

Promoting Energy Efficiency in Buildings in East Africa

Kenya, Uganda, Tanzania, Burundi and Rwanda

Sebastian Lange

Urban Energy Section

*Access to Modern Energy Services, Energy Efficiency and
Renewable Energies*

The Starting Point

Rapid Urbanization and informal urban growth: ..limits the possible influence of local authorities. The problem is tremendous.

Existing building codes and regulations: ..in many cases derive from the colonial period and have hardly been amended. EE is a new topic.

New residential and commercial buildings: ..often resemble architectural designs appropriate for the moderate climate of the West with significant implications for energy consumption under tropical conditions.

Data availability: ..is generally poor regarding the building stock, energy consumption pattern and climatic conditions.



Why Promoting Energy Efficiency in Buildings in East Africa?

Energy means development: ..energy has become a limiting factor for economic development and growth in East Africa. The projections for demand and supply are diverging.

Energy is expensive: ..due to the increasing demand, prices for various forms and sources of energy have rocketed in the recent years.

Energy is not available, yet, for everyone ..increased energy efficiency means to free existing capacities for other consumer groups and productive use forms.

To take a sustainable development path: ..all countries of the EAC acknowledge with their set targets for NAMAs the importance of a alternative, sustainable development path.



Kenya's electricity generation capacity and sources 1999&2009

Generation Source	Capacity (MW) June 1999	Capacity (MW) June 2009	Capacity Increase (MW, %) (1999 – 2009)
Hydro	624	749	125 (17%)
Geothermal	45	163	118 (72%)
Thermal	206	434.3	228.3 (53%)
Off-grid thermal	9.2	11.7	2.5 (21%)
Wind	0.4	0.4	0
Cogeneration	0	2	2
TOTAL (MW)	884.6	1360.4	475.8 (35%)

Source: Kenya Power and Lighting Company Annual Reports

The annual growth in energy demand in East Africa is around 8%. This compares with an annual increase in electricity supply capacity of 3 to 4%, only.

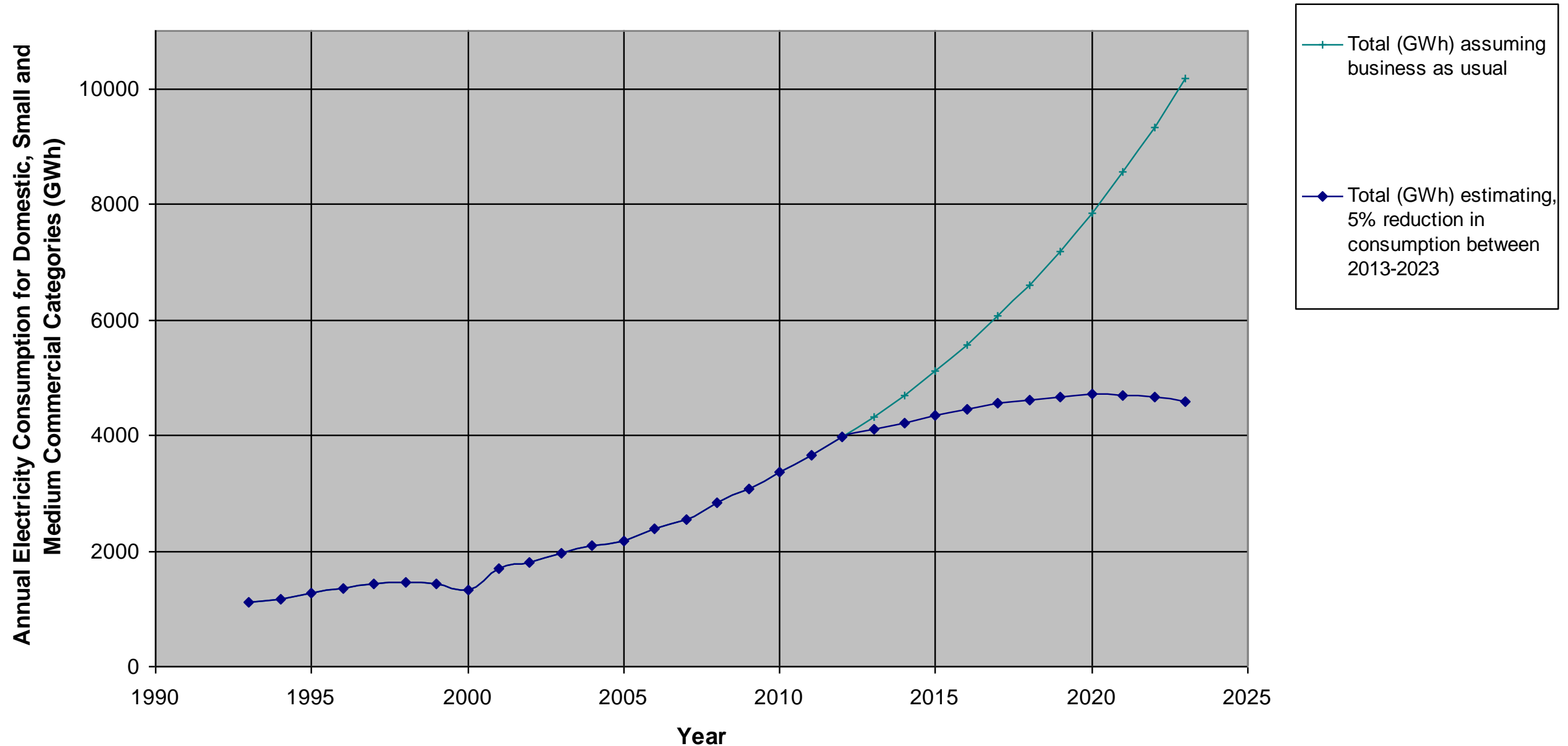
Electricity consumption trends for consumer categories

Consumer category	Current # of consumers in Nairobi, Coast and Western Kenya	% of total electricity consumed	Annual growth in # of consumers (% increase)	Average electricity consumed per customer per tariff category per year in kWh 2002-2008 (% annual increase/decrease)		
				Nairobi	Coast	Western Kenya
Domestic	470,242	22%	70,503 (13%)	2,479 (- 5%)	2,626 (- 3%)	1,348 (- 4%)
Small commercial	58,342	12%	6,040 (6%)	5,474 (+ 5%)	6,993 (+ 8%)	8,113 (+ 4%)
Medium commercial	83,238	18%	150 (6%)	315,926 (+ 2%)	355,323 (- 1%)	315,443 (+ 1%)

Source: Kenya Power and Lighting Company Annual Reports

Kenya's electricity generation capacity and sources 1999&2009

Effect of increase in Efficiency in Domestic, Small and Medium Commercial Categories After 2012



The Project Objectives..

To Mainstream Energy Efficiency Measures into Housing policies, Building Codes and building practices in East Africa

To Achieve considerable avoidance of CO2 emissions as a result of improved EE building practices.



Project overview

Regional approach: ..EAC countries.

Pilot project: ..Kenya and Uganda, later application in Tanzania, Rwanda and Burundi.

Financial means: ..through the Global Environment Facility (GEF), the partner countries and int. development banks.

Project development and implementation: ..in cooperation with UNEP-DGEF.



Program outcomes

Reliable EE benchmarks in the building sector are available for East Africa

Strengthened capacity of partner governments to develop or amend building regulations and standards (i.e. building codes and municipal bylaws) to incorporate EE provisions

Increased awareness of EE and best practices in EEB, improved capacity of professional and line ministry staff

Strengthened financial framework in each partner country for the implementation of EEB measures

Accelerated implementation of **pilot projects** for demonstration purposes

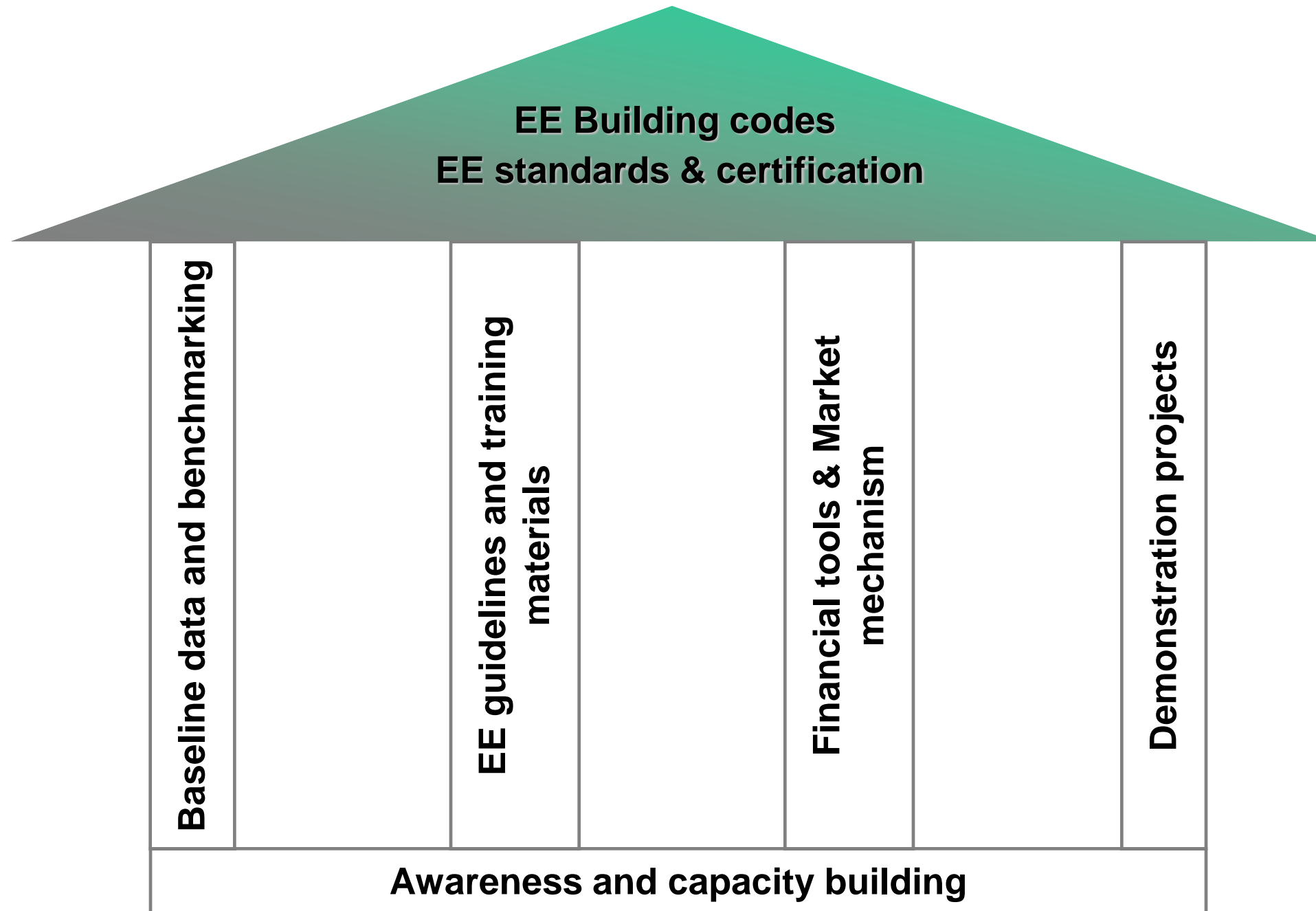


Deliverables

- Education, Awareness creation, Capacity Building programs
- Policies, regulations, Building Codes, Municipal Bylaws
- Tools, manuals and guidelines
- Financial mechanisms, green credit lines
- Demonstration projects
- The East African EEB Award



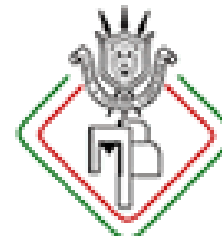
The link between research and market implementation..



Promoting Energy Efficiency in Buildings in East Africa

Partners:

- GEF, UNEP-DGEEF
- EAC Countries
- Municipalities and local governments
- Universities, Think Tanks
- NGOs, Professional Associations
- Private sector



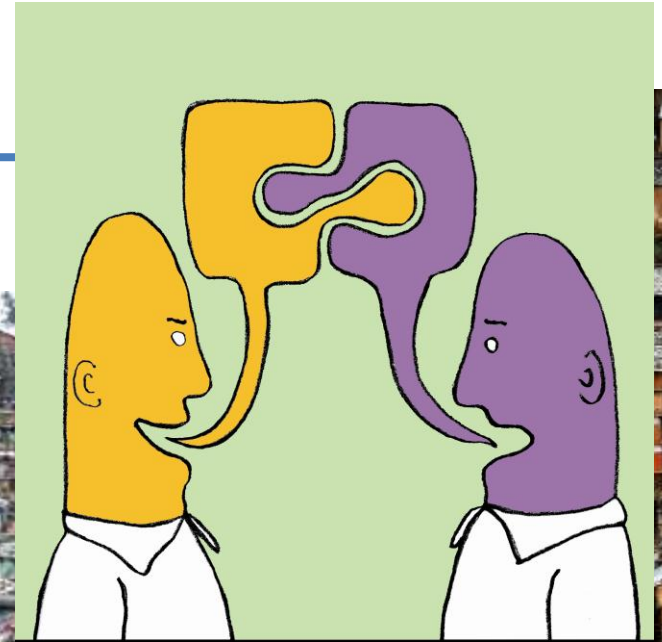
UN HABITAT's Mandate

The **United Nations Human Settlements Program**, UN-HABITAT, is the United Nations agency for human settlements. It is mandated by the UN General Assembly to promote socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all. The main documents outlining the mandate of the organization are the Vancouver Declaration on Human Settlements, Habitat Agenda, Istanbul Declaration on Human Settlements, the Declaration on Cities and Other Human Settlements in the New Millennium, and Resolution 56/206.

The agency's budget comes from four main sources - the vast majority in the form of contributions from multilateral and bilateral partners for technical cooperation. The agency also receives earmarked contributions from governments and other partners, including local authorities and foundations, and around 5 per cent from the regular UN budget.

..our work:

- Urban development and management
- Land and housing
- Environment and climate change
- Water, sanitation and urban infrastructure, including energy
- Urban economy and financing shelter
- Risk and disaster management
- Social inclusion
- Information and monitoring



Contact Information

Sebastian Lange (Urban Energy Section):

+254(0)20/762 4464

sebastian.lange@unhabitat.org

Vincent Kitio (Chief, Urban Energy Section):

+254(0)20/762 4343

vincent.kitio@unhabitat.org

www.unhabitat.org

UN  **HABITAT**
FOR A BETTER URBAN FUTURE