

SUCCESS STORIES

GREEN BUILDINGS IN RWANDA; POSITIVELY IMPACTING THE ENVIRONMENT AND HUMAN HEALTH



Figure 1: Ongoing construction of the headquarters of I&M Bank in Kigali (Representational image of green building)



Figure 2: Compressed Stabilized Earth Block (CSEB) wall, rammed earth wall and timber roofing at Rwanda Institute for Conservation Agriculture (RICA) Campus in Bugesera, Rwanda (Representational image of green building)



Figure 3: University of Rwanda - School of Architecture and Built Environment (UR-SABE); Photo Credits: Jules Toulet (Representational image of green building)

- ▶ **The Government of Rwanda, with support from GGGI and other partners, took proactive action in 2019 and approved the Ministerial Order that outlines the Green Building Minimum Compliance System (GBMCS) along with the revised Rwanda Building Code 2019.**

In addition to reducing GHG emissions from buildings, sustainability impacts from the implementation of the GBMCS include 20-30% energy cost savings, 30-40% potable water savings, improved biodiversity and reduced heat island effect as well as promoting occupant productivity, wellbeing and accessibility when compared with a conventional building.

The GBMCS provides a baseline for mainstreaming green buildings in Rwanda and the system has helped raise awareness on the benefits of green buildings and construction practices in Rwanda and across the continent.

The built environment has a vital role to play in providing solutions to the global climate challenge. Green city development is uniquely positioned to address numerous sustainability issues, ranging from greener buildings to electrifying public transport. Globally, **the building and construction sector accounted for 36% of final energy use and 39% of energy and process-related carbon dioxide (CO₂) emissions in 2018**. In Africa, the building sector accounted for 61% of final energy use and 32% of energy-related carbon dioxide (CO₂) emissions in 2018.

Recent estimates indicate Rwanda's building sector, though small in terms of emissions at present at just under 1 MtCO₂e in 2012 is set to grow to over 6 MtCO₂e by 2050 under a Business As Usual (BAU) scenario. This rise will be the result of an increase in the number of building and associated energy consumption in the form of lighting, air conditioning and electronic appliances. Rwanda has set an urbanization target of 35% by 2024, up from 18.4% in 2016. Substantial numbers of buildings and other infrastructure will be needed to support this rapid urbanization and it will be necessary to implement a long-term plan for urban areas to ensure that they are inclusive, low-carbon, and resource efficient.

Action is being taken at every level of society to deliver climate resilient and sustainable green urban growth. One of these actions is taking place at the micro level inside the four walls of what are known as "green buildings". Recognizing the importance of regulating building, Rwanda embarked on the development of GBMCS. This initiative was led by the Rwanda Housing Authority (RHA) with the support from its partners, including GGGI, the Building Construction Authority (BCA) Singapore and the Rwanda Green Building Organization (RwGBO).

The RHA Director General, Eng. Eric Serubibi, says *"Rwanda Green Building Minimum Compliance System, as an Annex to the revised Rwanda Building Code 2019, provides a direction for new large-scale public buildings and major refurbishments to design, construct and operate based on green building principles and green technologies to promote resource-efficient practices in Rwanda's building sector that aims to preserve the environment. (...) The green building minimum compliance system aligns with Rwanda's Vision 2050; international sustainable development commitments, and national strategies to make Rwanda a developed low-carbon green economy by 2050. As Rwanda Housing Authority (RHA) we believe that the green building minimum compliance system is a step in the right direction and together with partners and stakeholders we are working towards raising awareness and building capacity for a smooth implementation,"* he adds.

The GBMCS will support Rwanda's ambition to reduce GHG emissions from the building and construction sector, starting with new large-scale public buildings and major refurbishments. Rwanda is the first country in Africa to mandate the GBMCS through its revised building codes and is expected to trigger decarbonization and resource efficiency throughout the building construction value chain.

GGGI supported the RHA and partners in formulating and drafting the GBMCS, by conducting stakeholder consultations, and providing technical support for the awareness and capacity building programs. This flagship policy will form the cornerstone to Rwanda's response to decreasing emissions in public buildings – and obtaining some of the estimated 3 MtCO₂e potential reductions within the building sector by 2050. Similarly, GGGI supported the RHA in the elaboration of the revised ministerial orders for urban planning and building construction which provided a legal framework to enforce the GBMCS.

In addition, GGGI developed an excel-based GBMCS implementation tool to support building professionals in complying with the requirements of the System and support the building permitting process and inspection officers to assess the level of compliance of the building project with the GBMCS.

Inhee Chung, GGGI's Country Representative in Rwanda, says, *"GGGI in Rwanda is excited to be supporting the Government of Rwanda in rolling out the GBMCS to all stakeholders across the country. Although we are starting with greening new public buildings, we expect it will be a matter of time before green construction practices will become the new norm in Rwanda. (...) We are also pleased to work with forward-looking developers that see the value in applying the GBMCS in their real estate projects, especially in Kigali. GGGI plans to support the greening of the existing building stock which has a huge GHG reduction potential,"* she added.

The GBMCS would be applicable for new, large-scale commercial buildings, public buildings, assembly buildings, health facilities and educational buildings. New large-scale commercial and public buildings shall achieve 60 points out of the 190 points available to comply with the requirement of the GBMCS.

Green buildings have become increasingly popular and important as more occupants look for spaces that are good for both people and the environment. Going forward, the RHA, with the support from stakeholders, will conduct public awareness campaigns, training programs for architects, engineers, building inspectors, developers, contractors, students and other stakeholders to ensure that the GBMCS is successfully disseminated and implemented.