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***The 3rd International Tropical Architecture Conference (iNTA) and
The 2nd International Conference on Sustainable Energy and Green
Architecture (SEGA)***

Theme: **Alternative Building Design, Materials and Construction for
Climate Change** - Environment protection and GHG emission reduction

ABSTRACT:

Reducing Greenhouse Gases in Existing Tropical Cities

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Many cities in tropical climates are in developing countries, and face particular challenges with respect to climate change and greenhouse gas (GHG) reduction, as well as rapid urbanisation and poor informal settlement conditions, placing huge stress on the existing infrastructure. The UN's Intergovernmental Panel on Climate Change (IPCC) recognises the need to transfer modern technologies used in industrialised nations to developing nations to reduce greenhouse gases. This paper presents the results of reviewing international best practice urban and building strategies relevant to the tropics to reduce GHG emissions, including climate-appropriate and climate-responsive strategies, and compares case studies. A surprising finding was that wealthy citizens are responsible for the majority of GHG emissions. Best practice tropical urban strategies include Integrated Urban Planning; remodelling of cities; developing high-density, mixed-use zones along best practice transit routes; urban agriculture; and reducing the Urban Heat Island effect. The best building strategies include energy upgrades; external shading; free cooling; and residential lightweight construction.

KEYWORDS: reducing greenhouse gases, tropical cities, existing cities, energy efficiency, renewable energy, transport, distributed infrastructure