

**INVESTIGATING ENVIRONMENTAL IMPACTS OF BETEL NUT
(*Areca Cateche*) WASTE DISPOSAL BASED ON HUMAN
BEHAVIOR IN PORTMORESBY, PAPUA NEW GUINEA.**



THESIS

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**ENVIRONMENTAL SCIENCE MASTER STUDY PROGRAM
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APPROVAL

INVESTIGATING ENVIRONMENTAL IMPACTS OF BETEL NUT (*ARECA CATECHE*) WASTE BASED ON HUMAN BEHAVIOR IN PORT MORESBY, PAPUA NEW GUINEA.

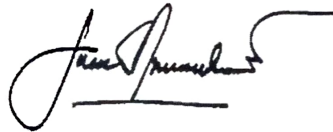
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MORESBY, PAPUA NEW GUINEA.**

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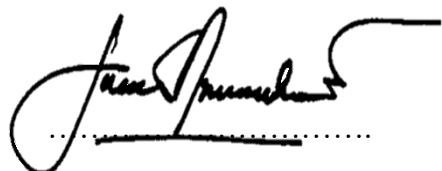


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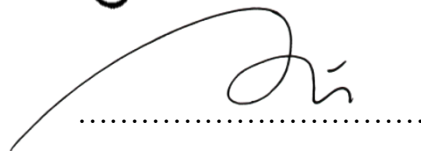
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STATEMENT

I, Pendis Ono here by certify that this work entitled as Investigating Environmental Impacts Of Betel Nut (*Areca Cateche*) Waste Based On Human Behavior In Port Moresby, Papua New Guinea is truly an original work that I made myself and as a scientific work this thesis has never been submitted in any university or tertiary institution except as a fulfillment of the requirements to obtain a master degree (S-2) at Diponegoro University. To the best of my knowledge and belief, it does not include any previously published or written works by any other authors, except where due reference has been made in the text. Additionally, I certify that no portion of this work will ever again be used without the prior consent of Diponegoro University and, as applicable, any partner institution responsible for the joint awarding of this degree in my name for any other degree or diploma at any university or tertiary institution. If at a later date it is found that all or part of this thesis is not a result of my own work or plagiarism in certain parts, I agree to received the sanction of revocation of the academic degree that I hold and other sanctions in accordance with the applicable laws and regulations.

Semarang, August 23rd 2023

SEKOLAH PASCASARJANA

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AUTHORS BIODATA



The author, Mr. Pendis Ono, hails from the Eastern Highlands Province of Papua New Guinea and has been admitted in July 2021 as an Environmental Science Masters student at the University of Diponegoro in Semarang, Indonesia. Prior to that, he holds a Bachelor of Science Degree in Forestry at the Papua New Guinea

University of Technology in 2015 before being admitted to University of Diponegoro. His thesis is based on betel nut waste disposal in the city of Port Moresby, Papua New Guinea. The study tries to determine human behavior and characteristics towards betel nut waste management and determine the reasons why there appears to be more wastes disposed all over the city of Port Moresby. This thesis titled 'Investigating environmental impacts of betel nut (*Areca catechu*) waste based on human behavior in Port Moresby, Papua New Guinea' was developed as a requirement

SEMARANG
SEKOLAH PASCASARJANA

DEDICATION

I would like to take this opportunity to dedicate this thesis to my family especially my sister who stood tall in this challenging time and has been very supportive all through my study. Without my sister and family's support I would not have completed this work. I am indeed very much appreciative of the efforts put in by my family.



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Pendis Ono

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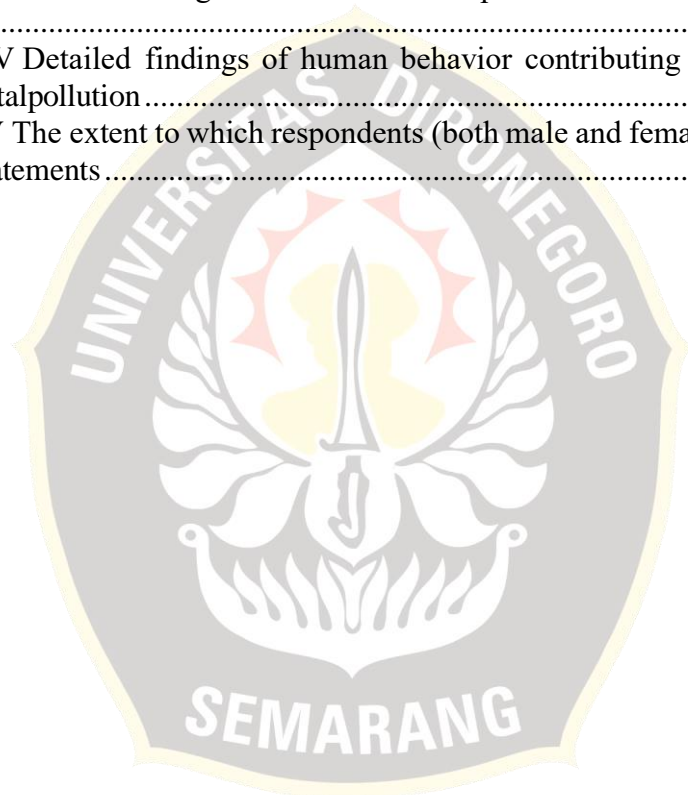
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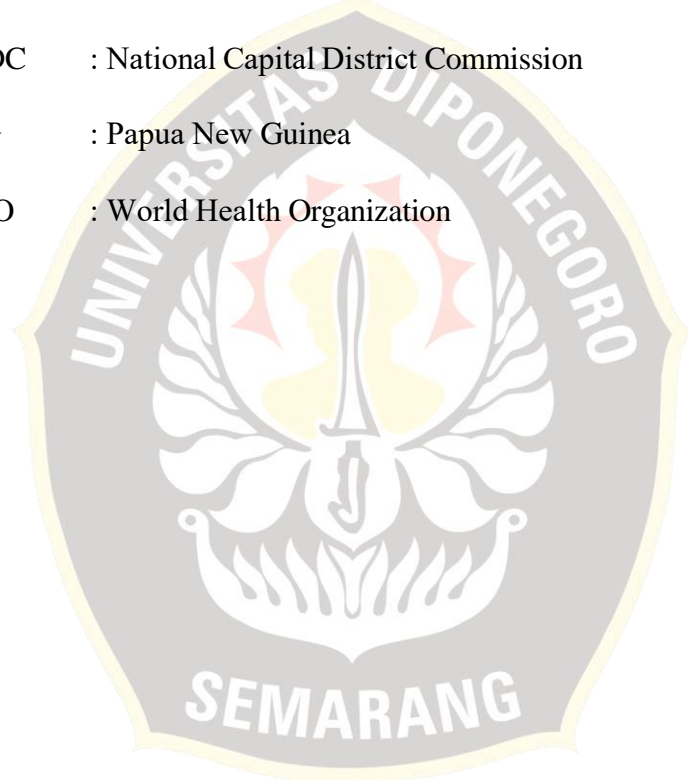
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LIST OF ACRONYMS

ASL	: Above sea level
IARC	: International Agency for Cancer Research
NCD	: National Capital District
NCDC	: National Capital District Commission
PNG	: Papua New Guinea
WHO	: World Health Organization



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ABSTRACT

The consumption of *Areca catechu* (betel nut) in combination with Piper betel and lime (calcium hydroxide) in Papua New Guinea has been a daily consumable commodity among the country's population. Due to the increase usage of betel nut, more wastes tend to be deposited into the city's environment making the city very filthy. The disposal of wastes along with its end by-products has become a major problem for the environment due to uncontrolled human behavior and ignorance. The city of Port Moresby has seen a lot of wastes from betel nut husks and salivary spittle being spewed all over public places. The uncontrolled wastes disposal and carelessness of the people has significantly affected the outlook of the surrounding environment. Even though, laws were put in place to manage wastes, people do not care of the impacts and continue to ignore the laws. The study was undertaken to understand human behavior and characteristics towards improper waste management and determine the level of wastes derived from the use of betel nut. The study was conducted using simple random sampling and stratified sampling methods through interviews for qualitative data collection. The results revealed that ignorance and carelessness exist within the population in managing betel nut wastes. The results also indicate that banning the sale and trading of betel nut may lead to social and economic problems for most of the unemployed population in Port Moresby. Therefore, it requires a better approach from the government and the city authorities to develop and implement workable win-win solution to the problems faced by the city residence as well as managing their wastes from the use of betel nut.

Keywords: *Areca catechu* (betel nut), waste management, environmental degradation

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