

# SUSTAINABLE BUILDING FINANCE: A PRACTICAL GUIDE TO PROJECT FINANCING IN EAST AFRICA





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This publication was made possible through the financial support of the Global Environment Facility (GEF).

ACKNOWLEDGEMENTS

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## EXECUTIVE SUMMARY

Promoting Energy Efficiency in Buildings in East Africa (EEBEA) is a 48-month project implemented by UN-Habitat in collaboration with UNEP and five East African countries (Kenya, Uganda, Rwanda, Burundi, and Tanzania). More information on the EEBEA can be found at <http://www.eebee.org/>. Its objective is to mainstream green measures into policies, codes, and development practices, and to avoid GHG emissions as a result of improved building and development practices.

In order to promote energy efficiency in building, the project includes 5 components, namely:

1. establishment of energy efficiency data and benchmarks in the building sector;
2. integration of energy efficient measures in the building codes, housing policies, and regulations;
3. awareness raising and capacity building in energy efficiency and green buildings;
4. appropriate financial framework for the implementation of energy efficiency and green design measures in buildings; and
5. provision of project-specific advice to development projects so as to improve environmental performance.

Finance has been identified among the most important barriers for the adoption of green building designs, and is the topic this guide seeks to address. The regional market presently does not provide adequate financial mechanisms and alternative lending products, i.e. green mortgages or preferential loans for sustainable, green and energy efficient buildings, and asset finance for integrated renewable energy networks. International experience with such products can inform how green property finance can develop in East Africa.

A practical guide to project financing in East Africa is based on the premise that green buildings typically carry higher upfront capital/buyer costs but lower ongoing/operational ones. As such, they offer financial value to

lenders, owners, and occupiers; and societal value in reducing resource consumption, and carbon and other forms of pollution. Unlocking this value requires specialist energy efficiency, green building, and localised energy finance.

### THE IMPORTANCE OF ENERGY EFFICIENCY AND GREEN BUILDINGS IN EAST AFRICA

Energy used in commercial and residential buildings accounts for a significant percentage of total national energy consumption across East Africa. It is estimated that 40% of the total electricity generated in the region is used in buildings alone, consuming more energy than the transport and industry sectors

Inefficient design and construction using inadequate materials for the climate, combined with poor understanding of thermal comfort, passive building principles and energy conscious behaviour, has led to tremendous energy wastage and high electricity bills. Improved building designs (Figure 1) can create significant gains in energy performance and occupant comfort.

The significant building stock additions expected in East Africa in the coming decades make green design practices all the more critical, given the region's challenges in providing full access to modern energy services. High urbanisation rates and even higher projected rates of electricity demand (Figure 2) are outpacing capacity additions to national energy generation and distribution networks. Addressing this challenge needs to consider both the energy and resource consumption within buildings, and also how buildings are supplied with energy. Utilising low-carbon, on-site/local-area energy solutions that are affordable, installed and commissioned quickly, and scalable, can help address this demand growth and capacity constraint dilemma while accelerating the needed change toward renewable energy supply.

**Renewable energies**

Hot water heating: save 50% to 80% of energy compared to conventional electric resistance water heaters

Solar Photovoltaic panels and Wind small turbine: produce your own electricity

**Energy efficiency**

**Save more than half of your energy bill for utilities**

Central air conditioner: can reduce cost for cooling by 30% compared to Central AC from the 80s and 90s. Change your old air conditioner!

Ceiling fans: Energy Efficient ceiling fans combined with light are 50% more efficient

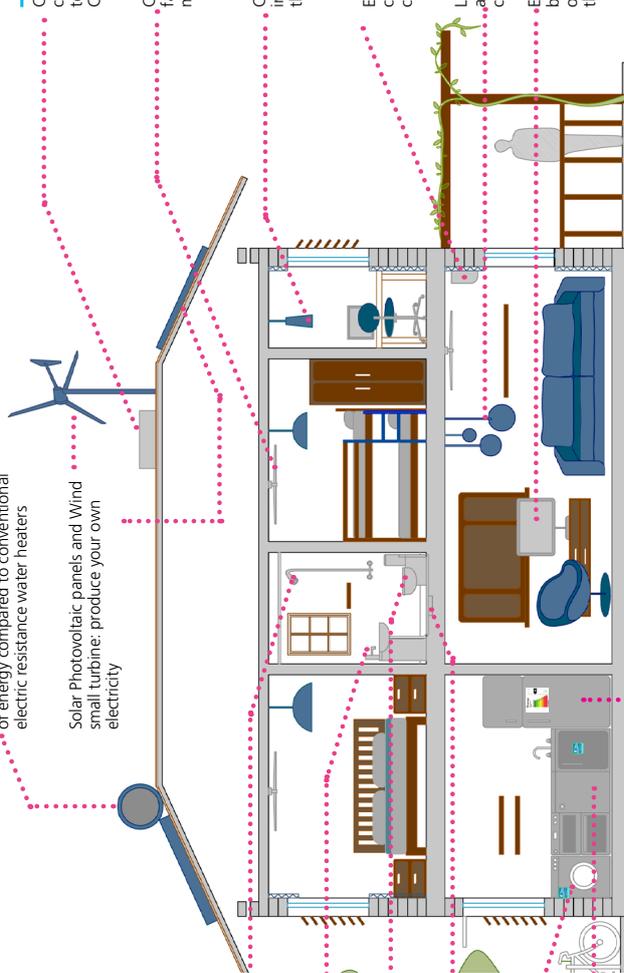
CFL light bulbs save 80% of electricity in lighting have 7 times longer live than conventional bulbs

Energy Efficient Room Air Conditioner consume 50% less electricity compared to 80s and 90s models

LED save 88% of electricity in lighting and last 8 to 15 times more than conventional bulbs

Energy efficient LCD TV using LED backlight system saves 29% to 60% of the electricity compared to those that don't and cathode ray TV sets

Energy efficient fridge saves 60% of electricity in cooling



ice scheme to encourage the design and construction of sustainable homes as well as the client appliances. Save more on energy and water than the increase in the mortgage payment!



tries

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