PROVISIONAL CONCEPT NOTE & PROGRAMME

IPLA Global Forum of 2014 ISWA Solid Waste World Congress
on
"Empowering Municipal and Local Authorities through Improved Knowledge Management -
How can Municipalities Choose and Apply Better Technologies for Sustainable Waste Management?"

ISWA 2014 Solid Waste World Congress, São Paulo, Brazil, 8-11 September 2014

Venue: Sheraton São Paulo World Trade Center

Co-organized by:	***Supported by***:
- City of Sao Paulo, Brazil - International Solid Waste Association (ISWA) - International Partnership for Expanding Waste Management Services of Local Authorities (IPLA)	- United Nations Center for Regional Development (UNCRD)

1. BACKGROUND

Sustainable waste management is a critical necessity for realizing 21st century cities. The Rio+20 outcome – The Future We Want, which highlighted sustainable and resilient cities as one of the priority areas for sustainable development, calls for resource efficiency and environmentally sound management of wastes through new and innovative partnerships among the stakeholders.

However, in today's reality, developing municipalities have limited access to and capacity to choose and adapt proper technologies in collecting, segregating, sorting, processing, and treating various waste streams. Along with growing generation of municipal solid waste (MSW), emerging waste streams such as

Daegu Declaration for Moving towards Zero Waste through IPLA (2011):

There is a need to help create a practice-oriented knowledge network to help local authorities formulate innovative projects, select most appropriate technologies, access expertise, and promote waste exchange and waste-resource related opportunities, including financing opportunities.

(2011 IPLA Global Forum, Daegu, Republic of Korea, 2011)

electronic waste (E-waste), health-care waste, plastic waste, construction and demolition waste, and household hazardous waste have become matters of serious concern for developing cities and municipalities. These wastes, if not managed in an environmentally sound manner, will have significant adverse impact on human health, ecosystems, and resources, which will then threaten the very sustainability of the cities and their economies. The situation has become more complex with growing urbanization. With more than 50% of the world population already living in urban areas and it is expected to reach 70% by 2050, and with almost all the growth occurring in the developing world, the world cities face critical challenges in coping with the rapidly increasing volume and changing characteristics of urban and industrial wastes. Sound knowledge-base, knowledge management and technological interventions are indispensable not only to protect public health and local environment in cities, but also to make them more resilient.

Also, the problem in developing countries is the lack of adequate access to information regarding an existing or new technology. Some of the new technologies are considered as too advanced to be properly applied in a specific local condition. Local authorities are subsequently required to select the most appropriate waste management technologies that could be easily adapted in a specific local situation.

There are a number of reasons why technology transfer as well as the application of the waste management technologies have been slow and somewhat limited in developing countries; for example there is a general perception that such technologies involve high costs; they are highly advanced/sophisticated; and are difficult to develop, apply or use in developing countries where small and medium size enterprises (SMEs) dominate the private sector. Often private sector companies face a wide range of obstacles to invest and operate in developing countries where related laws and regulations are not enforced effectively. Another critical bottleneck is that the developing municipalities are not equipped with required institutional capacity and human resources to evaluate various waste management technologies, including the capacity to evaluate economic feasibility of applying them.

These are some of the grey areas which needs be systematically addressed through various capacity building measures and international partnerships, including public-private-partnerships (PPPs).

Governments' role is critical in this respect. Government policies could drive transfers and diffusion of waste management technologies by, for example:

- setting strict environmental policies, standards, and regulatory frameworks;
- creating conducive policies, programmes and institutions on public-private-partnerships (PPPs) aimed at technology transfer;
- creating waste markets which play important role in technology transfer;
- collaborating with scientific and research organizations on waste management technologies;

Multi-stakeholder partnerships can offer alternatives to local authorities for sharing responsibilities with the private sector for their solid waste management services. It combines the advantages of the private sectors, such as dynamism, access to

financial resources and technologies, etc; with social concerns and responsibility of public sector, such as public health and better living standards, environmental awareness, local knowledge, and etc. (2012 IPLA Global Forum, Seoul, Republic of Korea).

Borås Declaration
Of the Private Sector on Moving Towards Resource Efficient and Zero Waste Societies (2013):

The role of private sector is important for achieving sustainable development in the world. Through Public-Private Partnership (PPP), the private sector can take an active part in the development. PPP provides a number of benefits for both local authorities and the private sector, such as introduction of better technologies and management, greater financing and investment, improved cost efficiency, and creation of new market and jobs. Such partnerships could provide win-win solutions both for the public utilities and private sector—if duly supported by appropriate policy and financing frameworks.

(2013 IPLA Global Forum, Borås, Sweden)

For instance, in Kitakyushu's (Japan) Eco-Town Project, which has two stages, both started in 1997, the municipalities aimed to promote Zero Emission Society by creating new environmental towns at the local level and introducing advanced 3R technologies. During the stages of the projects, private sectors collaborated in bringing in 3R technologies, such as the recycling of plastics, office equipment, automobile, medical wastes, construction waste, wind-power generation project, etc. Kitakyushu City also collaborates with research and development (R&D) centers on innovative technologies.

Municipalities could be empowered through several means – a) building technical capacity, b) building institutional capacity for science based policy making, c) creating effective partnerships between municipalities, private sector, and d) universities, scientific and research institutions, and technology demonstration and transfer through various partnerships.

In terms of technical capacity building of municipalities and local authorities, there could be several ways such as education through information sharing, training, and networking. Institutional capacity building is important to develop individual competencies and talents to handle a range of technologies in waste management. One important role of the private sector is to deliver technology,

Borås based Waste Recovery International Partnership -

As a vision for a sustainable future, the City of Borås aims to be a zero waste city free from fossil fuels. It offers an exemplary partnership model in which the City of Borås continues to promote and market green city; the University of Borås contributes in new research, knowledge, innovations, including support to international students; SP Technical Research Institute of Sweden contributes in research and innovations; and Borås Energy and Environment contributes in development of new business opportunities and new innovative products. Through such experience, Borås has connected its local partnership model (PPP) to international partnership (IPPP) through Waste Recovery International Partnership covering a number of developing countries such as Indonesia, Brazil, Colombia, Viet Nam and others. For instance, some of the current partnerships and cooperation in Brazil include - cost effective production of biogas from organic waste; pyrolysis a method to recover metals and energy from e-waste that are landfilled; and Swedish-Brazilian eco-innovation cooperation for smart integrated waste management and recycling, among others.

(2014 IPLA Europe Forum, Munich, Germany, 2014)

as they have access to a wide range of technological alternatives that can be used for managing the waste. Choosing appropriate technology is important as it must ensure sustainability and must improve the life of the local community (Athena Infonomics). There are some conditions for appropriate technology, such as understanding and willingness to abide by ecological principles, understanding and appreciating technology influence on human society and culture, and recognizing the human ability to direct technology (Azelvandre, 1994). Also, there are some cultural or social criteria for appropriate technology. Appropriate technology should preserve community autonomy, foster community self-reliance, contribute to community stability, encourage an equitable distribution of wealth, and encourage human growth and fulfillment (Azelvandre, 1994).

Another aspect of empowering municipalities is to build their capacity to properly quantify and evaluate health and economic benefits of sustainable waste management. Sustainable waste management provides economic benefits due to its ability in increasing economic sector and income through the transportation, processing and disposal of waste. On the other hand, it has potential to reduce the amount of waste, which is a major health hazard that undermines people's right to a safe life through all forms of waste (municipal, bio-medical), e-waste, or industrial, if not treated and disposed carefully (Athena Informatics). Waste also should be seen as a resource because most of waste could be converted into a material and energy source.
(http://www.unep.or.jp/ietc/spc/news-nov09/DratfReport_ConsultationWorkshopOnWaste_Geneva09.pdf

Burning waste in the backyards or overflowing landfills which emits suspended particulate matters (SPM) in the air, has been and is still commonly seen in developing countries (http://www.slideshare.net/NicholasMcCull2/advantages-of-waste-management) causing a number of health problems, such as asthma and respiratory diseases. Land fill themselves reduce air quality, with the indicators of sulphur dioxide, nitrogen dioxide, carbon monoxide, benzene, and PM_{10}, while respiratory health may also be affected by inhalation of particles that penetrate the respiratory system (Environment, UK, Science Report: Health Impact Assessment of Waste Management: Methodological Aspects and Information Sources 2005, p24). With the proper approach of waste management, such as 3R, waste-burning and land filling can be reduced, and a more healthy environment could be achieved in cities. In addition, waste management practices also open new possibilities for industry and new employment opportunities. Reuse and recycling contribute to the growth of the economy by providing jobs (ISWA, 2013).

Another critical issue is plastics in coastal and marine environment. Municipalities in coastal regions need to be empowered with required technical capacity in addressing and mitigating plastics wastes which can have devastating impact on coastal and marine ecosystem, human health, and livelihood of local communities, including small island states. 90. Plastic litter is a major pollution issue in Pacific coastal and marine environments. Plastics are a modern waste stream which is typically discharged from the land during run-off events. Plastics usually float and can travel long distances across oceans, and often accumulate in ocean gyres

where they can become more voluminous than zooplankton. Plastics in the marine environment progressively break down into micro-plastics making their management increasingly difficult. Plastics can have a range of impacts in the marine environment including smothering, entanglement, and physical effects arising from plastic ingestion, and from the transfer of hydrophobic persistent organic pollutants (including PCBs, DDTs, and HCHs) from the plastic when it is ingested. The transferred POPs may cause endocrine disruption and reproductive impacts in affected animals and birds. As a consequence, marine plastics should be classified as a hazardous waste and reducing the loss of plastics from land is essential to manage this growing threat. This can be practically influenced through promotion of the 3R concept (5th Regional 3R Forum in Asia and the Pacific, Surabaya, Indonesia, 2014).

Similarly the nexus between the waste management and freshwater resources is another crucial area where municipalities need a robust knowledge base to evaluate the cost of investments in technologies in terms of water security, an indispensable element in sustainable development. A proper solid waste management is aligned with appropriate waste water management. When cities are equipped with adequate waste management system, water and water-ecosystem are well protected and preserved, and waterways are prevented from industrial and household wastes being open discharged, including drainage system being prevented from clogging with plastics. Proper waste management therefore keeps the water ecosystem healthy, giving advantage for both the environment and human being.

On the economy side, municipal and local authorities need to pursue waste management as an economic industry for city development. Sustainable waste management is a key to sustaining a green economy. The criteria of green economy include renewable energy, green buildings, clean transportation, and protection of future generations from significant environmental risk and ecological scarcity. The contribution of proper waste management can be seen especially in the 3 pillars of sustainable development; which is social sustainability, environmental sustainability, and economic sustainability (ISWA, 2013). Public-private-partnerships in the waste sector can support local economies becoming more resource independent. This is becoming increasingly more important when raw materials are not being evenly distributed across the world.

One notable example is the EU Waste Framework Directive which helps promote waste management as an economic industry in many ways. As per the Directive, the waste industry is classified into the following five components: 1) prevention which consists of “avoidance, reduction, and reuse and minimizing use of hazardous materials”, 2) preparing for reuse which consists of “checking, cleaning, refurbishing, repairing items in part or as a whole”, 3) recycling/recovery which consists of “transforming waste into a new substance or product, include composting” 4) recycling/recovery which consists “waste treatment operations recovering energy for fuel, heat , electricity, and materials from waste,” and 5) disposal which consists of “landfill and thermal treatment without energy recover.” As a EU member country, Germany’s core philosophy is to sustain the waste industry through polluter pays principle (PPP), which has ultimately helped Germany establish the waste management sector as an economic sector with high standards of labor input. There

are more than 200,000 people employed in Germany's waste management sector with an annual turn over of about 40 billion Euros and an achievement of 20% GHG emission reduction, approximately 46 million tons per year (2014 IPLA Europe Forum, Munich, Germany, 2014).

Another example is Kitakyushu's Eco-Town Plan, where the strategy is to develop a green city through the transformation of heavy industries into environmental industries (HKIP, http://www.hkip.org.hk/plcc/download/Japan.pdf). The city promoted various activities in relation to achieving a recycle-based society, by implementing a number of project plans such as a comprehensive environmental industrial complex (19 ha), Hibiki recycling area (5.5 ha), and a practical research and development facilities. Those establishments of recycling industries contributed to new (green) job opportunities for citizens boosting the local economy.

All the above experiences provide various options and possibilities of for municipalities and local authorities working in waste management sector for city development, including required infrastructure development for waste management. There is an important role of municipal governments in setting a vision for sustainable cities, from city planning initiatives to revitalization of older cities and neighborhoods, as stated in the Rio+20 outcome document, through appropriate financing mechanism. While waste management has been a traditional entry point, all types of infrastructure and facilities need to integrate 3R (reduce, reuse, recycle) principles at early and fundamental stages of development planning. The infrastructure planning process, particularly at the urban level, is a complex but highly critical process for expanding waste management services of municipalities and local authorities. Insufficient planning and lack of science based policy making have left cities of developing countries unprepared to manage growing and complex waste streams, and support is urgently needed in some cases to build required 3R infrastructure and facilities. Different waste streams will require different infrastructure and corresponding management systems involving industry and consumers to ensure they are delivering at the scale and speed required.

This would be possible only if municipalities are empowered with required technical capacity, knowledge, institutional capacity, effective financing mechanisms, and innovative partnerships, among others.

2. OBJECTIVES

As an integral part of the ***2014 ISWA Solid Waste World Congress***, the 2014 IPLA Global Forum is organized with an objective to discuss and explore all possible means of empowering the municipalities and local authorities through improved knowledge management towards sustainable waste management. In particular, the Forum will provide an opportunity to discuss the need for improved knowledge management at municipal level to tackle the growing and complex waste streams and associated issues through appropriate technological choice and intervention.

3. ABOUT IPLA

The International Partnership for Expanding Waste Management Services of Local Authorities (IPLA), a Rio+20 partnership, was launched during the 19th session of the United Nations Commission on Sustainable Development (CSD) in May 2011 in New York with an aim to address various needs of local authorities and municipalities, particularly in least developed and developing countries, by fostering partnerships among a wide range of stakeholders, including public and private sectors, across the globe (Ref. UN Press Release http://www.un.org/News/Press/docs//2011/envdev1212.doc.htm). As of today, there are more than 240 registered members IPLA from 70 countries around the world. For more details about IPLA, please visit: http://www.uncrd.or.jp/env/ipla/index_form.htm

There is neither any financial nor any legal obligation for IPLA membership. To register with IPLA as a member or partner, prescribed forms could be downloaded from IPLA website or IPLA Portal: http://www.uncrd.or.jp/env/ipla/index_form.htm / http://www.iplaportal.org/ and the filled in and signed forms could be emailed to IPLA Global Coordinating Secretariat at: IPLA@uncrd.or.jp

Past & Future IPLA Events & Forums:

IPLA Official Launch at CSD-19 (May'2011)	2011 IPLA Global Forum	2012 IPLA Global Forum	IPLA Zero Waste Forum, Bogotá (2012)	IPLA Side Event at SWEEP-Net Forum (2012)
UN-HQ, New York, USA	Daegu, Republic of Korea	Seoul, Republic of Korea	Bogotá, Colombia	Marrakech, Morocco

IPLA Side Events at Rio+20 (June'2012)	2013 IPLA Global Forum	2014 IPLA Europe Forum (7-8 May'2014)	2014 IPLA Global Forum at ISWA World Congress (8-11 Sep'2014)
Rio de Janeiro, Brazil	Borås, Sweden	Munich, Germany	São Paulo, Brazil

4. Travel & Accommodations

Due to financial constraints, the organizers are not able to provide any travel and accommodation support. Participants are therefore kindly requested to cover their travel and accommodations by themselves or by their organization or approach potential sponsors for possible support.

5. Total Capacity:

Open to all IPLA members, partners, participants of 2014 ISWA Solid Waste World Congress

6. Programme: see Annex 1 below