Title :   Carbon Footprints Assessment for Organization And Potential Offsetting Through Carbon Sequestration in A Park

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Major :   Environmental Science

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ABSTRACT

Climate change has caused adverse environmental impacts worldwide, resulting in many degradations of living quality across various aspects. Therefore, central and local governments need to prioritize it as a primary concern and take charge of monitoring annual pollution emissions and of creating national/local environmental management plans, as their roles often involve energy use and infrastructure management. A carbon footprint assessment will provide a systematic approach to quantify greenhouse gas (GHG) emissions from organizational activities. On the other hand, carbon sequestration would present a crucial complementary strategy for offsetting emissions through natural and managed ecosystems. The Chiang Mai Provincial Administrative Organization (CMPAO) plays a key role in supporting sustainable development in Chiang Mai province. The lack of information on sources of carbon emissions and the potential for carbon sequestration within the CMPAO's area of responsibility makes it difficult to assess carbon sequestration compensation in parks relative to organizational carbon activity, which is crucial for promoting climate action at the local level and supporting long-term carbon neutrality goals. Therefore, this pilot study aims to quantify the carbon footprint emitted by CMPAO and the carbon sequestered by the trees within the organization's facilities, identify significant sources of emission, and provide recommendations for emission offsetting. To assess sequestration, a clinometer and measurement tape were used to measure the tree's height, diameter at breast height (DBH), species, and coordinates. CMPAO records provided information on organizational emissions. Reduction techniques were assessed using scenario analysis. The result provides an overview of key emission sources, quantifies existing and potential carbon sequestration capacity, and highlights a feasible pathway for reducing net greenhouse gas emissions. These findings offer practical insights to support CMPAO's carbon neutrality objectives and contribute to evidence–based local climate policy development.

Keywords: Carbon Footprint for Organization (CFO); Carbon Sequestration; Carbon-Neutrality

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