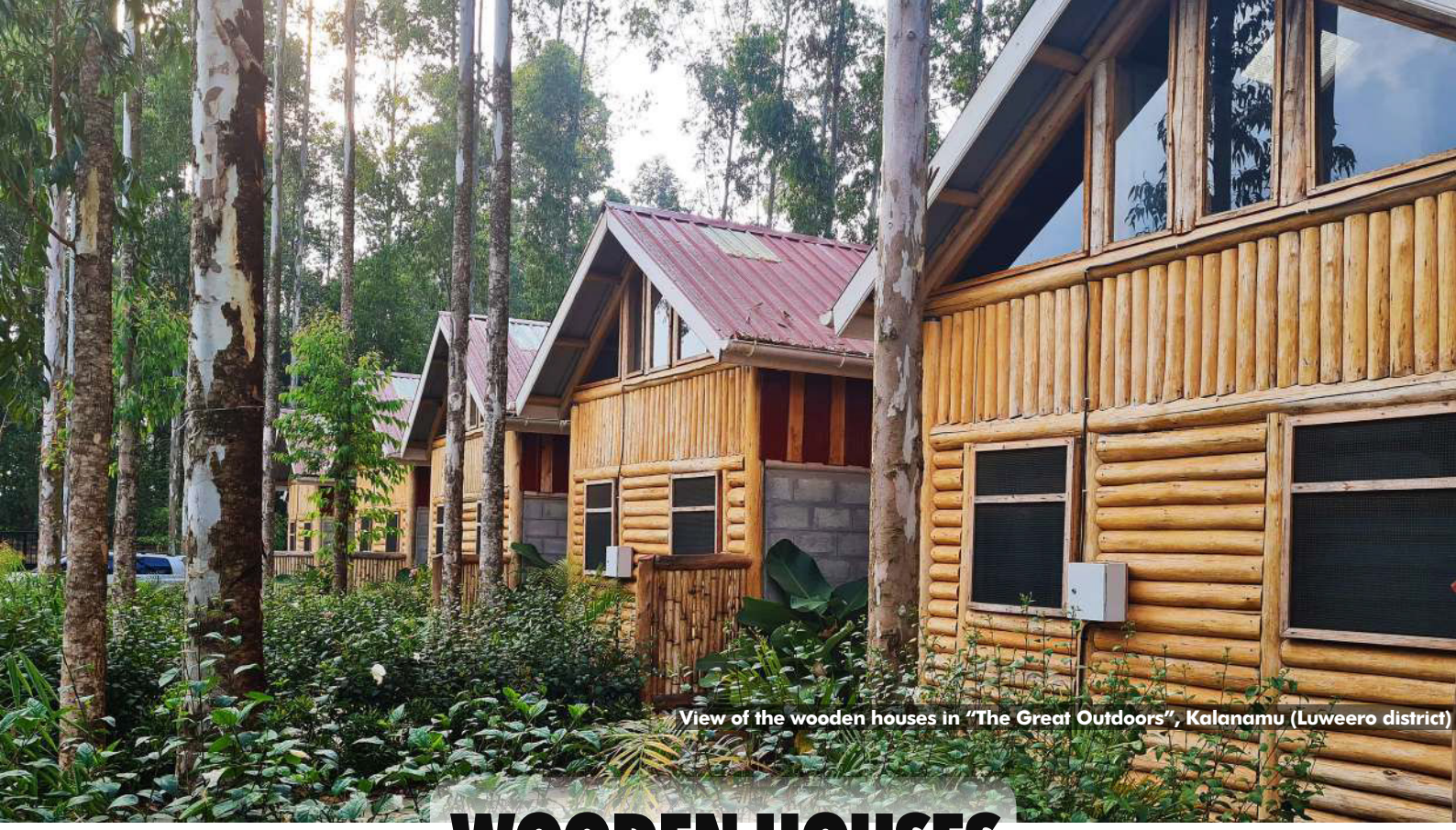

View of the wooden houses in "The Great Outdoors", Kalanamu (Luweero district)

WOODEN HOUSES

THEY PROVIDE DECENT HOUSING, SECURE CARBON STORAGE AND HELP WITH CLIMATE CHANGE

BY JOSHUA ZAKE
ALL PHOTOS JOSHUA ZAKE

Construction of houses using timber, poles and wood is a technology that has been in practice for long. Humans have used wood as a material for housing construction for over 10,000 years. In Uganda, some wooden houses (e.g. Makerere University, accommodation for teaching staff and the wooden house in the National Forestry Authority compound) are still standing strong after more than 40 years. Besides, even in conventional house construction, timber and poles are used for various functions throughout the construction process. For example, timber and poles are used for roofing. Poles also provide vertical support during the construction of conventional houses. And wood is used in door frames, door leaves, window frames, shutters, and vents.

In Uganda, wood is commonly used as semi-permanent structures at hotels and leisure parks. It is frequently used for construction of livestock houses (such as goats, rabbits). It is best practice to have such houses with a raised floor, and it is cheaper to build the houses with wood or timber, rather than bricks, sand and cement. The current debate on climate change argues that wooden houses and products can make a huge contribution to climate change adaptation and mitigation. Wood products store carbon that was previously present in the atmosphere as carbon dioxide, thus acting as a significant component of the overall carbon sink. Research indicates that wooden buildings for urban dwellers can store 0.01–0.68 gigatonnes[1] of Carbon per year.

The construction industry is under pressure to find alternative materials to cement and steel, whose production is associated with the release of greenhouse gases. **Worldwide, building and construction accounts for 39% of greenhouse gas emissions (GHG),** 28% of which (11% of total GHG emissions) is down to the materials used (World Green Business Council, 2019). Besides, iron and steel production are very energy intensive compared to wood products. Globally, the industry accounts for 8% of global final energy consumption (IEA, 2020). Therefore, timber and wood products are increasingly being considered as a viable alternative in construction of residential and commercial buildings. In Kampala, Fairventures Worldwide (FVW) and Partners are establishing a Timber Innovation Centre. This will be the first mass timber[2] construction in Uganda with the goal of promoting sustainable afforestation and demonstrating the benefits of timber in the building sector.

Despite this, wooden houses are less popular than conventional houses. This can be attributed to the perception towards wooden houses (may not last for

1. One gigatonne of Carbon is equivalent to 109 tonnes of Carbon
2. Mass Timber (short for "massive timber") uses state-of-the-art technology to glue, nail or dowel wood products together in layers

Inside view of the wooden houses in "The Great Outdoors"

long). Building engineers and technocrats have not promoted wooden houses to would-be clients. This is not a surprise given that there are no dedicated courses at Universities, Colleges and Vocational Training Institutions for knowledge and skills enhancement in construction of wooden houses. There are few experts on the market promoting wooden house construction compared to those who are promoting conventional house construction. There is also an inadequate policy framework (lack of guidelines, standards and regulations) to regulate wooden houses. That said, it would be interesting to conduct a wider public survey on why wooden houses are not popular. An exception is Leonard K. Mutesasira, the proprietor of **The Great Outdoors**, in Kalanamu. He established an Eco-friendly Forest Resort using timber, poles and wood in 2018. It's located at Kalanamu Parish, 35 km off Gayaza-Zirobwe road, Kalagala Sub County, Luweero district. This facility demonstrates that it's possible to construct durable houses with wood and timber so long as the right technologies and practices are applied.

"I used the combination of hybrid eucalyptus clones (GU and GCs) and Grandis to provide poles and wood for the construction of the wooden houses. Clones produce straight long thin poles without many nodes and henceforth easy to use for construction. They are a perfect application for roofing. All the eucalyptus species provide good and strong poles that support the foundation of the wooden houses. However, damaged eucalyptus poles/wood is better for rustic and artistic construction. All poles and wood was harvested from eucalyptus plantations of 10 years." Leonard K. Mutesasira.

Mr. Mutesasira noted the following challenges during his construction: a) Poor mindset, and perception of the construction engineers that such houses would be weak and vulnerable to termite attack; b) Difficult to find experts with knowledge and skills to construct using timber and wood; c) Limited access to appropriate equipment to support the cutting and joinery of the timber and wood.

Regenerate Africa, a Non-Governmental Organization, is collaborating with the Great Outdoors to promote the wooden housing technology to provide domestic housing and accommodation for leisure and recreation services and activities. It plans to establish a training centre at the Great Outdoors.

CONCLUSIONS

There is untapped potential with respect to climate change mitigation. Trees capture and store carbon during growth; in the case of eucalyptus clones it's 10-15 years. When converted into timber used in house construction, they can store the carbon for another 50 to 100 years. Investment in construction of wooden houses presents several opportunities in terms of green job creation and employment along the value chain, thereby positively impacting income and revenue generation for different actors, including young people.

Government ministries and partners should promote procurement and use of timber and wood products from plantations that meet the requirements for sustainable forest management.

Universities, Colleges and Vocational Training Institutions should consider the establishment of dedicated courses as part of their curricula for enhancing the knowledge, skills and technology for construction of wooden houses. Responsive research should be pursued to address emerging issues along the value chain for construction of wooden houses in Uganda and the East African region.

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