

**MANAGEMENT INFORMATION SYSTEM FOR DEPARTMENT OF  
ENVIRONMENT AND NATURAL RESOURCES (DENR),  
PROVINCIAL ENVIRONMENT AND NATURAL  
RESOURCES OFFICE (PENRO), TRECE  
MARTIRES CITY, CAVITE**

Undergraduate Thesis  
Submitted to the Faculty of the  
College of Engineering and Information Technology  
Cavite State University  
Indang, Cavite

In partial fulfillment  
of the requirements for the degree  
Bachelor of Science in Information Technology

**CHRISTINE JOY V. GUARDIAN**

**ALLYSSA JOYCE V. SALAZAR**

May 2017



Republic of the Philippines  
**CAVITE STATE UNIVERSITY**

Don Severino de las Alas Campus

Indang, Cavite

tel (046) 4150-010 / (046) 4150-013 loc 206

[www.cvsu.edu.ph](http://www.cvsu.edu.ph)

Department of Information Technology

AUTHORS: **CHRISTINE JOY V. GUARDIAN and ALLYSSA JOYCE V. SALAZAR**

TITLE: **MANAGEMENT INFORMATION SYSTEM FOR DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR), PROVINCIAL ENVIRONMENT AND NATURAL RESOURCES OFFICE (PENRO), TRECE MARTIRES CITY, CAVITE**

APPROVED:

*Carandang*  
CHARLOTTE B. CARANDANG  
Adviser

5/4/17  
Date

*Jay-Arr C. Buhain*  
JAY-ARR C. BUHAIN  
Technical Critic

5/8/17  
Date

*Gladys G. Perez*  
GLADYS G. PEREZ  
Unit Research Coordinator

5/8/17  
Date

*Marlon R. Perena*  
MARLON R. PEREÑA  
Department Chairperson

\_\_\_\_\_  
Date

*Renato B. Cubilla*  
RENATO B. CUBILLA  
College Research Coordinator

\_\_\_\_\_  
Date

*Marilyn M. Escobar*  
MARILYN M. ESCOBAR  
Dean

\_\_\_\_\_  
Date

*HoSEA dL. MATEL*  
HOSEA dL. MATEL  
Director for Research

\_\_\_\_\_  
Date

## ABSTRACT

**GUARDIAN, CHRISTINE JOY V. and SALAZAR, ALLYSSA JOYCE V.**  
**Management Information System for Department of Environment and Natural Resources (DENR), Provincial Environment and Natural Resources Office (PENRO), Trece Martires City, Cavite.** Bachelor of Science in Information Technology, Cavite State University, Indang, Cavite. May 2017. Adviser: Ms. Charlotte B. Carandang.

The study was conducted from June 2015 to May 2017 at Cavite State University – Main Campus and aimed to develop a management information system for the Department of Environment and Natural Resources (DENR), Provincial Environment and Natural Resources Office (PENRO), Trece Martires City, Cavite. It specifically aimed to identify the problems of existing system by conducting an interview; analyze and interpret the problems using Fishbone diagram; design the system using prototyping method; develop the software using PHP as a programming language and MySQL as database management system, and Adobe Photoshop CC for the design; and test the performance of the system through unit testing, integration testing, and acceptance testing approaches.

Prototype methodology was used for the development of the software. It has six (6) phases namely: requirements gathering, quick design, building prototype, customer evaluation, refining prototype, and engineer product.

In software evaluation, the researchers used the following criteria: functionality, reliability, usability, efficiency, maintainability, and portability. Staff, IT experts, and students from Cavite State University - Main Campus served as the evaluators of the system. The software passed all the criteria for the evaluation and had met all the needed requirements for the software.

## TABLE OF CONTENTS

	Page
<b>APPROVAL SHEET .....</b>	ii
<b>BIOGRAPHICAL DATA .....</b>	iii
<b>ACKNOWLEDGMENT .....</b>	iv
<b>ABSTRACT .....</b>	vi
<b>LIST OF FIGURES .....</b>	ix
<b>LIST OF TABLES .....</b>	x
<b>LIST OF APPENDIX FIGURES .....</b>	xi
<b>LIST OF APPENDIX TABLES .....</b>	xii
<b>LIST OF APPENDICES .....</b>	xiii
<b>INTRODUCTION .....</b>	1
Statement of the Problem .....	2
Theoretical Framework .....	9
Objectives of the Study .....	5
Significance of the Study .....	5
Time and Place of the Study .....	6
Scope and Limitation of the Study .....	7
Definition of Terms .....	11
<b>REVIEW OF RELATED LITERATURE .....</b>	13
Related Studies .....	19
<b>METHODOLOGY .....</b>	22

	Page
Materials .....	22
Methods .....	23
<b>RESULTS AND DISCUSSION .....</b>	<b>26</b>
System Development .....	26
System Overview .....	27
Software Evaluation .....	35
<b>SUMMARY, CONCLUSION, AND RECOMMENDATIONS .....</b>	<b>42</b>
Summary .....	42
Conclusion .....	43
Recommendations .....	43
<b>REFERENCES .....</b>	<b>45</b>
<b>APPENDICES .....</b>	<b>47</b>

## LIST OF FIGURES

<b>Figure</b>		<b>Page</b>
1	Theoretical framework of MIS: Management Information System .....	9
2	Prototype Model .....	23
3	Login page for the Administrator and Staff.....	28
4	Screen layout for home page.....	29
5	Adding Accounts of User.....	29
6	Adding and list of records in Chainsaw Registration.....	30
7	Adding and list of records in Forestry Registration .....	31
8	Adding and list of records in Lots Information .....	32
9	Adding and list of records in Wildlife Registration .....	33
10	List of record that the staff can update and get .....	34
11	Sample reports .....	35

## LIST OF TABLES

<b>Table</b>		<b>Page</b>
1	Frequency distribution of Scores of the functionality of the System.....	58
2	Frequency distribution of the respondents evaluation based on reliability of the system.....	58
3	Frequency distribution of the respondents evaluation based on usability of the system.....	58
4	Frequency distribution of the respondents evaluation based on efficiency of the system.....	58
5	Frequency distribution of the respondents evaluation based on maintainability of the system.....	59
6	Frequency distribution of the respondents evaluation based on portability of the system.....	59
7	Table Structure of tbluser.....	59
8	Table Structure of tblsurvey.....	60
9	Table Structure of tblsurveyincoming.....	60
10	Table Structure of tblsurveyoutgoing.....	60
11	Table Structure oftblspecialtrips.....	61
12	Table Structure of tblwlregistration.....	61
13	Table Structure of tblwildlifeincoming.....	61
14	Table Structure of tblwildlifeoutgoing.....	62
15	Table Structure of tbllotsinfo.....	62
16	Table Structure oftblllandincoming.....	63
17	Table Structure oftblllandoutgoing.....	63

18	Table Structure of tbltreeplantation_private.....	64
19	Table Structure of tbltreeplantation_public.....	64
20	Table Structure of tbltreecutting.....	64
21	Table Structure of tblforestryincoming.....	65
22	Table Structure of tblforestryoutgoing.....	65
23	Table Structure of tblalienable_and_disposable.....	65
24	Table Structure of tblchainsaw_registration.....	66
25	Table Structure of tbltransport.....	66
26	Table Structure of tblfreepatent.....	67

## LIST OF APPENDIX FIGURES

<b>Appendix Figure</b>		<b>Page</b>
1	Fishbone diagram of Inefficient record management system .....	49
2	Fishbone diagram of Inconsistent data in the report.....	49
3	Fishbone diagram of Lack of uniformity in certificates format.....	50
4	Class diagram.....	51
5	Gantt chart.....	53
6	Use case diagram for Management Information System for DENR, PENR Office, Trece Martires City, Cavite.....	54
7	Use case diagram of account management module.....	55
8	Use case diagram of transaction module.....	55
9	Use case diagram of search module.....	56
10	Use case diagram of report module.....	56

## LIST OF APPENDIX TABLES

<b>Appendix Table</b>		<b>Page</b>
1	Frequency distribution of scores of the functionality indicators .....	36
2	Frequency distribution of scores of the reliability indicators .....	37
3	Frequency distribution of scores of the usability indicators .....	38
4	Frequency distribution of scores of the efficiency indicators .....	38
5	Frequency distribution of scores of the maintainability indicators .....	39
6	Frequency distribution of scores of the portability indicators .....	40
7	Frequency distribution of overall evaluation on the developed system .....	41

## LIST OF APPENDICES

<b>Appendix</b>		<b>Page</b>
1	Fishbone Diagrams.....	49
2	Class Diagram.....	52
3	Gantt Chart.....	55
4	Use Case Diagrams.....	57
5	Frequency Distribution Tables.....	61
6	Data Dictionary.....	64
7	Unit Testing.....	69
8	Integration Testing.....	73
9	System Testing.....	75
10	Approved Forms and Certificates.....	78
11	Sample Source Code.....	79