



Renewable resources for urban climate mitigation

The energy sector is the most significant contributor to greenhouse gas emissions (GHG) globally and is responsible for nearly three quarters of human caused greenhouse gas emissions. These emissions must be reduced substantially, while at the same time ensuring sufficient energy is available for continued economic growth.

Within the energy sector, heat and electricity generation is responsible for most emissions followed by transportation and manufacturing and construction.

Cities account for up to three quarters of total global energy consumption and demand is expected to triple by 2050. In 2021 alone this demand is set to increase by 4.6 per cent surpassing pre-COVID-19 levels. Cities hold the key to addressing climate change by using energy efficiently while embracing clean energy sources

Clean energy solutions have the potential to deliver universal energy access in a way that is safe and powers economic development for everyone. The cost of renewable fuels continues to drop while financial institutions and the private sector are starting to abandon fossil fuels.

Cities are endowed with huge untapped renewable energy potentials. This includes solar energy and other potential renewable resources like organic waste, and in some cases wind energy. In some urban areas, especially in Sub-Saharan Africa, solar energy could provide up to 70 per cent of the cities' energy needs. Decentralised energy options like solar rooftops and small wind turbines could also be exploited to generate energy for local use at municipality or household level. Municipalities can also generate their own electricity using locally available renewable resources like municipal wastes, small hydropower and wind.

Achieving Sustainable Development Goal 7 on ensuring access to affordable, reliable, sustainable and modern energy in cities will be possible only if the transition towards cleaner energy systems is put in place. Renewable energy has seen unprecedented growth over the past decade, particularly for the generation of electricity. During the COVID-19 pandemic, renewables have proven more resilient than other parts of the energy sector and their short-term outlook shows resilience in all regions, helped along by supportive policies and falling technology costs.

The other untapped resource is that of energy-efficiency. Energy efficiency measures can result in substantial energy and resource savings. Most buildings and appliances are not energy-efficient. According to the UN Environment Programme, 56 per cent of total energy in Africa is used in buildings, which often use inefficient appliances resulting in the loss of energy. Up to a third of the global greenhouse gas emissions

reductions required to achieve the goal of the Paris Agreement on climate change can come from energy efficiency. It is therefore important that resource-efficient measures such as equipment retrofitting and proper architectural designs are employed.

With rapid urbanization, the housing sector is increasingly becoming one of the major contributors to global climate impact as seen from the use of construction materials which have high embodied energy. Low-embodied-energy materials such as Interlocking Stabilised Soil Blocks can cut greenhouse gas emissions up to 75 per cent compared to burnt bricks¹.

This roundtable will focus on the contribution of clean energy in contributing to climate change mitigation as well as global climate resilience. Panelists will share their perspectives and propose solutions on how to increase energy access and address power shortages using low-carbon technologies. The panel will also present successful energy transition projects in other urban areas.

¹ Energy efficiency of building technologies and climate change: a case study of carbon sequestration in Migori county, Kenya (Robert Sangori, 2020)