

厚生労働科学研究費補助金（労働安全衛生総合研究事業）
総合研究報告書

ASEAN諸国の大学等における安全衛生教育の実態調査及びミャンマー国を例とした
安全衛生教育カリキュラムの開発と試行に関する研究

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研究要旨：ミャンマーの工科系大学32大学で利用できる労働安全衛生教育用の教科書を作成し出版した。作成に当たり、2018年及び2019年にミャンマーのモービー工科大学及びヤンゴン海事大学において実施したセミナーの結果を基に、ミャンマーの大学で使いやすいように内容を30分の講義を8回分に分割し且つ内容をモービー工科大学の担当者に確認して、教科書を完成させた。また、フィリピンを除くASEAN諸国の大学における安全衛生教育に関する報告書を完成させた。

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A. 研究目的

1. 労働安全衛生教育用のカリキュラムを立案し、テキストをミャンマーの実情に合わせて作成し、出版する。さらに、この教科書を活用するために、ミャンマーの全32工科大学の担当教員にモービー工科大学に集め、このテキストを活用した教育法について、セミナーを行う。
2. ASEAN諸国の大学の安全衛生管理及び教育について、調査を行い、ASEAN地域の大学における安全衛生教育の調査結果をまとめる。
3. 本プロジェクトの成果を高等教育機関における安全衛生教育の国際会議(The Asian Conference on Safety & Education in Laboratory2020)で発表し成果を広める。

B. 研究結果

1. 2018年および2019年にミャンマーの大学でセミナーを行い、2019年に原案を作成した労働安全衛生教育用のカリキュラムを基に、教科書を作成し2022年3月に出版した。教科書に使用した、イラストは、研究協力者の岡山大学川上真以氏が作成した。内容の監修は田中寿郎教授、英文作成及び校閲はルース教授が担当した。

2. ASEAN諸国の大学の安全衛生教育に関する調査は、コロナ感染症のため最終年度には実施できなかった。そこで、研究協力者の宮崎隆文氏及びジンチェンコ寧氏に調査できなかったフィリピン以外の大学について、取りまとめていただいた。
3. 本プロジェクトの成果については、国際会議(ACSEL2018、2019、2020)及び、2022年3月に開催されたRESE研究会にて発表を行った。

C. 研究発表

1. 論文発表 なし
2. 学会発表
 - 1.The development of occupational safety and health lectures for technological universities in Myanmar, T. Tanaka, K. T. Lwin, K. Ito, S. Okano, R. Vergin, M. Kawakami and T. Miyazaki, ACSEL2018(OIST), 2018/11.
 - 2.ミャンマーの工科大学等における労働安全衛生講義カリキュラムの開発と試行、伊藤和貴、田中寿郎、宮崎隆文、R.C. Vergin、岡野聡、研究実験施設・環境安全教育研究会、東京大学、2019/03
 - 3.A trial of an occupational safety and health syllabus for technological universities in Myanmar, T. Tanaka, K.T. Lwin, K. Ito, S. Okano, R. Vergin, M. Kawakami and T. Miyazaki, ACSEL2019 (Bali), 2019/11.

4. ミャンマーの工科系大学を対象とした安全衛生教育カリキュラムの開発、伊藤和貴、R. Vergin, 宮崎隆文, 岡野聡, 川上真似, Kay T. Lwin, 田中寿郎, 研究実験施設・環境安全教育研究会、東京大学, 2020/03

5. What topics should be taught as the first step in safety education in technological universities? T. Tanaka*, K. T. Lwin, K. Ito, S. Okano, R. Vergin, M. Kawakami and T. Miyazaki, ACSEL2020 (Web Conference), 2020/12.

6. 工学系大学向け「労働安全衛生」カリキュラム及び教科書作成の試み、伊藤和貴、ルースバージン、岡野聡、宮崎隆文、田中寿郎
研究実験施設・環境安全教育研究会第11回研究会
東京大学 2022/3

D. 知的財産権の出願・登録状況なし

The development of occupational safety and health lectures for technological universities in Myanmar

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Abstract

Recently, technological universities in Myanmar have been required to teach occupational safety and health to their students. Ehime University and Okayama University in Japan, and Technological University Hmawbi in Myanmar started in 2015 to collaborate on developing an OSH syllabus, including teaching materials and a text book. After the syllabus is completed, we intend to introduce it into the curriculum of all the technological universities in Myanmar. At this conference, we will introduce our development plan and preliminary achievements.

Keywords : safety syllabus, technological universities, Myanmar

1. Objective of our project

- The technological universities in Myanmar have been required to include instruction on occupational safety and health into their curriculum. Technological University Hmawbi, Ehime University and Okayama University are collaborating to develop an OSH syllabus for technological universities in Myanmar.
- An 'Industrial Safety and Health Act' is still being developed in Myanmar. The education program in technological universities is an important step in creating a "safety and health culture" in Myanmar.
- The goal is to develop a 'safety and health culture' in Myanmar in the future.

2. Outputs

- **Safety organization**
A safety and health management organizational scheme was set up in Thanlyin and, later, Hmawbi Technological University.
- **Training at Ehime University**
The person in charge of safety and health at both the Thanlyin and Hmawbi technological universities received training at Ehime University.

3. Lecture contents

1. Introduction
 - 1-1 Work related diseases and workplace fatalities.
 - 1-2 Workshop: Workplace accident survey
 2. Hazard and Risk in Workplaces
 - 2-1 Definition of 'hazard' and 'risk'
 - 2-2 Hazard Pyramid
 - 2-3 Examples of hazards in the work place
 3. Risk Assessment
 4. Organization and Activities for OSH
 - 4-1 Introduction: How to make work safe?
 - 4-2 Publication of safety and health policies (for the long term)
 - 4-3 Top Management and Safety & Health Committees
 - 4-4 Safety & health committee reports (every month) and annual reports to the president (every year)
 - 4-5 Continuous measures by utilizing the PDCA cycle
 - 4-6 Inspection/patrol of the work place
 - 4-7 Three important control facts
 5. Practical examples of OSH activities
 - 5-1 5S-Activity
 - 5-2 KYT Activities
 - 5-3 Analyzing the incident/accident and "Kaizen" activity
 - 5-4 Demonstration
- **Developing an Occupational Safety and Health Syllabus**
 - **Content based on the Japanese OSH curriculum**
Held a hearing with a Japanese company working on collaborative development between Japan and Myanmar in the Thilawa SEZ.
 - **Educational materials**
Created OSH educational materials for use in Myanmar.



4. Future Plan

- (1) Developing an occupational safety health syllabus for Hmawbi Technological University (0.5 credits) in 2019 to be officially offered in 2020.
- (2) To achieve that purpose, a faculty member of HTU will be invited to Ehime University for training. In addition, HTU will prepare to serve as the center of occupational safety and health education in Myanmar.
- (3) From 2020 on, it is planned that HTU will be the center of OSH education in Myanmar and spread occupational safety and health education to other technological universities there.



A TRIAL OF AN OCCUPATIONAL SAFETY AND HEALTH SYLLABUS FOR TECHNOLOGICAL UNIVERSITIES IN MYANMAR

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Abstract

The technological universities in Myanmar have been required to include instruction on occupational safety and health (OSH) in their curriculum. Technological University Hmawbi, Ehime University and Okayama University are collaborating to develop an OSH syllabus for technological universities in Myanmar. The government of Myanmar is now developing an 'Industrial Safety and Health Act'. Therefore, an educational program in technological universities is an important step in creating a safety and health management system in Myanmar. The preliminary syllabus was prepared based on the Japanese OSH curriculum, and consists of 1) Hazard and Risk in Workplaces, 2) Risk Assessment, and 3) Organization and Management for OSH. Lecture/workshop-style demonstrations were given by the authors to the faculties and students in three different technological universities in Myanmar and the content was revised in response to the feedback from the Myanmar participants. The aim is to develop a 'safety and health culture' in Myanmar. This process may be applied in other countries where there is a need to develop a 'safety and health culture'.

1. Objective of our project

- The technological universities in Myanmar are required to include a class on "Occupational Safety and Health (OSH)" in their curriculum. Technological University Hmawbi, Ehime University and Okayama University are collaborating to develop an OSH syllabus for technological universities in Myanmar.
- An 'Industrial Safety and Health Act' was introduced in Myanmar this year. An educational program in technological universities is an important step in creating a "safety and health culture" in Myanmar.
- This process may be applied in other countries where there is a need to develop a 'safety and health culture'.

2. Procedure

- **1st step:** Safety seminars for staff and rectors were given several times in order to build a mutual understanding of the importance of creating an "Occupational Safety and Health culture" in technological universities.
- **2nd step:** A safety and health management scheme was introduced in two technological universities. The rector of Thanlyin and, later, Hmawbi Technological Universities successfully organized safety and health systems.
- **3rd step:** A preliminary syllabus for a class on Occupational Safety and Health is reviewed by the faculty members. The Japanese team works closely with the Myanmar faculty/safety officers to make revisions.
- **4th step:** A syllabus and text book will be prepared based on the final revisions. The text book and syllabus is expected to be used in almost all technological universities in Myanmar.

3. Result

- **The contents of the preliminary syllabus**
 - 1) Module time
30-minute sessions x 8 times
 - 2) Teaching method
Active learning/workshop style with lectures for deeper understanding
 - 3) Contents of the Syllabus
 1. OSH Background and Management (PDCA cycle)
 2. Risk Analysis
 3. 5S Activities
 4. Personal Protective Equipment
 5. Incident/Accident Reporting
 6. Inspections
 7. Risk Assessment
- **Revision Process in collaboration with Myanmar staff**
 - 1) Demonstration workshop for technological university faculty members in Myanmar using this 1st trial.
 - 2) Revision of the contents based on faculty feedback.
 - 3) Further revision after consultation with university faculty in Myanmar adjusting to their needs and environment.
 - 4) The final version of the syllabus and a text is expected to be completed next year.



4. Conclusion

A preliminary syllabus was prepared based on the Japanese OSH curriculum and the authors gave demonstration workshops and lectures in three different technological universities in Myanmar, adjusting the content according to the needs and feedback from the Myanmar faculty members. This process may be applied in other countries where there is a need to develop a 'safety and health culture'.

Acknowledgement

This work was supported by a "Research on Occupational Safety and Health" Project for Health, Labor and Welfare Sciences Research Grants from The Ministry of Health Labor and Welfare Japan.

What topics should be taught as the first step in safety education in technological universities?

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Abstract

We launched a project in 2015 for the purpose of developing an introductory course on occupational safety and health for technological universities in Myanmar. Normally, such a course is based on the occupational safety and health laws of each country. However, if such laws are not in place, on what do we base the content? We held several seminars and had many discussions with the OSH education faculty in several technological universities in Myanmar. After much trial and error, we have succeeded in creating a course and a textbook. We will present the results of our project.
 Keywords: textbook, introductory course, OSH

1. Introduction

The technological universities in Myanmar have been required to include instruction on occupational safety and health in their curriculum. Technological University Hmawbi, Ehime University and Okayama University are collaborating to develop an OSH syllabus and a textbook for all technological universities in Myanmar.

A comprehensive Occupational Safety and Health Law was proposed for approval in Myanmar in 2019. An education program tailored to their technological universities is an important step in creating a "safety and health culture" in Myanmar. The program consists of 8 sessions. Each session is only 30 minutes. Our challenge was to determine what topics to include within that limited time frame. The field of OSH covers a very wide range of understanding of natural and social sciences, as well as technological and psychological knowledge. It is impossible to teach all of them in such a short time. How could we select the content that would meet their purpose? This report presents our results after many trials and errors.

2. Procedure of topic selection

The most important point for importing and adapting a new concept to a society from another society is a mutual understanding between the two societies. Before starting to edit the textbook, we spent three or four years reaching a mutual understanding. During this period, we held two kind of events to build mutual understanding on the OSH listed below.

2. We have also held OSH seminars in three technologically 1. We invited a rector and two safety officer trainees of two of the Technological Universities in Myanmar to Ehime University to learn about the OSH in Ehime University. This helped them to understand the importance of OSH in universities, not only for the teaching staff but also for students. As a result, two universities set up new organizational management scheme modeled after the one used in Ehime university.

Universities in Myanmar several times. Every time, after the seminar, we met with the teaching staff, safety officers and the rectors to discuss what kind of safety knowledge is needed in Myanmar and what OSH topics they want to teach to the students. These events have helped us gain a mutual understanding of OSH. Based on this understanding, we started to write the textbook. Both sides decided on a flipped-classroom style: reading the text outside of class and doing group work/discussion during the class. The content was decided after 2 or 3 trial seminars in Myanmar.



Discussion with faculty members

3. Contents of Proposed Lecture

An example of the contents of a standard occupational safety and health textbook is as follows:

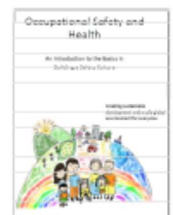
1. Introduction to Occupational Safety and Health
2. Safety Legislation
3. Workers' Compensation and Recordkeeping
4. Safety-Related Business Laws
5. Accident Causation and Investigation: Theory and Application
6. Introduction to Industrial Hygiene
7. Ergonomics and Safety Management
8. Fire Prevention and Protection
-
-
-
19. required Written Program

As seen in the above list, the content is based on OSH law and regulations, and the topics are spread over a wide field. It takes a long time to cover them all.

After our seminars and long discussions with our colleagues in Myanmar, we selected the topics listed below:

- Chapter 1. Introduction to OSH
- Chapter 2. OSH Management
- Chapter 3. Risk Assessment
- Chapter 4. Incident/Accident Reporting
- Chapter 5. Inspections
- Chapter 6. Accident Analysis
- Chapter 7. Good Practice
- Chapter 8. Review and final exam

With our Myanmar colleagues, we decided to use a flipped-classroom approach with group work for greater impact and to get students to think for themselves.



Cover of our OSH Textbook

4. Conclusion and Future plan

- (1) Developing an occupational safety health textbook for all Technological Universities in Myanmar for a 0.5 credit class.
- (2) To achieve that purpose, faculty members were invited to Ehime University to observe our OSH system. That became the basis of a new organizational management scheme in their universities.
- (3) After the Covid-19 pandemic, we will plan to visit Myanmar to introduce this method of teaching occupational safety and health education to all technological universities in Myanmar.

Acknowledgement

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Occupational Safety and Health

An Introduction to
Building a Safety Culture

Editors

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