Overview of Energy Efficiency in Cities
Agenda

- Trends
- The Importance of Cities
- Energy Efficient Cities Initiative (EECI) at ESMAP
TRENDS
Trends

Urbanization poses major challenges...

- 3.7 billion people live in urban areas (50% urban)
- 2.5 billion more in the next 40 years
- 70% urban by 2050
- China will double its housing stock between 2000 and 2015

Trends

Urbanization poses major challenges ... especially in developing countries

**Trends**

Urbanization poses major challenges ... especially in developing countries

---

**Population of Mega Cities**

Trends

RISING INCOMES TOO ...

Note: Per capita GDP in hundred thousands of 2005 U.S. dollars and per capita energy consumption in billions of BTU
Trends

RISING INCOMES TOO ...

Transport energy consumption per capita vs GDP per capita

Source: H. Krambeck, World Bank, 2009

Car ownership vs GDP per capita

LAGOS RANKED 3RD LEAST HABITABLE PLACE ON EARTH

By Ibiene George

The Economist Intelligence Unit, according to the BBC, has placed Nigeria’s economic capital, Lagos, as the third worst place in the world to live in.

Source: The Economist / Nigerian Entertainment Today

Source: http://fivesenseslagos.blogspot.com.ar/
THE IMPORTANCE OF CITIES
The importance of cities

CITIES ACCOUNT FOR 70% OF THE WORLD’S ENERGY CONSUMPTION ... AND GROWING RAPIDLY!

Source: IEA, 2008
The importance of cities

**They are key for realizing the significant energy efficiency potentials that exist**

- Most of the growth in energy consumption will be in cities of developing countries
- Main energy efficiency improvements will come from (1) buildings, (2) industry, (3) transport (WEO 2012, IEA)
- Buzz words: urban metabolism, lock-in, path dependency, inertia
- Key message: Do it right from the start!
The importance of cities

**How are cities dealing with this challenge?**

- Cities as systems (inhabited by people)
  - Buildings
  - Public lighting
  - Transport
  - Water and wastewater
  - Power & heat
  - Solid waste
  - Industry
- Provision of services: access, security, reliability and affordability but also sustainability

- What to prioritize?
- Where to start?
- How to plan?
- How to finance?
- How to implement?
- What are the best practices?
- ... ?
- You cannot manage what you cannot measure
The importance of cities

HOW ARE CITIES DEALING WITH THIS CHALLENGE?

- Cities are willing to take the challenge, but need support (technical, financial, political, etc.)
- Cities learn from each other, share experiences and best practices
  - ICLEI
  - C40
  - Partnership for Sustainable Cities (in formation)
  - Etc.
ENERGY EFFICIENT CITIES INITIATIVE AT ESMAP
The Energy Efficient Cities Initiative (EECI) was launched in 2008 to mainstream and scale-up EE in urban settings.

Key features of EECI:
- Clients are city mayors and municipal bodies
- Demand-driven
- Focus on innovation and results
- Partnerships
Analytical work allows new operational modalities

Operational support allows implementation schemes to be shared

Knowledge dissemination helps refine and inform new analytical work

Sharing of experiences helps refine and inform new analytical work
Eco2 Cities: Ecological Cities as Economic Cities provides an overview of innovative ideas and best practice on sustainable cities. ESMAP prepared the chapter on urban energy use.

Energy Efficient Cities: Assessment Tools & Benchmarking Practices offers analytical tools and policy insights from integrated assessments of new cities to the impacts of socioeconomic, climate, and demographic changes on existing cities.

Mainstreaming Building Energy Efficiency Codes in Developing Countries summarizes global best practices and lessons from developing countries in design and implementation of building codes.
Public Procurement of Energy Efficient Services looks at energy savings performance contracts (ESPCs) as a means of overcoming the hurdles implementing energy efficiency in public facilities.

Public Procurement of Energy Efficient Products assesses global experiences with energy efficient purchasing (EEP) as a tool to help governments improve the efficiency of their facilities and public services.

A Primer on Energy Efficiency for Municipal Water and Wastewater Utilities looks at opportunities, approaches and lessons for realizing vast energy savings potential in the water sector.

Best Operational and Maintenance Practices for City Bus Fleets to Maximize Fuel Economy presents a set of specific actions municipal bus operators can take to improve fuel efficiency through improved maintenance and driver training.
ECCI

Knowledge Clearinghouse

- Case studies database (26 cases available)
  - Building & Heating
  - Solid Waste
  - Transport
  - Water/Waste Water
  - Public Lighting
  - Urban Planning
  - Financing
  - Procurement

- Energy efficient cities guidance notes for Mayors
- Capacity building for Energy Efficient Urban Transport Planning
- E-learning course for energy efficiency in public buildings (together with World Bank Institute)
Provided support of WB projects, including:

- China
- Macedonia
- Mexico
- Ukraine
- Russia
- Uruguay
- India
- South Africa
- Etc.
● Strong demand from cities
  – Strong desire to reduce energy costs through energy efficiency (EE) improvements
  – Lack of a rapid decision-support tool to identify major EE interventions across urban sectors
  – Desire to learn from peer cities and international best practice

● Key advantages of TRACE
  – Cross-sectoral
  – Focuses on areas under the control of the city authority
  – Relatively low data requirements, low cost, intuitive and quick to implement
  – Strong ownership of cities
MORE INFORMATION ON EECI | ESMAP Website
http://esmap.org/esmap/EECI

TO GET TRACE AND SUPPORT | ESMAP Website
http://esmap.org/esmap/TRACE

TRACE TRAINING | E-learning course available at:

Thank You.

The World Bank | 1818 H Street, NW | Washington DC, USA
www.esmap.com | esmap@worldbank.org