

# Partnerships Towards Zero Waste



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**Special Event during the ISWA World Congress 2011**  
**“Moving towards Zero Waste for a Green Economy**  
**– Role of Local Authorities”**

**17 October 2011**  
**Daegu, Republic of Korea**



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***United Nations Centre for Regional Development***

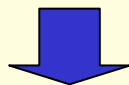
# Challenges faced by Local Authorities (LAs)

## Generation of wastes:

- Estimated quantity of waste collected worldwide is at between 2.5 and 4 billion metric tons.
- Estimated municipal waste collected world wide is 1.2 billion metric tons (2004).
- Global municipal waste generation in 2030 will be 900 million tonnes in OECD, 1 billion tonnes in BRIICS and 1.1 billion tonnes in ROW.
- 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.**



Photo courtesy: C. Viengsan, ITC38 Training Course Participant, UNCRD.



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.



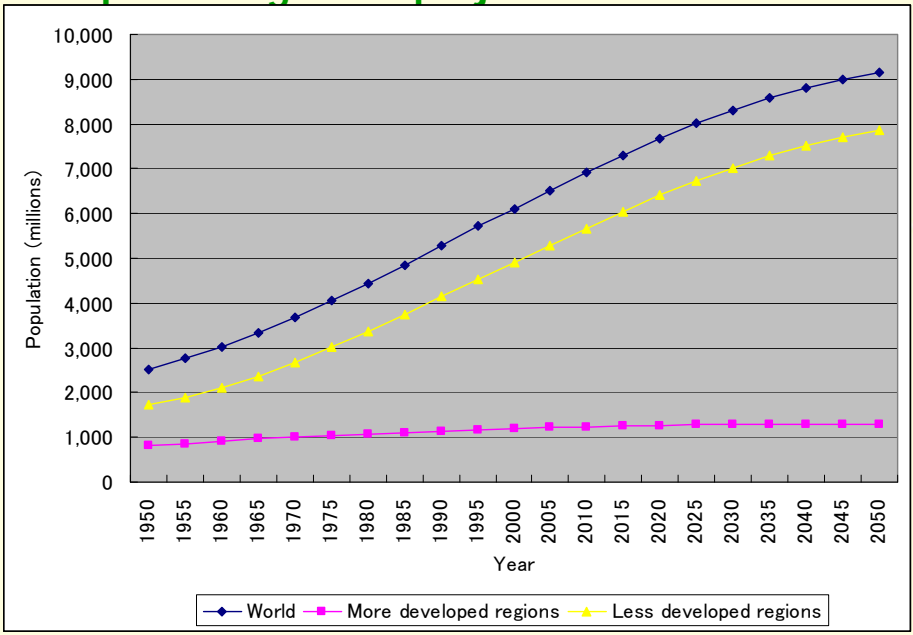
“Moving towards zero waste is inherently a multi-stakeholder process which calls for partnerships within and between communities, businesses, industries, and all levels of government.”



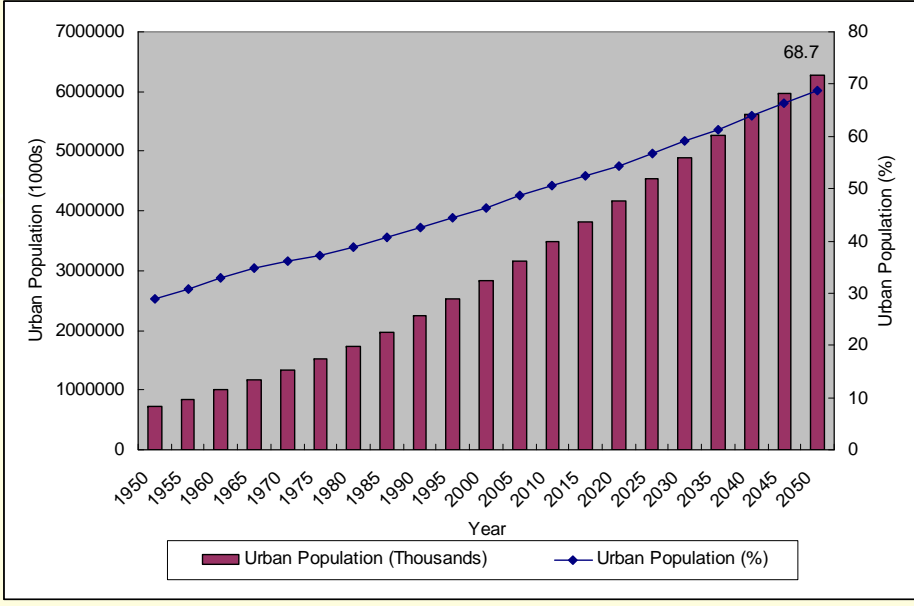
# Population growth & urbanization will continue to compound the waste management issues..

- By 2050, world population is projected to reach 9.1 billion with 99 percent of global population growth is projected to occur in developing nations.
- By 2050, around 70% of the world population is projected to live in urban areas.
- Cities now account for 75% of energy consumption and 75% of carbon emissions (Clinton Foundation, 2009)
- For Asia, the urban population will grow to 2.21 billion by 2020

**Population growth projection : 1950-2050**



**Projected urbanization : 1950-2050**



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2008 Revision, <http://esa.un.org/unpp>

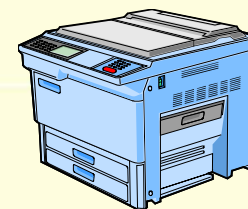
Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2008 Revision and World Urbanization Prospects: The 2009 Revision, <http://esa.un.org/wup2009/unup/>

# *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

- 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.



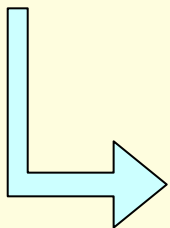
# Selected World Trends on Human activities

## – 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

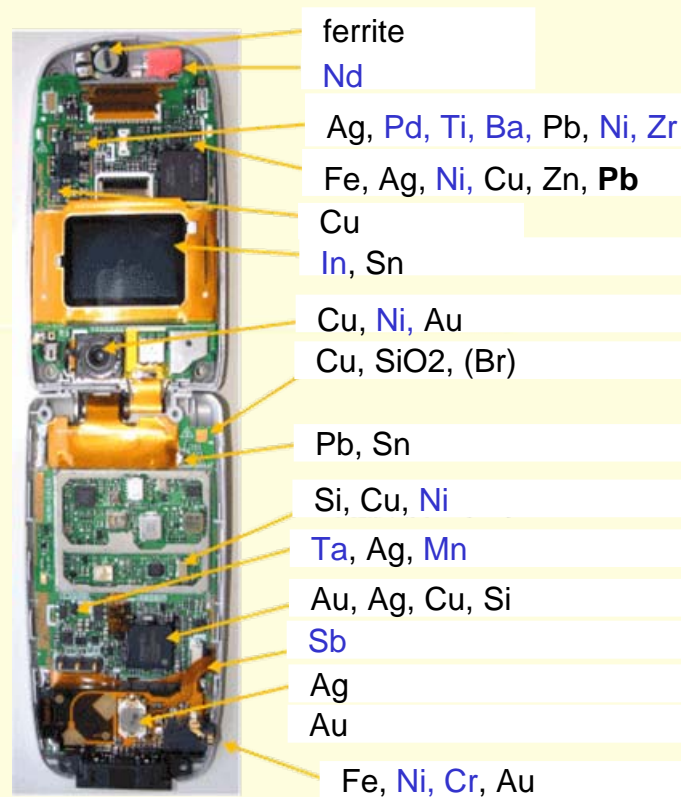
Source: U.S. Geological Survey. Mineral Commodity Summaries 2010.



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**.

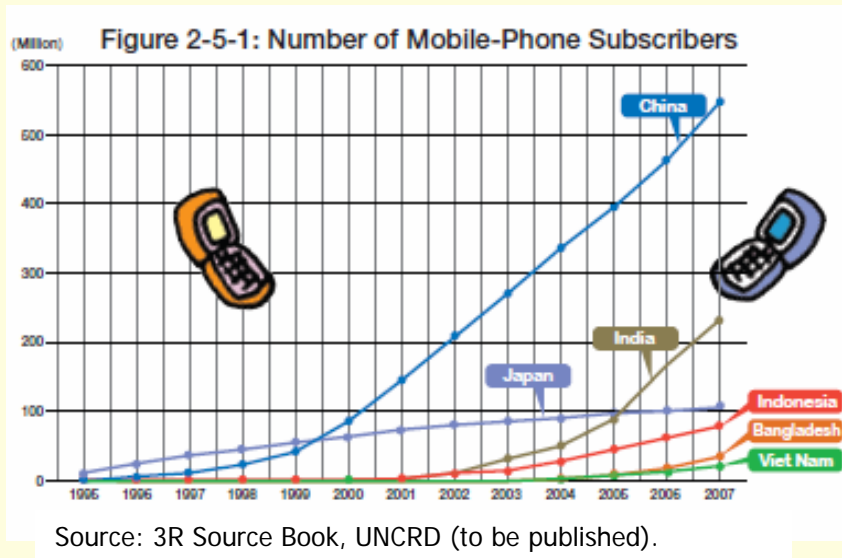
Mobile Phone contains over 50 chemical substances



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



## How many mobile phones are used in the world?



## Mobile Phone Subscriptions in 2009

	<i>In millions</i>	<i>Per 100 inhabitants</i>
<b>Brazil</b>	174	89.8
<b>Germany</b>	105	127.8
<b>India</b>	525	43.8
<b>Indonesia</b>	159	69.2
<b>Japan</b>	115	90.4
<b>Russia</b>	231	163.6
<b>USA</b>	298	94.8

Source: International Telecommunication Union –BDT

## What happens to old devices?

- **44 percent of mobile users simply left their old devices unused at homes, while 4 percent of old devices were thrown into landfills** (The survey polled some 6,500 people in 13 countries, including China, India, and Germany).

Source: <http://www.nokia.com/environment/recycling/why-recycle/take-back-achievements>,



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

## **What we see...**

- Limited efforts on reducing wastes at source
- Lack of segregation, poor collection, illegal dumping, open dumping and burning
- Limited involvement of private sector and communities
- Lack of integrated approach, and conventionally waste being thought of having no value
- Slums are deprived of municipal services



Photo courtesy: C. F. Kura, ITC38 Training Course Participant, UNCRD.



Photo courtesy: B. Paudel, ITC38 Training Course Participant, UNCRD



Photo courtesy: C. Viengsan, ITC38 Training Course Participant, UNCRD.



# 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.....



Matthew Westfall

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Source: ADB (2004)



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



**Health risks of informal waste pickers: hospital waste (HIV), jagged metal (tetanus), smoke (PCBs), lead (neural damage), violence (knife cuts), adult behaviour (premature drinking), stress, skin, gastric, respiratory problems**



# *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)

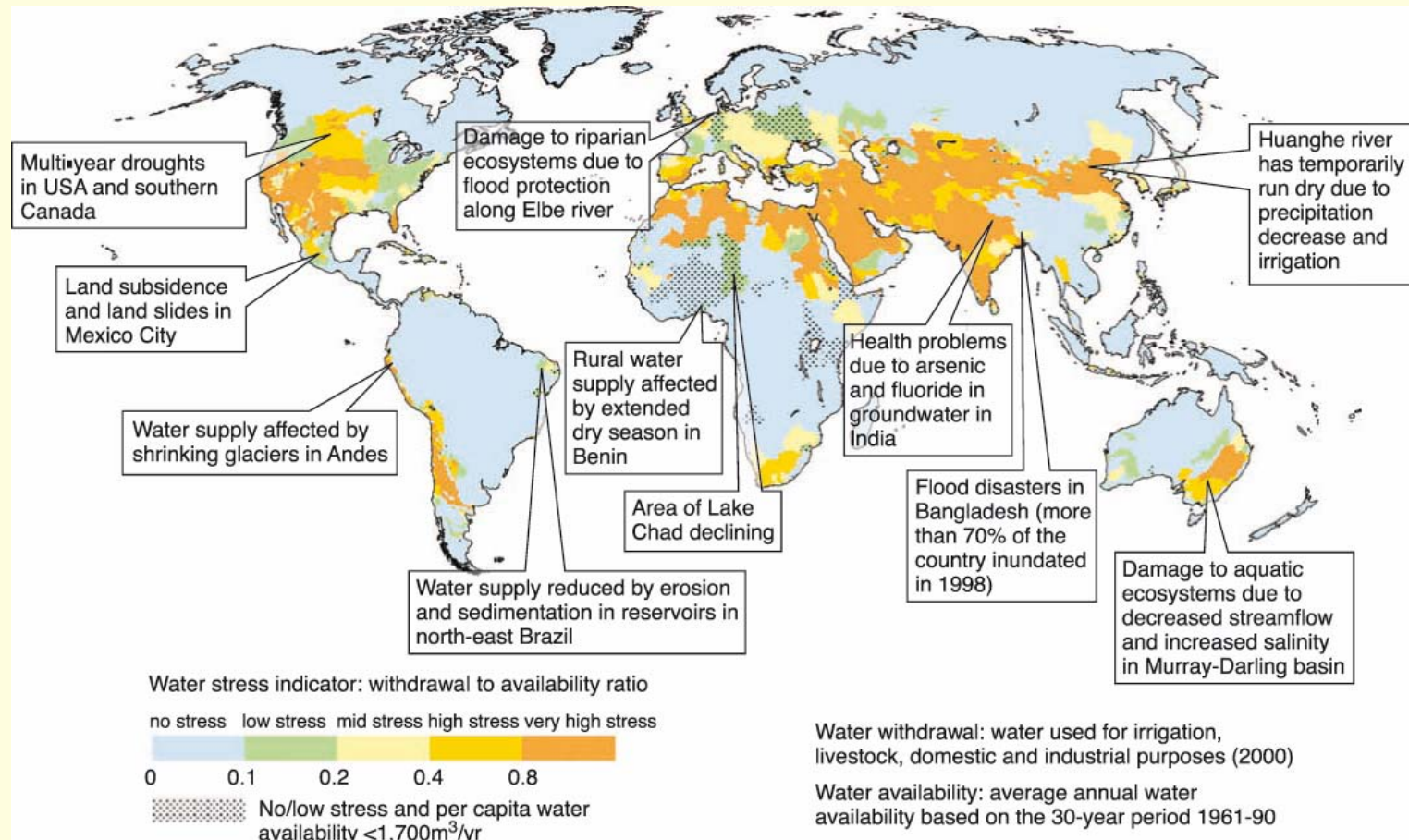
Eric Sotres



# Selected World Trends on Human activities

## - Degradation of water resources

By the year 2025, as much as two-thirds of the world population may be subject to moderate to high water stress.



Source: Water Stress Map generated by World Meteorological Organization 2008 based on data available at Alcamo *et al.* (2003)



# 18<sup>th</sup> Session of Commission on Sustainable Development (CSD-18)

## Key messages and recommendations:

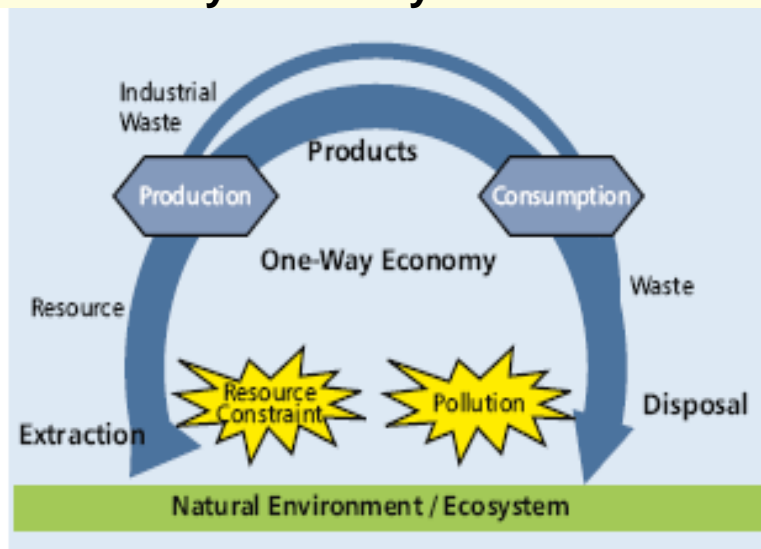
- A **zero waste economy**, recognizing waste as a resource and waste prevention and minimization should be considered as valuable concepts to guide action on waste;
- Waste management needs to be addressed through **integrated approaches**;
- **Reducing waste production, recycling waste and reusing materials** should form the basis for sustainable waste management, and further, implementation of extended producer responsibility (EPR) should be considered;
- Emerging new waste streams such as **electronic waste, plastics in the marine environment, oil and lubricants** require special international and national action aiming at a high rate of recovery worldwide, and these streams need to be addressed through appropriate programmes and environmentally sound technologies to promote material and energy recovery;
- There is a need to build local capacity in the developing countries to address the flow of e-wastes, in particular, the **shipment of e-waste to developing countries** as second-hand and near-end-of-life goods needs to be urgently addressed - in this regard, electronic companies take full responsibility for the safe recycling of their products.

Source: [http://www.un.org/esa/dsd/csd/csd\\_csd18.shtml](http://www.un.org/esa/dsd/csd/csd_csd18.shtml).



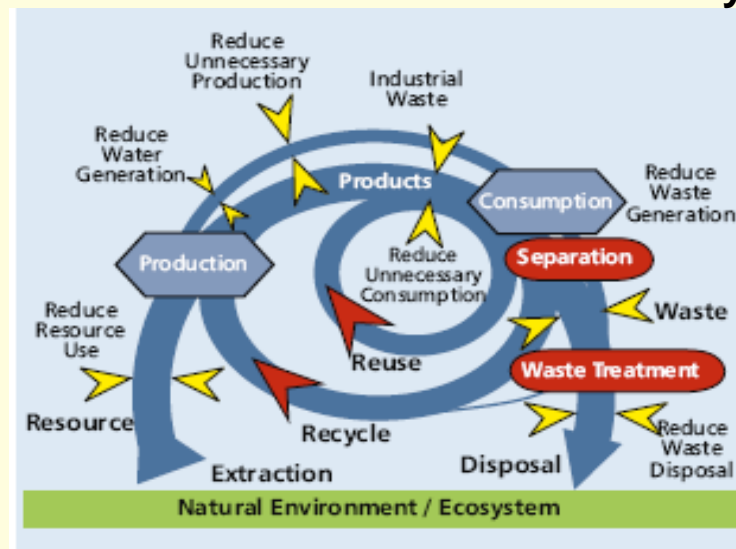
# Need to transition to more resource efficient economy

## 1. One-way Economy



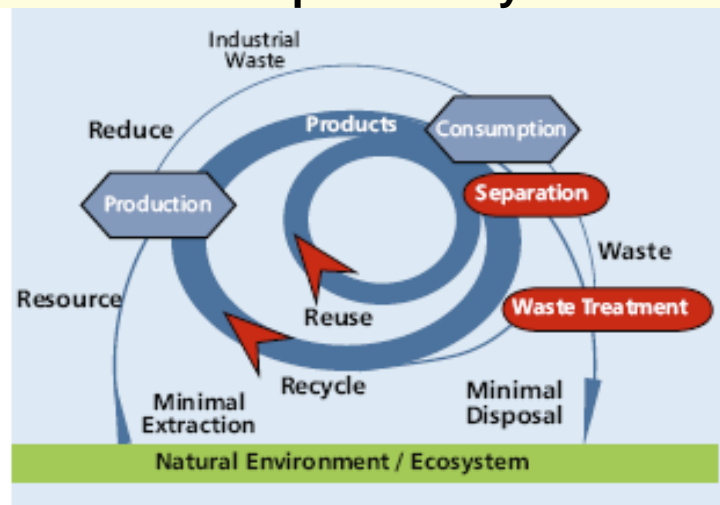
Source: ADB.

## 2. More resource efficient economy



Source: ADB.

## 3. Closed Loop Economy



Source: ADB.

1. **one way economy** -> a little effort is made to reduce the amount of materials consumed in production and hence the wastes are produced. Also little effort is made to reuse or recycle those wastes which mainly go for landfill.
2. **greater resource efficiency** -> by reducing consumption and waste of materials, and by reusing and recycling by products. By implementing measures on both the production and consumption sides, countries may be able to reduce (per unit of product) both the quantity of the resource extraction stream and the quantity and environmental impact of the residual materials flow that ultimately reaches disposal sites.
3. **closed-loop economy** -> nearly all outputs either become inputs to other manufacturing processes or are returned to natural systems as benign emissions rather than as pollutants, e.g. a closed-cycle processing plant takes in freshwater and does not discharge any liquid effluents. Rather, the water is constantly recycled and possibly utilized in the final product itself



# Informal Sector in 3Rs/Waste Management

## Major opportunity for win-win solutions through partnership with informal sector

- Build recycling rates
- Move towards zero waste
- Improve livelihoods
- Improve working conditions
- Save the city money

**Global estimate of professional waste workers in the community / informal sector: 15 million**

**Informal sector recyclers are reported to comprise as much as 1 per cent of the world's population**

Source: Wilson, D.C. (2011), presented at the CSD Intersessional Conference on Building Partnerships for Moving towards Zero Waste, 16-18 February, Tokyo; and Scheinberg A, Wilson D.C. and Rodic L. (2010). Solid Waste Management in the World's Cities. Published for UN-Habitat by Earthscan, London.



Photo credits: Enrico Fabian (cited from Wilson, D.C. (2011)).



# 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.
- **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** provides 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.





# 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)



# Size of the informal industry

- Typically 1% of the urban population in developing countries involved in informal scavenging
- Up to 15 million people, with an economic Impact of 100s of millions

Country	No. of informal waste collectors
China	10 million
India	Over 1 million
Brazil	Half a million

(Source: Prasad Modak, Environmental Management Centre)



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

**Health risks** for informal sector workers, local communities living near dumpsites, etc.

**How serious is the health risks of waste pickers, who most often operate without any protective measures?**

- hospital waste (HIV)
- jagged metal (tetanus)
- smoke (PCBs)
- lead (neural damage)
- violence (knife cuts)
- adult behaviour (premature drinking)
- stress
- skin, gastric, respiratory problems

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



Source: Adapted from ILO (2009), presented at the Inaugural Meeting of the Regional 3R Forum in Asia in November 2009 in Tokyo.



# 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



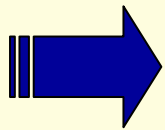
# International Partnership for Expanding Waste Management Services of Local Authorities (IPLA)

- **“Partnership to foster Partnerships”** -



## Mission Statement:

*“to share knowledge, communicate across national boundaries and work to spread best practice in order to accelerate the uptake of waste related infrastructure and services at various stages of waste management such as avoidance, prevention, minimization, segregation, collection, transport, recycling, recovery, reuse treatment and disposal.”*



- Aims to fosters various **partnerships at local level.**
- Knowledge network that **emphasizes practice.**





# International Partnership for Expanding Waste Management Services of Local Authorities (IPLA)

## - “Partnership to foster Partnerships” -

### Objectives:

- Enable LAs **share experience** about institutional, business and financial models in addressing specific waste problems and opportunities.
- Help mainstreaming integrated and sustainable waste management strategies such as **ISWM and 3R**.
- Facilitate expansion of waste management related services and supporting infrastructure that caters to LAs’ needs and meets compliance with applicable regulations; identifies partners and appropriate financial mechanisms, create "green jobs" and stimulate "green investments."
- Encourage **awareness raising and capacity building programs** targeting LAs and other stakeholders; especially to decouple waste generation from economic development and to manage complex and emergent waste streams.
- Help in creating a **practice oriented knowledge network** to help formulate innovative projects, select most appropriate technologies, access expertise, promote waste exchange and waste-resource related opportunities.
- Be instrumental in collation of databases on waste generation, technology performance and standards, benchmarks and Key Performance Indicators for **gap assessment and target setting for the LAs**.
- Provision of **guidelines to support local action plans and strategies** for sustainable waste management.





# International Partnership for Expanding Waste Management Services of Local Authorities (IPLA)

## - “Partnership to foster Partnerships” -

### KEY FEATURES OF IPLA:

- **IPLA's** core objective is to address "partnerships" as the basis for sustainable waste management, in particular **fostering partnerships** between Local Authorities (LAs), private sectors and other key stakeholders in local level waste management.
- It aims to create a **dynamic interface** between the local authorities and private sector, thereby facilitating public-private partnerships and creating conducive investment climate for expanding waste management services of local/municipal authorities.
- **IPLA's** operational modalities will rely on **decentralized network** of activities addressing municipal waste management. For example, regional/sub-regional/national secretariats will take the lead role in operations.
- **IPLA's** knowledge management component exclusively targets **empowerment/capacity development of LAs and municipalities** by facilitating better access to tools, technologies, investment opportunities, and international financial mechanisms in the area of municipal waste management.
- **IPLA** activities provides an opportunity to further complement city/municipality level efforts for **improved urban management** towards realizing liveable cities (beautiful, clean, safe, efficient).

**In summary, IPLA is a partnership with an objective to foster partnerships with an ultimate purpose of expanding waste management services of local authorities. From knowledge sharing to more practice oriented network (i.e., operational focus).**



# Proposed Timeframe of Activities (for initial/first phase of 5 years)

## Stage 1: Establishing and Expanding IPLA (1 years)

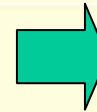
### Major activities:

- Establishment of a dynamic knowledge platform (including web-portal).
- Identification and expansion of partners, members, national secretariats/focal points.
- Preliminary meetings among the partners.
- Resource mobilization through decentralized network of partner institutions

## Stage 2: Implementation of IPLA through decentralized network (3 years)

### Major activities:

- Capacity building workshops/policy dialogues (Mayors & Municipalities ) in relevant areas
- Linkage to regional and international processes/events.
- Need based training and awareness programmes.
- Pilot and demonstration projects.
- Build a decentralized network of knowledge base to serve the information need of local authorities



*All aiming at supporting the LAs to network with each other and to access the needed policy, technology and other information, as well as financial/ investment opportunities through partnerships.*

## Stage 3: Evaluation/Self Sustenance of IPLA (1 years)

### Major activities:

- Evaluation based on pre-determined set of indicators.
- Continuation of main activities under Phase 2.

**By the fifth year of operation, IPLA will gradually shift towards the stage where it could self-sustain its operation with minimum financial support.**



## Secured resources:

- **AIT (Global Secretariat)**: in-kind contribution.
- **UNCRD**: in-kind support, and operational seed fund.
- **UN-HABITAT (Regional Secretariat)**: has offered in-kind and networking support with cities.
- **Sub-Regional Secretariats**: in-kind contribution (professional time, etc.)
- **Private sector**: in-kind contribution (e.g., for web portal development)

## Additional resources:

- in order to operate cost-effectively, IPLA will collaborate with existing partners to co-organize joint meetings, training, and other activities (e.g., Regional 3R Forum, an annual event organized by UNCRD and MoE-Japan).
- IPLA will make all efforts to network and extend partnership members, and to connect the LAs with potential investment opportunities (including international financial mechanisms, donor funding, as well as private investment), so that innovative projects on the ground can be financed through such mechanisms (i.e., outside of the core funds).
- AIT, UNCRD/UN DESA, UN-HABITAT and other partners will also jointly approach international and donor organizations to seek their support

# Core Members (as of August 2011)



**Coordination Support**



**Sub-Regional Secretariat  
for Northern Latin America**



**Global Secretariat**



**Sub-Regional Secretariat  
for the Pacific SIDS**



**Regional Secretariat for Africa,  
Asia and Latin America**



**Sub-Regional Secretariat for  
the region covering  
Australia and New Zealand**



**Sub-Regional Secretariat  
for South Asia**



**Sub-Regional Secretariat  
for Mashreq and Maghreb  
Countries**



**REGIONAL ENVIRONMENTAL CENTER**

**Sub-Regional Secretariat for  
Central and Eastern Europe**

# Official Partners around the world

(Approximately 120 members as of September 2011)

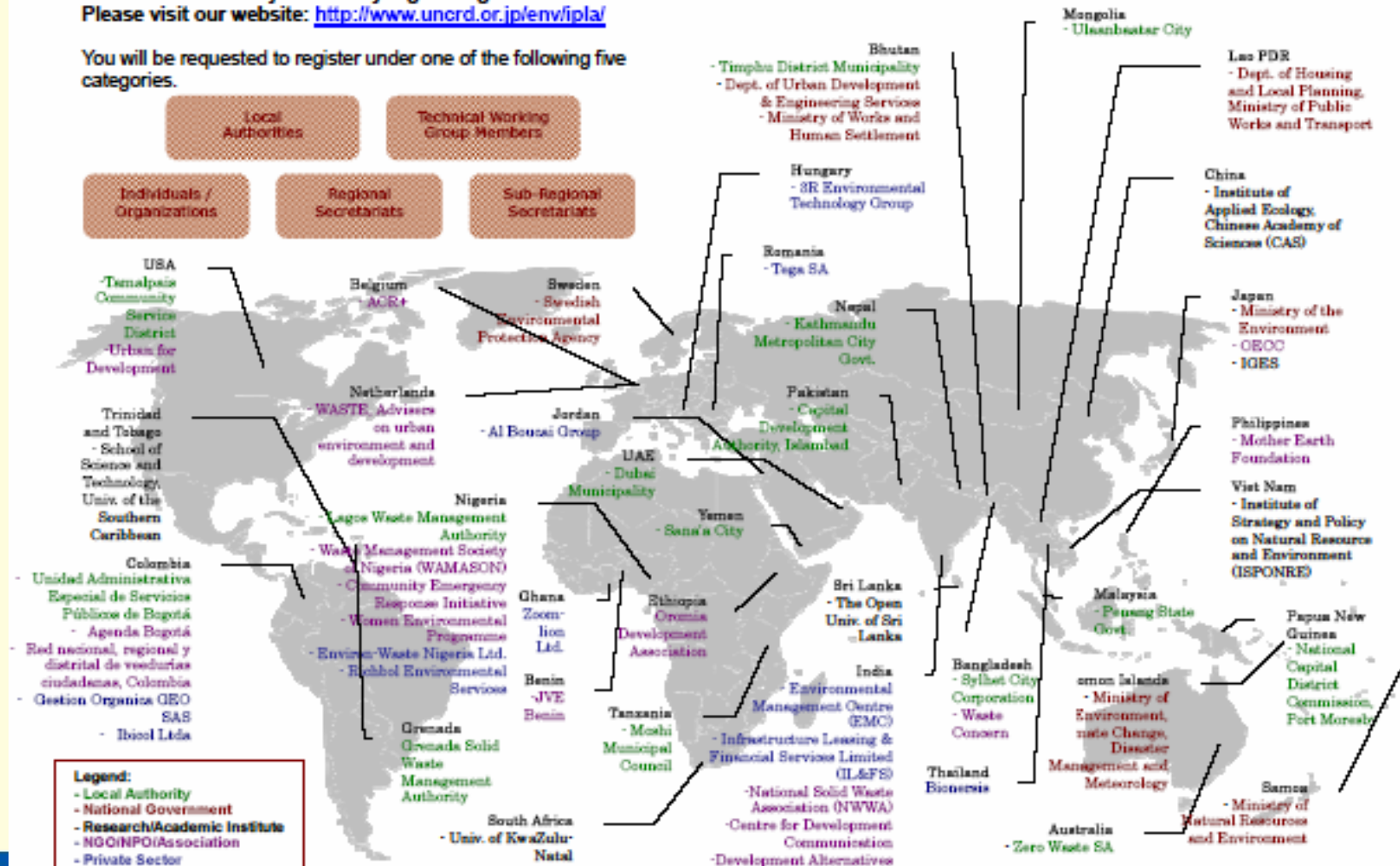
## Registration for IPLA Membership

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

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



Note: National governments, local authorities (LAs), research/academic institutions, NGOs/NPOs/Associations, and private sector are indicated in the map below.



# Membership

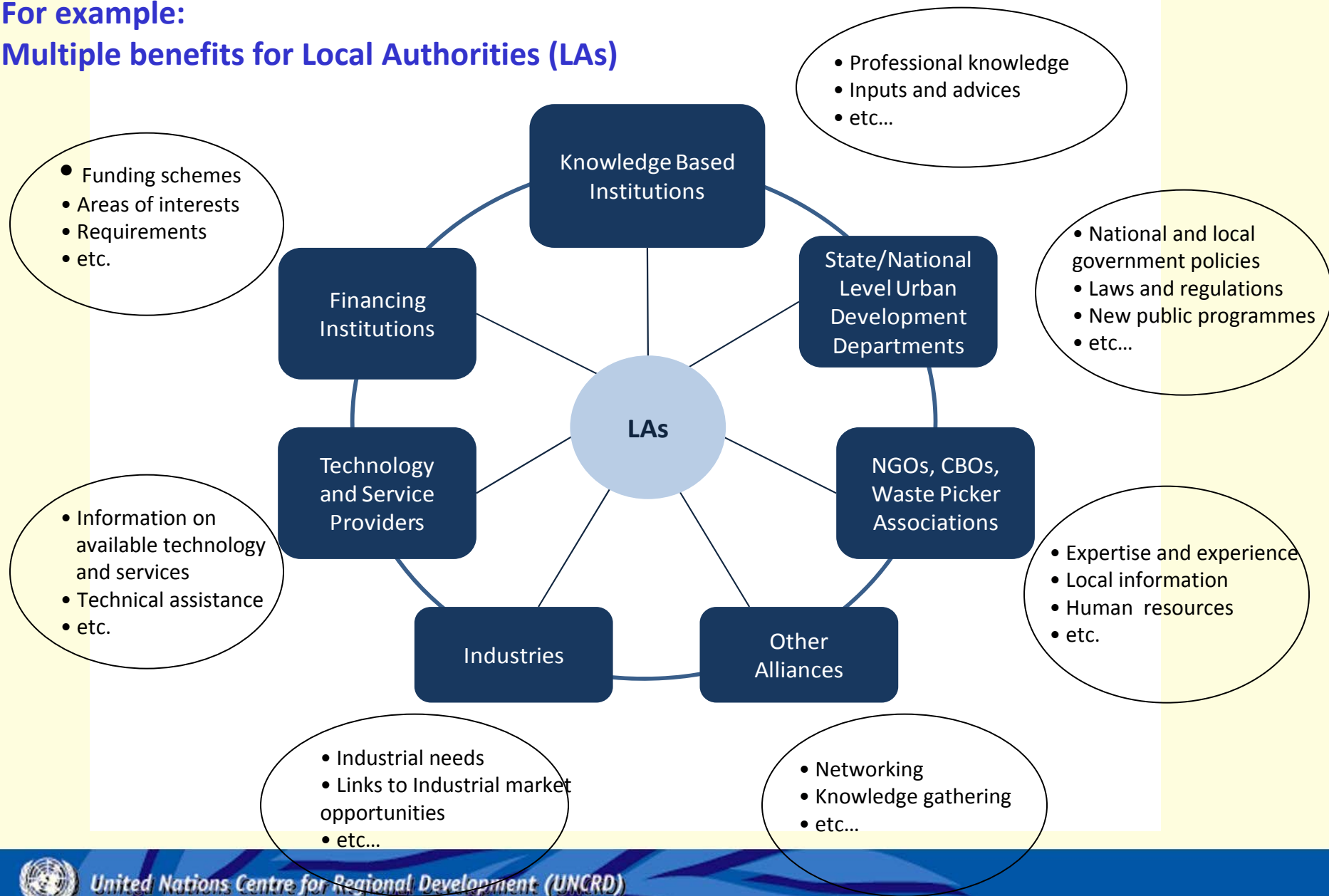
- *AIT, the Global Secretariat, UNCRD, and Regional and Sub-Regional Secretariats seek partnership and collaboration with relevant organisations including local authorities, governments, private sector, international organisations, donor agencies, and others, to expand and implement IPLA.*
- *IPLA membership is open to all interested entities that align with its mission and join hands in expanding waste management related services of local authorities*

**Register with IPLA : <http://emcentre.com/IPLARegistration.htm>**  
**For any inquiry about IPLA, please email: [ipla@uncrd.or.jp](mailto:ipla@uncrd.or.jp)**

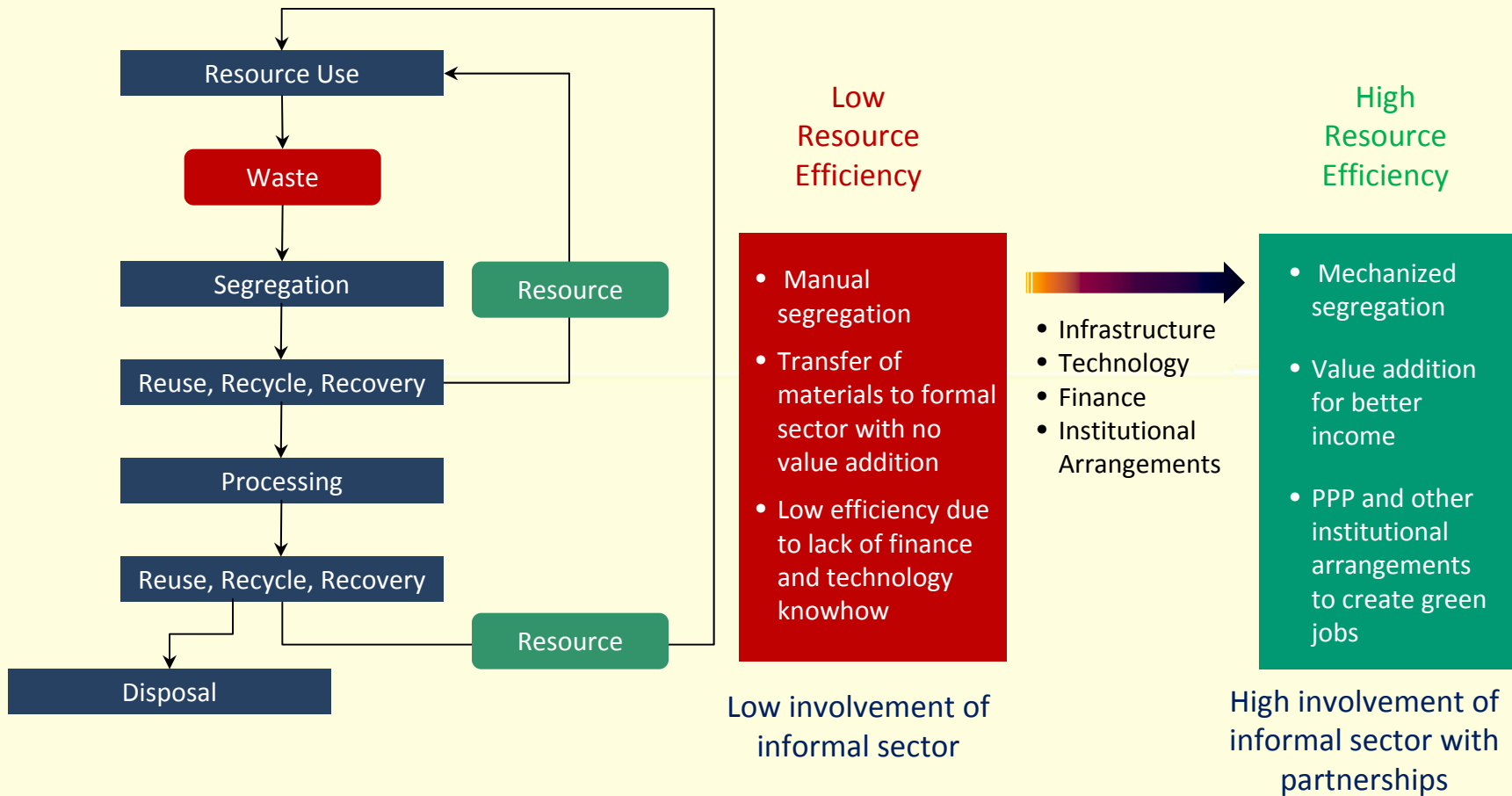
# IPLA Web Portal - Knowledge and Interactive Platform

For example:

## Multiple benefits for Local Authorities (LAs)



# Resource Efficiency, Informal Sector and Importance of Partnership



Prasad Modak, Environmental Management Centre



- **The Third Meeting of the Regional 3R Forum in Asia** was jointly organized by the National Environment Agency of Singapore, Ministry of the Environment of Japan, and the United Nations Centre for Regional Development (UNCRD).
- The high level policy Forum, represented by twenty three countries from the Asia-Pacific region, unanimously agreed on a set of recommendations - "**Recommendations of the Singapore Forum in Achieving a Resource Efficient Society in Asia**", which aims at strengthening the regional input to the Rio+20 process by addressing the 3Rs in a broader context encompassing integrated approach and resource efficiency towards transitioning to a green economy.
- Below represent some key messages from the *Recommendations of the Singapore Forum* in the context of IPLA and its objectives:
  - Need for policies, programmes, and regulatory measures to ensure decent work and livelihood security of workers in the informal sector.
  - Need for addressing the issues related to new and emerging waste streams through appropriate programmes, multi-stakeholder partnerships and environmentally sound technologies.
  - Effective and dynamic linkage among government, private sector, and scientific community to enhance national and local knowledge base.
  - Support and strengthen local and national networks by effectively linking them with international networks.

...among others.



# 3Rs and Resource Efficiency in a Green Economy

## Green Economy

### Low carbon

Green economy substitutes renewable energy and low carbon technologies for fossil fuels

### Resource Efficient

Green economy promotes enhanced energy efficiency, material efficiency, closed loop manufacturing and better waste management, etc.

### Socially inclusive

Green economy is central to poverty alleviation and seeks to provide diverse opportunities for economic development and poverty alleviation without eroding a country's natural assets; contribute to create green jobs to offset job losses; address health and labor standards for informal waste sector, among others; .

*While there is no unique, internationally agreed definition of the concept of "green economy," some recent statements and definitions by the UN include the following: the concept of green economy focuses primarily on the intersection between environment and economy (2nd Prep Com of UNCSD/Rio+20, 2010); green economy is "an economy that not only improves human well-being and social equity but also significantly reduces environmental risks and ecological scarcities," i.e., an economy that is "low carbon, resource efficient and socially inclusive" (UNEP 2011).*





# Themes of the UNCSA/Rio+20 Conference



The United Nations Conference on Sustainable Development, Rio+20, will focus on two themes:

1. Green economy in the context of sustainable development and poverty eradication; and
2. Institutional framework for sustainable development.





***You are welcome to join IPLA***



**UNCRD**

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***United Nations Centre for Regional Development***