Multilayer Partnerships towards Resource Efficient and Zero Waste Societies



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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 coresponsibility 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.









Daegu Declaration for Moving towards Zero Waste through IPLA 18 Oct. 2011, Daegu, Rep. of Korea



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Declaration for Moving towards Zero Waste hrough IPLA (Marked by participants at the Special IPLA Event of the ISWA World Congress 2014, Moving towards Zero Waste for a Green Economy - Role of Local Authorities, 17-18 October 2011, Daegu, Republic of Kores) IPLA is coordinated through the joint efforts of: (Marked) (Mar

(Some key points)

- move forward to a resource efficient and zero waste society by promoting *effective collaboration and partnerships* among national and local authorities, municipalities, the private and business sector, NGOs, scientific and research organizations, and all other related entities;
- address the need for mainstreaming zero waste and resource efficiency into the political agenda as well as city development strategies or action plans as a pre-requisite to moving towards a green economy, and the required changes in the existing institutional arrangements at the local, regional, and national levels;
- 5. help mainstream *resource efficiency and 3Rs (Reduce, Reuse, Recycle)* principles into the local development agenda, including environmental, social, and economic plans, policies, strategies, and programmes;
- help identify and stimulate potential partners and required financial mechanisms in support of *"green jobs," "green industries," and "green investments"*;
- 10.*encourage awareness-raising and capacity-building programmes* targeting the local authorities and other stakeholders, especially to decouple waste generation from economic development and to manage complex and new emergent waste streams;

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*



Rio de Janeiro, Brazil • June 2012





What is resource efficient economy and society?

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1. One-way Economy







Source: ADB.

2. More resource efficient economy



- **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.

Zero Waste – A vision that leads cities towards a sustainable future

- Zero waste is a long-term vision that ultimately envisages a thriving society that exists within nature's resource constraints and its ability to assimilate waste.
 (Chair's Summary of the CSD19 Inter-sessional Conference on Building Partnerships for Moving Towards Zero Waste, 16-18 February 2011, Tokyo, Japan)
- Zero Waste could represent a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use. (Zero Waste International Alliance; http://zwia.org/)
- Zero waste is an approach that involves reducing consumption, minimising waste, maximising recycling and composting, and ensuring that products and materials are designed to use less resources and made to be reused, recycled or biodegradable. Nature is the best Zero Waste model. There is no waste in nature and by-products produced become resources for others or are assimilated harmlessly back to the surroundings. (Zero Waste Singapore; http://www.zerowastesg.com/zero-waste/)
- Zero Waste is complete waste free society, not just transferring the problem from one place to another (Multistakeholders Consultation on Zero Waste Road Map for Ahmedabad/India, 18 April 2012).



Political will as key to guide a city towards Zero Waste

Examples of **Zero Waste** initiatives in the world:

- "Towards Zero Waste by 2020" Western Australia
- "Getting there! The Road to Zero Waste" Strategies for Sustainable Communities (New Zealand)
- "Zero Waste Declaration" Kamikatsu Town, Japan
- "Zero Waste Strategic Plan" City of Oakland, USA
- "A Road Map to Maximize Waste Diversion in London" City of London, UK
- "Towards Zero Waste 2020 A Waste Strategy for Bath & North East Somerset 2005-2010" – Bath and North East Somerset, UK
- "Vision Stockholm 2030" transforming Stockholm into a resourceefficient region
- Road Map for Zero Waste Ahmedabad 2013-2031

Macro-Economic/Development Policies Integrating Resource Efficiency and 3Rs

- <u>**Republic of Korea**</u>: National Strategy and Five Year Plan for Low Carbon and Green growth (2008); Framework Act and Presidential Decree on Low Carbon, Green Growth; Green New Deal policy – 2% of GDP investments in Green Growth (2009); Resource Recirculation Policy;
- <u>Japan</u>: Fundamental Law for Establishing a Sound Material Cycle Society (2001); New Growth Strategy (2010) which places green innovations as top of seven strategic areas; Finance initiatives to build a Low Carbon Society (providing grants, investments, financing, interest subsidies for – (i) promotion of Green Buildings, (ii) development of Low Carbon Cities, (iii) bilateral offset Credit Mechanism, and (iv) enhancement, commercialization, and R&D of Low Carbon Technologies;
- <u>**PR China</u>**: Circular Economic Law (2009); Long Term Renewable Energy Development Plan (2007); Chinese Circular Economic Law offers a long term plan for transformation that seeks to integrate economic, environmental, and social strategies to achieve high resource efficiency as the way of sustaining improvement in quality of life within natural and economic constraints;</u>
- India: National Solar Mission; National Mission on Enhanced Energy Efficiency;
- <u>Malaysia</u>: National Green Technology Policy (2009); Green Building Index (2009; National Renewable Energy Policy and Action Plan (2010);
- <u>Singapore</u>: Green Mark Incentive Scheme for buildings (2005); Water Efficiency Fund (2008);
- <u>**Thailand</u>**: Alternative Energy Development Plan and Target (2008); Thailand Climate Change Master Plan (2012–2050), etc.</u>



Government – Private – Research network in support of Zero Waste

- Promote recycling of waste from one industry as a resource for another (industrial symbiosis), through, for example, supporting the establishment of eco-industrial parks, science parks, and research/university networks.
- Encourage joint R&D, knowledge sharing, technology transfer among various actors (e.g., between private sector and universities).



Many stakeholders can play very important role in promoting zero waste

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



- A vision that leads cities towards sustainable future -



 $\ensuremath{\mathbb{C}}$ Copyright Eco-Cycle, 2004 with text modifications by permission. www.ecocycle.org/zerowaste/zwsystem

Source: Adapted from http://earth911.com/news/2009/01/16/austin-to-go-zero-waste/

PPP Model by Dhaka City Corporation





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

BOI-Board of Investment; DCC-Dhaka City Corporation

Public-Private-Community Partnerships: Experience of Waste Concern in Bangladesh



Decentralized Approach: Based on Partnerships

Source: Adapted from Iftekhar Enayetullah Director. Waste Concern



Compost Produced from Organic Waste



United

Biomass Town concept, Oki Town, Japan





Case study: Oki town / Fukuoka Pref. (17,500 inhabitants):

- Methane fermentation from household garbage.
- 166,209 kWh for self utilization
- Production liquid fertilizer: 6000 tons per year
- Fertilizing 100ha of paddy field
- Reduction of 44% in house hold waste generation
- Reduction of 20 million yen in incineration cost (Approx. 205,000 US\$) per year.
- generating new green jobs





Industry-Industry cooperation - Example of effective utilization of waste and byproduct leveraging a cement factory - calls for industrial symbiosis, city-city / regional cooperation





United Nations Centre for Regional Development (UNCRD)

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

Kitakyushu Eco-Town Project (Largest recycling society model in Japan)

The first "Eco-Town" project in Japan for building a recycling society has contributed to environmental preservation and industrial development.



Experimental study area



Comprehensive Environmental Complex; Hibiki Recycling Park

Outline: Research facilities: 16; Business facilities: 29 Project achievement: Environmental preservation and economic development

Environment: Reduction of environmental load, resource saving and energy saving Economic: Invested amount: approx. 66 billion yen (City: Nation, etc.: Private = 1:2:7) No. of persons employed: approx. 1,300 (including part time workers) Visitors for inspection: approx. 1 million (1998 – Oct. 2011)

Courtesy of: Kitakyushu-City, Presented at the Fourth 3R Conference for Asian Local Governments, 30-31 January 2012, Tokyo, Japan



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Case 3: Kitakyushu Eco City

Kitakyushu Eco-Town know-how (2)



4. Transfer of existing companies Preparation of Hibiki Recycling Park

The city government prepares the ground and leases land to companies long-term, with the aim of supporting SMEs entering the environmental field.

(1) Automobile Recycling Zone

Transferring the automobile dismantlers scattered in the urban area to this zone in a group to establish a cooperative association (Kitakyushu EV Cooperative Association) to develop more appropriate (satisfying environmental standards) and efficient recycling businesses

[Measures to encourage transfers]

- Offering land (Setting up 20-year regular lease for business use)
 Renewal of business license (Waste Management and Public Cleansing Act)
- Use of national subsidies (Japan Small and Medium Enterprise Corporation) for constructing buildings

(2) Frontier Zone

Developing diverse recycling businesses by local SMEs and venture companies through the use of creative and pioneering technologies and ideas

[Specific businesses]

- Cooking oil recycling: Kyushu and Yamaguchi Oil and Fat Cooperative Association
- Recycling washing solutions and organic solvents, and plastic liquidation for recycling: Takano Kosan Co., Ltd.
 Used paper recycling: Nishinihon Paper Recycle Co., Ltd.
- Waste can recycling: Kitakyushu Akikan Recycle Station

Courtesy of: Kitakyushu-City, Presented at the Fourth 3R Conference for Asian Local Governments, 30-31 January 2012, Tokyo, Japan



From local PPP International PPP





Public-Private-Community Partnerships: Experience of Waste Concern in **Canadian Municipalities**

Names	Highlights and Results	 <u>Economic benefits</u> » Fewer landfill sites are needed, saving the cost of creating new landfills or
1.Regional District of Nanaimo (RDN), British Columbia (Population: 146,000	 » Successful landfill ban and enforcement » Positive working relationships and collaboration with industry 	transporting waste to more distant landfills. » Diversion creates jobs: recycling 14,000 tonnes of waste creates nine jobs and composting it creates seven jobs, but landfilling it creates just one job. » Revenue can be generated from selling compost to the community.
Diversion rate: 64%)	and community stakeholders	Environmental benefits
2. Town of Olds,Alberta(Population: 7,300Diversion rate: 43%)	 » High recycling program » Successful partnerships with the education sector and other local communities 	 » Recycling uses less energy than disposal in a landfill and manufacturing with recycled materials is more energy-efficient than with virgin materials. » The greenhouse gases and toxins generated by landfills and incineration are reduced. » More land is available for agricultural and other uses. » Reuse and recycling conserve resources.
3. City of Victoriaville, Québec (Population: 41,316 Diversion rate: 64%)	» Successful public-private waste management partnership involving 17 municipalities and a private-sector company	 <u>Social benefits</u> » Reduced landfill usage improves quality of life in adjacent communities and reduces the need for new landfill sites. » Less reliance on landfills and incinerators reduces pollutants and improves health. » Waste diversion encourages environmentally sustainable behaviour.





International Partnership for Expanding Waste Management Services of Local Authorities (IPLA) - a Rio+20 Partnership







Global, Regional, and Sub-Regional Secretariats



Global Coordinating Secretariat

Global Secretariat



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



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



Regional Secretariat for Africa, Asia and Latin America



Caribbean SIDS

Sub-Regional Secretariat for Central and Eastern Europe



Sub-Regional Secretariat for South Asia



Sub-Regional Secretariat for the Pacific SIDS



ICBET

Sub-Regional Secretariat for Russia and EurAsEC countries

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Sub-Regional Secretariat for Southern Africa



Sub-Regional Secretariat for Western Africa





United Nations Centre for Regional Development (UNCRD)

Sub-Regional Secretariat for Southern Latin America



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- Primary beneficiaries are LAs, mainly (but not limited to) those in emerging and developing economies.
- to all interested entities that align with its mission of expanding waste management-related services of LAs.
 e.g., LAs, governments, the private sector and industry, NGOs/CBOs, research institutions, international organizations, UN agencies, among others.
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