Energy Efficiency e-training for East-African Municipalities

16th March 2021
Gabriela Prata Dias
Support developing countries in their efforts to progress towards climate resilient low carbon societies

UN Environment Programme of Work

CLIMATE PLANNING AND POLICY
Better National Planning

CLIMATE TRANSPARENCY AND ACCOUNTABILITY
Higher Accountability

BUSINESS MODELS AND MARKETS
Stronger Market Models

Capacity Building

Research and Analysis
The Copenhagen Center on Energy Efficiency

Accelerating Energy Efficiency programs of Cities and Countries

Activating Knowledge Base

Developing Public-Private Implementation Projects

Replicating and Communicating Success
Sustainable Development Goals
Targets and metrics to 2030

TARGET 7·1: Universal access to modern energy
TARGET 7·2: Increase global percentage of renewable energy
TARGET 7·3: Double the improvement in energy efficiency
TARGET 7·A: Promote access to research, technology, and investments in clean energy
TARGET 7·B: Expand and upgrade energy services for developing countries
The Paris Climate Agreement

GLOBAL GOALS / EFFORTS
- Global temperature limit (Art. 2)
- Long-term goal on mitigation (Art. 4.1)
- Global goal on adaption (Art. 7.1)
- Mobilizing climate finance (Art. 9.3)
- Technology (Art. 10)

NATIONAL EFFORTS
- Mitigation
- Adaptation

COOPERATION
- Capacity-building
- Policy coordination
- Mobilization of support

TRANSPARENCY FRAMEWORK
To enhance transparency of action and support, implementation and compliance

GLOBAL STOCKTAKE
To assess progress against the purpose of the Paris Agreement and its long-term goals
First global stocktake to take place in 2023, and every 5 years thereafter

Figure 1.1  Average annual change in primary energy intensity improvement, historically and in the IEA Sustainable Development Scenario

Note: SDS = IEA Sustainable Development Scenario.
Emissions savings by 2030

- Energy efficiency: 49%
- Fossil-fuel subsidy reform: 10%
- Upstream methane reductions: 15%
- Renewables investment: 17%
- Reducing inefficient coal: 9%
Emissions savings by measure by region, 2030

Primary Energy Sources

Conventional

Non-conventional
Final Energy

- Mobility
- Mechanical
- Cooling
- Heating
- Lighting
- Energy Using Products
- Hot water
Figure ES.2  The multiple benefits of energy efficiency improvements

A multiple benefits approach to energy efficiency reveals a broad range of potential positive impacts.
Motivations for Energy Efficiency

- Pollution and Health
- Refrigerants and Global Warming
- GHG Reduction Objectives
- Efficiency and innovation
- Reduction of stress on electricity grids
- Reduce dependence on fossil fuels
Opportunities EE offer in the Pandemic context

- Improve health condition
- Job creation
- Economic Development

- Labour intensive
- Quick projects
- Local supply chains & Competitiveness
- Affordable energy
- Reduce emissions
How to implement Energy Efficiency

- Information and capacity
- Enabling Frameworks (ESCOs)
- Financial and Fiscal Incentives
- Specific Energy Efficiency Regulation
- Cost Reflexive Prices of Energy
- Energy Sector Reform
- Institutional Configuration
- Energy Efficiency Policy and Legislation
How to implement energy efficiency

Energy Efficiency Policy

Top down

Bottom up

Efficient Use of Energy
How to prepare energy efficiency interventions
Example of Top-down approach

Kenya National Energy Efficiency and Conservation Strategy

2020

Kenya National Energy Efficiency Conservation Strategy

Implementation Plan
2021
Which are the gaps at local level?

- Lack of local capacity
- Lack of data
- Design bankable projects
- Bridging the gap between the regulatory level and ground level
- Long-term support to local authorities
- Communication and awareness raising
- Standardisation and transferability
Energy efficiency in buildings

Design, position and orientation

Passive solar systems and solar protection

Thermal characteristics of the building

Heating, cooling and domestic hot water
Energy efficiency in buildings

Natural ventilation Strategies

Maximizing natural light

Internal climatic conditions

Mechanical installations
The increased pressure on cooling
District cooling

Cities represent more than 70% of the global energy demand and are in average 5 to 9 °C hotter than the rural areas

- Reduces the need of electricity for cooling
- Help shift demand to valley hours
- Reduces refrigerant emissions (HFC, CFC) up to 100%
- Reduces CO₂ emissions
- Reduces the cooling cost for final consumer
- Reduces the heat island effect in cities
- Low consumption of drinking water for cooling purposes
Sustainable district cooling
Integration of renewables
Opportunities in street lighting
Addressing transport and mobility
Addressing Transport and mobility
Water-energy-food nexus
Our tools...

Street lighting rapid assessment online tool + Financial Tool

Water supply systems rapid assessment online tool

District Cooling rapid assessment online tool

Buildings database set & rapid assessment online tool

City Guides for EE implementation at local level
Street lighting tools
Source book on EE in Municipalities
Business Models for Energy Efficiency

- Lending, Grants
- Equity, Leasing
- Energy Performance Contracts
- Public Revolving Funds
- Bulk Procurement & Aggregation, Pay per service
- Bonds
- Crowdfunding & Blockchain
Thank you.

gdias@dtu.dk

Please visit our knowledge Management System at:

https://c2e2.unepdtu.org/