and its impacts

## Facts and figures

- ✓ Today > 50% of the world population already live in cities & urban areas; expected to be > 70% by 2050, with almost all the growth occurring in the developing world.
- ✓ 95 per cent of urban expansion in the next four decades will take place in developing world, with Asia and African alone contributing > 86%.
- ✓ Over next four decades, Africa's urban population will soar from 414 million to over 1.2 billion & Asia from 1.9 billion to 3.3 billion
- ✓ Over the next four decades, India will add another 497 million to its urban population, China – 341 million, Nigeria – 200 million, the US – 103 million, and Indonesia – 92 million
- ✓ 828 million people live in slums today and the number keeps rising.
- ✓ The world's cities occupy just 2 per cent of the Earth's land, but account for 60-80 per cent of energy consumption, 75 per cent of carbon emissions, approximately 70% of global GDP, & consume 70% of all resources.
- ✓ Rapid urbanization is exerting pressure on fresh water supplies, sewage, the living environment, and public health.

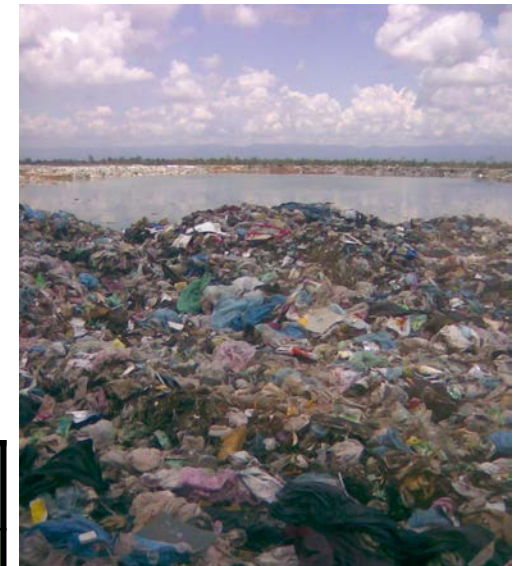


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# Challenges faced by Local Authorities (LAs)

## Generation of wastes – one of the most important by products of an unsustainable urban life style and consumption:

- Currently world cities generate about 1.3 billion tons of solid waste per year; the volume is expected to increase to 2.2 billion by 2025
- Globally solid waste management costs will increase from today's annual US\$205.4 billion to about US\$375.5 billion in 2025



(Data Source: World Bank, 2012)

2002	2.9 billion urban residents	0.64 kg/capita/day of MSW generation (total = .68 billion tons / year)
2012	3 billion urban residents	1.2 kg/capita/day of MSW generation (total = 1.3 billion tons/year)
2025	4.3 billion urban residents	1.42 kg/capita/day of MSW generation (total = 2.2 billion tons/ year)

- Cities often spend between 5 to 15 per cent of their total budget on solid waste management. **In low-income countries, 90 per cent or more of that budget is spent on waste collection alone, while only 45 to 60 per cent of the waste is actually collected.**



Providing waste collection to all the people, while raising the environmental standards of waste disposal, is a major challenge for Local Authorities (LAs), which lack required institutional, financial and technical capacity.



“Moving towards zero waste is inherently a multi-stakeholder process which calls for partnerships within and between communities, businesses, industries, and all levels of government.”

## Widespread open dumping has paralyzed many cities ...



*Waste dumps potentially serve as breeding ground for Malaria, thus having implications in achieving MDGs.*

People living in a place 20 times above safe level of lead, arsenic, nitrogen.....



Source: ADB (2004)

Many children waste pickers at the highly polluted dumping site...



**How can we achieve MDG 2: Achieve universal primary education?**

# Conventional waste management and the consequences .....

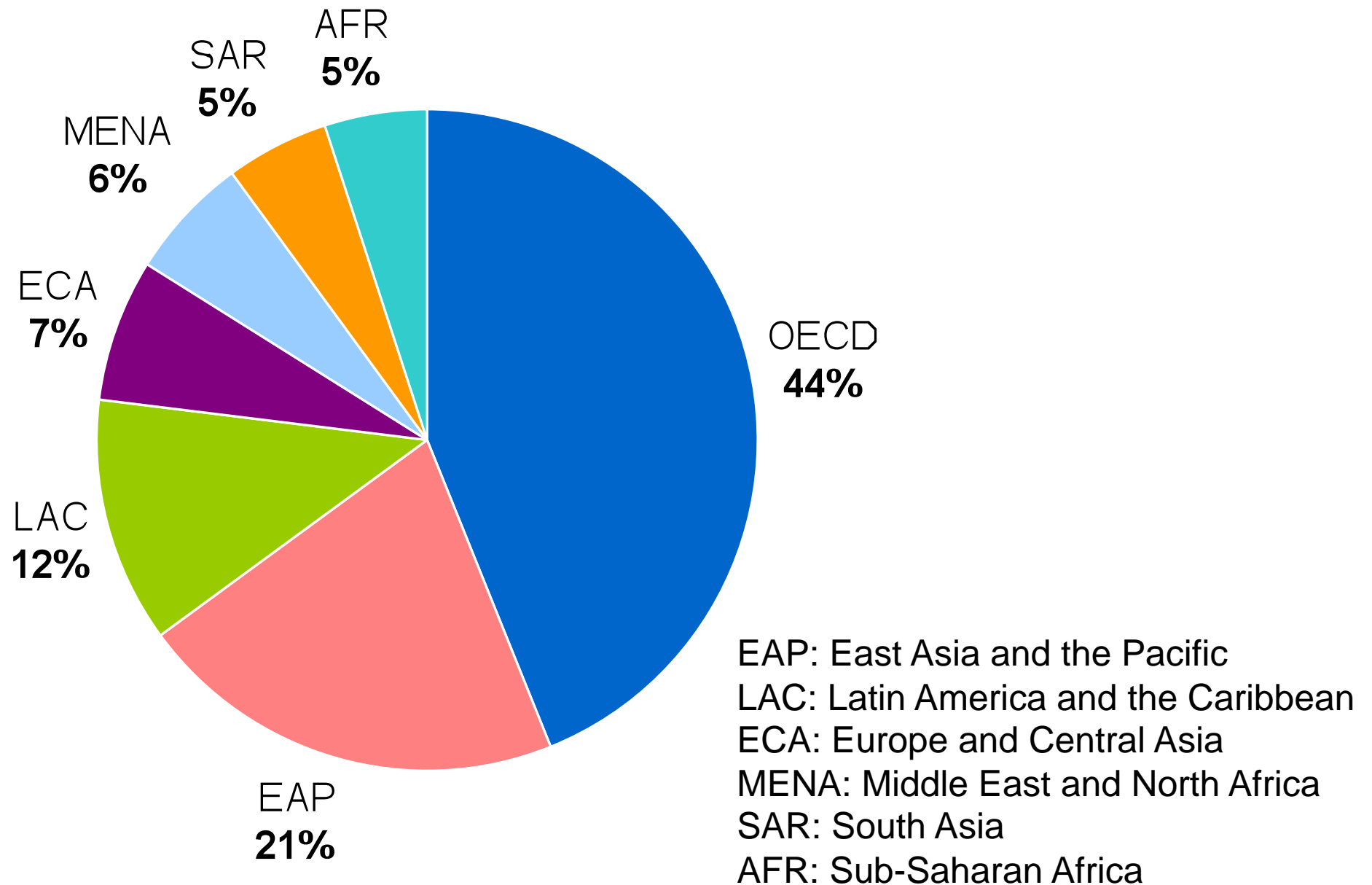


*Highly contaminated leachate seeps untreated into groundwater, a source of drinking water....*

*Water availability is an emerging issue in many countries and some are already heading towards water stress, but water quality deterioration because of industrial discharges and municipal sewage, agrochemicals will further accelerate the issue!*

Source: ADB (2004)

Eric Sates

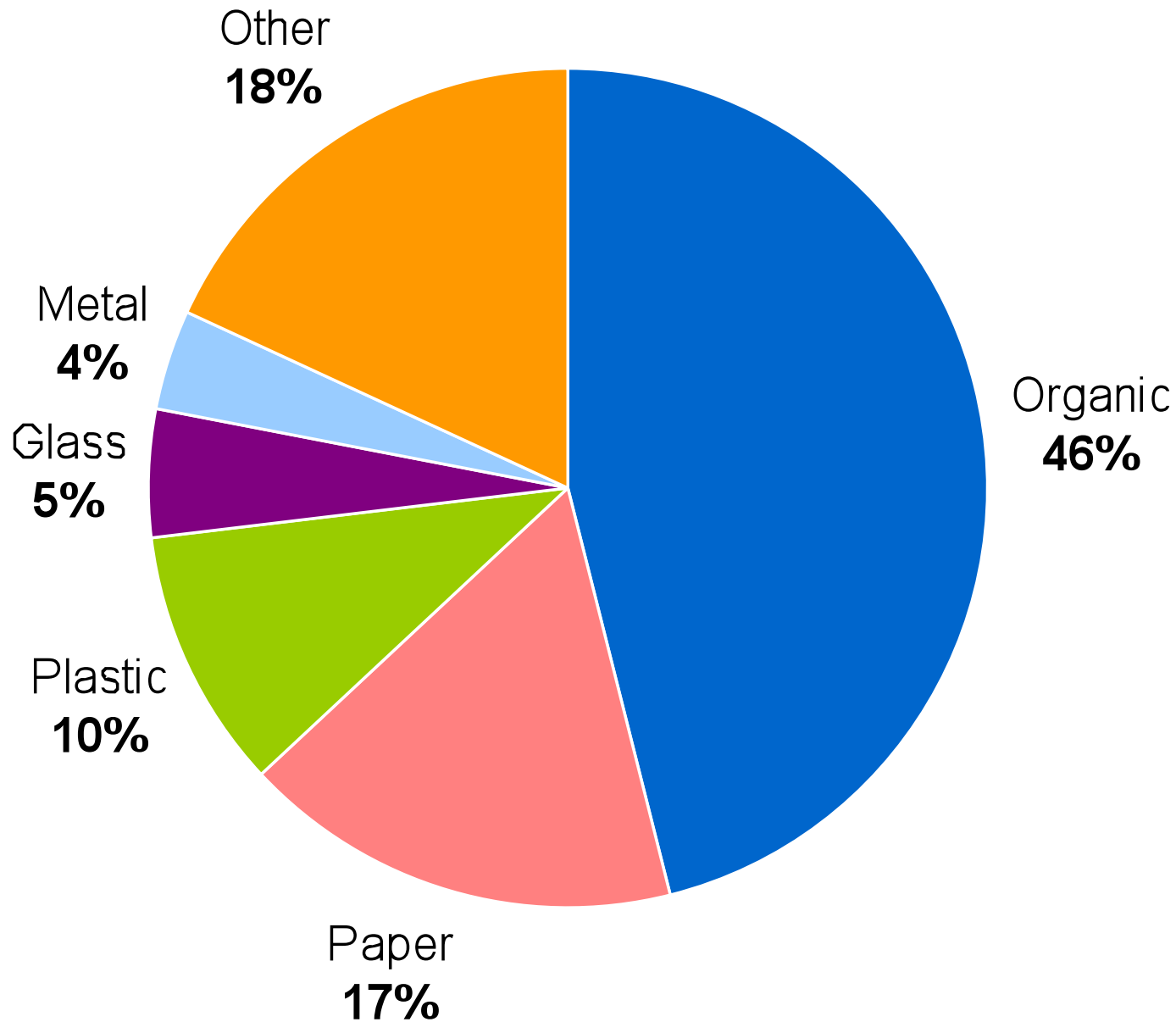


## Waste Generation by Region



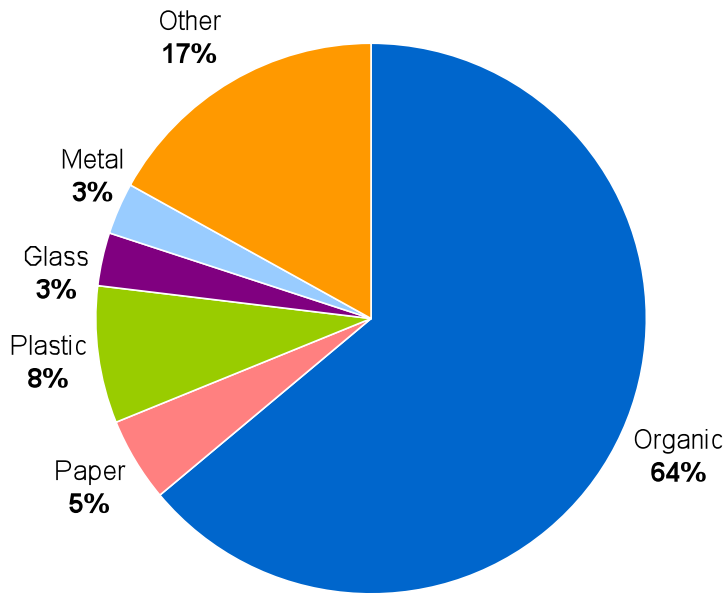
# Waste Generation Projections for 2025 by Region

Region	Current Available Data			Projections for 2025			
	Total Urban Population (millions)	Urban Waste Generation		Projected Population		Projected Urban Waste	
		Per Capita (kg/capita/day)	Total (tons/day)	Total Population (millions)	Urban Population (millions)	Per Capita (kg/capita/day)	Total (tons/day)
Sub-Saharan Africa	260	0.65	169,119	1,152	518	0.85	441,840
East Asia and the Pacific	777	0.95	738,958	2,124	1,229	1.5	1,865,379
Europe and Central Asia	227	1.1	254,389	339	239	1.5	354,810
Latin America and Caribbean	399	1.1	437,545	681	466	1.6	728,392
Middle East and North Africa	162	1.1	173,545	379	257	1.43	369,320
OECD	729	2.2	1,566,286	1,031	842	2.1	1,742,417
South Asia	426	0.45	192,410	1,938	734	0.77	567,545
<b>Total</b>	<b>2980</b>	<b>1.2</b>	<b>3,532,252</b>	<b>7,644</b>	<b>4,285</b>	<b>1.4</b>	<b>6,069,703</b>

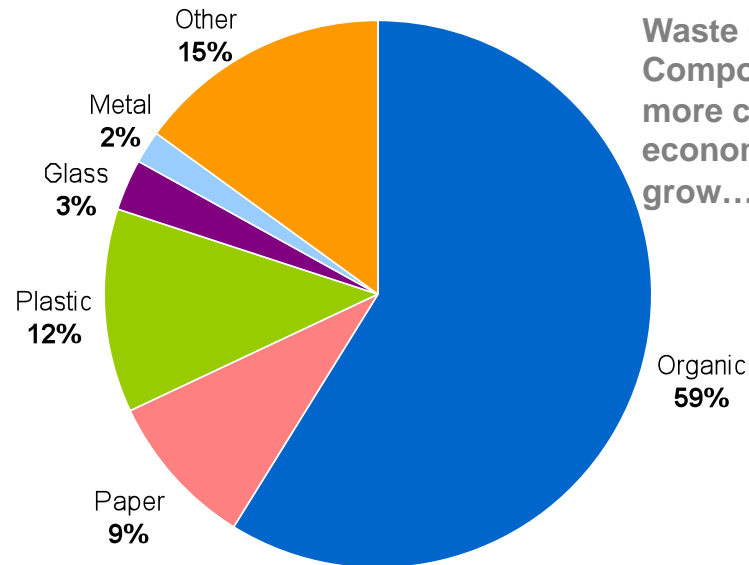


## **Global Solid Waste Composition**

Source: What a Waste: A global Review of Solid Waste Management (World Bank, 2012)



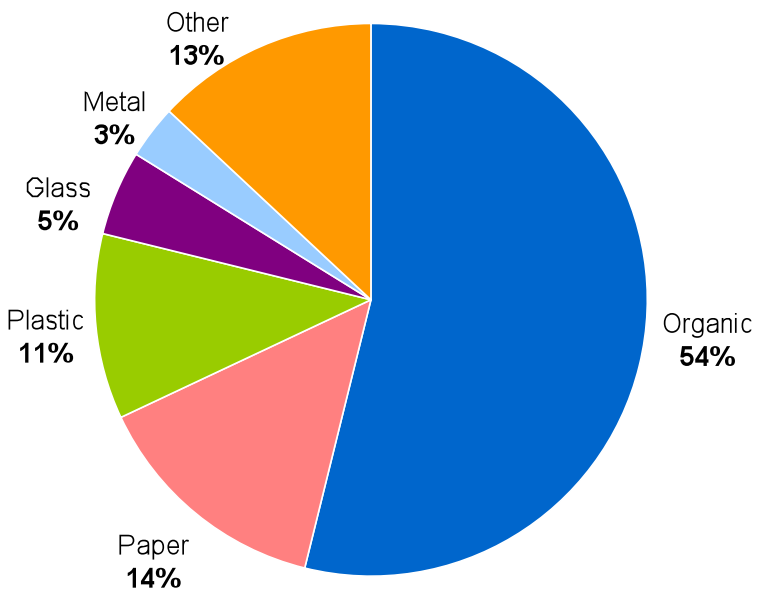
**Waste Composition in Low-Income Countries**



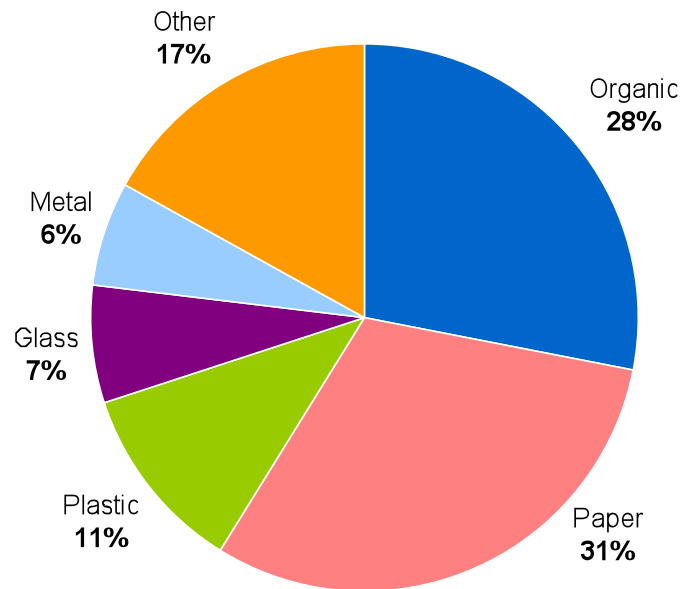
**Waste Composition in Lower Middle-Income Countries**

**Waste Composition by Income - Composition of waste becomes more complicated as the countries economically & industrially grow.....**

- New emerging waste streams such as **e-waste, and industrial wastes (including hazardous waste construction and demolition waste, end-of-life vehicles, healthcare waste, etc.)** further compound the pressure to the local environment....

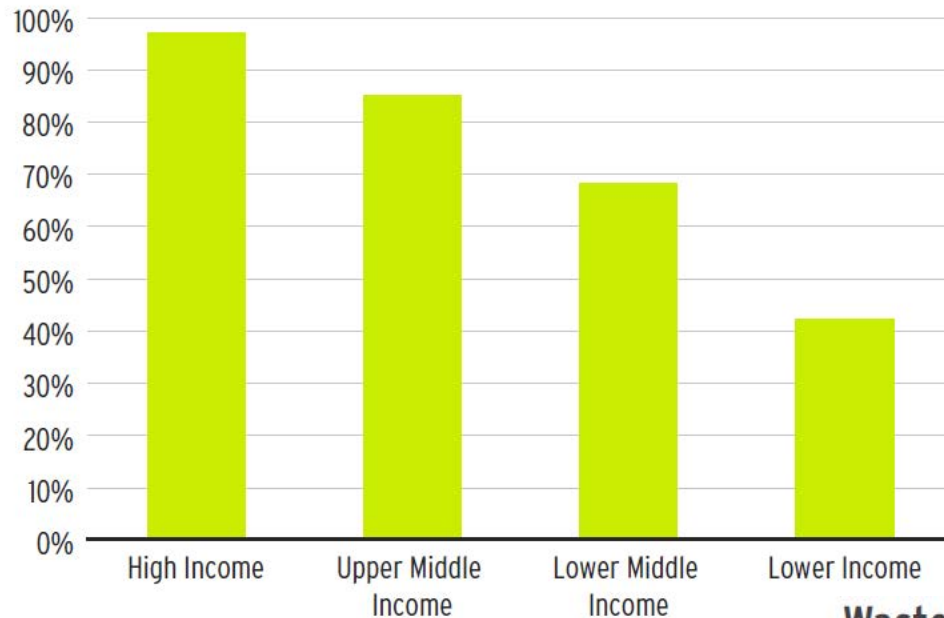


**Waste Composition in Upper Middle-Income Countries**

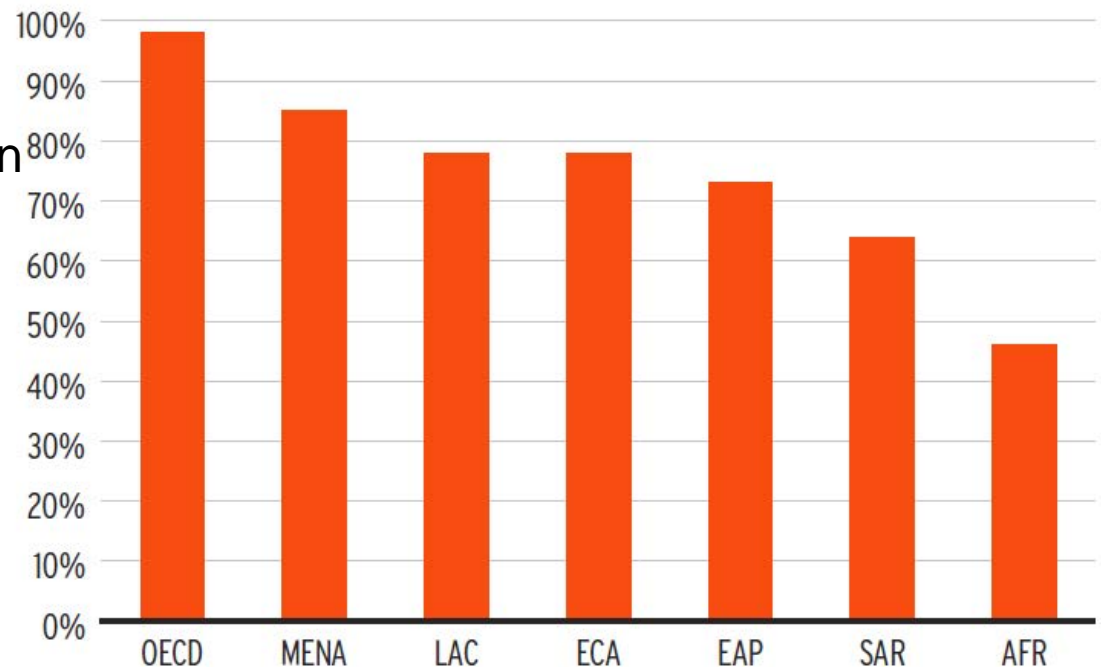


**Waste Composition in High-Income Countries**

## Waste Collection Rates by Income

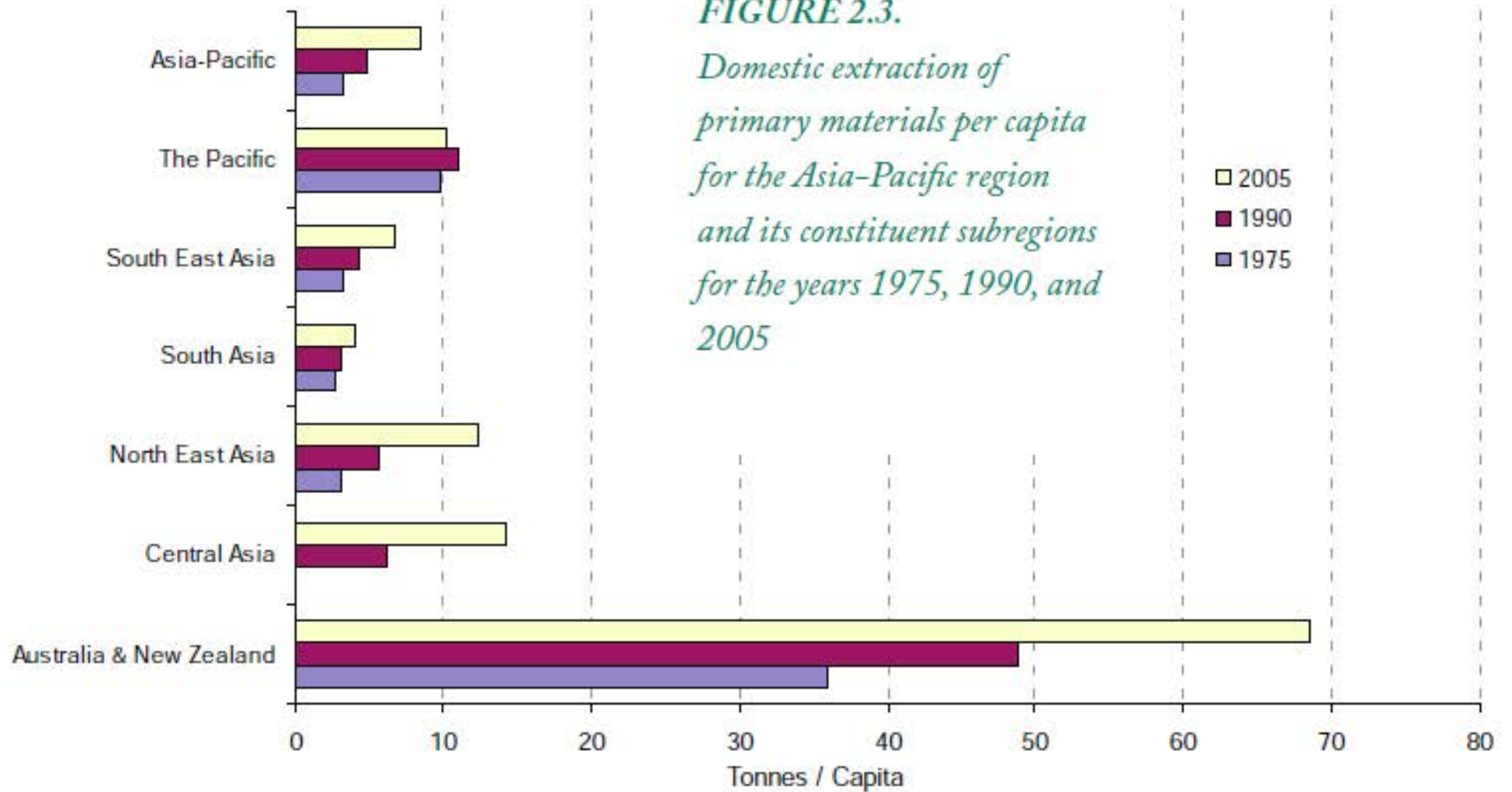


## Waste Collection Rates by Region



EAP: East Asia and the Pacific  
LAC: Latin America and the Caribbean  
ECA: Europe and Central Asia  
MENA: Middle East and North Africa  
SAR: South Asia  
AFR: Sub-Saharan Africa

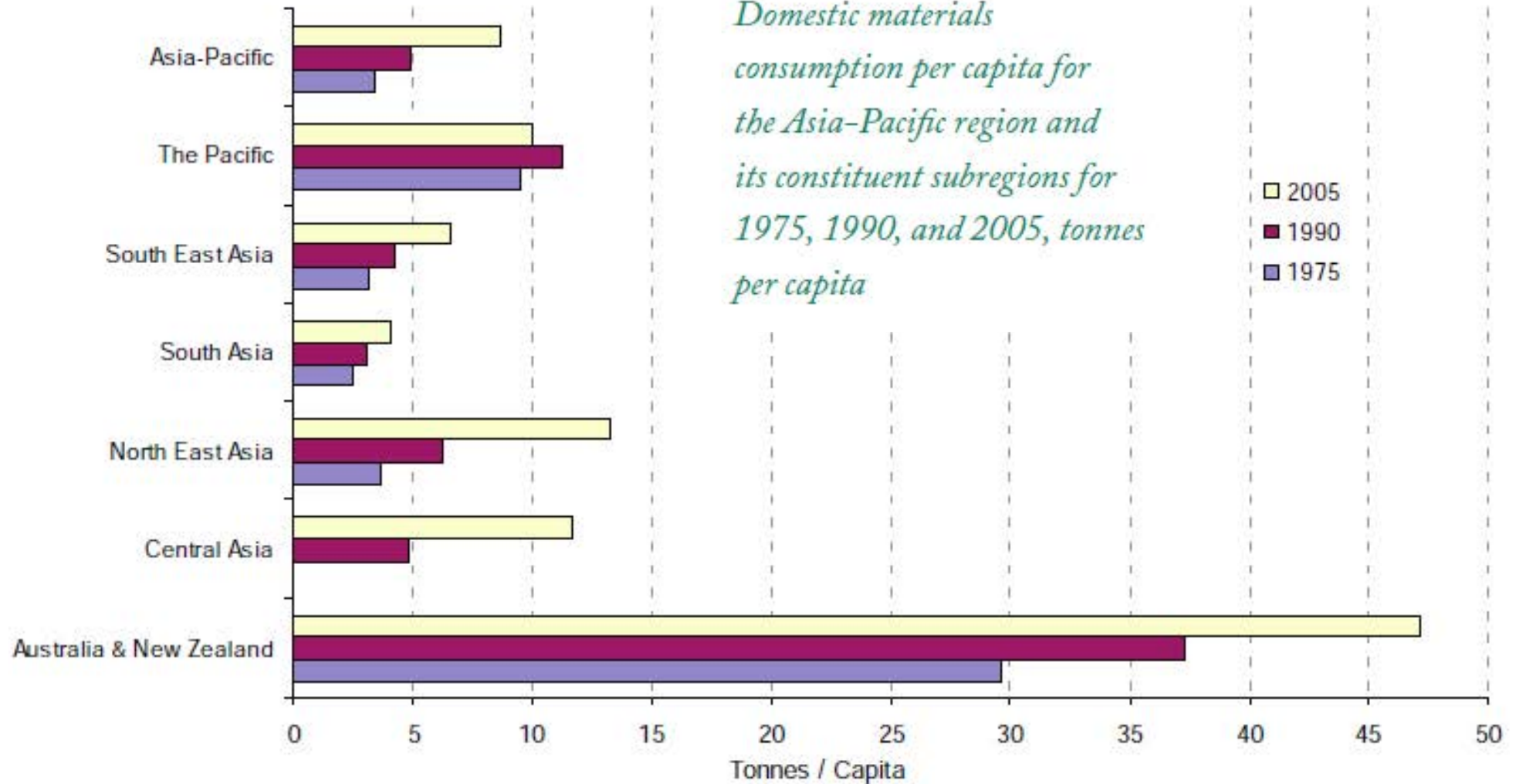
**FIGURE 2.3.**  
*Domestic extraction of  
 primary materials per capita  
 for the Asia-Pacific region  
 and its constituent subregions  
 for the years 1975, 1990, and  
 2005*



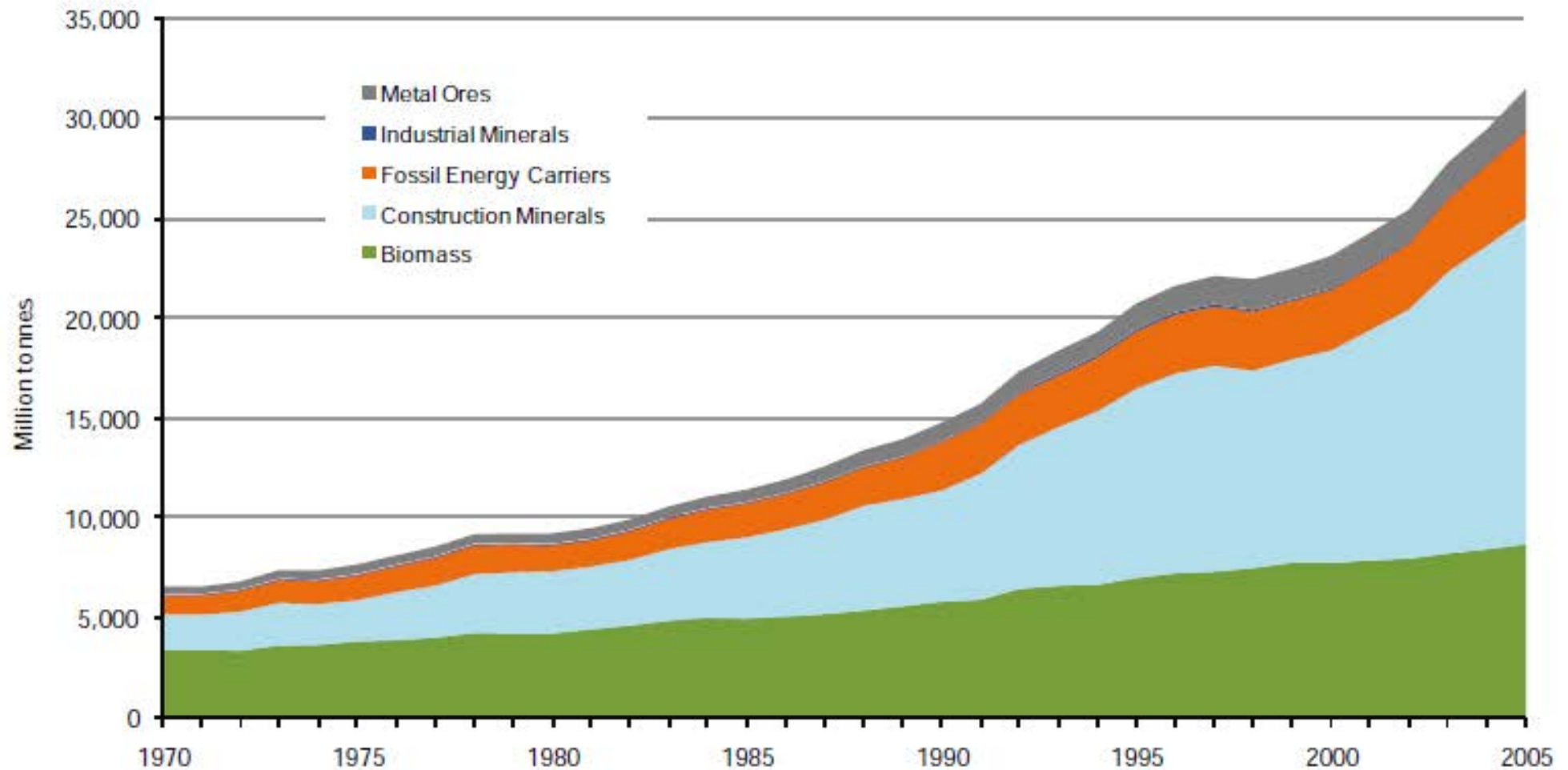
Source: Resource Efficiency: Economics and Outlook for Asia and the Pacific (UNEP, CSIRO, 2011)

**FIGURE 2.5.**

*Domestic materials  
consumption per capita for  
the Asia-Pacific region and  
its constituent subregions for  
1975, 1990, and 2005, tonnes  
per capita*



Source: Resource Efficiency: Economics and Outlook for Asia and the Pacific (UNEP, CSIRO, 2011)

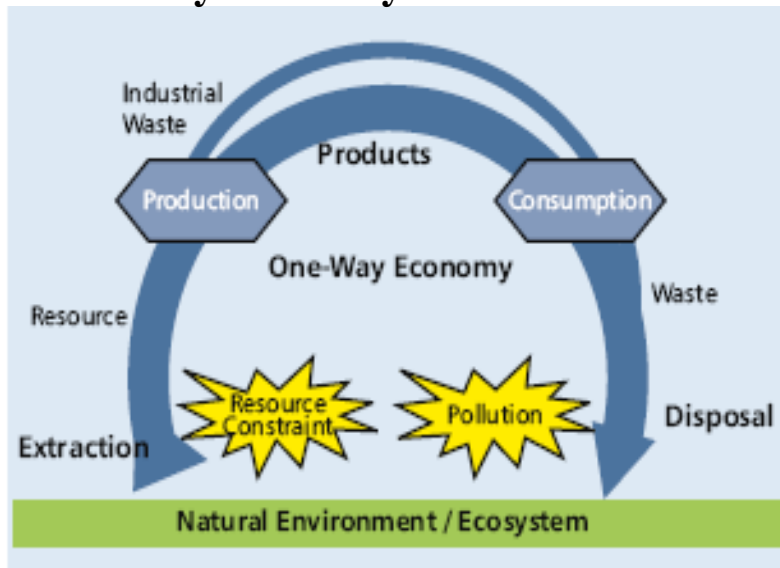


**FIGURE 2.6.**  
*Domestic extraction in the  
 Asia-Pacific region by major  
 category of material for the  
 years 1970–2005*

Source: Resource Efficiency: Economics and Outlook for Asia and the Pacific (UNEP, CSIRO, 2011)

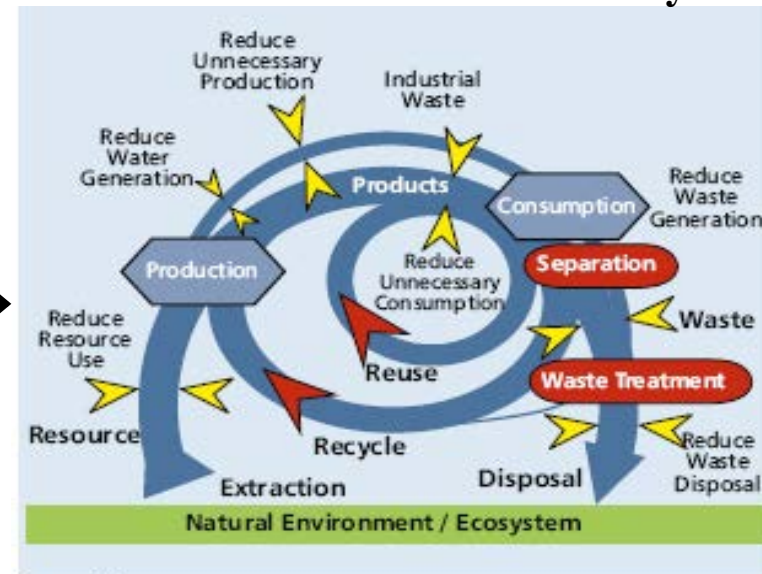
It will be a big challenge to establish a resource efficient society as urbanization & industrialization continue to grow in parallel...

### 1. One-way Economy?



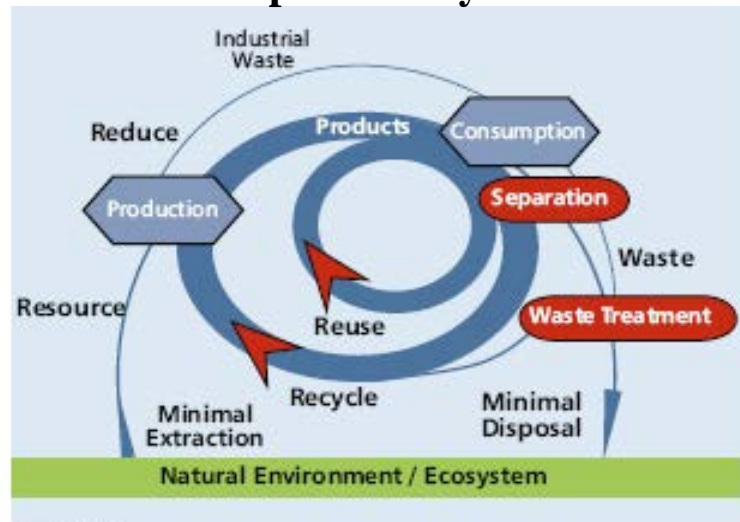
Source: ADB.

### 2. More resource efficient economy?



Source: ADB.

### 3. Closed Loop Economy?



Source: ADB.

Resource efficiency => minimize per unit product or services

- Raw material input ↓
- Water input ↓
- Energy input ↓
- Emission, pollution, waste generation ↓



# Regional 3R Forum in Asia-Pacific

(a joint initiative of UNCRD and MoE-Japan)

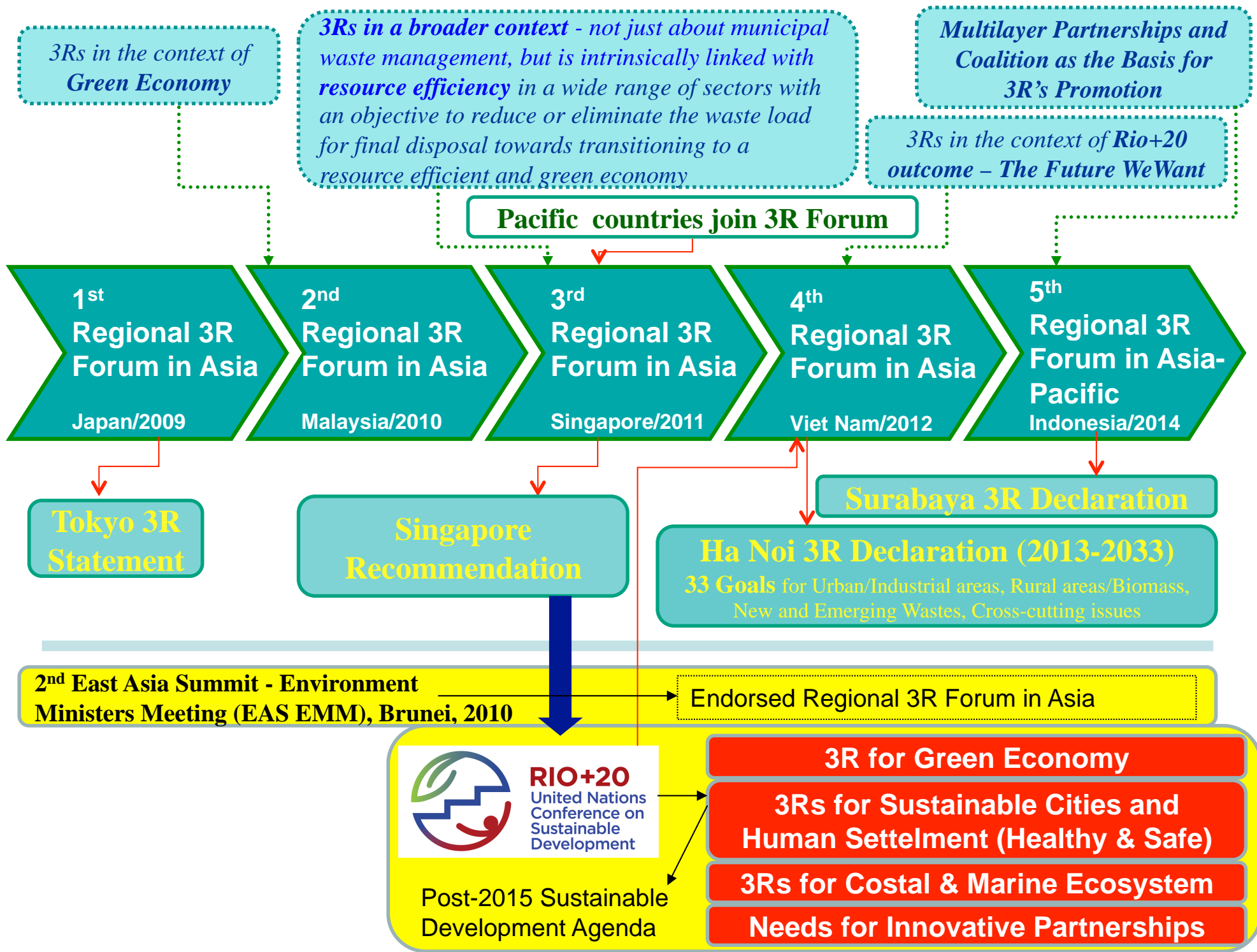
**Goal:** To achieve low carbon and sound material cycle societies in Asia through facilitating bilateral and multilateral cooperation for increasing resource and energy efficiency through the 3Rs, and for promoting environmentally sound management of wastes in the region; to set in motion a regional mechanism to address 3R issues, needs and priorities in Asian countries, including emerging issues of concern in waste management (Tokyo 3R Statement, 2009).



(Photo: 5<sup>th</sup> Regional 3R Forum in Asia and the Pacific, Surabaya, Indonesia, 25-27 Feb 2014)

## **Objectives:**

- (a) facilitate **high-level policy dialogues** on 3R issues, challenges, & opportunities;
- (b) facilitate **improved dialogue and cooperation with international organizations and donor communities** for materializing and implementation of 3R projects at local and national level identified through national 3R strategies;
- (c) provide a **strategic and knowledge platform** for sharing experiences and disseminating among Asian countries best practices, tools, technologies, policy instruments on various aspects of the 3Rs;
- (d) provide a platform to develop **multilayered networks of and partnerships among stakeholders** such as governments, academia, scientific and research community, private sector, and NGOs;
- (e) generate international consensus and understanding on the beneficial aspects of the 3Rs in the context of achieving **MDGs, resource and energy efficiency, resource efficient economy, and climate change mitigation**; and to
- (f) provide a platform for **proliferation of national 3R strategies** in developing countries.



# Ha Noi 3R Declaration

## - Sustainable 3R Goals for Asia and the Pacific for 2013-2023

Adopted at the Fourth Regional 3R Forum in Asia, 18 -20 March 2013, Ha Noi, Viet Nam  
(more than 300 participants from 30 Asia-Pacific countries)



- aims to provide an important basis and framework for Asia-Pacific countries to voluntarily develop and implement 3R policies and programs, including monitoring mechanisms, towards transitioning to a resource efficient and zero waste society.

Consisting of 33 goals under the following areas:

- I. 3R Goals in Municipal/Urban areas (4 Goals)
- II. 3R Goals in Industrial Areas (5 Goals)
- III. 3R Goals in Rural/Biomass Areas (2 Goals)
- IV. 3R Goals for New and Emerging Wastes (5 Goals)
- V. 3R Goals for Cross-cutting Issues (17 Goals)



# Composition/Areas of Focus of Hanoi 3R Declaration (2013-2023)

MSW/Urban areas	Industrial Waste	Rural/Biomass	New & Emerging Wastes	Cross-cutting areas (17 Goals)
<ul style="list-style-type: none"> <li>-Significant reduction in MSW</li> <li>-Full scale utilization of organic /food waste</li> <li>-Policies, institutional and financial mechanism for recycling industries</li> <li>-Sustainable cities/green cities through multi-stakeholders partnerships/ PPPs</li> </ul>	<ul style="list-style-type: none"> <li>-Resource efficiency measures in SMEs</li> <li>-Greening the entire value chain (industries and associated, suppliers, vendors)</li> <li>-Industrial symbiosis</li> <li>-Greening SMEs through capacity building</li> <li>-Proper classification &amp; inventory of industrial/hazardous wastes</li> </ul>	<ul style="list-style-type: none"> <li>-Reduce losses in the overall food supply chain (production, post harvesting and storage, processing and packaging, distribution)</li> <li>-Promote full scale use of agricultural biomass waste and livestock waste to achieve a number of co-benefits including GHG emission reduction and energy security, sustainable livelihoods in rural areas and poverty reduction</li> </ul>	<ul style="list-style-type: none"> <li>-Issue of plastics in coastal &amp; marine environment</li> <li>-Environmentally sound management of e-waste</li> </ul>	<ul style="list-style-type: none"> <li>-Resource efficiency and greening jobs in all economic &amp; dev. Sectors</li> <li>-Co-benefits in other sectors (air, water, land, ocean, climate) from waste management</li> <li>-Knowledge base &amp; research network on 3Rs</li> <li>-Multi-stakeholders partnerships, behavioral changes of citizens</li> <li>-3Rs in formal education</li> <li>-Interagency coordination at local and national level</li> <li>-Green procurement at all levels</li> <li>-Phase out harmful subsidies that favour unsustainable use of resources/raw materials</li> <li>-Public health and ecosystem</li> <li>-Support Basel</li> <li>-Waste to energy</li> <li>-Improved data/information</li> <li>-Regional cooperation and multi-layer cooperation/partnerships</li> <li>-Informal sector /elimination of illegal engagement of children / mandatory health insurance for all workers / decent working condition</li> <li>-3R + “Return” for SIDS</li> <li>-Gender considerations</li> </ul>

# Key messages from 4<sup>th</sup> Regional 3R Forum in Asia-Pacific

- Sustainable resource use will be instrumental for Asia to ensure socio-economic development in a world in which **resources are more constrained and the absorptive capacity of ecosystems is decreasing rapidly**
- The region is faced with a number of critical challenges when it comes to **integration of resource efficiency in overall policy, planning, and development.**
- Many countries have become **net importers of raw materials** (fossil fuel, metals, timber, and other natural resources), the rapidly increasing volume, **changing characteristics of urban and industrial waste**, rising population, increasing consumption and per capita waste generation have posed serious challenges for the sustainability of the region.
- **resource-efficient economic behaviour** is important in Asia because of its large population, population density, its growing dependence in sourcing natural resources from global markets, and the need to **improve the material standard of living of its people.**
- Change will not occur spontaneously but will require **well designed policies**
- 3Rs and resource efficiency measures provide **employment and green job opportunities**
- resource and waste management challenges of the twenty-first century will be comprehensively addressed by 3R policy initiatives and policy measures to **achieve an inclusive and green economic development** of Asia and the Pacific.
- **Urged special attention to SIDS issues** with 3R + “Return” due to limited recycling industries and infrastructure and limited scale of markets

# 5<sup>th</sup> Regional 3R Forum in Asia and the Pacific,

25-27 Feb 2014, Surabaya, Indonesia



- Co-organized by Government of Indonesia, Ministry of the Environment of Japan (MoEJ), and the United Nations Centre for Regional Development (UNCRD)

- 500 participants from 33 Asia-Pacific countries; more than 23 private sectors; 39 cities and local governments; more than 20 international and UN organizations; more than 10 research and scientific institutions; 13 SIDS (Small Island Developing States).

*called for multilayer partnerships and collaboration within and between communities, businesses, industries, all levels of government, scientific and research institutions, international organizations, development banks, academia and the United Nations system for moving towards a resource efficient and sound material cycle based society that will require considerable and sustainable investment and resource mobilization, including technological interventions, institutional capacity-building, and development of 3R infrastructures, programmes and projects such as - eco-industrial zones, science parks, eco-cities, waste recovery facilities, waste-to-energy schemes, greening small and medium enterprise (SME) operations, green products and eco-labelling schemes, biomass to composts and energy in rural areas, etc.,*

## Key Messages and Recommendations of 5<sup>th</sup> Regional 3R Forum in Asia-Pacific, 25-27 Feb 2014

⇒ **Wastes and emissions are intrinsically linked with overall resource use**; natural resources and ecological assets are being used at increasing rate enabling economic growth and fuelling unprecedented grow of cities;

⇒ The goal of improving **resource efficiency and reducing the waste and emission intensity** for Asia-Pacific economies has become a **significant driver** of government policies and programs;

⇒ establishing **new forms of cooperation and partnerships** between govt, business, community will underpin successful implementation of 3Rs.

⇒ 3R needs to be linked to **other policy domain such as climate mitigation and adaptation, energy and water security, urban air pollution, and supply security of critical natural resources**;

⇒ One of the critical challenge is city level policy that mostly focus on end-of-pipe solutions rather than **waste prevention and minimization**;

⇒ Eco-parks and eco-towns need to encompass a range of **eco-initiatives including biodiversity and resource efficiency** and promote it across the region;

⇒ **Triangular cooperation** (Govt-Scientific-Private) is key to develop viable and effective business models in 3Rs and waste management;

⇒ Through the adoption of the **Surabaya 3R Declaration**, Asia-Pacific countries recognized the role of **multilayer partnerships and cooperation for advancement and implementation of 3Rs in the region**;

⇒ Establishment of **research, innovation and practice (RIP)** parks in the region should be established and support **Waste to Resource (W2R)**.

⇒ **Sustainability and resiliency of cities**, and thereby the role of 3Rs, are critically important in post 2015 development agenda,

## Surabaya 3R Declaration ~ on Promotion of Multilayer Partnerships and Collaboration for the Expansion of Reduce, Reuse and Recycle (3Rs) in Asia and the Pacific

- **country-country cooperation**, with specific emphasis to **south-south cooperation**, in exchanging valuable experiences and ideas, transferring knowledge and technologies, building 3R infrastructure;
- **city-city & inter-municipal cooperation** in exchanging practical experiences and ideas in realizing **sustainable and livable cities** with efficient waste management system;
- **multi-sector partnerships and collaboration**, including triangular cooperation (Government-Private-Scientific and Research) for **sustainable business models in 3R areas**;
- **industry-industry cooperation** for creating local and regional **recycling markets**;
- **government-NGO/CSO cooperation** to reduce waste management costs and **increase municipal cost savings**;
- a **regional cooperative framework among SIDS/PICs** to develop self sustaining 3R activities and easily adaptable technologies, including a pool of well-trained 3R practitioners; **viable business models for local employment creation**.
- a multilayer partnership in the area of **disaster waste management** in order to provide capacity building for disaster response and **strengthen community resilience**.



# Rio+20 Outcome – The Future We Want

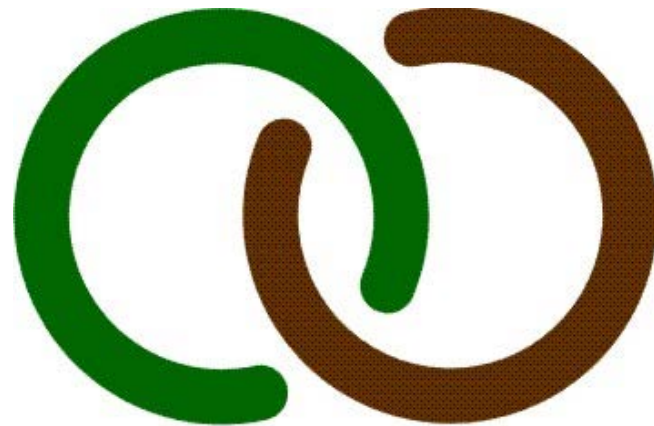
In the “Future We Want”, the States call for:

- **Increasing resource efficiency and reduction of waste** to achieve green economy in the context of sustainable development and poverty eradication to enhance the ability to manage natural resources sustainably and with lower negative environmental impacts
- **development and implementation of policies for resource efficiency** and environmentally sound waste management, including commitment to further **3Rs** as well as to increase energy recovery from waste with a view to managing the majority of global waste in an environmentally sound manner
- development and enforcement of comprehensive **national and local waste management policies, strategies, laws and regulations.**
- continued, new and innovative **public-private partnerships** among industry, governments, academia and other non-governmental stakeholders aiming to enhance **capacity and technology** for environmentally sound chemicals and waste management, including for **waste prevention**





# IPLA – International Partnership for Expanding Waste Management Services of Local Authorities – a Rio+20 Partnership



IPLA



*(You are welcome to join IPLA by registering at - [http://www.uncrd.or.jp/env/ipla/index\\_form.htm](http://www.uncrd.or.jp/env/ipla/index_form.htm) )*

# About IPLA

- Launched at the nineteenth session of the United Nations Commission on Sustainable Development (CSD-19) held in New York in May 2011, and subsequently became a Rio +20 partnership in June 2012.
- Aims to foster partnerships which address various needs of **local authorities (LAs)** in achieving sustainable waste management.
- Serve as a **dynamic knowledge platform** and a **decentralized network** among LAs, the private sector, NGOs, academic & research institutions, international organizations, UN agencies, etc.
- Support LAs in moving towards **zero waste** and **resource efficient** societies, ultimately achieving **sustainable and resilient cities**.



# The Consultative Process that led to creation IPLA

2009

CSD Intersessional Event - Inaugural Regional 3R Forum in Asia, Nov 2009, Tokyo  
- contributed towards world wide recognition of 3Rs as the basis for sustainable waste management through CSD

2010

CSD Intersessional Event - International Consultative Meeting on Expanding Waste Management Services in Developing Countries, 18-19 March 2010, Tokyo

CSD 18 Side Event: Toward Global Sound Material Cycle Society, May 2010, New York

## Highlights from CSD-18 Chair Summary:

- Need to move towards zero waste economy;
- 3Rs as the basis for sustainable waste Management;
- Called for international cooperation & Partnerships; and
- Called for special national and International action on emerging new waste streams such as e-waste.

2011

CSD Intersessional Event - International Conference on Building Partnerships for Moving Towards Zero Waste, 16-18 Feb 2011, Tokyo

Unanimously recommended launching of the International Partnership for Expanding Waste Management Services of Local Authorities (IPLA) at CSD-19 on 12 May 2011, New York

2012

Registered with Rio+20, June 2012, Rio de Janeiro, Brazil

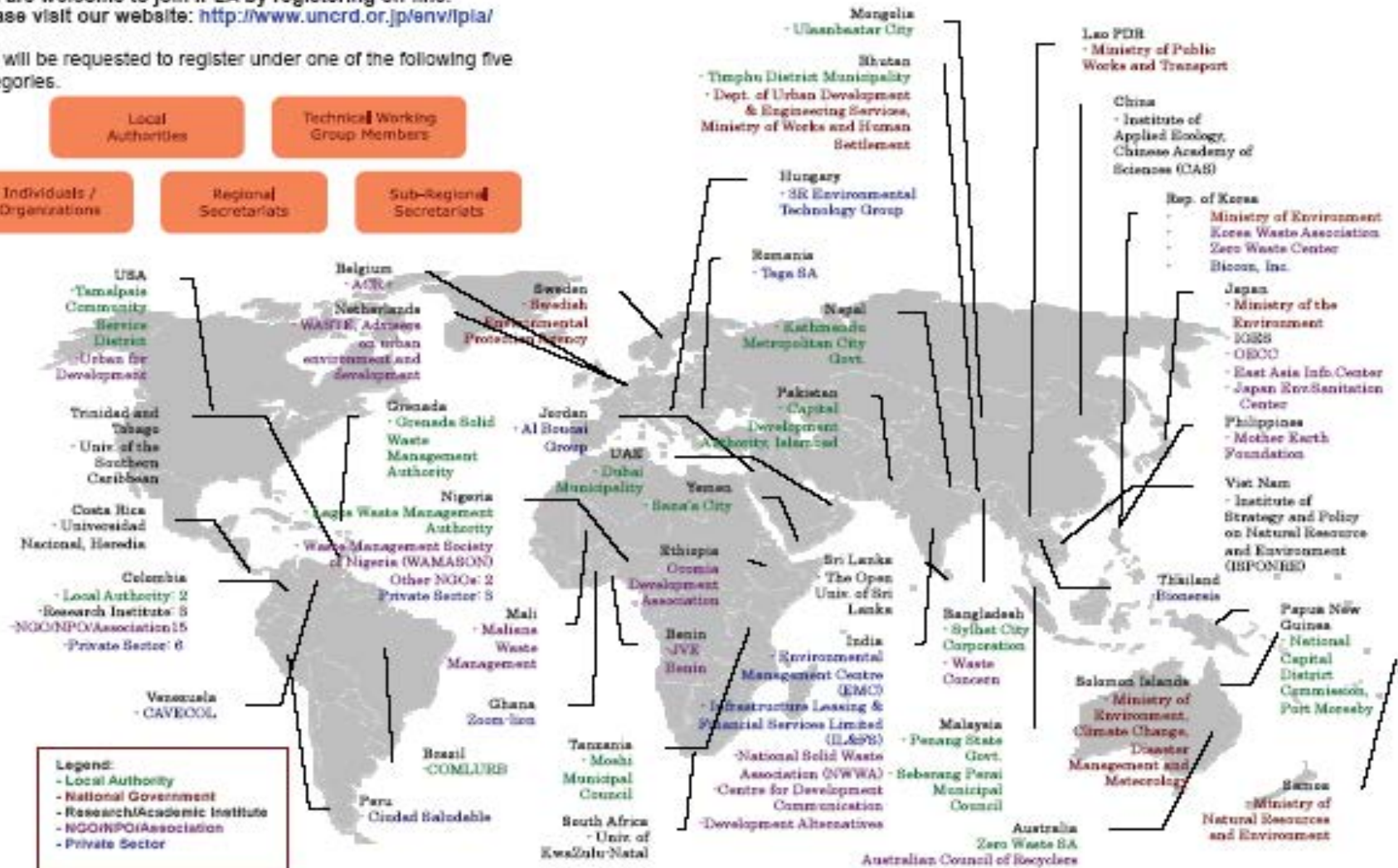


# Official partners around the world (Around 240 members from 70 countries - as of March 2014)

## Registration for IPLA Membership

You are welcome to join IPLA by registering on-line.  
Please visit our website: <http://www.uncrd.or.jp/enw/ipla/>

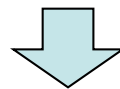
You will be requested to register under one of the following five categories.



# Partnership is key to expand waste management services of local authorities that lack resources, institutional capacity, and technological know-how...

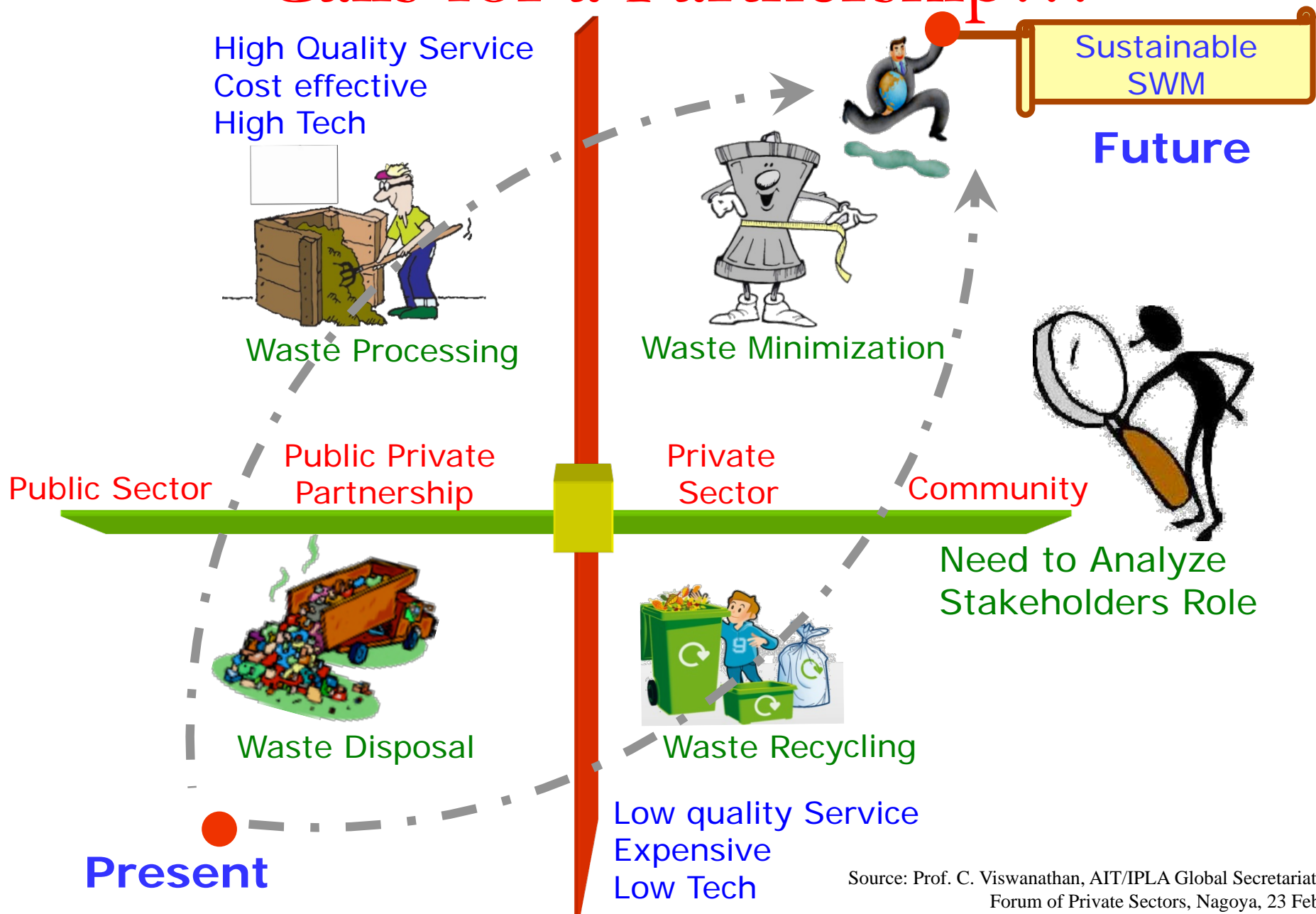


- **Partnerships** offer alternatives in which governments and private companies assume co-responsibility and co-ownership for the delivery of solid waste management services. Waste disposal is expensive – financially and in lost resources (substantial inputs of labour, material, energy, land resources for land filling, etc.)
- **Partnerships** combine the advantages of the private sector (dynamism, access to financial resources and latest technologies, managerial efficiency, and entrepreneurial spirit, etc.) with social concerns and responsibility of the public sector (public health and better life, environmental awareness, local knowledge and job creation, etc.).
- **Partnerships** (PPP) are indispensable for creating and financing adaptation measures towards resilient cities which in turn are more attractive for private investments.
- **Partnerships** provide win-win solutions both for the public utilities and private sector –if duly supported by appropriate policy frameworks. Such partnerships could lead to savings in municipal budgets where waste management usually consumes a large portion. The private sector, on the other hand, may use this opportunity to convert waste into environmentally friendly products and energy that could also serve as income generating opportunities.



***Shifting the roles of municipalities from being a 'service provider' to 'facilitator of service', by focusing its activity on planning and management, while a private company takes up the actual day-to-day operation.***

# Calls for a Partnership...



Source: Prof. C. Viswanathan, AIT/IPLA Global Secretariat, IPLA Forum of Private Sectors, Nagoya, 23 Feb 2012.

# The Waste Market

- 410 billion USD (UNEP 2008)\*
- Formal side includes multinationals and smaller industries
- Informal Waste Collectors (door-to-door), rag pickers who collect waste from streets, scavengers who pick waste from dumpsites and informal middlemen such as recycling dealers, brokers, wholesalers

\*Value of informal market not estimated

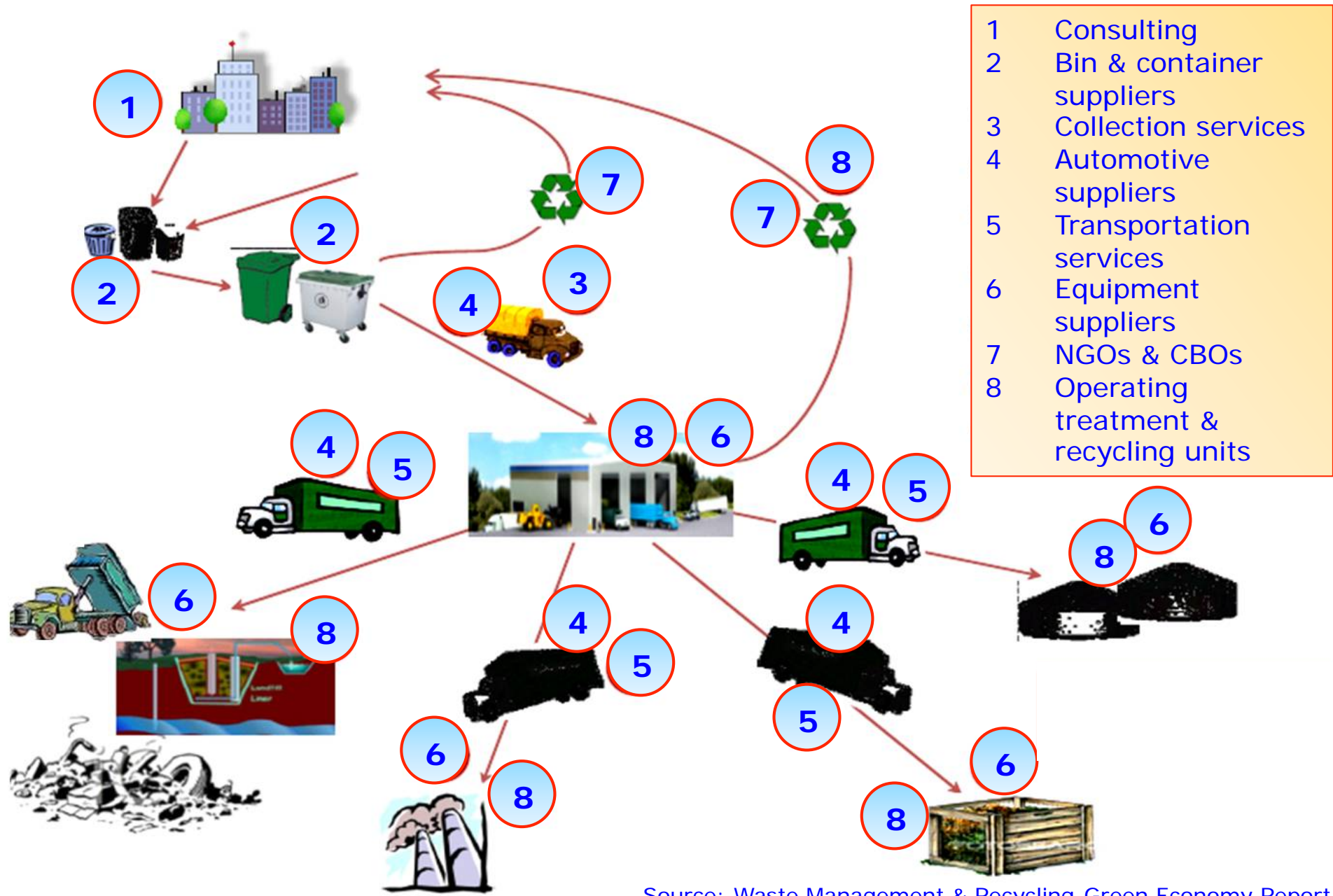


(Source: Prasad Modak, Environmental Management Centre)



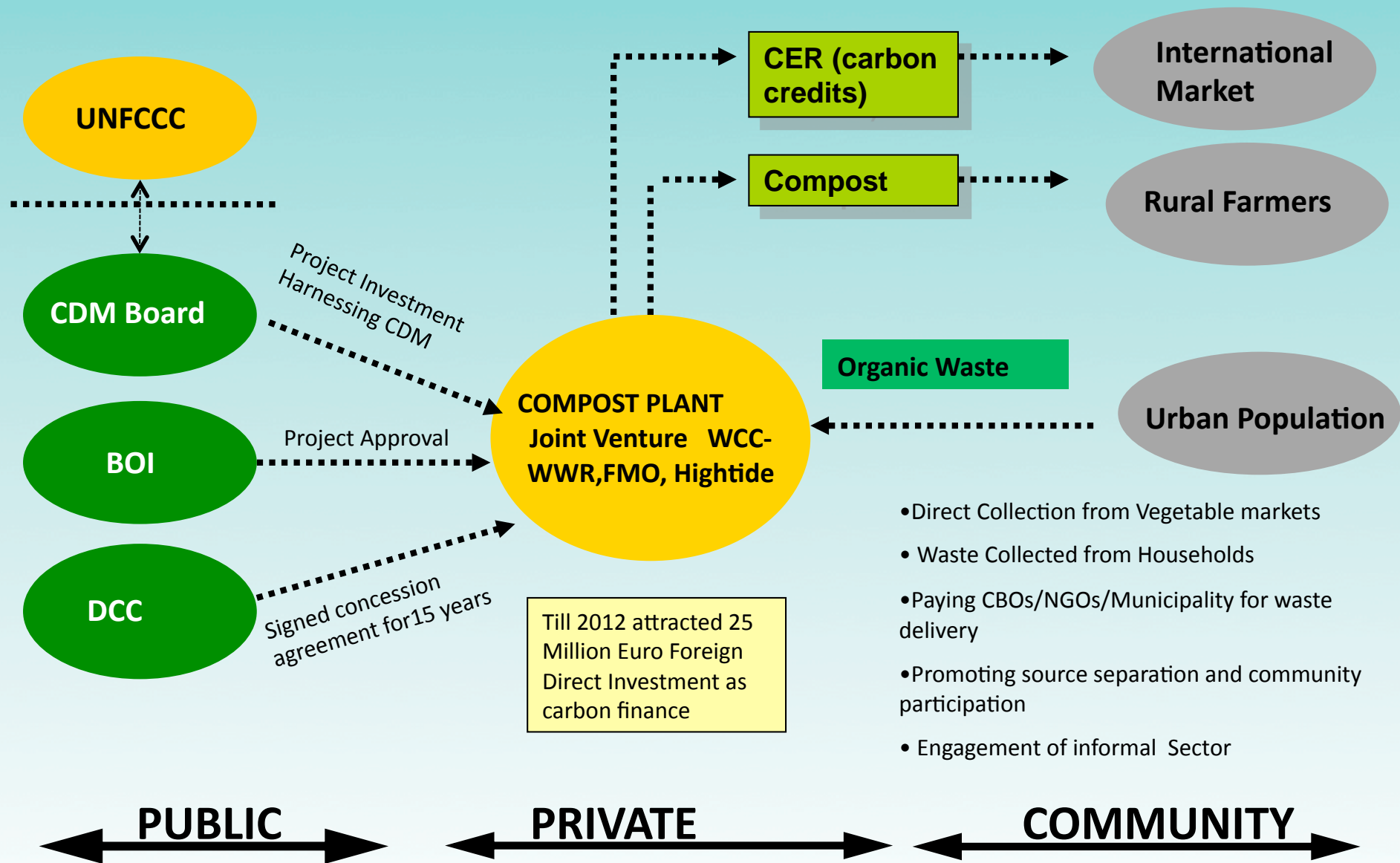


# Business Opportunities in SWM



Source: Waste Management & Recycling-Green Economy Report

# Case 1 - PPP Model by Dhaka City Corporation



Source: Presented by Waste Concern at 2012 IPLA Global Forum, 5-6 Sep 2012, Seoul, Rep. of Korea



# Project based carbon trading between industrialized and developing countries

Dutch Company WWR and Banks, FMO and High Tide

investment \$\$

Industrialized



Emission reduction credits (CER)



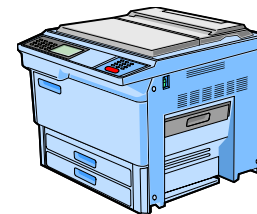
Project Reducing GHG emissions in Dhaka

# Diversification of wastes – emerging new waste stream adds another critical dimension to waste management issues & pose the fastest growing challenge for both developed and developing countries, but also provides many business opportunities

- Every year 20 to 50 million tonnes of e-waste are generated worldwide
- About 53 millions tons were produced worldwide in 2009 and only 13% of it was recycled
- By 2020 e-waste from old computers in South Africa and China will have jumped by 200-400% and by 500% in India from 2007 levels
- One billion PCs will be in use by the end of 2008 - two billion by 2015 with most growth in emerging Brazil, Russia, India, and China

Source: adapted from Sunil Herat (2010), Presented at the International Consultative Meeting on Expanding Waste Management Services in Developing Countries, 18-19 March 2010, Tokyo, Japan.

- Dangerous chemicals and metals, such as mercury, cadmium, lead, are included in e-wastes and may leach into the environment and local ecosystem.



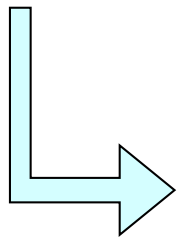
# Selected World Trends on Human activities

## – Resource Extraction: Scarcity of virgin materials

### Estimated remaining resources:

- Gold (Au): 20 years
- Copper (Cu): 34 years
- Iron (Fe): 70 years
- Nickel (Ni): 50 years
- Manganese (Mn): 56 years

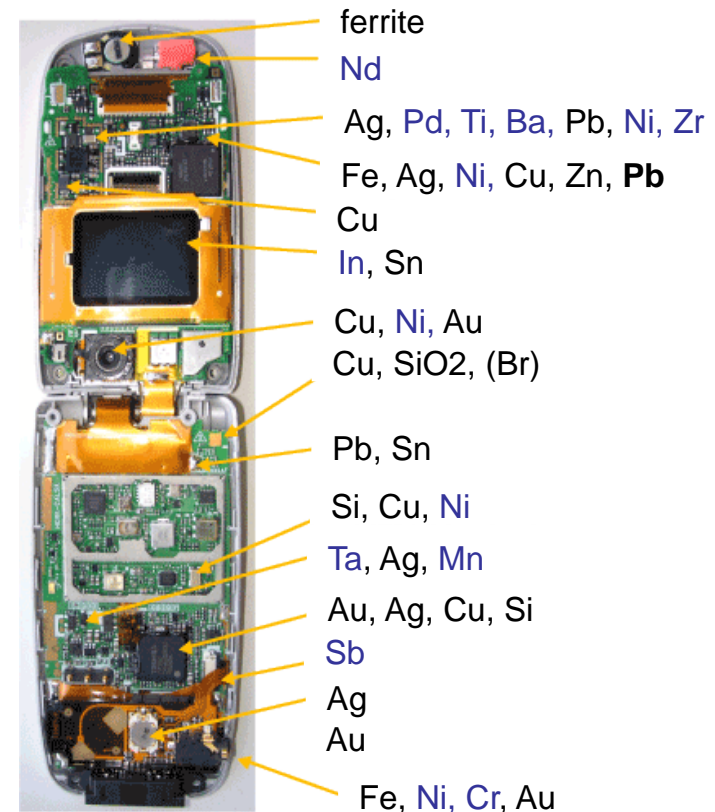
Source: U.S. Geological Survey. Mineral Commodity Summaries 2010.



### There is an urgent need to...

- **Reduce** the intake of virgin materials in the production process.
- Increase the recycling rate and use **"waste" as "resource"**.
- Improve **resource efficiency**.

*Mobile Phone contains over 50 chemical substances*



Source: <http://www.coden.jp/rare-metal/use.html>

# CONCLUSION: Each stakeholder can play very important role in promoting 3Rs and zero waste society

National Government	Develop policies, programs, and institutions, innovative financing for resource efficiency / 3R infrastructures (eco-towns, eco-industrial parks, R&D facilities (Environment, 3Rs, Nano-Technology, IT, Biotechnology) etc.), create conducive policy framework to encourage PPPs, capacity building programs/facilities for SMEs, awareness programme for citizens, green procurement, develop and institute EPR system, foster triangular cooperation (government-private/industry-R&D/Universities) for , circular economic approach, green growth, technology transfer, information clearing house, etc.
Local Government	Integrate resource efficiency in urban development policy and strategy (energy, transport, water, industry), innovative financing for resource efficient infrastructure (eco-towns, eco-industrial parks, R&D facilities, etc.), realize PPPs, awareness programs for citizens, green procurement
Private / Industry Sector	Develop strategies to commercialize 3Rs, Environmental performance reporting, R&D (3R technologies, green products, waste recycling, waste exchange, green purchasing, PPP, in-house capacity building programs, CSR,
Banks / Financial institutions	Investment/loan schemes for eco-town projects and green industries
Scientific and Research Institutions / Universities	Provide back up for science based policy making at government level, develop dedicated R&D projects on resource efficiency/3Rs in collaboration with government and business/industry sector, create human resources and experts in the field of resource efficiency/3Rs, look for international collaboration (University-University, University-Multi-national corporation), catalyst for decision makers, technology evaluation.
Citizens / NGOs	Promote green consumerism, community awareness raising on house-hold waste segregation and its contribution to resource efficiency/3Rs, knowledge dissemination

Source: C.R.C. Mohanty, 2012

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## Integrated Solid Waste Management



The goal of a Life Cycle Inventory (LCI) for solid waste is to be able to, as accurately as possible, predict the environmental burdens of an Integrated Waste Management system. The hierarchy has little scientific or technical basis. There is no scientific reason, for example, why materials recycling should always be preferred to energy recovery. The hierarchy is of little use when a combination of options is used, as in an IWM system. In an IWM system, the hierarchy cannot predict, for example, whether composting combined with incineration of the residues would be preferable to materials recycling plus landfilling of residues.

Marrakech | Morocco

Ratings: ★★★★★

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- Transport
- Treatment
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To understand waste segregation methods. Done for the Institute of Solid Waste Management Studies

Methods of segregation of waste

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Ekonnnect series

EVENT: Seminar on waste recycling  
WHERE : Mumbai  
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DETAILS : Waste management business models



05 Jun 2012

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### Municipal Solid Waste Treatment - Request for Qualification notice

18 Mar 2014

**Municipal Solid Waste Treatment - Request for Qualification notice number.09/2013-14**

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Ahmedabad Municipal Corporation invites the RFQ for treatment of mixed municipal solid waste (MSW) at ahmedabad on Design, Build, Finance, Own & Operate (DBFOO) basis for 30 years from reputed organization having experience in setting up, operating and maintaining minimum one MSW processing Plant with capacity of at least 250 TPD. Complete RFQ cum RFP details are available on AMC website [www.egovamc.com](http://www.egovamc.com). The last date for Submission of RFQ cum RFP is Dt.15/04/2014 up to 15.00 Hrs Link to view this document: <http://www.egovamc.com/tenders/tender.aspx?tenderid=6726>

**Ahmedabad | India** →

Prashant Pandya ( Member )