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FINAL VERSION

The Energy Efficient Cities Initiative Practitioners' Roundtable

Energy Sector Management Assistance Program

Energy Sector Management Assistance Program (ESMAP)

Purpose

The Energy Sector Management Assistance Program is a global knowledge and technical assistance partnership administered by the World Bank and sponsored by bilateral official donors since 1983. ESMAP's mission is to assist clients from low-income, emerging, and transition economies to secure energy requirements for equitable economic growth and poverty reduction in an environmentally sustainable way.

ESMAP follows a three-pronged approach to achieve its mission: think tank/horizon-scanning, operational leveraging, and knowledge clearinghouse (knowledge generation and dissemination, training and learning events, workshops and seminars, conferences and roundtables, website, newsletter, and publications) functions. ESMAP activities are executed by its clients and/or by World Bank staff.

ESMAP's work focuses on three global thematic energy challenges:

- Expanding energy access for poverty reduction;
- Enhancing energy efficiency for energy secure economic growth, and
- Deploying renewable energy systems for a low carbon global economy.

Governance and Operations

ESMAP is governed and funded by a Consultative Group (CG) composed of representatives of Australia, Austria, Denmark, France, Germany, Iceland, the Netherlands, Norway, Sweden, the United Kingdom, the U.N. Foundation, and the World Bank. The ESMAP CG is chaired by a World Bank Vice President and advised by a Technical Advisory Group of independent energy experts that reviews the Program's strategic agenda, work plan, and achievements. ESMAP relies on a cadre of engineers, energy planners, and economists from the World Bank, and from the energy and development community at large, to conduct its activities.

Further Information

For further information or copies of project reports, please visit www.esmap.org. ESMAP can also be reached by email at esmap@worldbank.org or by mail at:

ESMAP
c/o Energy, Transport, and Water Department
The World Bank Group
1818 H Street, NW
Washington, DC 20433, USA
Tel.: 202-473-4594; Fax: 202-522-3018

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Abbreviations and Acronyms

BRT	Bus Rapid Transit
CCI	Clinton Climate Initiative
CDM	Clean Development Mechanism
CDS	City Development Strategy (Cities Alliance)
ECO2	Ecological Cities as Economic Cities (World Bank's East Asia and Pacific Program)
EE	energy efficiency
ESMAP	Energy Sector Management Assistance Program
FEU	Finance Economics and Urban Department
FIFA	Fédération Internationale de Football Association
GCIF	Global City Indicator Facility
GDP	gross domestic product
GHG	greenhouse gas
ICLEI	Local Governments for Sustainability
ICT	information and communication technology
MCMA	Mexico City Metropolitan Area
RE	renewable energy
WBISD	World Bank Institute's Sustainable Development Unit

1. Introduction

Cities represent a major contributor of greenhouse gas (GHG) emissions. According to the United Nations Population Fund,[1] half of the world's population now lives in cities and is responsible for 75% of global energy use and GHG emissions. Since the world's population will continue to grow, and rapid urbanization will continue particularly in the developing world, tackling climate change issues in the urban context will be essential. In response to these challenges, the World Bank's Energy Sector Management Assistance Program (ESMAP), in cooperation with the Bank's Finance Economics and Urban Department (FEU), has launched an *Energy Efficient Cities Initiative*, which is designed to help mainstream and scale-up sustainable energy and climate change mitigation actions and investments in the urban context.

The first activity proposed under this Initiative is the "Energy Efficient Cities Practitioners Roundtable," a facilitated discussion cohosted by ESMAP and FEU. The purpose of this event was to bring together client cities and partner organizations to investigate ongoing initiatives and programs to support cities' sustainable energy goals needs and develop an Energy Efficient Cities Action Plan that will outline a vision and subsequent actions to be taken under the Initiative. The event took place at the Washington DC offices of the World Bank, from October 20-21, 2008. (The final agenda is included in Annex 1.)

The roundtable brought together representatives of cities from developed and developing countries, partner organizations and World Bank staff to draw on experiences and lessons learned from initiatives undertaken to support cities' sustainable energy needs. Participants were invited to share their city's experiences and challenges before taking part in a facilitated discussion on key energy and climate change challenges faced by cities today. Roundtable participants included city leaders from Antalya (Turkey), eThekwini (Durban, South Africa), Lviv (Ukraine), Tianjin (China), Quezon City (Philippines), Amman (Jordan), Odessa (Ukraine), Mexico City (Mexico), Stockholm (Sweden), and São Paulo (Brazil). Local Governments for Sustainability (ICLEI), City Indicators Facility, Clinton Climate Initiative, UN-Habitat, the Sheltair Group (Canada), the World Bank Institute (WBI), East Asia Urban Sector Unit (Eco^2 Cities), Cities Alliance, the Energy Sector Management Assistance Program (ESMAP), and Columbia University were also invited to speak at the Roundtable. (A full list of participants is included in Annex 2).

These proceedings summarize the presentations made, main issues discussed, and suggested actions that the international community should consider in order to further promote energy efficient cities worldwide.

[1] United Nations Population Fund. "State of the World Population 2007: Unleashing the Potential of Urban Growth."

2. Presentations

This section presents a summary of each presentation delivered during the first day of the roundtable. Copies of the full presentations can be found in Annex 3.

Antalya, Turkey

Mr. Kivanç B. Kuzay, General Manager, ALDAS - Infrastructure Management and Consultancy Inc.

Antalya is a tourism city on the Mediterranean coast of southwestern Turkey, with a population of 1 million (which doubles in summer months) and a 16% annual growth rate. Thus, municipal services must cope with the seasonal fluctuation while ensuring proper environmental stewardship, particularly important given the tourist beaches (e.g., Blue Flag Beach). The presentation then summarized how the water and wastewater utility has responded to the energy and environmental challenges posed. The utility has significantly upgraded their sludge treatment system, which has allowed them to generate electricity and heat from the anaerobic digester gas and reuse treated water, saving the utility almost US$1 million per year and reducing carbon emissions by some 2,400 tons annually.

eThekwini - Durban, South Africa

Dr. Michael Sutcliffe, City Manager, eThekwini - Durban

Durban is the third most populous city (approx. 3 million) in South Africa, forming part of the eThekwini metropolitan municipality. Issues related to land use, electricity shortages and the upcoming 2010 the Fédération Internationale de Football Association (FIFA) World Cup have put increasing demands for more sustainable energy use. In response, the city established an energy office, which looks across sectors at energy and environment issues. The city has supported a number of measures, from waste minimization to wastewater treatment to landfill gas to residential solar water heating and lighting programs. While these programs have largely been successful at reducing energy use while improving the environment and creating local jobs, much more capacity building in the professional sector (e.g., infrastructure designers) is needed to better mainstream such initiatives and scale-up results.

Lviv, Ukraine

Mr. Serhiy Kiral, Head of Foreign Economic Relations and Investment Office, Lviv City

Lviv is the Seventh largest city of about 850,000 people in western Ukraine. Despite the city's many attributes, the outdated and obsolete equipment used to provide basic municipal services remains a key energy challenge. A series of initiatives around energy efficient buildings were presented, which included a low-cost and innovative building poster program (a voluntary building energy efficiency label), an energy efficient window demonstration program, and an introduction to building energy

management accounting and monitoring systems. While these programs have all yielded energy savings and other important benefits, limited state budgets and lack of public awareness, among other issues, remain key challenges.

Tianjin, People's Republic of China

Mr. Lin Xuefeng, Vice Chairman, Sino-Singpore Tianjin Eco-City Administration Committee

Tianjin is one of four municipalities that have provincial-level status in China. As a city experiencing tremendous growth, Tianjin proposes to develop a Greenfield, extension of the city (30 square km and estimated population of 350,000) as an eco-city. Planning for this ambitious program is part of a cooperation agreement with the governments of China and Singapore. The World Bank and City of Stockholm are also supporting this initiative. This eco-city planning process would be based on 26 key performance indicators dealing with environmental, social, economic and regional coordination issues. Some key features of this site will include 90% green transportation (e.g., rail, alternative fuel buses, cycling), a compact urban layout with mixed space (e.g., green space), a comprehensive water recycling system, green buildings and industries, and a 20% renewable energy target.

Quezon City, Philippines

Sec. Salvador M. Enriquez Jr., Principal Adviser to the Mayor

Quezon City is the largest city of Metro Manila with about 2.7 million people. It occupies 25% of the Metro Manila land area and 20% of its population. The city implemented the Controlled Disposal Facility Biogas Emission Reduction Project, which captures methane from a waste dumpsite and converts it to electricity. The project was financed by an Italian company and was registered with the Clean Development Mechanism (CDM) and has reduced greenhouse gas emissions by 116,000 tons per year, generated 42 MW of clean energy, created local jobs for plan construction and operation, and improved the slope stability of the dumpsite, reducing trash slides.

Amman, Jordan

Eng. Zaidoun I. Elqasem, Environmental Planner, Amman Master Plan

Amman, Jordan's capital city is the largest city in Jordan with a population of 2.2 million in 2006, expected to triple by 2025. This significant growth will create pressures on land use and municipal services, which will require a great deal of energy. In response, the city has initiated several renewable (waste-to-energy/biogas) energy projects (20-25 MW); developed programs on energy efficiency (street lighting, households, building codes, district cooling); and transportation (e.g., bus rapid transit, bus standards, traffic planning). The Amman Master Plan also calls for a framework for a more energy efficient city, integrating energy efficiency dimensions into city planning, including special densification, increased standards, transport corridor intensification, land use specifications, and a monitoring system for construction activities.

Odessa, Ukraine

Mr. Gennady Nechaevsky, Head of Municipal Debts and Strategic Planning

Odessa, located in southern Ukraine, has over 1 million people over 40,000 acres. As with other cities, Odessa is trying to maintain and upgrade their municipal infrastructure, including their district heating system, public housing rehabilitation, and airport restoration. The city established a Municipal Investment Fund, which can access funds from government budgets, international and local capital markets and other sources, and finance or guarantee public and private infrastructure projects.

Mexico City, Mexico

Mr. Oscar Vazquez, Director of Climate Change and CDM Program, Secretariat for the Environment

Mexico City is located within the Mexico City Metropolitan Area (MCMA) with a population of over 20 million. Its 16 districts have some 35,000 industries and over 3.7 million vehicles contributing to some 37 million metric tons of CO_2 in 2007. In response, the city has developed a Climate Action Plan (2008-2012) that includes adaption, mitigation, and communication-education initiatives. Some 32 departments participate in the Plan, which propose 12 adaption actions, 26 mitigation measures, and 6 communication initiatives. The mitigation plans, efforts range from biogas capture and exploitation to Bus Rapid Transit (BRT) to energy efficiency in the public and residential sectors, would require some US$5.6 billion in investment and reduce CO_2 emissions by 4.4 million tons per year.

Stockholm, Sweden

Ms. Malin Olsson, Head of Planning Department, Stockholm City Planning Administration

Stockholm is Sweden's capital and its largest city with a population of 0.8 million (expected to grow to 1 million by 2030). The city embarked on a strategy of building the city inward, through integrated urban planning and reuse of developed land. The Hammarby Sjöstad development project began in 1995 and is now about two-thirds completed. The "Hammarby Model" is a planning approach to integrate energy, waste, and water/sewage considerations in order to provide full municipal services while protecting the environment. This was supported with environmental load profile software and use of environmental indices to help balance economic costs with environmental benefits. Provisions within the development project included solar energy (e.g., electric and water heating), waste-to-energy, wastewater use for district heating/cooling, biogas for power generation, dual storm drainage systems, and comprehensive waste recycling. While the costs for this particular development project were high relative to developing city standards (20 billion SEK, or about US$2.8 billion), the integrated planning approach was still presented as a viable approach for all cities to consider.

São Paulo, Brazil

Mr. Fabio Feldmann, Consultant (former Executive Secretary, São Paulo State Forum on Global Climate Change and Biodiversity)

São Paulo has more than 10.8 million inhabitants and has the highest gross domestic product (GDP) in Brazil (US$108.1 billion). The government of Brazil has launched a National Plan on Climate Change, which includes components for mitigation, adaptation, research and development, and empowerment. São Paolo developed its own state policy on climate change, which promotes the development of energy efficiency programs, the use of renewable energy sources, the adoption of building codes, and the improvement of public transportation systems. The policy also calls for emission reduction targets, both at the sectoral level and jointly with other regions of Brazil and the world. At a city level, São Paolo is a member of C40, an association of large cities committed to tackling climate change, and it has committed to reduce GHG emissions by 30% by 2012 (based on 2005 inventory).

ICLEI – US

Mr. James Yienger, Technical Director
www.iclei.org

ICLEI is an international association of local governments dedicated to a sustainable urban environment. It works with over 900 cities and municipalities through international campaigns and programs. Under its programs, ICLEI has developed an international GHG protocol to assist cities in measuring and achieving tangible reductions of GHG emissions. This protocol is supported by the development of software, such as CCP and HEAT, aimed at setting up a global database of emission inventories, measures, and action plans. In addition, ICLEI has been carrying out the Project 2 Degrees, a complementary online set of tools enabling cities to enter their emissions, create an action plan, and prepare reduction measures.

Global City Indicator Facility

Dr. Patricia L. Mc Carney, Director, University of Toronto

Because cities lack consistent and comparable indicators to measure, report, and improve their performance in city services and quality of life, the Global City Indicator Facility (GCIF), an initiative supported by the World Bank's Development Grant Facility, the Canadian Government and participating cities, was established at the University of Toronto. Its main goal is to help develop standardized global indicators and methodologies, enabling cities to not only evaluate, document and enhance their performance, but also to share best practices and learn from each other. The GCIF has conducted a pilot project with nine cities and has developed a comprehensive indicators database along with best practices accessible via their website: www.cityindicators.org. GCIF has also set a mechanism to monitor, report, verify and amend the proposed city indicators.

Clinton Climate Initiative

Ms. Emma Berndt, Finance Associate, Clinton Climate Initiative
www.clintonfoundation.org

President Clinton launched the Clinton Climate Initiative (CCI) in August 2006 to make a difference in the fight against climate change in practical, measurable and significant ways. In its first phase, CCI is serving as the exclusive implementing partner of the "C40," an association of 40 large cities and 14 affiliate cities around the world. CCI has created programs to assist cities in the sectors that drive their energy consumption, including existing buildings, outdoor street and traffic lighting, solid waste management, transportation, clean energy, ports, airports and a developing countries initiative. It has also put in place supporting infrastructure to implement these programs on the ground. In particular, under its Energy Efficiency Building Retrofit Program, CCI has over 250 active projects as of November 2008. (Presentation not available.)

UN-Habitat

Mr. Chris Williams, Director, UN-Habitat
www.unhabitat.org

UN-Habitat analyzes and studies human settlement patterns taking into consideration the environmental issues. Its studies highlight the tremendous and rapid urbanization of the world. By 2050, urban dwellers will likely account for 86% of the population in the more developed regions and for 67% of that in the less developed regions. UN-Habitat's systematic inventory foresees large cities (over half a million in population) around the world will reach 5,000 by 2030. As the trend continues, tackling energy efficiency and climate change issues in a city context will be essential. These changes underscore the need for innovative thinking in many areas, including energy efficiency and climate changes. They call for local capacity building in city planning, among other things. However, they also recognize the scale of the problem is so great and on-the-ground actions so limited, a focus on adaption measure is also urgently required. (No presentation available.)

The Sheltair Group (Canada)

Mr. Sebastian Moffatt, President
www.sheltair.com

Energy has always been the principle factor in defining urban location, form, size and density. The scope and intent of urban energy efficiency programs are driven by changing external factors, such as economics, security of supply, air quality, and climate change. Collaboration may be essential for effective scaled-up energy efficiency planning of urban regions, but success is unlikely without design charter, high level government commitment, and new financing mechanisms. Integration of urban design with energy system design appears to offer tremendous benefits, but most professionals lack the tools and ability to explore spatial implications of alternative energy systems. Software tools for urban scenario planning are now capable of supporting energy system design but the problems remain of data availability and a lack of training for users. "Catalyst projects"

offer an effective approach to change management; they allow programs to start small, to demonstrate new paradigms, and to simultaneously test both new technologies and enabling policies.

The World Bank Institute

Mr. Konrad Von Ritter, Sector Manager, World Bank Institute's Sustainable Development Department
www.worldbank.org/wbi

The World Bank Institute (WBI) is the client learning and capacity development arm of the World Bank. Its Sustainable Development Unit (WBISD) provides courses, seminars and policy advice through three main programs: (i) urban and local government, (ii) water development, and (iii) climate change, environment, and natural resources management. Cities are increasingly becoming important clients in the development and implementation of each the three programs. In a concerted effort to work across several disciplines, WBISD has launched an integrated initiative called, "Cities of 2050." This initiative aims to promote innovative policies, strategic long-term planning and thinking on city development strategies through leadership development, attitudinal change, and technical knowledge sharing. There are several components in the cities work, including a mega-cities learning program and workshop being organized in Basel, Switzerland (February 2009) and a special theme focusing on cities and carbon finance at the Carbon Expo in Barcelona, Spain (May 2009). In addition, a new effort is being started with the Country team in Vietnam and possibly other countries in East Asia and Pacific to address climate mitigation and adaptation at the city level. Interested "centers of excellence" and "think & do tanks" may be involved in the development and implementation of "Cities of 2050" learning programs.

East Asia Urban Sector Unit (Eco^2 Cities)

Mr. Hiroaki Suzuki, Lead Operations Officer, Urban Development Sector Unit, East Asia and Pacific Region, World Bank

The world is urbanizing rapidly. This urban growth has historically had a positive impact on the economy but now poses growing environmental challenges. For instance, cities are responsible for 75% of the world's energy use and the resulting GHG emissions. In response to these challenges, the World Bank's East Asia and Pacific Region has launched an innovative new initiative called "Eco^2 Cities: Ecological Cities as Economic Cities." Its objective is to promote an integrated paradigm and adaptable approach for environmentally and economically sustainable urban development in client countries, through three phases. Under the first phase of this initiative, the program team will develop a flexible, analytical and operational framework that integrates policy and reform measures, infrastructure investments, and financial instruments. In the second phase, the framework will be applied to prepare specific Eco^2 programs in a few pilot cities. Finally, in the third phase, the team will move towards scaling up and mainstreaming the approach through larger national Eco^2 programs.

Cities Alliance

Gunter Meinert, Senior Urban Specialist
www.citiesalliance.org

Cities Alliance is a global coalition of cities and their development partners committed to scaling up successful approaches to reduce urban poverty. It supports the elaboration of City Development Strategies (CDS) which is an action plan for equitable growth in cities and their surrounding regions, developed and sustained through participation, to improve the quality of life for all citizens. Cities Alliance also assists local authorities in upgrading urban slums by promoting secure tenure, access to shelter finance, and policies to help cities prevent the growth of new slums. To support CDS elaboration and slums upgrading, Cities Alliance provides matching grants, between US$100,000 and US$500,000, through a demand-driven approach that consists of the submission of proposals from Cities, proposal assessment by Cities Alliance's secretariat and external evaluators based on criteria, such as urban poverty reduction, local government commitment, replicability, and scalability. The organization does not support climate change or energy efficiency programs at present, given their focus on poverty alleviation and city demands, but could incorporate energy efficiency considerations within more of its work if demanded by cities and demonstrated cost effectiveness.

ESMAP

Ranjan K. Bose, Senior Energy and Transport Specialist
www.esmap.org

To help cities identify and prioritize energy efficiency interventions, ESMAP intends to develop a rapid assessment framework, a practical tool aimed at promoting energy efficiency. This framework consists of five steps: 1) city characterization; 2) prioritization of sectors; 3) sector analysis; 4) program design and implementation; and 5) monitoring & evaluation. The first step enables a broad vision of the city by characterizing its components into several categories. The second step helps cities prioritize its sectors of interventions based on documented issues, symptoms, and their causes. The third step permits in-depth assessment of energy efficiency issues and underlying causes in the selected sectors. Based on this assessment, cities can design and implement appropriate programs in the fourth step, as well as monitor and evaluate those programs using key indicators in the last step. ESMAP requested feedback from the participants on the relevance of this framework and will be exploring options for further development.

3. Roundtable Discussion

During the roundtable discussion session, the Chair posed a number of questions (see agenda in Annex 1 for list of questions) and invited all participants to respond. The synopsis below provides a summary of some of the key responses and themes discussed during this session.

Question: What are the main drivers and challenges for Energy Efficient Cities?

Other World Bank participants posed additional questions to the group, including:

- How do cities deal with the need for linkages between local and national initiatives?
- How can cities integrate energy programs, when energy is often an input in other sectors with their own departments and utilities? In other words, are these sector "silos" major barriers and how do cities deal with them?
- How do energy efficiency programs fit in with broader climate change plans and commitments?
- What are useful coordination and dissemination mechanisms that can be used to share city experiences amongst one another?

Responses:

The representative from *São Paulo* noted that local environmental issues can be key drivers of programs and, as such, the full local impacts should be considered.

The representative from Durban pointed out that the driver may be less important than the context to which it is being presented to its constituents. He noted that such programs have real economic-social-environment aspects that need to be considered and presented to the broader public. Sometimes, simple initiatives can serve as critical "triggers," whereby the program will get engineers thinking about social issues and environmental professionals thinking about economics. These tangible projects can lead to more behavioral changes, rather than the more conventional approach of broad studies and analytical frameworks.

The *Sheltair Group* noted the disconnect between micro-level interventions, which are often characterized by small-scale, innovative, doing as opposed to macro-level programs which tend to be framed around constraints and the flow of information. Getting access to the organic information at the local level where the actions occur is critical but a major challenge.

Quezon City noted that cities have pressing social and economic issues and are less likely to be driven by global environmental issues, such as climate change. For them, climate change was considered to be abstract issue driven by developed countries and the reality is that they get less priority than more immediate needs, such as employment creation, slum eradication, safety, etc.

Durban felt that cities need to develop a framework that helps present climate change in a more politically acceptable way to different audiences and cities should take climate change, especially those vulnerable to climate impacts (e.g., cyclones) into the decision-making of socioeconomic issues, because ignoring it was not an option. He

pointed out that climate change will have adverse impacts on economic growth and the poor and, therefore, was directly relevant to city mayors. He argued the public could be brought along if the issues were articulated in a clear manner. He also felt some more macro-level analyses from a city level, rather than the project-level CDM approach, can help people to better understand, and thus, frame the issues, costs/benefits and trade-offs. He argued for an approach of basing energy efficiency interventions on and integrating them into exiting city agendas, rather than creating new energy silos. This comment was supported by Columbia University later in the discussion. He also indicated the need to showcase the linkages between energy efficiency and other city priorities, such as economic, social and environmental development.

The *City Indicator Facility* mentioned that climate change has become an international issue and is currently being discussed worldwide. Cities have to take part in the discussions otherwise they will be left out. Cities managers should have a broad vision and take advantage of financing opportunities available through climate change funds.

Lviv City felt there was also a disconnect between the technocrats that typically do much of the work but are not decisionmakers and the politicians who are empowered to decide but may be driven by short-term interests and ultimately are not actually "doers." He felt that the multisectoral nature of energy efficiency at the urban level is really not an issue if the mayor is onboard. Once the signal comes from the top, institutions will work together. Lviv City stated that energy efficiency by itself may not be a priority for a city, so establishing the broader city context was needed. He suggested using a carrot-and-stick approach to scale up energy efficiency in cities. Commitments of city mayors were also determined to be critical; therefore upfront identification of local champions was very important. In addition, efforts need to be made to develop a framework to make the case for energy efficiency in the city context.

A representative from the *World Bank* reiterated that energy efficiency opportunities are a "win-win" and need not be subject to the same controversies and debates surrounding other climate change programs. However, it was also noted that developing countries and cities need to understand that there are increasing resources for climate change and, therefore, city officials need not make an emphasis in distinguishing between energy efficiency and climate change. Although the World Bank often refers to energy efficiency as a means of climate change mitigation, in the developing country context, energy efficiency was more often discussed in terms of reduced municipal service costs, good city management, increased competitiveness, etc. So, rather than argue over terminology, the emphasis should be on what cities can do and how the World Bank and other international organizations can support these efforts.

Durban then responded by saying good practices on national versus subnational relationships would be very helpful. He noted while some cities were active, the World Bank and others could engage the national government to more proactively deal with such issues (e.g., national building codes or equipment standards) from a national level. There was also a need to continue to share experiences across cities, so they can learn from each other, although the ideal mechanism to do this was not

clear. And, he pointed out that more experiences were needed on "brownfield" land use.

Mexico City raised the issue that even though climate change is taken into account in cities' agendas, they lack appropriate capacities for dealing with this subject matter. For instance, Mexico City has defined over 20 projects to mitigate climate change impacts but only two people are assigned to carry out those projects. Perhaps, establishment of a climate change office or budget earmarks for climate change could help address these capacity and resource constraints.

Durban disagreed with the concept of a climate change office, because climate change (and energy) is so cross-cutting. Perhaps this was more of a budgetary issue, so the budget people need to have insights into the costs and benefits of energy efficiency and climate change.

The representative from *Columbia University* asked the city representatives if training of mayors would be of value to influence political decisionmakers.

Lviv City responded that such an initiative may not yield great benefits, given that they are only in these posts temporarily. But training and support for the technical staff, many of whom are strong advocates for energy efficiency and other environmental issues, would help them to be able to share more international experiences and thus help make the case for such initiatives with their city managers.

Quezon City noted that local governments have been given increased prominence recently and are emerging as more powerful and important sovereigns. The World Bank and other organizations need to consider this trend when developing future strategies and plans. It was also noted that the presentation by the World Bank on Eco^2 (see p. 6) framed the issues well, presenting the need for incorporating environmental considerations into city development plans without adverse economic growth trade-offs.

LUNCH BREAK

Question: What are some of the implementation experiences and lessons learned from the various initiatives undertaken and presented by the cities on the previous day?

Responses:

The representative from *Amman* furthered some of their experiences presented the previous day with the Amman Master Plan. They have been able to initiate a number of measures, including the BRT system, a pilot street lighting program, building code, etc., but noted that more was needed. For example, the building code, which was developed at the national level, is only voluntary, so some incentives were needed to encourage building developers to comply, as well as policy support to make it mandatory in the future.

The representative from *Stockholm* wanted to stress that the take-away message from their presentation was that a more integrated approach to city development could yield substantial environmental and economic benefits. What is important was the way of thinking about the interrelationship between the various services rather than just focusing on certain policies, models, or measures.

Quezon City wondered whether some increased pressure from the World Bank and other donors, possibly through conditionalities, could help promote certain policies, such as building codes. They also shared an interesting example from the transport sector of how some efficiency investments can be thwarted by common behaviors. Many roads are designed as high volume, fast corridors. However, roads often lead to roadside businesses that clog these corridors, leading to unexpected congestion and travel speeds much lower than planned, which ultimately undermine the objective of the road project.

Durban pointed out that improving energy efficiency (e.g., low-cost, EE housing, demand management, poverty alleviation through trash buyback programs, etc.) has immediate benefits that citizens can easily understand. The city is interested in a framework that would integrate indicators to allow analysis of energy intensive sectors of the cities. Such a framework should incorporate "triggers" that help change mindsets and develop a "mass consciousness" for energy efficiency, mass transit, etc. These experiences can help city planners to work backwards from the proposed solutions to find out what actions should be undertaken to realize them.

A representative from the *World Bank* asked how CDM has helped them, if, at all, to address some of the resource and other issues associated with energy efficiency and climate change programs.

Quezon City mentioned that some aspects related to CDM, such as the methodology leading to carbon credit generation, are hardly understood by their city managers. However, they appreciated getting funds to implement projects that improve energy efficiency use and supply while generating jobs for their citizens. In other words, it was the tangible, local benefits that were recognized as positive, not the very complex and less tangible global benefits.

Durban city added that CDM projects have brought a multidisciplinary approach of planning and implementing projects. CDM helped in the shortterm, by helping the city staff to consider issues in a different way and can, if harnessed properly, offer cities new ways to help the poor.

Sao Paulo felt that the programmatic approach of CDM was interesting and carried some advantages.

Tianjin faces challenges to meet the targets under its eco-city initiative: use of 20% of renewable energy source and implement 90% of green transportation systems. Its implementation team needs tools to determine cost effective clean technologies and would like to find out best practices in this field.

Amman reiterated that energy efficiency is becoming a higher priority. Through the implementation of energy efficiency projects, the city has learned that involvement of the private sector in the financing of energy efficiency measures is essential.

Odessa City noted that World Bank responses can be slow, in some cases delaying the implementation of important projects. An increased effort to reduce bureaucracy and a consideration to lending directly to cities could substantially help.

Lviv City underlined the need for having the World Bank set up a one-stop shop that will direct cities clients to specific resources responding to their needs. City staffs are overwhelmed with a variety of issues, sources of funds and financial products, donor groups, etc., and are pushed to deliver results within a short timeframe; therefore, it will be useful for cities to have such a single window.

4. Recommended Actions and International Community's Interventions

After the Roundtable discussion, the participants were divided up to discuss some of these issues in smaller groups. Each discussion group was composed of five to seven participants of two to three city representatives as well as representatives from the partners and Bank. The four small groups were asked to discuss and present their answers to four questions:

1. What are three to five major issues that developing country cities face?
2. What are the energy dimensions of the issues noted above?
3. What are some intervention options you would consider to help address the energy dimensions noted above?
4. How can the international community help cities to carry out these interventions?

Ideas from each of the groups are recorded in the following table.

	City issues	Energy dimensions	Interventions	Request for Int'l Community
Group 1	• Housing • Municipal service infrastructure • Economic growth and job creation • Attracting investment • Global branding of the city • Urban planning/City zoning • Relations with central government • Institutional/HR capacities • Health • Violence/crime • Traffic	• District heating systems • Transportation planning / public systems • End use energy efficiency • Land use planning • Energy diversification and reliability (e.g., energy efficiency (EE), renewables) • Local air quality • City green branding to attract high value investment • Local EE/renewable energy (RE) business for job creation • Energy generation through waste	• Mixed land use planning (high density city) • Efficient/diverse transport systems • More efficient municipal services systems (e.g., legislation, regulation, incentives) • Demand management (e.g., pricing, metering, load management, reduce losses) • Social marketing/awareness/education	• Policy advice • Dialogue with decisionmakers at local and national levels • International recognition of local initiatives • Benchmarking / best practices • Small grants for pilots (to use as "triggers") Resources / consultants for land use planning and analysis (with EE) • Foster leadership
Group 2	• Rapid urbanization and urban sprawl • Public transport to be accessible, affordable, and attractive • Local governments' governance capacity	• Smart growth has to think of transport beyond walkable distance • Low car ownership	• Show case good practices on land uses planning (with transport, EE building etc • Have to move away from car ownership • Make public transport more attractive • Need for improving local governments' capacity	• Help with governance, training, including energy efficiency and sustainable transport system • Leverage the investments for energy efficiency and sustainable transport • Promote the elaboration of long-term cities development strategies
Group 3	• Affordable housing • Economic development (job creation) • Accessibility to infrastructure information and communication technology (ICT) and public transit • Solid waste management • National endeavor to reduce energy fiscal burden due to fuel imports and green building codes • Forecasted energy demand growth and supply shortfall due to aging infrastructure and flat supply • Climate change (both mitigation and adaptation) • High electricity costs (household and community)	• Energy as a part of basic services in affordable housing • Energy plays a role in economic development in two ways: 1) New industry related to clean energy and climate change (e.g., CDM and clean-tech companies); and 2) Consistent supply of energy-avoidance of interruption of production due to power black out or power crisis • Solid waste management in two aspects: 1) Waste to energy; and 2) Low operation cost of transporting waste	• Integrated transport network, which normally reduces use of energy for better air quality and lower cost (time cost and monetary cost) • Solid waste to energy	• Reduce bureaucratic procedures • Maximize partnership where each party benefits • Increase access to good practices • Concessional finance to cities for incentivize private investment (e.g., renewable energy) • Technical know-how to monitor implementation and impact of projects involving private finance

Group 4	• Transport • Security • Access to finance • Seasonal population fluctuation due to tourism • Rapid urbanization (16% growth in the case of the Antalya) • Large population size • Limited natural resources	• Different energy implications of different style of city and transport design (e.g., light rail vs. cars; condensed vs. sprawl urban spatial growth) • Provision of electricity is difficult if urbanization comes with increase in energy use • Different demands depend on time of year (e.g., tourism)	• Building light rail • Planning –core solution • To differentiate energy tariff, which is politically difficult • Local government involvement in decision-making • Promoting energy efficient products • Education of population • Low cost technology development (central government) • Design houses for migrants to city • Education particularly for rural migrants • Plan a high dense city	• More flexible financing • Advocacy for cities planning/needs with national government • Design financial instruments targeted at cities (e.g., only release funding when cities are involved) • Shorten time lag from donors (e.g., lower transaction cost of using donor funding) • Capacity building • Strengthen and ensure long-run political commitment, currently short-sighted

5. Annexes

Annex 1 – Roundtable Agenda

Dates: October 20-21, 2008
Venue: World Bank Headquarters, Room JB1-075 (701 18th Street, NW, Washington, D.C. 20433)

Monday, October 20, 2008

9:00 AM	Welcome (Abha Joshi-Ghani & Amarquaye Armar)
9:15 AM	Introduction (Dan Hoornweg & Jas Singh)
9:30 AM	City Presentations *Antalya, Turkey*
	eThekwini (Durban), South Africa
	Lviv, Ukraine
	Tianjin, China
10:30 AM	Questions and Answers
10:45 AM	Coffee Break
11:00 AM	City Presentations (continued) *Quezon City, Philippines*
	Amman, Jordan
	Odessa, Ukraine
	Mexico City, Mexico
12:00 PM	Questions and Answers
12:15 PM	Lunch
1:30 PM	City Presentations (continued) *Stockholm, Sweden*
	Sao Paolo, Brazil
2:00 PM	Questions and Answers
2:10 PM	Partners and Private Sector Presentations *ICLEI – U.S.*
	City Indicator Facility
	Clinton Foundation
	UN Habitat
	The Sheltair Group
3:25 PM	Questions and Answers
3:45 PM	Coffee Break
4:00 PM	World Bank Presentations *World Bank Institute*
	East Asia Urban Sector Unit (Eco^2 Cities)

Cities Alliance

Carbon Finance

ESMAP (Preliminary urban energy analytical framework)

5:15 PM Questions and Answers

5:30 PM Wrap-Up

Tuesday, October 21, 2008

9:00 AM Introduction to Roundtable (Jas Singh & Dan Hoornweg)

9:15 AM Overall Challenges

- *What are some of the biggest challenges cities face in terms to creating more energy efficient (EE) and sustainable environments?*
- *How do challenges differ between the development of new EE infrastructure versus retrofitting existing built environments?*
- *Are there high quality integrated planning models that have been successfully adapted to developing country cities?*

9:45 AM Data and Analytic Tools

- *What types of information and analysis would cities find critical to launching major sustainable energy efforts?*
- *What analytic methods are available to assist cities to identify priorities, actions, investments to improve EE? What are remaining gaps?*
- *What have been typical data constraints and how can they be overcome?*
- *What is the progress to date in developing a citywide GHG inventory*

10:30 AM Coffee Break

10:45 AM Institutional Set-ups

- *What institutional frameworks should cities consider to ensure a more coordinated and effective program?*
- *How have cities dealt with the fundamental multisectoral nature of EE cities?*
- *How can programs across many agencies be most effectively coordinated? Who becomes accountable for results?*

11:30 AM Specific Sectoral Programs and Financing

- *Are there examples of successful programs dealing with land use and integrated urban planning?*
  - *Water and wastewater?*
  - *Transportation?*
  - *Buildings?*
  - *Public lighting?*
  - *Other?*
- *How have these programs been funded or financed? Have traditional sources of financing been appropriate for such measures? Why or why not?*
- *What other sources of financing are available and suited for such programs?*

12:15 PM Lunch

1:30 PM Policy Prescriptions

- *What policy options have cities considered to promote EE in all sectors, government, industry, commercial and residential?*
- *How can these policies best be coordinated with national initiatives and eventually harmonized across cities with country/province?*

- *Are these policies adequately enforced and monitored?*

2:00 PM Voluntary Mechanisms

- *What is the appropriate role of municipal governments in promoting EE in the commercial and industrial sectors?*
- *What mechanisms should cities consider to promote EE investments in these sectors?*
- *What voluntary mechanisms can cities use to incentivize residential energy consumers to adopt more EE appliances?*

Annex 2 – Participant List

	#	Name	Title	Organization	Email
CITIES REPRESENTATIVES	1	Michael O. Sutcliffe	City Manager	EThekwini (Durban), South Africa	michael@demarcation.org.za
	2	Zaidoun I. Elqasem	Environmental Planner, Amman Master Plan	Municipality of Greater Amman, Jordan	zaidounqasem@yahoo.com
	3	Lin Xuefeng	Vice Chairman	Sino-Singapore Tianjin Eco-City Administrative Committee, Tianjin, China	linxf@eco-city.net.cn
	4	Yan Xu	Deputy Director, Environment Bureau	Sino-Singapore Tianjin Eco-City Administrative Committee, Tianjin, China	yanx@eco-city.net.cn
	5	Zhang Erxiang	Deputy Director, Finance Bureau	Sino-Singapore Tianjin Eco-City Administrative Committee, Tianjin, China	zhangex@eco-city.net.cn
	6	Dai Lei	Deputy Director, Construction Bureau	Sino-Singapore Tianjin Eco-City Administrative Committee, Tianjin, China	dail@eco-city.net.cn
	7	Zhang Jiliang	Division Chief Foreign Economy Division	Finance Bureau Tianjin Municipality, Tianjin, China	hua88@eyou.com
	8	Joe Zhao	Environmental engineer	Tianjin, China	jzhao_2005@yahoo.com
	9	Salvador M. Enriquez	Principal Adviser to the Mayor	Quezon City, The Philippines	zyporin@yahoo.com,
	10	Antonio Ariel Enrile-Inton Jr.	Majority Floor Leader	Councilor District IV, Quezon City, the Philippines	zyporin@yahoo.com,
	11	Kivanc B. Kuzay	General Manager	Aldas, Infrastructure Management and Consultancy Inc., Antalya, Turkey	kuzay@aldas.com.tr
	12	Gennady Nechaevsky	Head	Department of Municipal Debts & Strategic Planning Odessa, Ukraine	gn@investment.odessa.ua
	13	Serhiy Kiral	Head of Foreign Economic	Relations and Investment Office Lviv, Ukraine	serhiy.kiral@city-adm.lviv.ua
	14	Oscar Vazquez Martinez	Director,	Climate Change and CDM Projects Mexico City, Mexico	ovazquez@dgpa.df.gob.mx
	15	Fabio Feldmann	Director	Fabio Feldmann Consultores, Sao Paolo, Brazil	fabio.feldmann@uol.com.br
	16	Malin Olsson	Head of Division Planning Department	Stockholm City Planning Administration The City of Stockholm, Sweden	malin.olsson@sbk.stockholm.se
	17	Klas Groth	Urban Planner	Stockholm City Planning Administration The City of Stockholm, Sweden	klas.groth@sbk.stockholm.se

	#	Name	Title	Organization	Email
PARTNERS	18	Stephen Hammer	Director, Urban Energy Program	Center for Energy, Marine Transportation and Public Policy, Columbia University	sh2185@columbia.edu
	19	Gerard Magnin	Executive Director	Energie Cities	gerard.magnin@energie-cities.eu
	20	Emma Berndt	Finance associate	Clinton Climate Initiative William J. Clinton Foundation	eberndt@clintonfoundation.org
	21	James Yienger	Technical Director	Cities for Climate Protection Campaign, ICLEI-Local Governments for Sustainability	jim.yienger@iclei.org
	22	Patricia McCarney	Director	Global City Indicators Facility	patricia.mccarney@utoronto.ca
	23	Sebastian Moffatt	President	Sheltair Group, Canada	smoffatt@sheltair.com
	24	Christopher Williams	Representative	United Nations Human Settlements Programme UN-HABITAT Washington Office	Chris.Williams@unhabitat.org
	25	Thomas Melin	Head of Division for Urban Development	Department for Infrastructure and Economic Development SIDA	Thomas.Melin@sida.se
WORLD BANK PARTICIPANTS	26	Gunter Meinert	Senior Urban Specialist	Cities Alliance Program The World Bank	gmeinert@citiesalliance.org
	27	Amarquaye Armar	Program Manager	Energy Sector Management Assistance Program, World Bank	aarmar@worldbank.org
	28	Abha Joshi-Ghani	Sector Manager	Finance Economics & Urban Dept, World Bank	Ajoshighani@worldbank.org
	29	Konrad Von Ritter	Sector Manager	Sustainable Development Division World Bank Institute	kritter@worldbank.org
	30	Hiroaki Suzuki	Lead Operations Officer	Urban Development Sector Unit, East Asia and Pacific Region, World Bank (EASUR)	Hsuzuki@worldbank.org
	31	Jas Singh	Senior Energy Specialist	Energy Sector Management Assistance Program, World Bank	jsingh3@worldbank.org
	32	Daniel Hoornweg	Lead Urban Specialist	Finance Economics & Urban Dept, World Bank	dhoornweg@worldbank.org
	33	Sebastien Carreau	Temporay	Cities Alliance Program The World Bank	scarreau@citiesalliance.org
	34	Victor M. Vergara	Lead Urban Sector Specialist	Sustainable Development Division World Bank Institute	vvergara1@worldbank.org
	35	Habiba Gitay	Senior Environmental Specialist	Sustainable Development Division World Bank Institute	hgitay@worldbank.org
	36	Allan Rotman	Lead Technical Specialist	Sustainable Development Division World Bank Institute	Arotman@worldbank.org
	37	Rutu Dave	Consultant	Sustainable Development Division World Bank Institute	rdave@worldbank.org
	38	Perinaz Bhada	Junior Professional Associate	Finance Economics & Urban Dept, World Bank	pbhada@worldbank.org
	39	Arish Adi Dastur	Consultant	Urban Development Sector Unit, East Asia and Pacific Region, World Bank	adastur@worldbank.org

	#	Name	Title	Organization	Email
WORLD BANK PARTICIPANTS	40	Fatima Zehra Shah	Urban Economist	Urban Development Sector Unit, East Asia and Pacific Region, World Bank	fshah@worldbank.org
	41	Abdusalam H. Omer	Consultant	Urban Development Sector Unit, East Asia and Pacific Region, World Bank	aomer@worldbank.org
	42	Axel E.N. Baeumler	Senior Economist	Urban Development Sector Unit, East Asia and Pacific Region, World Bank	abaeumler@worldbank.org
	43	Xiaodong Wang	Senior Energy Specialist	Africa Technical Families: Energy The World Bank	xwang1@worldbank.org
	44	Peter Johansen	Senior Energy Specialist	Sustainable Development Sector Unit, Europe and Central Asia Region, World Bank	pjohansen@worldbank.org
	45	Feng Liu	Senior Energy Specialist	Energy Sector Management Assistance Program, World Bank	fliu@worldbank.org
	46	Ranjan Bose	Consultant	Energy Sector Management Assistance Program, World Bank	rbose@worldbank.org
	47	Alain Ouedraogo	Operations Analyst	Energy Sector Management Assistance Program, World Bank	aouedraogo2@worldbank.org
	48	Xiaoyu Shi	Operations Analyst	Energy Sector Management Assistance Program, World Bank	xshi@worldbank.org
	49	Juliet Pumpuni	Consultant	Energy Sector Management Assistance Program, World Bank	jpumpuni@worldbank.org
	50	Bipulendu N. Singh	Consultant	Energy Sector Management Assistance Program, World Bank	bsingh2@worldbank.org
	51	Anne-Marie Coonan	Consultant	Energy Sector Management Assistance Program, World Bank	acoonan@worldbank.org
	52	Nat Pinnoi	Technical Specialist	Carbon Finance The World Bank	npinnoi@worldbank.org
	53	Charles W. Peterson	Senior Environmental Specialist	Carbon Finance The World Bank	CPeterson@worldbank.org
	54	Federica Ranghieri	Environmental Specialist	Operations and Policy Sustainable Development Department The World Bank	franghieri@worldbank.org

Annex 3 – Hot Links to Presentations

Presentations are retrievable at ESMAP website through the links provided in the table below.

	City, Country	Link
Cities	Antalya, Turkey	Sustainable Energy and Energy Efficiency Programs in Cities, Antalya, Turkey (http://esmap.org/news/Antalya-Turkey-KivancKuzay.pdf)
	eThekwini – Durban, South Africa	Sustainable Energy and Energy Efficiency Programs in Durban, South Africa (http://esmap.org/news/durban-michaelsutcliffeFINAL.pdf)
	Lviv, Ukraine	Sustainable Energy and Energy Efficiency Programs in Cities, Lviv, Ukraine (http://esmap.org/news/LvivCity-Ukraine-SerhiyKiral-presentation.pdf)
	Tianjin, China	Explorations on Eco-City Development and Energy Efficiency, Tianjin, P.R. China (http://esmap.org/news/TianjinEco-cityESMAPPresentation-updatedOct182008.pdf)
	Quezon City, The Philippines	Quezon City – Sustainable Energy Report, Quezon City, Philippines (http://esmap.org/news/QuezonCity-Philippines-SalvadorEnriquez,jr.pdf)
	Amman, Jordan	Sustainable Energy and Energy Efficiency Programs in Cities, Amman, Jordan (http://esmap.org/news/Amman_GM-Jordan-ZaidounElqasem.pdf)
	Mexico City, Mexico	Sustainable Energy and Energy Efficiency Programs in Cities, Mexico City, Mexico (http://www.esmap.org/news/MexicoCityClimateActionPlanOct08.pdf)
	Odessa, Ukraine	Energy Efficiency Programs in the Cities, Odessa, Ukraine (http://esmap.org/news/Odessa-Ukraine-GennadyNechaevsky-Washington2008.pdf)
	Stockholm City, Sweden	Stockholm City, Sweden (http://esmap.org/news/Stockholm-Sweden-MalinOlsson-081020.pdf)
	São Paulo, Brazil	Sustainable Energy and Energy Efficiency Programs in Cities, São Paulo, Brazil (http://esmap.org/news/SaoPaolo-Brazil-Fabio-Feldmann_20_10.pdf)

Partners	ICLEI	Charting a Global Standard – GHG Accounting and Climate Action Planning, ICLEI (http://esmap.org/news/ICLEIWBOct08.pdf)
	CIF	Global City Indicators Facility (http://esmap.org/news/CIF-PatriciaMcCarney-PPfinal.pdf)
	Clinton Foundation	Promoting Energy Efficient Cities, Clinton Climate Initiative, Clinton Foundation (www.ClintonFoundation.org)
	The Sheltair Group	Urban Efficiency Key Insights, the Sheltair Group (http://esmap.org/news/Sheltair-SebastianMoffatt-UrbanEE.pdf)
	WBISD	World Bank Institute's (WBI) Cities and Climate Change Program (http://esmap.org/news/WBI-KonradRitter-CitiesandChangeClimate101708.pdf)
	EASUR	Eco2 Cities: Ecological Cities as Economic Sites (http://www.esmap.org/news/Eco2Cities_ESMAP_10.20slim.2008.pdf)
	Cities Alliance	Cities Alliance – Cities without Slums (http://esmap.org/news/CitiesAlliance-GunterMeinert-ESMAP2008GM.pdf)
	ESMAP	Rapid Assessment Framework for Promoting Energy Efficiency in Cities (http://esmap.org/news/Ranjan-ESMAPEECities.pdf)

Energy Sector Management Assistance Program
1818 H Street NW
Washington, DC 20433 USA
Tel: 1.202.458.2321
Fax: 1.202.522.3018
Internet: www.esmap.org
E-mail: esmap@worldbank.org