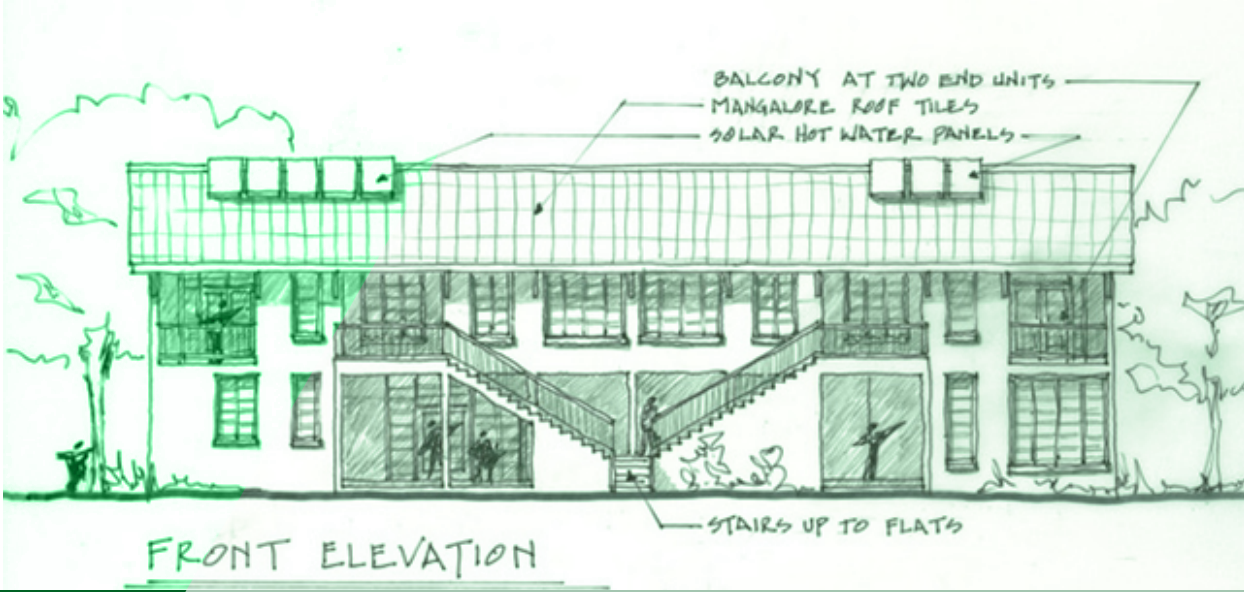
GREEN FINANCE MODELS:
ASSESSING FINANCE PRODUCT CAPACITY TO LOWER BARRIERS TO GREEN BUILDING IN EAST AFRICA



UN HABITAT
FOR A BETTER URBAN FUTURE

GREEN FINANCE MODELS:
ASSESSING FINANCE PRODUCT CAPACITY TO LOWER BARRIERS TO GREEN BUILDING IN EAST AFRICA

GREEN FINANCE MODELS:
ASSESSING FINANCE PRODUCT CAPACITY TO LOWER BARRIERS TO GREEN BUILDING IN EAST AFRICA

United Nations Human Settlements Programme (UN-Habitat)
P. O. Box 30030, 00100 Nairobi GPO KENYA
Tel: +254-020-7623120 (Central Office)
www.unhabitat.org

DISCLAIMER

The designations employed and the presentation of the material in this manual do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or regarding its economic system or degree of development. The analysis, conclusions and recommendations of this publication do not necessarily reflect the views of the United Nations Human Settlements Programme or its Governing Council. Reference in this publication of any specific commercial products, brand names, processes, or services, or the use of any trade, firm, or corporation name does not constitute endorsement, recommendation, or favouring by UN-Habitat or its officers, nor does such reference constitute an endorsement of UN-Habitat.

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

ACKNOWLEDGEMENTS

Urban Energy Unit Chief:	Vincent Kitio
Principal author:	Matthew Ulterino
Design and layout:	Kennedy Muzee
Contributors:	Vincent Kitio
Printing:	UNON, Publishing Services Section, Nairobi

TABLE OF CONTENT

OVERVIEW

The document was prepared as a companion piece to the Sustainable Building Finance: a practical guide to project financing in East Africa under the UN-Habitat Energy Efficiency in Buildings in East Africa (EEBEA) initiative. The intent is to test a number of the finance mechanisms/strategies described in the Sustainable Building Finance Guide for their applicability to East Africa, and assess their ability to overcome barriers to delivering green/energy efficient buildings and local low-carbon energy networks[1].

In early 2017, requests were issued to several property developers (parastatal and private) in the four main EEBEA target countries for use of planned or recently completed projects as base information for green finance product modelling. Project details and data points were sought on building typologies, design details, site layouts/large-area master plans, construction specifications, and construction cost details. Due primarily to commercial confidentiality concerns, the requested information was not secured. In lieu of this, building/project data points were collated from a number of publicly available sources of planned or proposed, in construction, or completed projects in the region. Data on construction costs, design/specification details, energy use and energy costs/expenditure was pulled from these resources where the information was stated. For this, citations are provided in the model descriptions and results in the following pages. Otherwise, the models rely on assumptions from:

- the project designs/images;
- energy cost information from national utility regulators;
- construction cost data points as described in Chapter 6 of the EEBEA Sustainable Building Finance guide;
- energy consumption data points from the UN-Habitat - Assessment of Energy and Resource Consumption in Buildings in East Africa report; and
- reference materials such as the IRENA Solar PV in Africa: Costs and Markets (2016).

Models were developed for each of the primary EEBEA target countries: Kenya, Rwanda, Tanzania, and Uganda. The results are generally applicable from one country to the next, though caution should be exercised where energy consumption rates or retail energy costs differ significantly. Moreover, given the sensitivity between affordability and benefits of green design/construction and interest rates, differences of one or two percentage points could make a material impact. Again, the transferability of results should be treated with caution where there are significant interest rate and tenor variances between countries[2]. As with any high-level modelling exercise, the results are meant to be illustrative and should be subject to further refinement with the availability of more detailed and greater number of data inputs.

1 *Refer to Chapters 4 and 5 of the EEBEA Sustainable Building Finance Guide.*

2 *Research undertaken for the EEBEA initiative suggests fairly minor differences in lending terms (interest rates, tenors, loan to value ratios) in the four countries. Note that the effect of interest rate capping presently in place in Kenya has probably pushed the interest rate 'floor' further from the norm than in other countries.*

01 HOMEBUYER GREEN MORTGAGE FINANCE: LOAN TO VALUE RATIO

DODOMA, TANZANIA

Key messages

- Banks need to make only small loan to value ratio adjustments for equity constrained buyers to accommodate higher capital costs/sales prices for green homes.
- Relatively low energy costs and usage rates may require small interest rate reductions to make energy efficiency investment affordable.

OVERVIEW

As-built plans for a four-unit residential flat complex in Dodoma, Tanzania were used to test the cost-effectiveness of energy efficiency design against prevailing mortgage finance terms. The four upper floor units, situated above a ground floor meeting and communal space at the Dodoma Christian Medical Center, are long-term guest apartments for visiting medical staff. For the model, it was assumed that the units were commercially-built flats for individual sale. The units are good examples of integrating passive design principles (long north/south orientation, cross-ventilation, roof overhang) to increase natural daylight and decrease unwanted solar heat gain (see renderings and photos below). Efficient light fittings, ceiling fans, and solar hot water heating systems were specified in the construction.