

# Chair's Summary

## 2013 IPLA Global Forum on Sustainable Waste Management for 21st Century Cities - Building Sustainable and Resilient Cities through Partnership

City of Borås, Sweden, 9-11 September 2013

### I. Introduction

1. The City of Borås, Sweden, the Waste Recovery International Partnership in Borås and the United Nations Centre for Regional Development (UNCRD) co-organized the 2013 IPLA Global Forum from 9 to 11 September 2013, in Borås, Sweden. The Forum was supported by the University of Borås, SP Technical Research Institute of Sweden, Borås Energy and Environment, and the private sector in Sweden.
2. The Forum was attended by approximately 200 participants from thirty-four countries (Albania, Australia, Bangladesh, Bosnia and Herzegovina, Brazil, Cambodia, People's Republic of China (hereinafter, China), Colombia, Ecuador, Ethiopia, France, Germany, Ghana, Hungary, India, Indonesia, Japan, Jordan, Republic of Korea (hereinafter, Korea), Malaysia, Moldova, Nepal, Nigeria, Pakistan, Russian Federation, Samoa, Solomon Islands, South Africa, Sri Lanka, Sweden, Thailand, Tunisia, the United States of America, and Viet Nam), including representatives from local and central governments, regional and subregional organizations, academic and research institutions, non-governmental organizations (NGOs), the private and business sector, as well as international and UN organizations and local observers and professionals on waste management from Sweden.
3. Local authorities of emerging and developing economies are faced with a number of critical challenges in dealing with the rising volume and complexity of waste streams. The rising population, increasing consumption and per capita waste generation, and changing characteristics of municipal waste are posing serious challenges for cities and municipalities. There is an urgent need for cities and municipalities to strengthen their capacity in aspects of policy, technology, finance, and institutional arrangements to advance waste management infrastructure and services towards realizing resource-efficient and zero waste societies, ultimately achieving sustainable and resilient cities.
4. Under the overall theme of “*Sustainable Waste Management for the 21st Century Cities - Building Sustainable and Resilient Cities through Partnership*”, the 2013 IPLA Global Forum, 9-11 September 2013, hosted by the City of Borås, Sweden, addressed: (a) resource efficiency and zero waste towards building sustainable and resilient cities through partnership; (b) waste management technologies – assessment, selection, access,

transfer and adaptation; (c) public private partnership (PPP) and financing and investment opportunities in zero waste; (d) waste recycling markets and green jobs; and (e) regional cooperation (inter-municipality, industry-industry, country-country), among others.

## II. Opening Session

- 5 . Welcoming the participants to the Forum, and on behalf of Borås Energy and Environment, the University of Borås, SP Technical Research Institute of Sweden, and the City of Borås, Ulf Olsson, Mayor of the City of Borås, officially opened the Forum, stating that hosting the 2013 IPLA Global Forum was a great honour and a unique opportunity for Borås to actively participate in the discussions and the development of sustainable cities.
6. Appreciating the generous support of Borås City in hosting the 2013 IPLA Global Forum, C.R.C. Mohanty, Environment Programme Coordinator of UNCRD, stated that the Rio+20 Outcome – *The Future We Want* has called for sustainable and resilient cities as one of the priority areas for sustainable development. It has also called for new and innovative partnerships to enhance capacity and technology for environmentally-sound waste management, including waste prevention. Along with urbanization, rapidly increasing volumes of waste and diversification of waste streams with the emergence of new waste streams such as e-waste, hazardous wastes and chemicals, and plastics in coastal and marine environments have compounded the challenges facing local authorities and municipalities. At the same time, many countries have become net importers of raw materials (fossil fuel, metal, timber, and other natural resources). This has threatened the sustainability of many regions. There is a need to empower local authorities and municipalities to effectively address resource efficiency and zero-waste policies and programmes in their city development agendas. With limited waste budgets, institutional and technical capacity, the developing city and municipalities cannot alone achieve zero waste. The role of the private sector is critically important. In this regard, Borås City offers an important lesson in moving towards a resource-efficient and zero-waste society. Borås-based Waste Recovery International Partnerships has demonstrated a successful business model through joint cooperation among the private sector, the research and development sector, and the city authority. Mohanty made an appeal to the private sector and waste management companies to join IPLA and forge partnerships with local authorities. Currently, there are more than two hundred registered IPLA members and partners from sixty-two countries around the world.
7. Ms. Maria Khorsand, CEO, SP Technical Research Institute of Sweden focused on the importance of public private partnerships (PPPs) as a collaborative method to achieve sustainable and creative solutions. She gave a short presentation on the SP Technical Research Institute of Sweden and its position between the private sector and academia. In Borås, this has been a successful business model and has been practiced in several fields. One is the sustainable development in the city in addition to the Waste Recovery International Partnership.

8. In his opening remarks, Gunnar Peters, CEO of Borås Energy and Environment, Sweden, which is owned by the City of Borås, noted a reduction of 350,000 tonnes of carbon dioxide due to its successful efforts on waste-to-energy in cooperation with municipalities, academics and through development of effective PPPs with the involvement of international organizations. The vision of the City of Borås is to become a fossil fuel-free society. Also, the future plan includes combining the heating and power plants. People's involvement has been instrumental in proper sorting of wastes. Partnership is not always about money but involves the sharing of knowledge, information, and experience.
9. Bjorn Brorstrom, Rector of the University of Borås, presented the University's profile as a university for the professions. This means that the university of Borås has an adaptive way of developing the educational programmes in order to provide students with the relevant skills designed to fit the current labour market. He also stated that PPP is of great importance for the university. He especially mentioned the importance of PPP in creating a sustainable university, and that PPP was a part of the success behind one of the university's major research profiles "Resource Recovery". He also outlined the importance of the Forum for developing sustainability, both locally and globally.
10. Delivering the keynote address, Ms. Annika Marcovic, Environment Ambassador, Ministry for the Environment, Government of Sweden, stated that environmental protection, climate change, and sustainable development have gained importance on political agendas, both at national and local levels. After the 1992 Rio conference, there were tremendous efforts taking place through local Agenda 21 work. The City of Borås is a prime example of how Agenda 21 has been implemented and how different stakeholders have cooperated in a common cause. The world is now awaiting the next level of local engagement in the global sustainability work. As an outcome of the Rio+20, the governments of the world are actively engaged in developing a set of globally valid sustainable development goals that will address the social, economic, and environmental aspects of development. Sweden demonstrates a good example of how it has been possible to combine economic growth and sensible handling of the environment with sustainable development. Today, Sweden is a world leader in developing environmentally-friendly enterprises, products, and related services. Swedish experience underscores the fact that the link between emissions and economic growth is not necessarily a negative one. Decoupling is realistic and feasible. Since the 1990s, the emissions of greenhouse gases in Sweden have decreased by well over 20 per cent while gross domestic product (GDP) has increased by more than 59 per cent. Sweden's aim has been to go "from waste management to resource efficiency" and further move from a linear economy built on dig, consume, and dump towards a closed loop resource-efficient and toxic-free economy, where reuse and recovery are part of the basis for a sustainable society. An environmentally-smart and resource-efficient infrastructure for waste management has been viewed as a cornerstone for the creation of sustainable cities, which requires a sustainable integrated policy and planning at the national, regional, and local levels. Landfill is no longer a primary method for the waste disposal.

11. The Ambassador further elaborated on the initiatives of Sweden in addressing chemical issues. In 2012, the country launched a global initiative for 8 years and 8 actions towards the 2020 goal of sound chemicals management. Sound management of chemicals is essential to achieve sustainable development, including eradication of poverty, and the elevation and maintenance of living standards in all parts of the world. Toxic exposure both at home and in workplaces is often associated with poverty, as the poorest are frequently those left without the information, education or protection equipment needed to use chemicals safely. Some toxins cause intellectual impairment, which affects a society's capacity for sustainable economic development. Poorly managed industry, including the informal sector, is a direct impediment to sustainable development. Sweden has successfully shown that it is more economically sustainable to act now rather than wait for future actions. Inaction and unwillingness to move will cost a lot in the future while changing now for the better will be cost-effective. There are considerable benefits in acting, and in acting now.
12. Delivering the second keynote address, Ms. Sara Stenhammar, Program Manager, Environment & Energy, Swedish International Development Cooperation Agency (Sida), noted that Sweden was one of the poorest countries in Europe during the nineteenth century. Sharing the rapid changes Sweden went through between 1950 and 1970 in terms of industrialization, participation in international business, urbanization and changing life-styles with wasteful consumption, she outlined how Sweden gradually improved its environmental laws and regulations, including introduction of extended producer responsibility (EPR) in the 1990s. The 1972 UN Conference on Human Environment in Stockholm agreed that the environment should be a concern of all people on earth. Ms Stenhammar underscored the fact that technology cannot deliver a comprehensive solution to the waste management issues. In order to achieve sustainable waste management, there is a need to look into a number of other important elements such as legal infrastructure; national and local laws and regulations; sound implementation of regulations including capacity-building of institutions; elimination of corruption in waste management and waste-related businesses; strong engagement of NGOs; increased awareness of stakeholders groups (public, schools, and industries); and effective use of economic instruments, among others. Sida's goal for development cooperation is to contribute to poor people's ability to improve their living conditions. Women's empowerment is one of Sida's priority areas. With programmes which collaborate with the private sector, PPP is one vital example. Business goals and development goals can create common ground for collaborative opportunities. Sida plays a catalytic role in promoting PPP projects, for instance, Sida provides necessary financial guarantees for developing countries in accessing loan assistance from development banks at concessional rates.

### **III. Resource Efficiency and Zero Waste towards Building Sustainable and Resilient Cities through Partnerships**

13. The Rio+20 Outcomes, *The Future We Want*, addresses sustainable cities as one of the priority areas for sustainable development, placing emphasis on further development and

implementation of policies for resource efficiency and environmentally-sound waste management; commitment to further reduce and recycle waste (3Rs) and to increase energy from waste with a view to managing waste as a resource; the need to develop the capacity of sound waste management particularly in the least developing countries; and the need for new and innovative PPPs to enhance capacity and technology for environmentally-sound waste management, including for waste prevention. Promoting 3Rs (reduction, reuse, and recycling) means that only what cannot be reused and recycled should go to landfill.

14. Partnership is the key to expanding waste management of local authorities which lack institutional capacities and technological know-how. Political will is a guide for a city towards a zero waste society. Stakeholders (central government, local government, private sector, industries, banks, financial institutions, scientific and research institutions and NGOs) can play a very important role in waste management. Relevant international and regional agreements, i.e., the “Daegu Declaration for Moving Towards Zero Waste through IPLA” agreed at the Inaugural IPLA Global Forum held on 17-18 October 2011 in Daegu, Republic of Korea, addressed the need for mainstreaming zero waste and resource efficiency in the political agenda as well as city development strategies and action plans as a prerequisite to moving towards a green economy. In Asia and the Pacific, for instance, the outcome of the Fourth Regional 3R Forum in Asia held on 18-20 March 2013 in Han Noi, Viet Nam, vis-à-vis the “*Hanoi 3R Declaration – Sustainable 3R Goals for Asia for 2013-2023*” has provided an important basis and framework for Asian countries to voluntarily develop and implement 3R policies and programmes.
15. Swedish experience in reducing land-filling serves as a good example for zero waste. Currently, land filling is about 0.7 per cent and this has been achieved through various initiatives such as national and local waste management plans, a deposit/return system, producer responsibility, landfill taxes, landfill bans, converting waste to energy, targets for bio-treatment, developing a waste council, government financial support, implementation of EU waste legislation, and research and environmental quality objectives. 33 per cent of the total amount of waste is used for material recovery (target is more than 70 per cent by 2020). 52 per cent of the total amount of waste is used for energy recovery. 15.3 per cent of the total amount of waste is used for biological treatment (target is more than 50 per cent by 2018). A new waste management plan has been developed for 2012-2017 involving 147 actions by hundreds of actors. Areas of priority include construction and demolition waste, household waste, improving the resource efficiency of food value chain, reducing the risk of hazardous materials, halting the export of waste and waste prevention in the food, textile, and construction industries. New national waste prevention priorities are also planned from December 2013 covering food, textiles, electronics, and construction and demolition waste.
16. Zero waste is not a new idea, however the concept has been more widely adopted, developed and discussed over the past few years, and in many sectors, including industry, it is becoming an accepted goal. Whether or not we truly achieve zero waste is a point for much discussion, however, the journey towards the aspirational goal of zero waste is as

important as the destination. The concept conveys the goal and allows actors and the market to develop innovative solutions that suit local conditions. Its links to the “waste hierarchy” are in legislation in South Australia which provides greater certainty regarding the government's policy direction, communicating strongly to industry and the wider public.

17. For some small or remote communities, it is often extremely difficult to find or afford solutions to some of the waste management challenges. Extended producer responsibility, polluters pays principles, and more and simple actions such as container deposits might be beneficial for these communities in achieving zero waste societies. It is not fair to expect these communities to solve the complex waste management problems caused largely by other actors who do not pay the full cost or provide products that cannot be recycled locally. Those producers should bear some of the cost of developing sustainable solutions to the waste generated from their products.
18. Waste avoidance is clearly the first goal, as preventing its creation in the first place means it does not demand costly solutions downstream. It also means becoming more efficient as a society with the materials we use. In South Australia, waste reduction programmes have focused on industry where there are obvious benefits in reduced costs, better engagement with the workforce, improved efficiency, and better environmental performance. In Korea, the push to improve resource recirculation is even more developed as the country recognizes the need to become less reliant on imported key materials through augmenting supply from recycled materials and commodities. That emphasis is leading to “Green Growth,” i.e., economic growth based on new green industries, polluter pays principle, and the development of innovative and integrated solutions.
19. Cities and municipalities in developing countries face enormous challenges in promoting resource efficiency and zero waste policies and programmes, including the provision of necessary physical infrastructures. Central governments need to launch appropriate policies and programmes to help cities and municipalities to overcome major challenges and barriers in integrating resource efficiency and zero waste in overall city policy, planning, and development. Public-private partnerships should be promoted through better municipal governance taking full advantage of the private sector dynamism (finance, technological intervention, expanded services to local communities, job creation, etc.) in turning waste material into useful resources. City authorities and municipalities could work with other key stakeholders such as NGOs, scientific and research institutions, and communities in promoting zero waste policies and programmes.

#### **IV. Waste Management Technologies – Assessment, Selection, Access, Transfer, and Adaptation**

20. Local and municipal authorities in developing countries are faced with many technological challenges and gaps in addressing the complexity and diversification of waste streams, mainly new and emerging waste streams such as e-waste, chemicals and hazardous waste, plastics in coastal and marine environments, etc. Proper assessment,

selection, access, transfer, and adaptation of waste management technologies are essential for promoting sustainable waste infrastructure and services that are suitable and adaptable to the condition and capacity of each city and municipality. There is a need to advance not only standard technologies for conventional waste management such as collection, transportation, and disposal, but also socially, environmentally, and financially sound and innovative technologies that contribute to resource efficiency and zero waste, for example, those for minimization of waste and recovery of resource and energy, such as 3Rs and recycling and waste-to-energy (WtE).

21. Assessment of solid waste management technologies can be categorized into factors such as sustainable material recycling, sustainable biological treatment, sustainable energy recovery, inefficient material recovery, inefficient biological treatment, and inefficient energy recovery. Countries need to take into account the characteristics of waste when deciding upon such technologies.
22. A case study from Gamping fruit market in Sleman, Indonesia, provides an excellent example of applying technology transfer and adaptation of waste management technologies through the partnership approach. The University of Borås in Sweden and Gadjadara University in Indonesia have partnered with the government and the private sector of both countries to develop a demonstration plant to generate electricity from market waste.
23. The Climate and Clean Air Coalition (CCAC) initiative assists cities to develop partnerships to develop waste management technologies to find sustainable solutions to the issues of short-lived climate pollutants (SLCP) through a mentoring approach. Among others, IPLA serves as one of the partners of the CCAC Municipal Solid Waste Initiative (MSWI).
24. Case studies from the City of Nagoya in Japan and Surabaya in Indonesia provide excellent demonstrations of how technology transfer through city-to-city cooperation can assist in developing sustainable waste management solutions. Nagoya has reduced 80 per cent of waste going to landfill through cooperation with other Japanese cities. The decentralized composting technology developed in Surabaya is now planned to be transferred to many cities in Thailand, Malaysia, and Nepal.
25. Technologies for sustainable e-waste management are still emerging. Although a number of developed countries have adopted sophisticated high-end technologies for recycling of e-waste, a number of developing countries are adopting rudimentary recycling technologies to extract valuable materials from e-waste. Such operations have major impacts on human health and the environment in those countries. Any technology transfer dealing with the e-waste issue should take into account the technical, economic, and social dimensions of each country. Adoption of policy instruments such as extended producer responsibility (EPR) should be carefully analysed to satisfy all the requirements.
26. Developing cities and municipalities could benefit through public-private, city-city, industry-industry, country-country (North-South & South-South) cooperation in scaling

up application of sound- and locally-adaptable waste management technologies as well as building necessary 3R (reduce, reuse, recycle) infrastructure. The international community should work together to realize such multilayer cooperation to facilitate exchange of information, best practices, including technical know-how in dealing with new and emerging waste streams.

## **V. Public Private Partnership (PPP) and Financing and Investment Opportunities in Zero Waste**

27. Public private partnership (PPP) provides a number of technical, financial, and economical benefits to both cities/municipalities and the private sector, and is necessary for cities/municipalities to leverage financing and investment for advancing sustainable waste infrastructure and services. PPP can also generate new financing and investment which can lead to enhancement of resource efficiency and zero waste, for example, waste minimization and resource recovery such as recycling and WtE. There is a need for cities/municipalities to strengthen their policies, strategies, and institutional capacity to partner with the private sector, and to identify potential areas for financing and investment to develop effective and sustainable PPPs.
28. The case study on South Africa showed that it generated about 108 Mt total waste with 98 Mt were land-filled, while only 10 per cent of the total waste was recycled of which 1 per cent was recycled from the municipality and the remaining was from industries such as the paper or plastic industries. There have been some challenges in determining the amount of waste being generated in Africa due to two main constrains - lack of reliable data collection from other countries and the lack of capacity within municipalities. A landfill waste volume reduction strategy has been developed to help reduce the amount of waste going into landfill by introducing integrated waste treatment systems, the CDM landfill biogas-to-energy project, material recycling facilities (where job creation can be established for 150 people to produce 160 to 280 tons of new products per day), biological composting, food wastes AD and biological-anaerobic digestion. A project structure was established consisting of: a) engineering procurement contractors; b) developers; and c) project managers, as well as quality assurance to create a scenario analysis for municipalities to have a zero waste model called WROSE model (Waste and Resources Optimization Scenario Evaluation). This model aims to assist local governments in formulating sustainable waste management strategies, qualitative assessment of waste reduction, landfill space savings and financial feasibility. Other partnerships are with the UK in production of anaerobic digestion of food waste, energy recovery from farm wastes in KwaZulu-Natal, South Africa, and waste-to- energy plants in rural areas in South Africa.
29. The Demo Environment is partnership-driven cooperation for international dissemination of environmental technology to Sida's partnered countries. It invests in environmentally-driven markets by extending grants on demonstration projects. It has been involved in projects with 45 countries between 2007 and 2012. Statistical evaluation was made on the effects of Demo Environment to business, and results have shown that it has responded to

the needs of business, and that business would not have been achieved without the involvement of these organizations. The Demo Environment has been able to encourage knowledge distribution and promotion in partner countries, and to strengthen the distribution of environmental technology companies to support and prepare the way for the companies that receive funds.

30. The presentation by the International Solid Waste Association (ISWA) highlighted that there have been both positive and negative examples in the waste management sector. The solutions are not limited to technology alone, but a more conducive environment is needed, that allows better packaging and adoption of the technologies coupled with the best models for PPP and financing that create long-term benefits for all stakeholders. Supportive policy and regulation are also much needed to enable this. Political uncertainty and bureaucracy have been a challenge in many developing countries, and joint efforts are required to overcome these difficulties. The appropriate identification and allocation of responsibilities and the risk-sharing in PPP models for waste management are critical to their success. At the same time, a short-term perspective can help achieve some of the benefits and demonstrate the need for long-term strategies. For example, EPR could benefit from short-term contract models for achieving a long-term vision.
31. GIZ shared their experience in promoting different operator models such as public-private as well as inter-municipal cooperation. One of the challenges in developing countries is decision making by local authorities without adequate pre-assessment or public consultation. Promotion and building-up of local technologies and practices are essential for effective and practical solutions that are socially acceptable. Sustainability assessment of technologies is essential to ensure that only the right solutions are promoted. GIZ has developed guidelines to highlight these issues and provides guidance on possible ways of addressing the issues.
32. Emerging legal mandates on EPR in many regions have triggered electronic and electrical product manufacturers to develop recycling and take-back programmes. The commercial opportunities in the waste recovery and recycle sector over the past few years have provided the necessary momentum. A set of common criteria is used by most companies to set up and operate such programmes around the world.
33. Private companies working in the field of environment and waste-related technologies were well-represented at the Forum. They included Ericsson, FOV Biogas, Envac AB, Biogas System, Götaverken Miljö AB, VA-Teknik I Borås AB, Dalkia, Eko Photons AB, and Sweco. Their experience demonstrated that PPPs could provide useful base for local authorities to access and apply various environment-friendly technologies to address complex waste management issues. Ericsson, for example, takes responsibility for products (e.g. electronics) at their end-of-life globally, not just in Sweden. It is also involved in sustainability, networking, providing support and solutions, and managing networks such as fixed broadband, mobile broadband, and media management. Ericsson's ecology management consists of all the take-back processes, handling batteries, packaging, and recycler auditing. Challenges are that few countries have published their

e-waste legislation, few have e-waste refining facilities globally, and minimal environmental awareness of the negative consequences of e-waste. Ericsson's target is to recover 75 per cent of their products as set by the law and presently 95 per cent of their products are recovered globally. These have led to customers benefiting from reduced cost of warehousing, distribution, etc. Proper recycling is leading to an improved environmental profile and good accountability following environmental legislation. The ecology management system is to provide future raw material availability, increase global demand and also sustainability levels of CO2 emission and environmental pollution. The vision of the company is to manufacture and market products, then take them back once their expected life time has elapsed, and recycle them.

## **VI. Waste Recycling Markets and Green Jobs**

34. The growth of the waste market, increasing resource scarcity, and the availability of new technologies offer cities and municipalities opportunities to promote the development of green markets and green jobs in the waste sector. Since recycling jobs are often sources of income, the development of a recycling market could be highly beneficial to poverty alleviation.
35. Waste management markets are growing and thus generating green jobs and business opportunities. When compared to other waste treatment strategies, recycling generates more jobs. For instance, whereas the landfilling of 10,000 tons of waste generates six jobs, the recycling of the same amount can generate thirty-six jobs. Apart from the discussion on the definition of "green jobs", they must also be "decent work" (according to ILO standards). In Asia, recycling is not as green as one may think, since it faces problems such as the absence of separation at source, lack of technology, low public participation, ineffective control of recycling facilities, and implementation of legislation as well as poor and unsafe working conditions. A strategy to overcome such obstacles will undoubtedly have to integrate both informal and formal sectors. Examples include Banda Aceh, Indonesia (plastic recycling), Viet Nam (plastic and composting recycling/private sector investment), Zero Baht Shop (collectors), and Dhaka (composting/public private partnership). Another important factor is to transcend investment barriers, which will open doors for a recycling economy and green jobs. By facilitating partnerships, IPLA plays an important role in promoting green jobs and green investments in waste management.
36. Waste management has a strong nexus with resource management. Though waste business for development is an effective way of engaging the private sector, it should be promoted in a broader context taking into account the waste prevention as well as the value of biodiversity and ecosystem services.
37. Inter-municipal cooperation could be instrumental in achieving better resource recovery and recycling in support of waste business. Experience from inter-municipal cooperation in Brazil and Thailand indicates a coordinated way of efficiently managing the waste with the involvement of the private sector.

38. The informal waste sector plays a significant role in contributing towards waste collection, recovery, and recycling markets in developing countries, but there are many serious social, health, and labour issues involved. While some cities in the world have successfully introduced environmental and social standards and regulations taking into consideration the interests of informal sector workers, including women and under-aged children who are often engaged without provision of any protection from potential health risk hazards, it is still a persistent problem in many parts of the world.

## **VII. Regional Cooperation (inter-municipal, industry-industry, country-country)**

39. Regional cooperation, including inter-municipal, industry-industry, country-country cooperation, will facilitate the promotion and implementation of zero waste policies and programmes through various collaborative opportunities across regions. Regional cooperation provides an opportunity to promote technology transfer, and to effectively deal with industrial and hazardous wastes, including new and emerging waste streams. Capacity-building of municipal officials and other stakeholders can be enhanced through exchange and cooperation between cities, industries, and countries.

40. Public private partnership (PPP) can contribute to eco-innovation. For instance, the University of Borås focuses on resource recovery in regards to social aspects, thermal processes, chemical processes, biological processes, material recycling, and logistic optimization in cooperation with the private sector. Cheap biogas production demands low substrate costs and availability, low price equipment, cheap materials, and low-cost maintenance. Waste electrical and electronic equipment (WEEE) (mixed materials and different products) are problematic to recycle. Hence, there is a need for technological knowledge to recycle these different materials. In the framework of a PPP with the private sector, the University of Borås realizes an eco innovation through collaboration between different actors and specializations in order to address this challenge.

41. Small Island Developing States (SIDS) in the Pacific region are faced with many technical, institutional, socio-cultural and economic challenges in relation to solid waste management. Regional cooperation is a critical approach to overcoming most of these challenges and to achieving sustainable waste management in SIDS. The Secretariat of the Pacific Regional Environment Programme (SPREP) is the primary intergovernmental environmental organization working in the Pacific with the mandate to promote cooperation in the Pacific region and provide assistance in order to protect and improve its environment and to ensure sustainable development for present and future generations. SPREP promotes regional cooperation in waste management in the Pacific islands by providing necessary technical assistance in solid and hazardous waste management and marine and land pollution. The existing framework for solid waste management includes regional, national and local (municipal council) waste management strategies which are shared with SPREP.

42. Examples of country-country cooperation from the Pacific region include the iRecycle Guam programme involving aluminium can collection by schools, collection by the waste company and export by local transport company. Funds generated under this recycling

partnership support waste management activities in schools. Another example of country-country partnership is the 2007 waste agreement between the Governments of Samoa and Tokelau through which Samoa accepts certain waste from Tokelau.

43. Strategies for enhancing future regional cooperation in waste management in the Pacific include developing a pool of regional waste management experts, investigating the potential for regional recycling (or return for recycling), promoting extended producer responsibility and stewardship programmes, and completion of waste management pilot programmes in selected countries which serve as models for other countries.

### **VIII. IPLA Portal and New IPLA Sub-Regional Secretariats**

44. The IPLA Portal ([www.iplaportal.org](http://www.iplaportal.org)), which was launched at the 2012 IPLA Global Forum (5-6 September 2012, Seoul, Republic of Korea) with the support of the Infrastructure Leasing and Financing Services Limited and the Environment Management Center based in Mumbai, India, serves as an interactive platform and interface for cities/municipalities and waste management stakeholders around the world to exchange information (e.g., news and events, technologies, best practices, case studies, expressions of interest, etc.) and discussions for mutual cooperation. The Portal has provided a profile page for each IPLA member city/municipality to share relevant information related to municipal waste generation and management (including policies, decision-making structure, partnership models, financial and cost information, and needs/challenges/priorities, etc.) with an objective to facilitate partnerships.
45. The Forum unanimously endorsed the proposal of the International Waste Working Group-South Africa Regional Branch (IWWG-SARB)/University of KwaZulu-Natal, based in Durban, South Africa, to serve as an IPLA Sub-regional Secretariat for Southern Africa, and the proposal of the Lagos Waste Management Authority (LAWMA), based in Lagos, Nigeria, to serve as an IPLA Sub-regional Secretariat for Western Africa.

### **IX. The Way Forward**

46. In support of the Rio+20 Outcome – *The Future We Want*, the Forum recognized the need to overcome the critical challenges faced by developing cities and municipalities in achieving sustainable waste management. The Forum also recognized the specific limitations and challenges faced by SIDS. It is estimated that by 2050, more than 60 per cent of the global population will be living in cities and urban areas. This will create unprecedented challenges to developing cities and municipalities in providing required waste management services to their communities – collection, sorting, storing, processing, recycling, and final (safe) disposal of the waste that can not be recycled in any means. The Forum concluded that resource and waste management challenges of local authorities and municipalities need to be addressed through new innovative partnerships involving all key stakeholders.
47. The Forum attached importance to multilayer partnerships, in particular PPPs, in achieving win-win solutions both for public utilities and the private sector in expanding

waste management services for local communities. The participating private sectors affirmed their aspiration and intention to support the IPLA objectives by adopting the Borås Declaration on Moving Towards Resource Efficient and Zero Waste Societies (Annex 1).

48. The Forum recommended the establishment of an *IPLA Academic Consortium*, with the University of Borås as the lead, to help guide cities and municipalities to develop effective business models for cooperation (between public, private, and research and scientific institutions) and investment in waste management. As local authorities and municipalities are increasingly looking for such cooperative and partnership models to deal with growing waste management problems, the participants felt that it would be an important mechanism for IPLA to build the required local capacity.

## **X. Field Trip and Seminars**

49. Participants joined technical study visits to Sobaken (waste management centre of Borås), Ryaverket (a local power plant for district heating, cooling, and electricity), Ericsson (industrial recycling), and recycling stations and centres of Borås.
50. Two seminars were organized at the University of Borås to discuss academic cooperation and to address questions related to the study visits, which resulted in a new idea of establishing an IPLA Academic Consortium, as mentioned above.

## **XI. Closing Session**

51. The City of São Paulo and ISWA jointly announced the intention to host the 2014 IPLA Global Forum in São Paulo, Brazil, in conjunction with the ISWA World Congress in September 2014.
52. Tom Andersson, 2nd Vice Mayor, City of Borås, thanked UNCRD and IPLA for the great honour of having the opportunity to host the 2013 IPLA Global Forum. He then provided a summary of his reflections on the Forum. The value of waste clearly exists, but there are also great costs. It is extremely important to find the level of economic sustainability. The key to gaining public acceptance lies in a changing of mindset. It is also important to recognize that not all waste recovery jobs are green jobs. Technology alone will not solve the problem of waste and sustainability. The most crucial aspect to achieve results is PPP. We must all share a common goal and vision. Building knowledge is as important as building plants and we must know that there is not one single solution. They must be adjusted and adopted depending on the local circumstances such as legislation, culture, economy, etc. It is not easy. If it were, it would already have been done. It is not free – but the cost of not acting is a lot higher. He continued by addressing the question from the last session, “can we solve this together?”. His answer is “we *must* solve this together”. He finished by thanking C.R.C. Mohanty, UNCRD/IPLA, and all delegates in the 2013 IPLA Global Forum in Borås.

53. Delivering the closing remarks, C.R.C. Mohanty, thanked the host, Borås City, and all co-organizers for their valuable support. He also thanked all the resource persons and panelists for their valuable feedback and technical input to the discussions on moving towards resource efficient and zero waste societies through local efforts and multi-stakeholder partnerships. He mentioned that the Borås-based Waste Recovery International Partnerships provided an excellent example of a successful business model for the local authorities and municipalities to learn and emulate. He also recognized the on-the-site supports of the student volunteers from the University of Borås. He finally expressed his sincere appreciation to the City of São Paulo for its intention to host the 2014 IPLA Global Forum in conjunction with the 2014 ISWA World Congress.

**Annex 1: Borås Declaration of the Private Sector on Moving Towards Resource Efficient and Zero Waste Societies**

**Annex 2: List of Participants**