The construction sector's potential contribution to achieving some of the SDGs

By Mr. Frederick Muketi and Mr. Klaus Schade

The construction sector has been one of the drivers of economic growth over the past few years. The sector grew by 35% annually on average between 2013 and 2015, resulting in 19% more jobs in the sector in 2014 compared to 2013. And construction works and buildings accounted for 58.5% of all Gross Fixed Capital Formation (Investment) assets in 2015. Due to its linkages with other sectors, such as manufacturing and transport, the sector's strong performance had further positive economic and labour market impacts.

A strong economic performance, however, often translates into environmental challenges. Construction activities in particular impact directly on the environment in various ways, ranging from the construction site and the loss of flora and fauna, to the building materials that are being used, to the way in which buildings are constructed and the impact on future operational costs and maintenance costs.

Globally, sand as a major input into construction activities is becoming a scarce commodity resulting in illegal sand-mining, even in Namibia, and seabed mining. Illegal mining activities leave areas unrehabilitated that are then lost for other activities such as farming. Some countries, such as Singapore, are already importing sand, since domestic resources are no longer sufficient in meeting the demand.

The potential environmental impact of the construction of office blocks and houses for residential purposes has led to the establishment of the Green Building movement and the Namibian Green Building Council under the umbrella of the World Green Building Council. Green building or green construction refers to both a structure and the using of processes that are environmentally responsible and resource-efficient throughout a building's life-cycle: from siting to design, construction, operation, maintenance, renovation, and demolition.

The use of local building material such as stones, wood, grass/reed, clay or sand, rather than imported material reduces Greenhouse Gas (GHG) emissions since it cuts transport distances. The Habitat Research and Development Centre in Katutura showcases various forms of environmentally friendly building materials sourced locally. Locally available material is usually also less expensive and hence makes housing more affordable to the population. If local material is used responsibly it will contribute to achieving Sustainable Development Goals 13 (*Climate action*) and 15 (*Life on land*), since it reduces GHG emissions and protects the soil from degradation. The construction of flats rather than stand-alone houses reduces the use of land and hence land degradation and leaves space for a green environment and for recreational purposes.

Furthermore, the design of buildings will impact on the future ecological footprint. In Namibia for instance, facing large window fronts to the north will harvest the sun during winter, while smaller windows facing the south and west shaded by trees will reduce the heat in summer. In addition, double-pane windows will reduce the loss of heat during winter and prevent outside heat from entering during summer. Furthermore, using white roof paint reduces heat

absorption. All of these considerations when constructing buildings will reduce the demand for energy to either cool or heat the building.

Government's cabinet directive in 2007 to use solar water heaters (SWH) in new government buildings and to replace electric geysers with SWH when they have reached their life span, has set the direction. However, this directive should in practice be applied to all new buildings, since Namibia has the best solar radiation in the world. Although such measures will increase the upfront costs of new buildings, they will reduce the operational costs over the life span of the building and result in substantial savings. In addition, every new building could be equipped with solar panels, in order to harness solar energy and reduce the demand for conventional electricity during daylight hours, and hence the GHG emissions from coal- or diesel-fired power plants. These measures will directly contribute to achieving SDG 7 (*Affordable and clean energy*) and specifically target 7.2 (*Increase substantially the share of renewable energy*) and 7.3 (*Double the rate of improvement in energy efficiency*) and consequently to SDG 13.

Furthermore, SDG 12 (*Responsible consumption and production*) commits everyone to the efficient use of natural resources (target 12.2) and to the reduction of waste among others through recycling and reuse (target 12.5). The construction industry can play its role by recycling and or reusing building material when buildings or parts of buildings are being demolished.

The Green Building Council has developed rating criteria for new buildings that are already applied to some buildings in Namibia. These criteria include energy efficiency, water recycling, elimination of volatile compounds and use of recycled material. The new FNB building has received a 4-star rating, the only one in Namibia so far. Other buildings are in the process of being certified. This trend indicates that architects, quantity surveyors, planners, and building owners, to mention a few, are becoming more aware and more conscious about green buildings. It also makes perfect business sense since it reduces the operational and maintenance costs of buildings and creates a more favourable working environment that reduces the sick building syndrome and hence sick leave.

However, more needs to be done in order to create awareness and to establish construction and building standards. The Ministry of Works and Transport, in particular, has been mandated by the Namibian government to address the formulation and implementation of technical regulations in building design, building materials, construction, inspection and maintenance of infrastructure. It is also responsible for Professional Councils in the architectural, quantity surveying, and engineering disciplines, representing the interests of the Technical Committees as appointed by the Namibian National Standards Institute (NSI). In particular, NSI's Technical Committee 6 receives support from the Ministry and the Green Building Council of Namibia in the standardization of sustainable products and processes.

Since government went ahead in 2007 with the SWH directive, it could take the next step by applying Green Building standards for all new public buildings, including buildings for State-Owned Enterprises. This would underline government's determination to achieve the SDGs by 2030, would result in a shift towards a greener construction sector and would set the path for the private sector and private households to follow.

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