MARE -Marine Coastal and Delta Sustainability for Southeast Asia

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

Master's course

Sustainability in coastal construction

A. Introduction

Description: The course provides basic knowledge of Changes in climate, Climate change scenarios, The impact of Climate change on buildings, Climate-Adaptable Buildings, Adaptation Approaches for Buildings, Adaptation Strategies and Resilience, Sustainability in coastal construction.

Objectives: Students understand an overview of changes in climate, climate change scenarios and the impact of climate change on buildings. Students know about climate-adaptable buildings and adaptation approaches for buildings. Students can basically prepare adaptation strategies and resilience for a coastal region or a building.

Learning outcomes: Students can describe changes in climate, climate change scenarios, the impact of climate change on buildings, climate-adaptable buildings, adaptation approaches for buildings, adaptation strategies and resilience and sustainability in coastal construction. Students can present the knowledge about changes in climate, climate change scenarios, the impact of climate change on buildings, climate-adaptable buildings, sustainability in coastal construction and apply to complete adaptation approaches for buildings, adaptation strategies and resilience.

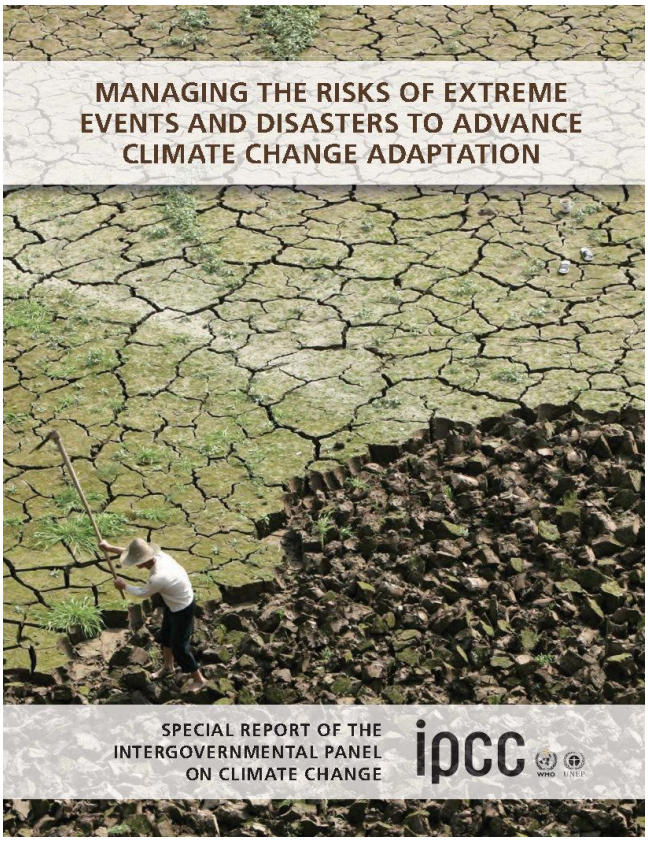
Contents: The course consist of the following topics:

1. Changes in climate;
2. Climate change scenarios;
3. The impact of Climate change on buildings;
4. Climate-Adaptable Buildings;
5. Adaptation Approaches for Buildings;
6. Adaptation Strategies and Resilience;
7. Sustainability in coastal construction.

B. Literature & References

Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change

IPCC, 2018



Report's abstract

Extreme weather and climate events, interacting with exposed and vulnerable human and natural systems, can lead to disasters. This Special Report explores the challenge of understanding and managing the risks of climate extremes to advance climate change adaptation.

Weather- and climate-related disasters have social as well as physical dimensions. As a result, changes in the frequency and severity of the physical events affect disaster risk, but so do the spatially diverse and temporally dynamic patterns of exposure and vulnerability.

Some types of extreme weather and climate events have increased in frequency or magnitude, but populations and assets at risk have also increased, with consequences for disaster risk. Opportunities for managing risks of weather- and

climate-related disasters exist or can be developed at any scale, local to international. Some strategies for effectively managing risks and adapting to climate change involve adjustments to current activities. Others require transformation or fundamental change.

The Intergovernmental Panel on Climate Change (IPCC) is the leading international body for the assessment of climate change, including the physical science of climate; impacts, adaptation, and vulnerability; and mitigation of climate change. The IPCC was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) to provide the world with a comprehensive assessment of the current state of knowledge of climate change and its potential environmental and socioeconomic impacts.

This Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX) has been jointly coordinated by Working Groups I (WGI) and II (WGII) of the Intergovernmental Panel on Climate Change (IPCC). The report focuses on the relationship between climate change and extreme weather and climate events, the impacts of such events, and the strategies to manage the associated risks.

The IPCC was jointly established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP), in particular to assess in a comprehensive, objective, and transparent manner all the relevant scientific, technical, and socioeconomic information to contribute in understanding the scientific basis of risk of human-induced climate change, the potential impacts, and the adaptation and mitigation options. Beginning in 1990, the IPCC has produced a series of Assessment Reports, Special Reports, Technical Papers, methodologies, and other key documents which have since become the standard references for policymakers and scientists.

This Special Report, in particular, contributes to frame the challenge of dealing with extreme weather and climate events as an issue in decisionmaking under uncertainty, analyzing response in the context of risk management. The report consists of nine chapters, covering risk management; observed and projected changes in extreme weather and climate events; exposure and vulnerability to as well as losses resulting from such events; adaptation options from the local to the international scale; the role of sustainable development in modulating risks; and insights from specific case studies.

Table of contents

Chapter 6. National Systems for Managing the Risks from Climate Extremes and Disasters
Chapter 7. Managing the Risks: International Level and Integration across Scales
Chapter 8. Toward a Sustainable and Resilient Future
Chapter 9. Case Studies.

Target group

The book is intended for scientific communities with expertise in managing risks of extreme weather and climate events, specialists in disaster recovery, disaster risk management, and disaster risk reduction and experts in the areas of the physical science basis of climate change and climate change impacts, adaptation, and vulnerability.

Book imprints

IPCC. Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK, and New York, NY, USA, 2012, 582 pp.