

**CSD-19 LEARNING CENTRE**  
**“Synergizing Resource Efficiency with Informal Sector towards Sustainable  
Waste Management”**

**Co-organizer: UNCRD and UN HABITAT**  
**9 May 2011, New York**

## **1. BACKGROUND**

The management of solid wastes and sewage was the subject of Chapter 21 of Agenda 21, which recognized that “environmentally sound management of wastes was among the environmental issues of major concern in maintaining the quality of the Earth’s environment and especially in achieving environmentally sound and sustainable development in all countries.” The rapid increase in volume and changing composition of solid wastes generated mainly as a result of rapid urbanization, industrialization, and unsustainable production and consumption patterns has had a severe impact on the global and local environment, natural resources, public health, local economy, and living conditions, and threatens the attainment of the Millennium Development Goals (MDGs).

According to UN-Habitat’s 2010 report on ‘Solid Waste Management in the World’s Cities’, 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). At the same time, with the diversification of waste streams worldwide as well as the growing presence of chemicals and hazardous and toxic elements in the general waste stream, the complexity and daunting nature of waste management challenges therefore require an alternative approach in place of traditional waste management. While municipalities are facing this complex challenge, there are also thousands of people working outside of the “formal” system, who earn their livelihoods by engaging themselves in the waste management chain in one way or another. Their role in waste management is quite significant but they are often neglected and work under severe health risks.

## **2. OBJECTIVES**

Waste is traditionally thought of having no economic value. Waste is also widely assumed to be unavoidable. Waste generation has been found to be coupled with GDP and hence more is the economic progress more is expected to be waste generation.

Inefficient use of resources is common problem across many countries, due to weak enforcement of environmental laws, subsidies and other inappropriate price signals, inadequate knowledge of available clean technologies, low levels of environmental awareness, and poor enterprise management.

There is a need to address the problem of waste generation at source focusing on waste avoidance, minimization, segregation, reuse, recycling and recovery (the 3Rs). An emphasis on waste as a resource is needed across life cycle of products that we manufacture and consume.

Resource efficiency and 3R measures offer significant opportunities to minimize – (a) net resource (materials, energy, water, etc.) inputs to unit production and services, and (b) pollution and waste, at the same time. By improving resource efficiency, countries can reap a number of co-benefits such as - tackle local environmental problems, address climate change, ensure energy security, preserve natural capital, improve economic competitiveness, and pursue social benefits, ultimately contributing to the promotion of green economy.

It is therefore important for developing countries to institute appropriate policy frameworks and governance mechanisms to promote and implement resource efficiency measures with an objective to realize waste prevention and waste minimization, at the first place, supported with improved waste collection, processing, treatment, recycling, and safe disposal of final residues. Resource efficiency measure could ultimately contribute to significant budget savings in LAs, which could otherwise be diverted for other essential developmental activities.

In the context of improving resource efficiency, and also as means to reducing the burden of waste management of city authorities, the role of informal sector is another key area that deserves due attention. The size of informal sector in waste management, including waste-pickers, recyclers and

other service providers, is quite significant. For example, according to UN-Habitat's 2010 report, informal sector recyclers are reported to comprise as much as 1 per cent of the world's population. Despite their contribution in saving city money and in improving the environmental footprint of waste management activities at no cost to taxpayers or the city budget, their role are more often neglected or ignored. Meanwhile, informal sector workers often work without proper protective measures and use inappropriate technology, which place them under serious health risks. There is a compelling body of evidence that models for sustainable waste management, particularly in the developing countries, work best when they are built around the integration of existing informal sector into modernizing ISWM systems. By recognizing and mainstreaming/formalising the informal sector, these objectives can be achieved: i.e., improvement of informal sector worker's conditions (e.g., better health, increased security, etc.), creation of employment, while providing better/expanded services to residents at lesser cost to municipalities.

In view of the above, the overall objective of the course is to – (a) raise awareness among CSD participants on the beneficial aspects of integrating waste and resource in the context of achieving sustainable waste management; and (b) contribute towards improved understanding by policymakers on resource efficiency, the 3Rs, and the critical importance of upstream resource management; (c) highlight some of the critical roles informal sector play in waste management and how they can be recognized/mainstreamed/formalized; and (d) learn about success stories to draw lessons on the enabling frameworks.

### **3. CONTENT/PROGRAMME**

Monday 9 May 2011, 10 a.m-1:00 p.m

#### PART ONE (90 minutes)

- 1) "Sustainable Waste Management in World's Cities - Challenges and Opportunities" – by Graham Alabaster, UN HABITAT (25 min)
- 2) "Reduce, Reuse and Recycle (the 3Rs) and Resource Efficiency as the basis for Sustainable Waste Management" by Choudhury Rudra Charan Mohanty, Environment Programme Coordinator, UNCRD (15 min)
- 3) "Turning Waste to Resource - Case Studies and Enabling Frameworks" – Dr. (Anthony) Shun Fung CHIU, Professor of Industrial Engineering and Senior Research Scientist, Center for Engineering & Sustainable Development Research (CESDR), De La Salle University, Manila, Philippines, (15 min)
- 4) "Informal Sector in Partnerships for Expanding Waste Management Services" – by Prasad Modak, Executive President, Environmental Management Centre, India (15 min)

#### PART TWO (90 min)

Interactive discussion around the key questions.

### **4. METHODOLOGY**

Lectures followed by interactive dialogue and discussions. Additional hand-out materials and references will also be provided.

### **5. INTENDED IMPACT**

Enabling CSD participants to develop necessary policy and implement appropriate resource efficiency measures towards sustainable waste management.

### **6. NAME/CONTACT OF COORDINATORS**

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### **7. BRIEF BIOGRAPHIES See Annex**

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**Brief Biographies of the Speakers**

**Dr. (Anthony) Shun Fung Chiu** is Professor at De La Salle University-Manila, Philippines since 1996. He is a Board Member, Pollution Adjudication Board, Department of Environment and Natural Resources (DENR), Philippines since 2003. He is also Editor-in-chief of the Philippine Institute of Industrial Engineers' Journal ([www.piiie.org](http://www.piiie.org)) and Asian Editor of Progress in Industrial Ecology - An International Journal (Inderscience). He works in the fields of Sustainable Consumption and Production (SCP), Operations Strategy, and Eco-Industrial Development (EID). He has conducted EID workshops for 30 governments with UNEP, UNIDO, UN ESCAP, InWEnt (Capacity Building International, Germany), Asian Productivity Organization, and other international organizations. In 2002, he led the writing of the Asia Industry Paper as input to the UN World Summit for Sustainable Development (WSSD) in Johannesburg. He has been served as an expert group member of the Asian Regional 3R Forum since its inception in the field of resource/energy efficiency. Dr. Chiu is a graduate of Doctor of Business Administration and Bachelor of Science in Mechanical Engineering at De La Salle University - Manila. He finished his Master of Engineering Major in Industrial Engineering at Asian Institute of Technology -- Bangkok.

**Dr. Graham Alabaster** is Section Chief responsible for Africa and Latin America in Human Settlements Financing Division of UNHABITAT. He is an Engineer by profession, with first degree in Chemical Engineering and a PhD in Civil Engineering. Starting his professional life as a Research Fellow, he travelled extensively in Africa, Asia and Latin America, providing technical assistance on sustainable wastewater management and sanitation, thereafter as an International consultant. He joined UNHABITAT in 1992 and has played a key role in building the Water, Sanitation and Infrastructure Branch. He is a Chartered Engineer and Fellow of the Royal Society of Health. He represents UNHABITAT on many inter agency bodies. He has over 25 years experience in the water sanitation and solid waste management working in over 30 countries, within UNHABITAT he has responsibility for all UN-HABITAT's operation projects on water, sanitation and waste management in Africa & Latin America in addition to global responsibility for policy issues relating to sanitation, pro-poor water and sanitation governance, solid and hazardous waste management, and monitoring water and sanitation MDGs.

**Dr. Prasad Modak** is Executive President, Environmental Management Center. Dr. Modak worked with many key UN, multi-lateral and bi-lateral developmental institutions around the globe and since May, 2009 is writing Waste Management Chapter for UNEP Green Economy Report. Prominent amongst these include United Nations Environment Programme, Geneva, Paris and Osaka offices; United Nations Development Programme, New York, UN Department of Economic and Social Affairs, New York; United Nations Industrial Development Organization, Vienna; Dept for International Development; London; Deutsche Gesellschaft für Technische Zusammenarbeit and Carl Duisburg Gesellschaft, Germany; Asian Productivity Organization, Tokyo; Swedish International Development Agency, Embassy of the Netherlands, New Delhi; Food and Agricultural Organization, the World Bank, International Finance Corporation and the Asian Development Bank. Apart from Government of India and various State Governments, he has been advising Governments of Bangladesh, Egypt, Indonesia, Mauritius, Thailand and Vietnam.

**Mr. C. R. C. Mohanty** is Environment Programme Coordinator/Expert in UNCRD/ UN DESA since 2003 with main responsibility to implement EST and 3R Initiative in Asia; provide regional input to CSD process; played major role in materializing Aichi Statement (2005), Kyoto Declaration (2007), Seoul Statement (2009); Bangkok 2020 Declaration (2010) in support of EST promotion in Asia; and Tokyo 3R Statement (2009) in support of 3R promotion in Asia. Prior to joining UNCRD/UN DESA, he was Senior Programme Officer/Head of Environment Assessment and Reporting at United Nations Environment Programme/Regional Resource Centre for Asia and the Pacific (UNEP/RRC.AP), Thailand from 1993 to 2003; Coordinated Asia-Pacific segment of UNEP's flagship global environment assessment process, Global Environment Outlook 1, 2, and 3.