

Energy storage for resilience addis ababa

By Mekonnen Teshome Tollera – Ethiopia's capital Addis Ababa (Sheger) was born twice: first, as a crowded city; and then again, as a beautiful Sheger with clean rivers, public spaces and parks, bicycle paths and walkways along the riverside.

The city of 4.6 million people is being born again as a result of a multimillion dollar project "Beautifying Sheger" intended to decorate Addis Ababa. This 29 billion birr (about \$1.028 billion), rivers and riversides development project is slowly making the city green as works for developing and rehabilitating the two rivers in the city launched in February 2019 progress.

The project, an initiative of Prime Minister Abiy Ahmed of Ethiopia, is expected to be completed within three years and has created job opportunities for hundreds of Ethiopians and some Chinese too. The project is running along two of the largest rivers of the city, stretching a total of 51 kilometres, all the way from the mountains of Entoto through the city to Akaki River.

The commissioner of Addis Ababa Environmental Protection and Green Development Commission, Alem Asefa says: "As an adaptation to climate change the riverside project will install water-permeable pavements to better deal with floods and storm water and improve water storage and use."

The Changing Addis Ababa climateImpulsive changes in climate including rising heat waves, drought and flash floods in Addis Ababa are negatively impacting natural resources and city productivity. A recent study by Open Access: "GIS based quantification and mapping of climate change vulnerability hotspots in Addis Ababa" confirmed that the city "...is vulnerable to climate change impacts..."

Alem further explained: "If abusing the city master plan, especially the urban green component and emissions of greenhouse gases, including those from transport and industry are not controlled in the coming years, continued growth of their atmospheric concentrations is projected to result in severe climate change."

According to the commissioner, the most important anthropogenic influences on climate in Addis Ababa and neighbouring areas are the emissions, changes in land use, such as urbanization and agricultural activities.

Enabling Addis Ababa adapt to climate changeThe rivers and riversides development project aims at curbing the serious environmental effects of pollution and habitat degradation of rivers through planning, design and management of riverside areas. Commissioner Alem says greening is recommended for containment and abatement of air pollution in urban-industrial environment.

"Carbon is sequestered in the process of plant growth as carbon is captured in plant cell formation and oxygen is released during photosynthesis. Branches, leaves and other materials that fall to the forest floor may store

carbon until they decompose," noted Alem.

Additionally, he said, "forest soils may sequester some of the decomposing plant litter through root and soil interaction," as he related greening efforts with adapting climate change. Optimally designed green belts can be effective in reducing the impact of fugitive emission and pollutants accidentally or otherwise released at ground levels.

Alem says in addition to energy-efficient technologies in transport, industrial sectors, and buildings and development of green infrastructures including green development will help Addis Ababa mitigate climate change.

Polluted rivers of Addis AbabaA number of research results from university academic and research institutions show that rivers of Addis Ababa are highly polluted due to congested residential houses and manufacturing industries" presence around the water bodies.

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