CARBON STORAGE POTENTIAL OF MANGROVE (*Sonneratia* spp.) FOREST IN CAVITE STATE UNIVERSITY, PHILIPPINES: BASIS FOR A CARBON SEQUESTRATION PLAN

THESIS

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June 2019

CARBON STORAGE POTENTIAL OF MAHOGANY (*Swietenia* spp.) FOREST IN CAVITE STATE UNIVERSITY, PHILIPPINES: A BASIS FOR A CARBON MITIGATION PLAN

Undergraduate Thesis
Submitted to the Faculty of the
College of Agriculture, Food, Environment and Natural Resources
Cavite State University
Indang, Cavite

In partial fulfillment
of the requirements for the degree
Bachelor of Science in Environmental Science

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June 2019

ABSTRACT

COLLADO, JOSE T. JR. and SARMIENTO, D.M. Carbon Storage Potential of Mahogany (*Swietenia macrophylla*) Forest in Cavite State University, Philippines: A Basis for a Proposed Action Plan. Undergraduate Thesis. Bachelor of Science in Environmental Science, Cavite State University, Indang, Cavite. May 2019. Adviser: Mr. Glenn Bryan A. Creencia.

A tropical forest has a valuable role in relation to climate change being a source and sink of carbon. The study created a distribution map of mahogany found trees (*Swietenia macrophylla*) in Cavite State University; determined the morphometrics of mahogany trees in the university in terms of diameter at breast height (DBH) and height; determined the total carbon storage of mahogany trees in the university; determined the factors affecting carbon sequestration of the mahogany; and created a proposed carbon mitigation plan for the utilization and management of mahogany trees in the university. The height and diameter at breast height (DBH) of all mahogany trees were measured. Allometric equation was used to calculate the carbon storage of mahogany trees. The location of mahogany trees was determined using Global Positioning System device. There are 3402 mahogany trees inside the university. Majority of the mahogany trees have a diameter of 30cm and the 712 mahogany trees have below 30cm. Mahogany forest covers about 7.32 ha of the total land area of Cavite State University and it stored carbon amounting to 1,960.79 tonnes. The height of mahogany greatly affected the carbon sequestration of mahogany trees. CvSU contributed in carbon mitigation since there is a high density of forest found inside the campus.

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An undergraduate thesis manuscript submitted to the faculty of the Department of Forestry and Environmental Science, College of Agriculture, Food, Environment and Natural Resources, Cavite State University, Indang, Cavite in partial fulfillment of the requirements for the degree of Bachelor of Science in Environmental Science with Contribution No. ES-2019-03. Prepared under the supervision of Mr. Glenn Bryan A. Creencia.

INTRODUCTION

Climate change is one of the concerns of the humanity today and it is due to increasing emission of greenhouse gases. Global surface temperature has increased by more than 0.8 °C since 1980 and average temperature has exceeded in the last century average every year (Global Change, 2017). Human activities, such as burning of fossil fuels such as coal, oil, and gas, have caused a massive increase in the concentration of carbon dioxide in the atmosphere. Potential impacts include sea-level rise, increased wildfires and frequency, floods, droughts, tropical storms; change in amount, timing, and distribution of rain, snow and runoff; and disturbance of coastal marine and other ecosystems (Sunquist *et al.*, 2008). Moreover, carbon dioxide level increased by 46 percent in over 250 years (Hindustantimes, 2019). Mitigation and efforts, small or big scale, must be done in order to lessen the impacts of climate change.

The Intergovernmental Panel on Climate Change (IPCC) assessed that impacts and costs of 2.7 degrees Fahrenheit of global warming are far greater than the expected. This rise in the global temperature could happen within 11 to 20 years