West Visayas State University
COLLEGE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
La Paz, Iloilo City, Philippines

BARANGAY INFECTIOUS DISEASES INFORMATION MANAGEMENT WITH GIS FOR MAPPING AND SIR MODEL FOR PREDICTION

An Undergraduate Thesis

Presented to the Faculty of the

College of Information and Communications Technology

West Visayas State University

La Paz, Iloilo City

In Partial Fulfillment

of the Requirements for the Degree

Information Systems

by

Luvin B. Lara

Leslie Ann Grapes S. Novales

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Mark Levi L. Sequio

June 2023

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Approval Sheet

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June 2023

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Abstract

The Disease Reporting Units in the Philippines were challenged due to the threat of rampant spread of infectious diseases over the last few years eradicating the potential of the country's objective in reversing outbreaks due to incomprehensive data management as part of the global health agenda. Accordingly, there was a need for improved infectious diseases information management that was an essential tool for data management and monitoring of affected populations in the Barangay Area. Since most of the current methods were heavily dependent on manual processes, this study aimed to develop a system that allowed collecting and managing of data, mapping of infectious diseases cases using geographic information system showing the households where the occurrences happened, allowed data visualization using heat maps showing the intensity of the infectious diseases and

predicting the spread of the three (3) infectious diseases specifically in Covid-19, Dengue, and Tuberculosis by using SIR model. The main objective of this study was to support the Barangay Health Workers on their current manual processes of managing infectious diseases data which our system evaluation suggests that the study achieved an overall “Very Good” rating based on the ISO 25010 standard garnering an overall mean of 4.535. Since the SIR model was only applicable to broad geographic scales like countries and regions, it cannot effectively help the system in its process to anticipate the spread of three infectious diseases (Covid-19, Dengue, and Tuberculosis). On the other hand, a barangay's small scale indicates that it cannot support the demands to consistently provide the needs of the model.

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