

Disclaimer

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Introduction

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Background (1)

- Climate change, the expansion of the urban and changes in land use.
- As a result, the risk and impact of disasters is increasing and more intense. Disaster had happened in Thailand,
- causing loss of life and property of many people

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Background (2)

- DDPM as the central national government agency responsible for disaster management **need** to create and develop knowledge Innovation to prevent and reduce the impact on the risk of area.

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Background (3)

- The Civil Engineering method is a way for prevent and reduce the impact of disaster by structure.
- Japan is a best country to use in civil engineering for prevention and reducing the impact of disasters.
- Japan has the knowledge and Innovative solution for studying.

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Background (4)

- The study this...is a way for developing knowledge and Innovation of DDPM.
- The case of Japan Researchers will have the knowledge and experience to bring for the situation of the Thailand.

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Problem (1)

- The Researcher and many civil engineers at DDPM who have begun to work in the disaster division.
- lack the specific expertise needed to develop innovative solutions for disaster prevention.
- Thailand has little a source of disaster education and learning centre about this.

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Problem (2)

- From such a problem, it is a great opportunity to learn and create experience because Japan is the most famous countries about that and suitable for beginners to create experiences.

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Question

- How does japan use civil engineering methods to prevent and reduce the impact?
- In addition, what is the good practice in Japan appropriate in Thailand?

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Specific Aims (1)

- To study the Disaster Management System in Japan.
- To gather the knowledge of Civil Engineering to prevent and reduce the impact of the disaster in Japan.

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Specific Aims (2)

- To identify better ways of Civil Engineering method for prevention and reducing the impact of disasters that can be applied to Thailand.
- Prepare recommendations for improvement of DDPM in Thailand

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Scope

- This study in Civil Engineering method used for prevent and reduce the impact in Japan for guidance as a whole
- can be visit during the period January 11 - April 8, 2017 only.
- Not go deeper into design details or specialized techniques.

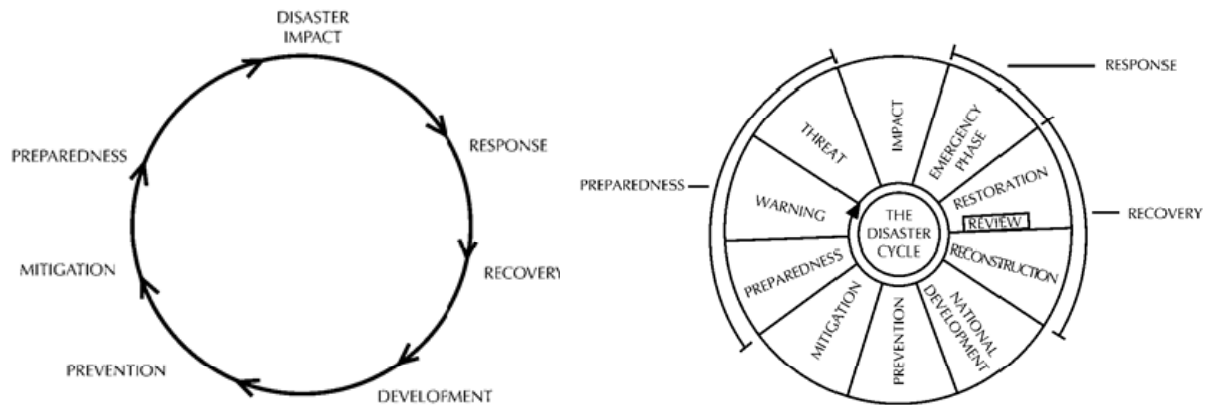
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Review of literature

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Disaster Management system (1)

- The Disaster Management Cycle



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Disaster Management system (2)

- Prevention
- Mitigation
- Preparedness
- Disaster Impact
- Response
- Recovery
- Development
- Application to Practical Disaster Management

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CIVIL ENGINEERING for disaster prevention and mitigation (1)

– Roles of Civil Engineers for Disaster Prevention and Mitigation

– Flood

- Flood Management in Japan
- Urban Flooding

– Earthquake

- Base Isolation
- Vibration Control
- Quake-Proof
- Seismic Retrofit Methods

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CIVIL ENGINEERING for disaster prevention and mitigation (2)

– Tsunami

- Tsunami Barriers

– Slope Land slide

- Surface water drains
- Groundwater drains
- Earth removal
- Embankment loading
- Restraining Structures
- Erosion control using river structures, etc
- Sabo Dam

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CIVIL ENGINEERING for disaster prevention and mitigation (3)

– GIS and Mapping

- Hazard Mapping
- Combining critical facilities maps and multiple hazard maps
- Mapping techniques and tools

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Methodology

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PROPOSED RESEARCH ACTIVITIES

- Review of related literature.
- Collect the data and documentation of good practices and innovations.
- Presentation and discussion.
- Attendance to seminars/orientations.
- Visit to various institutions/organizations/site area.

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DATA COLLECTION (1)

- The study of documents associated by the concepts and theories related to this study. Studies from academic papers, Research papers, textbooks, journals, articles, internet reports, and academic essays. Also study the work documents and related documents. Most of the information is **secondary data**.

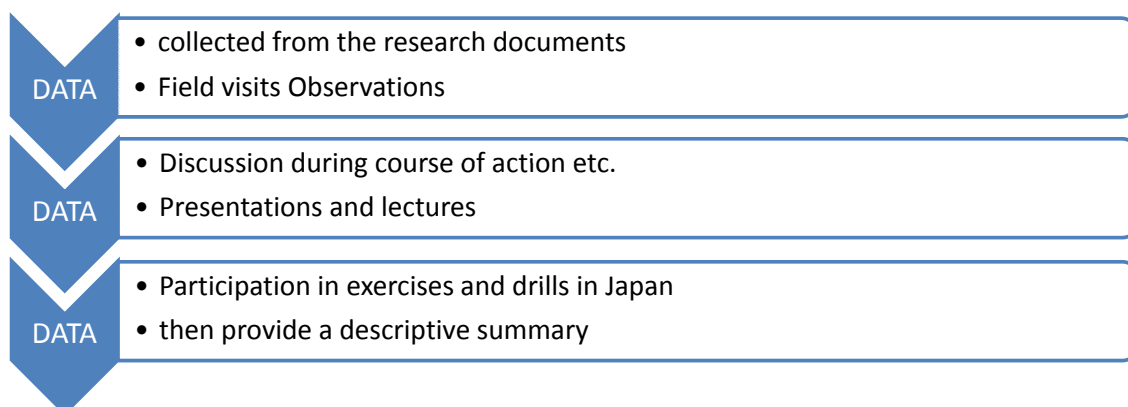
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DATA COLLECTION (2)

- Field visits Observations, Discussion during course of action etc. Presentations and lectures, Participation in exercises and drills in Japan. These methods are the acquisition of **primary data**.

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DATA ANALYSIS



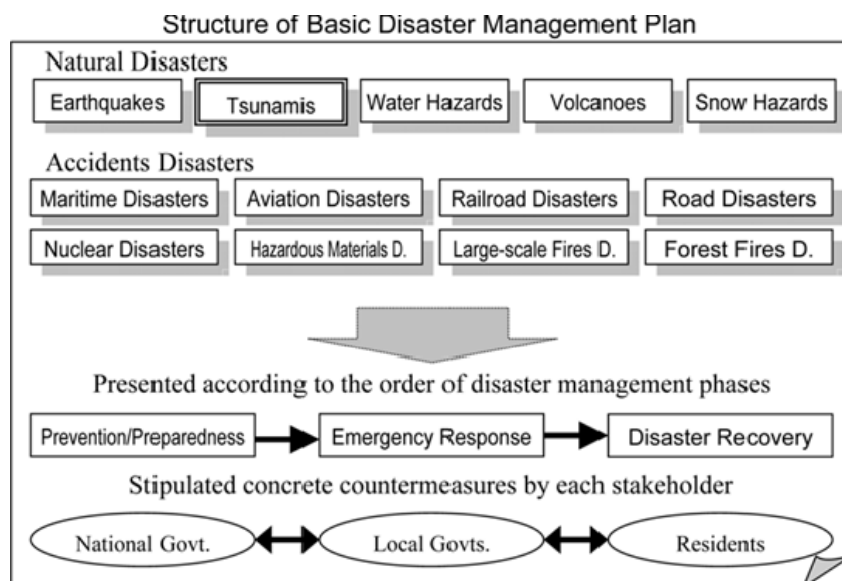
- Descriptive using logical reasoning, consisting of deductive logic and inductive logic,
- using the framework in Chapter 2 as a guide to case study analysis.

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RESULT

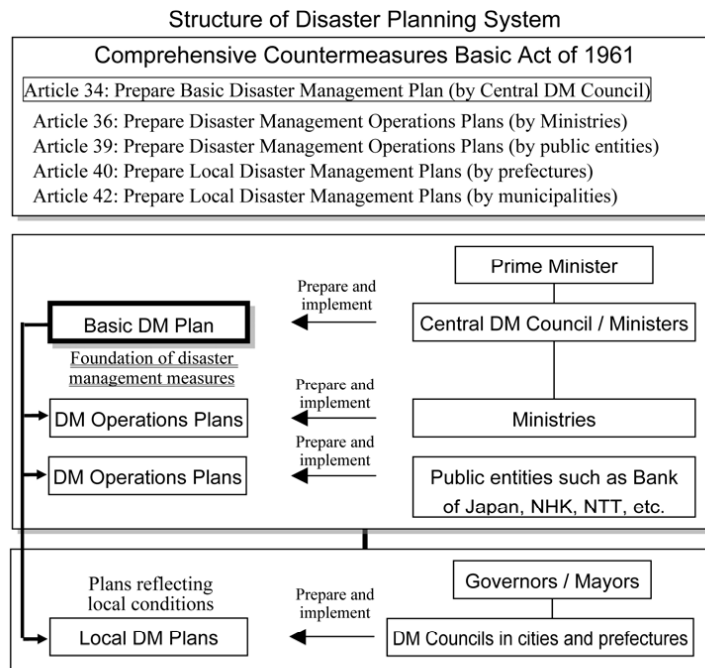
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DISASTER MANAGEMENT IN JAPAN(1)



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DISASTER MANAGEMENT IN JAPAN(2)



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DISASTER MANAGEMENT IN THAILAND

- An emergency and incident management in Thai context is classified into four levels

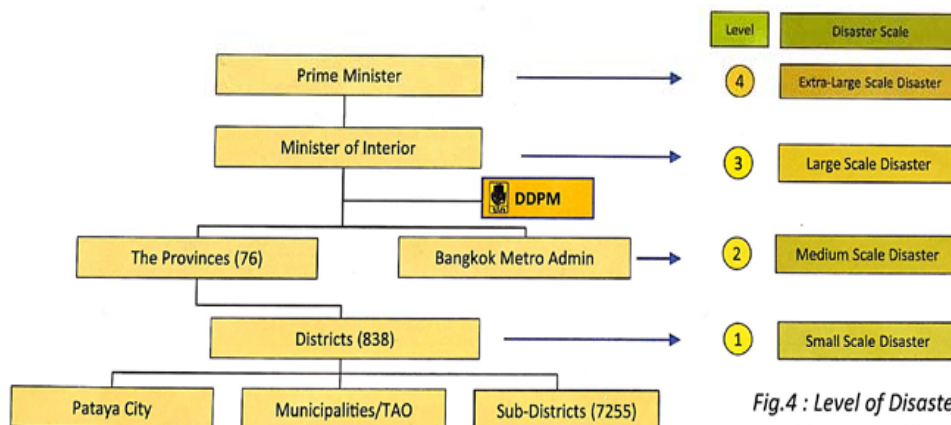


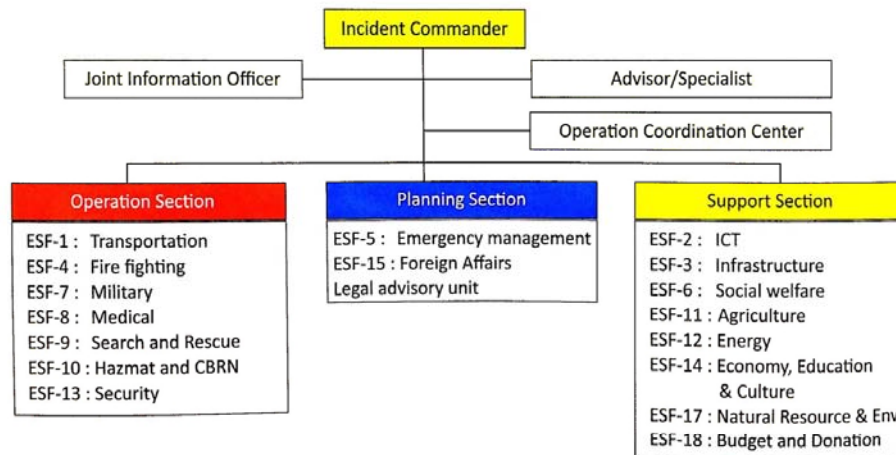
Fig.3 : Organization Chart of Implementation Body

Fig.4 : Level of Disaster Management

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DISASTER MANAGEMENT IN THAILAND

- illustrates the formation of the National Disaster Prevention and Mitigation Command Center once it is activated.



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DISASTER MANAGEMENT IN THAILAND

Disaster Management Strategies

- Mainstreaming Disaster Risk Reduction into planning and development at all levels.
- Effective and integrated emergency management system.
- Strengthening and enhancing the efficiency of sustainable disaster recovery
- Promoting and strengthening international cooperation on disaster risk management

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Disaster in Thailand



- Flood
- Drought
- Landslides
- Earthquakes and Tsunami
- Storms
- Fires
- Forest Fires and Haze
- Transportation Hazards

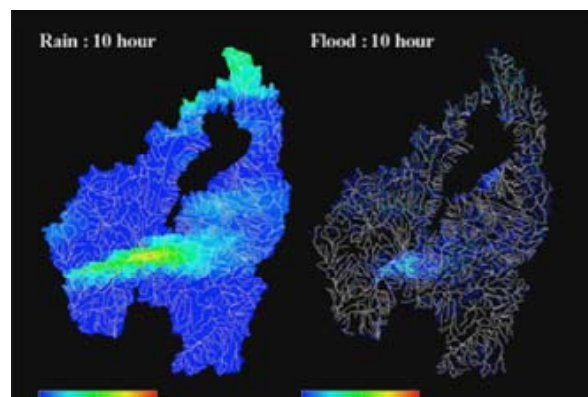


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DRR BY CIVIL ENGINEERING METHOD IN JAPAN (1)

Engineering for Flood

- Best Practices for Reducing Flood Disaster in Japan, Kobe University

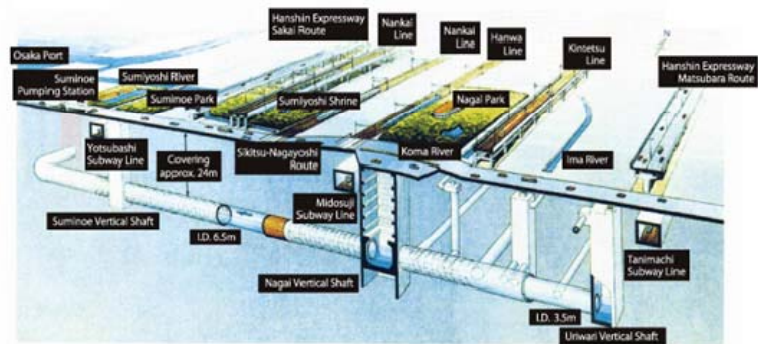
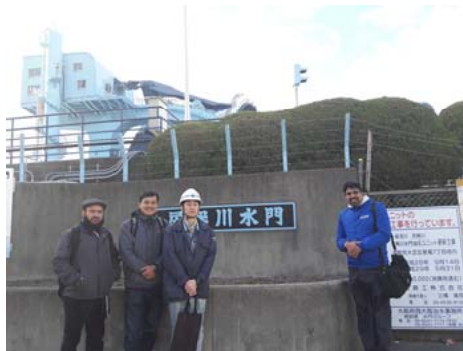


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DRR BY CIVIL ENGINEERING METHOD IN JAPAN (2)

Engineering for Flood

- Floodgate System and Sewerage projects in Osaka

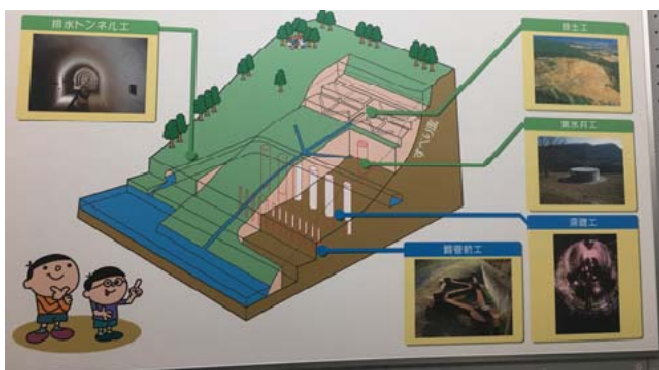


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DRR BY CIVIL ENGINEERING METHOD IN JAPAN (3)

Engineering for land slide and Sediment-related disasters

- Kamenose Land Slide, Nara Prefecture



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DRR BY CIVIL ENGINEERING METHOD IN JAPAN (4)

Engineering for land slide and Sediment-related disasters

- Visit and brief by Rokko Sabo Office, MLIT, Kobe



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DRR BY CIVIL ENGINEERING METHOD IN JAPAN (5)

Engineering for land slide and Sediment-related disasters

- New nailing network system



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DRR BY CIVIL ENGINEERING METHOD IN JAPAN (6)

GIS and Mapping

- Sentinel Asia



- The Sentinel Asia is a voluntary basis initiative led by the Asia-Pacific Regional Space Agency Forum (APRSAF) to support disaster management activity in the Asia-Pacific region by applying the WEB-GIS technology and space based technology, such as earth observation satellites data.

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DRR BY CIVIL ENGINEERING METHOD IN JAPAN (7)

Engineering for Earthquake

- National Research Institute for Earth Science and Disaster Resilience (NIED)



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DRR BY CIVIL ENGINEERING METHOD IN JAPAN (8)

Engineering for Tsunami and storm surge

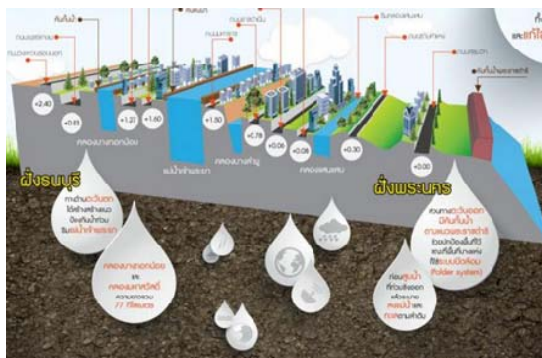
- Tsunami Evacuation Tower and Evacuation Facilities



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DRR BY CIVIL ENGINEERING METHOD IN JAPAN FOR ADEPTATION TO THAILAND (1)

- Sewerage projects in Osaka are caused by the context of the problem, which is similar to the problem of drainage in Bangkok.



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DRR BY CIVIL ENGINEERING METHOD IN JAPAN FOR ADEPTATION TO THAILAND (2)

- At present, Bangkok has constructed a large-scale Drainage tunnel system, but has not solved the problem of unsuitable drainage. In some areas, when the rain is heavy, the water will not drain until it becomes flooded.
- If there is time to study the Floodgate System and Sewerage projects in Osaka, the researchers believe that many thing in this system can be adapted to suit the situation in Thailand

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DRR BY CIVIL ENGINEERING METHOD IN JAPAN FOR ADEPTATION TO THAILAND (3)

Engineering for land slide and Sediment-related disasters



- Based on the study of Sabo dam, the pattern of sabo dam construction in the past is similar to the water retention in Thailand. It is constructed with natural materials in areas such as wood and stone. (See examples and patterns in the appendix.)
- The construction of the Sabo Dam with concrete like the current layout is not consistent with the context of Thailand. Because it is not worth the investment

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DRR BY CIVIL ENGINEERING METHOD IN JAPAN FOR ADEPTATION TO THAILAND (4)

GIS and Mapping

- The techniques and methods of developing the risk map of Japan are very useful and can be adapted.
- Sentinel Asia is a great resource. Should be promoted to be widely known. And should be practiced using such databases. To allow members easy access to information.

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DRR BY CIVIL ENGINEERING METHOD IN JAPAN FOR ADEPTATION TO THAILAND (5)

Engineering for Earthquake

- Research from the National Research Institute for Earth Science and Disaster Resilience (NIED) is beneficial to the study and development of civil engineering knowledge.
- Thailand should focus on the development of the Disaster Research Institute to study the development of knowledge and skills in effective prevention and mitigation measures.

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DRR BY CIVIL ENGINEERING METHOD IN JAPAN FOR ADEPTATION TO THAILAND (6)

Engineering for Tsunami and storm surge



- Coastal embankment in Japan is strong and strong. Some sea walls can be adapted to erosion protection in Thailand.

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CONCLUSION

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CONCLUSION

- From visiting many agencies and projects on prevention and mitigation of the effects of natural disasters. Including the search of documents, books and the Internet **found that all methods can be applied to Thailand. But depending on the context of Thailand. In this study, the researcher did not consider it**
- The things that can be developed and deployed right away are GIS and flood simulation for hazard maps

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CONCLUSION

Challenges in Research

- Research topics are too broad, with only 88 days of study time
- Researchers lack the skills and expertise to communicate in English.
- Some projects are very far away. It is difficult to study.

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有難うございます。

