

MANAGEMENT AND CONTROL OF MARINE POLLUTION

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TEXTBOOK



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- The textbook is available in Vietnamese in the library of VMU.



PREFACE

There can be environmental incidents in the sea such as oil spills, chemical spills from ships, incidents of oil rigs and pipelines at sea, etc., causing harmful effects to biological resources and the environment can be adversely affected. In order to raise awareness and protection of marine resources and environment for students of disciplines related to exploitation and protection of marine resources and environment, marine pollution, the textbook is designed with 7 chapters:

Chapter 1. Pollution of the marine environment

Chapter 2. Laws and policies on marine environmental protection

Chapter 3. Petroleum and petroleum products

Chapter 4. Control and handling of oil spills and chemical spills at sea of Vietnam

Chapter 5. Operations to respond to oil spills at sea

Chapter 6. Coastal cleaning and environmental rehabilitation, treatment of recovered oil and oily materials

Chapter 7. Compensation for damage to marine resources and environment after the oil spill

Students will be provided with fundamental knowledge of marine pollution and oil pollution management and treatment at sea in the world and especially in Vietnam. Legal framework for marine environmental protection along with basic oil spill treatment operation are also emphasized to address learners the importance of marine environment protection.

CHAPTER 1. POLLUTION OF THE MARINE ENVIRONMENT

1.1. Pollution of the marine environment

1.1.1. The concept of marine pollution

1.1.2. Some sources of frequent marine pollution

1.2. Marine pollution due to mineral oil

1.2.1. Large oil spills at sea in the world and Vietnam in recent years

1.2.2. Current status of management and treatment of marine oil pollution in the world and in Vietnam





CHAPTER 2. LAWS AND POLICIES ON MARINE ENVIRONMENTAL PROTECTION

2.1. International Convention on the Protection of the Marine Environment

2.1.1. United Nations Convention on the Law of the Sea 1982 (UNCLOS 82)

2.1.2. The International Convention for the Prevention of Pollution from Ships (MARPOL)

2.1.3. London Dumping Convention, 1972 and Protocol 1996

2.1.4. The International Convention for the Safety of Life at Sea 1974 (SOLAS 74)

2.1.5. International Convention on Civil Liability for Oil Pollution Damage (CLC)

2.1.6. Protocol of 1992 to amend the international convention on the establishment of an international fund for compensation for oil pollution damage, 1971 (FUND PROT 1992)

2.1.7. International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, 1996.

2.1.8. Conventions; International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (OPRC 90)

2.1.9. Basel Convention 1989

2.1.10. Memorandum of Understanding on Port State Control in the Asia-Pacific Region 1993 (TOKYO MOU, 1993)

2.1.11. Other international regulations on marine environmental protection



CHAPTER 2. LAWS AND POLICIES ON MARINE ENVIRONMENTAL PROTECTION

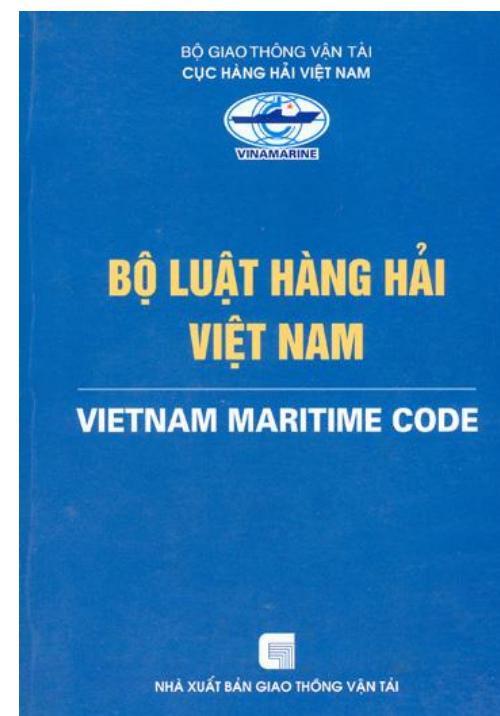
2.2. Vietnamese law on marine environment protection

2.2.1. *Law on Environmental Protection, 2005 and 2014*

2.2.2. *Vietnam Maritime Code, 2015*

2.2.3. *Petroleum Law*

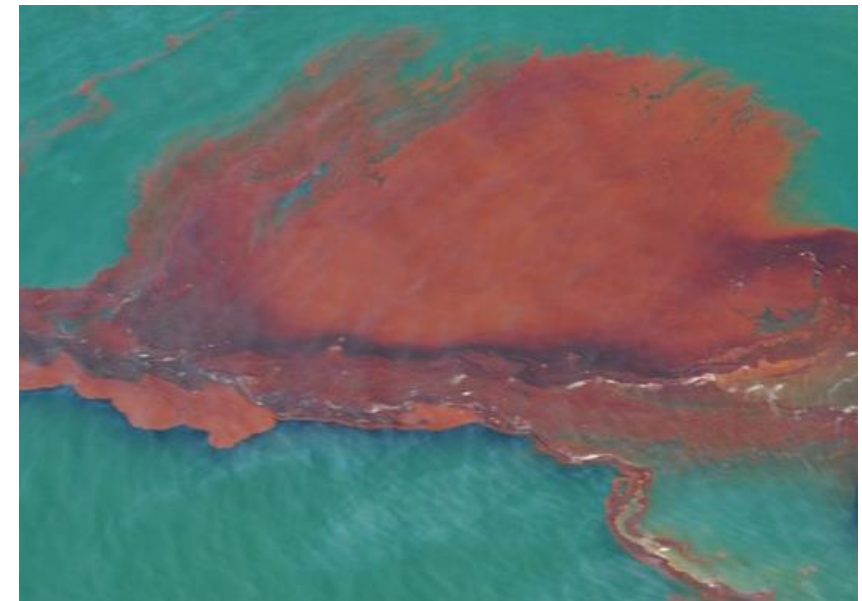
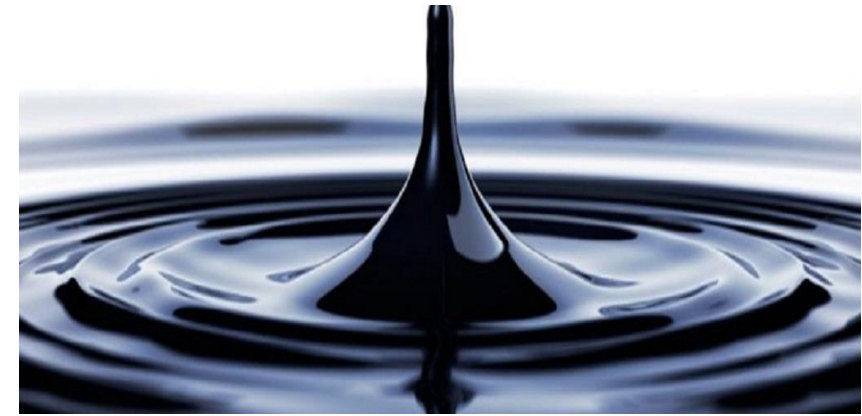
2.2.4. *Other legal documents*





CHAPTER 3. PETROLEUM AND PETROLEUM PRODUCTS

- 3.1. Origin of petroleum and gas**
- 3.2. Chemical composition of petroleum**
- 3.3. Classification of oil and gas**
- 3.4. Petroleum products and applications**
- 3.5. Physical characteristics of petroleum fractions**
- 3.6. The change of oil in the sea**
- 3.7. Oil spill damages to seas and oceans**
- 3.8. Consequences of an oil spill at sea**
- 3.9. Some typical oil spills at sea**





CHAPTER 4. CONTROL AND HANDLING OF OIL SPILLS AND CHEMICAL SPILLS AT SEA OF VIETNAM

4.1. Legal basis

4.1.1. Regulations of specialized laws

4.1.2. MARPOL 73/78 Convention

4.1.3. Decisions of the Prime Minister on oil spill response

4.2. Model of national oil spill response organization

4.2.1. Contents of the National Plan to Respond to Oil Spills at Sea

4.2.2. Tasks and responsibilities of organizations



CHAPTER 5. OPERATIONS TO RESPOND TO OIL SPILLS AT SEA

5.1. Basic equipment

5.1.1. *Float*

5.1.2. *Oil recovery equipment at sea*

5.2. Oil recovery materials

5.2.1. *Oil collection tank*

5.2.2. *Oil spill response canoes*

5.3. Chemical dispersion, oil condensate

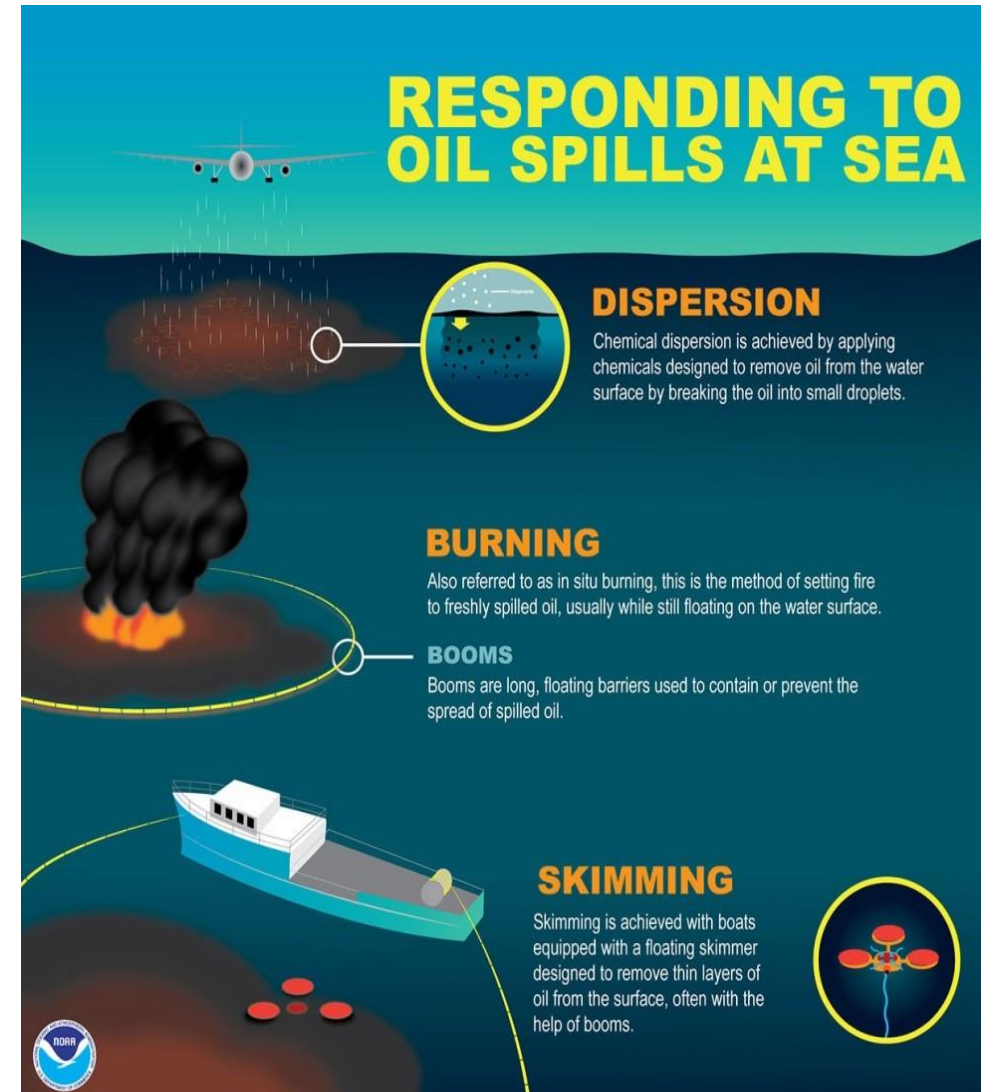
5.3.1. *Dispersant*

5.3.2. *Oil absorbent material*

5.4. Activities to respond to oil spills at sea

5.4.1. *Organize communication*

5.4.2. *Stages of implementing an oil spill response plan at sea*





CHAPTER 6. COASTAL CLEANING AND ENVIRONMENTAL REHABILITATION, TREATMENT OF RECOVERED OIL AND OILY MATERIALS

6.1. Coastal cleaning work

6.1.1. Oil spill collection

6.1.2. Clean up the coast after the oil spill

6.2. Treatment of recovered oil and oily materials

6.2.1. Classification of products recovered from the oil spill at sea

6.2.2. Handling of recovered oil and oily materials



CHAPTER 7. COMPENSATION FOR DAMAGE TO MARINE RESOURCES AND ENVIRONMENT AFTER THE OIL SPILL

7.1. Several methods of oil identification

7.1.1. Spectral analysis methods

7.1.2. Chromatographic method

7.2. Legal basis of compensation and claim for damages after the oil spill

7.2.1. The provisions of Vietnamese law

7.2.2. International law

7.3. Compensation for an oil spill

A. Environmental Damage Compensation for an Oil Spill

7.3.1. General provisions on compensation for environmental damage for an oil spill

7.3.2. Data and evidence to determine the damage to the environment caused by the oil spill

7.3.3. Calculation of damage caused by oil spill to the environment

7.3.4. Determining liability for environmental damages for an oil spill

B. Identify and cover costs for an oil spill response at sea

7.3.5. Cost of investigating and determining the cause of an oil spill at sea

7.3.6. Resolving the consequences of an oil spill

C. Oil spill claim activities in provinces of Vietnam

Thank you



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Co-funded by the
Erasmus+ Programme
of the European Union

