

Preface

The aim of this book is to provide an integrated socio-economic assessment of multi-use offshore platforms (MUOPs) in selected EU sites in the North Sea, the Baltic Sea and the Mediterranean and the Atlantic coast. The assessment results from the interdisciplinary research carried out in the MERMAID Project (Innovative Multi-purpose Off-Shore Platforms: Planning, Design and Operation) funded under the EU FP7 call *OCEAN.2011-1: Multi-Use Offshore Platforms*. The book provides a first-time integrated assessment of the MUOPs and the relevant technology associated with the implementation of the Marine Strategy Framework Directive and the sustainable marine spatial planning. The socio-economic assessment uses the results from the natural and engineering sciences as inputs, boundaries and constraints. The analysis employs an interdisciplinary approach that combines expertise in hydraulics, wind engineering, aquaculture, renewable energy, marine environment, project management, socio-economics and governance.

The first chapter of the book introduces the reader to the MERMAID Project, the drivers and the needs for the development of the MUOPs in the EU waters and the importance of developing a sound integrated socio-economic assessment in terms of methodology and results obtained.

Chapter 2 presents the methodology used for the integrated socio-economic assessment of different designs of the MUOPs. The methodology employed allows for the identification, the valuation and the assessment of the potential impacts and their magnitude, considering a number of feasible designs of MUOP investments and the likely responses of those impacted by the investment project. The methodology is implemented for the assessment of the different sites and the results are summarized in Chaps. 3, 4, 5 and 6.

Chapter 3 presents the results of the integrated assessment with regard to the MUOP in the Baltic Sea, in the area of the Kriegers Flak in which an offshore wind farm of 600 MW is planned to be fully operational in 2022. The analysis investigates the combination of wind turbines and offshore aquaculture. Constrained by data availability, the analysis combined with expert views shows that the multi-use platform scenario may be expected to be economically viable in the long run.

Chapter 4 provides an integrated socio-economic assessment of a MUOP in the North Sea in the Netherlands Exclusive Economic Zone, the Gemini site where wind power generation can be combined with mussel and seaweed cultivation. The analysis shows that there exists political willingness to back up the development; nevertheless, a number of regulatory obstacles are also identified. The financial and economic assessment and the cost-benefit analysis indicate that adding mussel cultivation to the wind farm is likely to be both financially and socio-economically viable.

Chapter 5 presents the results obtained from the analysis of the multi-use design for the Cantabria offshore site in the Atlantic coast. The analysis identifies that the profitability potentials of a MUOP site remain uncertain, while ocean energy industry has not yet gained the necessary social acceptance in the region.

Chapter 6 presents the results from the integrated assessment of a MUOP site in the area offshore Venice with potential combination of fish farming and wind energy production. Limited financial data on wind energy suggest a negative net present value, whereas proper financial data on fish farming produce a slightly positive NPV. The effects are significant and positive in terms of the monetized effects of reduced CO₂ emissions. The results show that in the short run the MUOP might not be profitable or gain social acceptance but these results may be subject to change in the long run.

Chapter 7 undertakes a risk analysis and a sensitivity analysis of the application of the methodology for integrated socio-economic assessment with regard to the different proposed designs of the MUOPs. The chapter integrates the results of the assessment discussed in the previous chapters and presents and compares the sensitivity analysis and Monte Carlo simulation results.

The last chapter concludes with the discussion of the challenges and obstacles to the MUOP development and of the recommendations that future decision making on blue growth should consider.

Athens, Greece
London, UK

Phoebe Koundouri

The Ocean of Tomorrow

Investment Assessment of Multi-Use Offshore Platforms:
Methodology and Applications - Volume 1

Koundouri, P. (Ed.)

2017, XXX, 143 p. 36 illus., 23 illus. in color., Hardcover

ISBN: 978-3-319-55770-0