# Support to the Development of the **ECOWAS Initiative on Energy Efficiency in Buildings**

## Development of a Draft Concept Note

Supporting Energy Efficiency for Access in West Africa (SEEA-WA)

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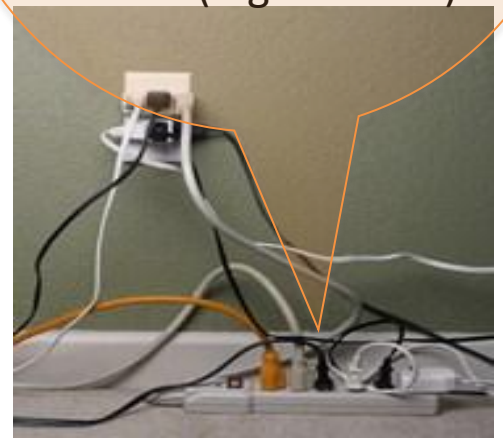
# Power outages and the reasons


**Energy efficiency in buildings reduces peak load!**

Natural cause (draught, seasonal problem)

Electicity networks cause massive distribution losses

High electricity peak demand (e.g. at noon)



pictures: google pictures

# Influence of building performance on electricity consumption and peak load

**Energy efficiency of building envelope, good architectural design for natural ventilation and cooling, use of daylight and integration of renewable energy systems reduce energy consumption during building utilisation**

Cooling, ventilation air conditioning

Lighting

Electric appliances

Eco-labels

Hot water

# Rapid urban growth: energy consumption is increasing

**Hotel** Moevenpick, Accra
(source: website of hotel)

**THE CHALLENGE: to ensure uninter-rupted, constant energy services**

**Apartment building,** Accra
(source: website unity estates Ghana ltd)

**Public building**, Governor's office building, in Akure, Ondo State, Nigeria (competition entry, Carlos R. Gomez; source: http://archinect.com)

**University building**, Dakar
(source: website of university)

**Office Building** in the Gambia
(source: website gardencity real estate)

**Mansion**, Monrovia
(source: website gardencity real estate)

**Tall buildings**, Abidjan
(source: website wikipedia)

# Smallholders, low-income and medium-income families

**THE CHALLENGE:**
**to improve access to affordable energy services**


Picture: R.V. Uruejoma


Picture: S. Geissler


Picture: R.V. Uruejoma


Source: google pictures


Picture: S. Geissler

# Procedure
# and status quo of activity

**Survey and interviews with key stakeholders**

- On building legislation
- On activities in the field of energy efficiency in buildings
  - Urban areas
  - Rural areas

**Define common interests and common challenges**

**Elaborate key actions and a work programme**

# Results in short

- Many activities are on-going regarding energy efficiency in buildings
- Some countries are more advanced than others, but in fact there is awareness that a successful implementation of energy efficiency in buildings is based on several pillars:
  - A strong political will and a consistent regulatory framework, including certification of building materials, administration of building permits, and inspection of buildings during construction and after completion
  - A building code which supports energy efficiency and local materials
  - Compliance and control, enforcement
  - Trained architects, energy experts, civil servants/officials, skilled workers
  - Financial support mechanisms
  - Awareness among the population

# Development of key actions and work programme

Although there are national approaches, some common interests/common challenges have been identified, and as a consequence some key actions have been developed which build on existing activities.

Common challenges:

- The wild race towards the modernization of buildings with the use of imported materials with low energy efficiency; at the same time the population refuses to use local building materials
- Lack of trained skilled workers and energy experts
- Lack of awareness
- Lack of compliance and control; lack of monitoring, lack of enforcement

# Suggested key actions

**Energy efficiency building code: development of a framework document for large buildings (including criteria of tropical architecture and link to urban planning)**

Motivation: To provide all relevant basic requirements for energy efficiency in buildings well-arranged in one document, serving as template for country-specific customisation

**Energy efficiency in small buildings which are not under the building permit procedure: Simple guidelines and training of bricklayers**

Motivation: To cover also small and residential buildings without causing additional costs for people; later on the guideline could be developed towards a mandatory standard

**Training of government officials (experts level) on energy efficiency in buildings**

Motivation: Government has to be involved to develop ownership and to be able to make informed decisions

# Suggested key actions

**Use of local material in energy efficient buildings: product development, testing facilities, quality assurance, demo-buildings**

Motivation: Promote the use of local materials because it (1) reduces overheating → more comfort without additional energy consumption; (2) creates local employment, cheaper than imported material

**ECREEE building award (architectural competition; criteria: energy, local materials, comfort, costs)**

Motivation: Create awareness among architects, building owners, politicians and the public

**Marketing and awareness – cooperation with opinion makers (artists, footballers, etc.)**

Motivation: It is very hard to communicate energy efficiency, therefore testimonials could help

# Suggested key actions

**Buildings: Energy efficiency in schools** (building and education – integrate in curricula)

Motivation: To educate the next generations

**Buildings: Energy efficiency in public buildings and publicly accessible buildings**

Motivation: Public buildings as leading examples; people have the opportunity to feel the difference

**Community fund for energy efficiency:** Communities pay into the fund and get cheap money for energy efficiency measures in public buildings

Motivation: To create continuity regarding implementation of energy efficiency measures in buildings