INTERNSHIP REPORT

Structural Complex Problem Project IISMA 2021: WORLD WILDLIFE FUND (WWF) UK 22 SEPTEMBER – 19 DECEMBER 2021



Proposed by

Tammy Laysandra NRP: 5203019013

CHEMICAL ENGINEERING STUDY PROGRAM FACULTY OF ENGINEERING WIDYA MANDALA CATHOLIC UNIVERSITY SURABAYA

2022

LETTER OF APPROVAL

Seminar of **INTERNSHIP** for the student below:

Name: Tammy Laysandra

NRP : 5203019013

has been held on 22 July 2022, therefore the student concerned can be declared to have fulfilled part of the curriculum requirements in order to obtain a **Bachelor of Engineering** degree in the **Chemical Engineering** study program.

Surabaya, 22 July 2022

Approved by

Supervisor

Head of Chemical Engineering Study

Prof. Ir. Felycia Edi Soetaredjo, S.T., M.Phil.

Ph.D., IPM., ASEAN Eng. NIK. 521.99.0391 Ir. Sandy Budi Haron S. Phil. Ph.D.,

NIK. 521.99.0401

LETTER OF DECLARATION

I hereby declare that this Internship Report is truly the work of my own and is not the work of others, either in part or in whole, unless it was stated in the references. If it is known that this Internship Report turned out to be the work of others. I am aware and accept the consequences that this Internship Report cannot be used as a condition to obtain a **Bachelor of Engineering** degree.

Surabaya, 22 July 2022

Student,



Tammy Laysandra

NRP. 5203019013

COPYRIGHT AGREEMENT

For the development of science, I as student of Widya Mandala Surabaya Catholic University:

Name/NRP : Tammy Laysandra / 5203019013

Agree to transfer the copyright of my INTERNSHIP REPORT:

Title :

Internship Report Structural Complex Problem Project IISMA 2021: World Wildlife Fund (WWF) UK

To be published/displayed on the internet or other media (Digital Library Widya Mandala Surabaya Catholic University) for academic purposes limited in accordance with the Copyright Law in Indonesia.

Surabaya, 22 July 2022

Author,

METERA TEMPEL 280A0AKX263781671

Tammy Laysandra

NRP. 5203019013

PREFACE

The authors express praise and gratitude to God Almighty who has bestowed His wisdom, blessings, and grace, which enabled the authors to undergo and complete the internship report at Lancaster University, United Kingdom on September 22 – December 19 2021. Internship or Field Work is one of the compulsory subjects, so that through internship, students are expected to add insight and experience beyond the theory gained during lectures.

The completion of the internship and the preparation of this report would not have been possible without the help and support both materially and morally from many parties. Therefore, the authors would like to thank:

- 1. Indonesian International Student Mobility Award Programme 2021
- 2. Dr Casey Cross from Management Science Department LU as lecturer who teaches and conducts WWF Project
- 3. Mr. Prof. Ir. Suryadi Ismadji, M.T., Ph.D., IPM., ASEAN Eng. as dean of the Engineering Faculty WMSCU
- 4. Mr. Ir. Sandy Budi Hartono, S.T., M.Phil., Ph.D., IPM. as head of the Chemical Engineering Department
- 5. Mrs. Prof. Ir. Felycia Edi Soetaredjo, S.T., M.Phil., Ph.D., IPM., ASEAN Eng. as supervising lecturer
- 6. All related parties

Finally, the authors hope that this internship report can make a meaningful contribution to science and be useful for many parties.

Surabaya,

Author

TABLE OF CONTENTS

| LETTE | CR OF APPROVAL | ii |
|--------|---|------|
| LETTE | CR OF DECLARATION | iii |
| COPYI | RIGHT AGREEMENT | iv |
| PREFA | CE | v |
| TABLE | OF CONTENTS | vi |
| LIST O | F FIGURES | viii |
| LIST O | F TABLES | ix |
| ABSTR | ACT | X |
| СНАРТ | TER I | 1 |
| I.1. | Background | 1 |
| I.2. | Development History | 2 |
| I.3. | Location | 4 |
| I.4. | WWF Logo | 7 |
| I.5. | Projects Assignments | 8 |
| СНАРТ | TER II | 11 |
| II.1. | Net Zero Carbon Emission | 11 |
| II.2. | Difference Between Carbon Neutral and Zero Carbon | 13 |
| II.3. | Achieving Net Zero Carbon | 14 |
| II.4. | Discussion | 19 |
| СНАРТ | TER III | 21 |
| III.1. | Zero Waste (ZW) | 21 |
| III.2. | Why Should We Aim Zero Waste? (The Purpose) | 26 |
| III.3. | Live a Zero Waste Life | 28 |
| III.4. | Measuring Zero Waste Performance | 30 |
| III.5. | Discussion | 31 |

| CHAP | APTER IV | |
|-------|------------------------------------|----|
| IV.1. | Sustainable Water Management (SWM) | 34 |
| IV.2. | Threats to Water Sustainability | 37 |
| IV.3. | Water Stress | 38 |
| IV.4. | Sustainable Management Framework | 40 |
| IV.5. | Water Conserving Method | 42 |
| IV.6. | Discussion | 43 |
| CHAPT | ΓER V | 46 |
| CHAP | TER VI | 57 |
| CHAPT | TER VII | 61 |
| VII.1 | Organizational Structure | 61 |
| VII.2 | Division of Role and Duty | 62 |
| CHAP | TER VIII | 67 |
| CHAPT | TER IX | 73 |
| REFER | RENCES | 74 |
| | | |

LIST OF FIGURES

| Figure 1. WWF-UK's Living Planet Centre, Woking | 5 |
|---|-------|
| Figure 2. Inside the Living Planet Centre. | 5 |
| Figure 3. Original location map of WWF-UK's building on Woking[13] | 6 |
| Figure 4. WWF Logo Evolution | 8 |
| Figure 5. Difficult-to-eliminate emissions in 2014, where both A and B provided the estimate | nates |
| of CO ₂ emissions levels related to different energy services, highlighting such services that | at |
| will be the most difficult to decarbonize and are likely to increase in the future [26] | 15 |
| Figure 6. Schematic of an integrated system that can provide essential energy services wit | hout |
| adding any CO ₂ to the atmosphere. (A to S) Colors indicate the dominant role of specific | |
| technologies and processes. Green, electricity generation and transmission; blue, hydroge | n |
| production and transport; purple, hydrocarbon production and transport; orange, ammonia | ι |
| production, and transport; red, carbon management; and black, end uses of energy and | |
| materials [26]. | 16 |
| Figure 7. Principles for Turning Cities into Zero Waste | 26 |
| Figure 8. Domain Schema in Zero Waste Management System[55] | 30 |
| Figure 9. The SMW Profile's Conceptual Path Toward Sustainable Water Management | 35 |
| Figure 10. Water Stress level of country assessed from historical climate run [67] | 39 |
| Figure 11. Management Framework for Sustainable Water Resources [73]. | 41 |
| Figure 12. The global network of food trade in 1986 (a) and 2010 (b). (c) Changes in the | |
| average number of export links per country (or "degree") during 1986-2010 [92] | 48 |
| Figure 13. WWF's Conservation Project/Programme Cycle | 57 |
| Figure 14. Organization Chart of WWF in General. | 61 |
| Figure 18. Learning Activities in the Classroom | 69 |
| Figure 19. Infront of Lancaster Building | 70 |
| Figure 20. PPI (Perhimpunan Pelajar Indonesia) at Lancaster University | 70 |
| Figure 21. Awardees meeting at KBRI London | 71 |
| Figure 22. Lancaster University IISMA Awardees 2021 | 72 |

LIST OF TABLES

| Table 1. Past ZW-related Achievements and Events | 22 |
|--|----|
| Table 2. Distribution of Waste by Source and Type | 24 |
| Table 3. Top 10 environmentally friendly countries in 2018 [75]. | 53 |
| Table 4. WWF experts listed | 63 |

ABSTRACT

The broad scope of theoretical knowledge, especially at the international level, makes student's acceptance of science and knowledge relatively limited. In its application, many things in the world outside are different from the theoretical science and ideal approaches taught at universities. Therefore, "Internship" is expected to be able to assist students in applying the knowledge gained and improving the quality of education through direct practice outside the university.

The Indonesian International Student Mobility Awards (IISMA) is a scholarship program from the Government of the Republic of Indonesia that funds Indonesian students so that they can experience and study at leading universities abroad. The author joined the IISMA 2021 program at the Lancaster University UK, and took several courses, including: Entrepreneurship: Discovery and Practice (ENSI207), Structuring Complex Problems (MSCI354), and Transformations from Mass Media to social media (MCS101).

WWF UK project was obtained from a Structuring Complex Problems class for 3 months with the aim of learning more details about the company's vision and identifying existing problems. The expected outputs of this project are: To identify what the top priorities are for meeting the project goals and ensuring its success, identify discussions to be made and the process steps required to enable the project to meet it objectives, as well as possibly manage the project to ensure a successful outcome.

World Wildlife Fund Inc. (WWF) itself is an international non-governmental organization engaged in wilderness conservation and the protection of the environment impacted by human development with the aim of promoting education and research on the conservation of the world's fauna and flora, water, soil and other natural resources. By collaborating with local communities, preserving the natural resources on which they rely, reorienting markets and policies toward sustainability, establishing rules to stifle the desire to over-exploit nature, and protecting and restoring species and their habitat, WWF has established a network of interconnected protected areas in many other countries, with the main objective is to raise awareness of the value of wilderness preservation and to ensure that both people and environment can coexist together.