

## Chapter 12

# The Role of Oil and Gas Offshore Platform Reconversion in Creating Artificial Reefs: A Multi-Business and Socio- Economic Perspective

**Roberto Vona**

*Federico II University of Naples, Italy*

**Vincenzo Basile**

 <https://orcid.org/0000-0001-8776-0915>

*Federico II University of Naples, Italy*

**Nunzia Capobianco**

 <https://orcid.org/0000-0001-7355-490X>

*Federico II University of Naples, Italy*

**Francesca Loia**

 <https://orcid.org/0000-0003-1755-968X>

*Federico II University of Naples, Italy*

### ABSTRACT

*In recent times, decommissioning of offshore platforms has become an even more discussed topic, for its relevant environmental, social, and economic repercussions. In particular, by carrying out economic considerations, all the divestiture possibilities applicable to an offshore platform and the relative sustainable business models (SBMs) will be analyzed in a wide framework of the circular economy and sustainable principles. In this scenario, sustainable decommissioning (SD) of offshore platforms process refers to multidimensional and interdisciplinary challenges, which requires a deep understanding of technical, legal, economic, financial, social, and environmental variables. The decommissioning of these structures is an issue that has gained a great deal of international attention and will require in the next years an open dialogue and exchange between institutions, oil and gas companies, enterprises, and the environment.*

DOI: 10.4018/978-1-6684-2344-8.ch012

## INTRODUCTION

In recent times, decommissioning of offshore platforms has become an even more discussed topic, for its relevant environmental, social, and economic repercussions (Basile et al., 2021a; Capobianco et al., 2021; Loia et al., 2021b). Decommissioning specifically refers to the series of processes involved in withdrawing a facility from service at the end of its life; its deconstruction and dismantling; and the removal of components for reuse, remanufacturing, recycling, storage and/or disposal. The international guidelines stated that abandoned or disused offshore installations or structures on any continental shelf are required to be removed. However, the considerable costs of decommissioning, as well as environmental considerations, have led to a gradual change in international regulations towards a more flexible approach if technical estimations allow it (Fowler et al., 2014). Indeed, experts and scholars have agreed that the partial removal options can deliver better environmental outcomes than complete removal of platforms in terms of biodiversity enhancement, provision of reef habitat, and protection from bottom trawling, aspects that instead are negatively affected by the complete removal. This awareness has led some nations to leave obsolete structures to act as artificial reefs and/or to find alternative solutions for their sustainable reuse of these assets (Margheritini, 2020). Multiuse platforms at sea (MUPS), indeed, represent an interesting solution for the development of marine infrastructures, including areas in which to start and develop various creative economic activities that are in harmony with the needs of environmental protection including sea shellfish farming, decarbonisation plants, renewable energy, tourism, and recreation (Nassar et al., 2020). Rigs-to-Reefs (RTR) refers to the conversion of decommissioned offshore oil and gas rigs into artificial reefs. In the United States, RTR is a nationwide program developed by the Bureau of Safety and Environmental Enforcement. RTR success' programs demonstrate how oil and gas offshore platforms represent an ecological opportunity for marine ecosystem enhancement or restoration. In this sense, several scholars stated that marine organisms attach themselves to the underwater portions of oil production platforms, transforming them into artificial reefs and these facilities can develop rich and various marine communities (e.g., Bell and Smith, 1999; Love et al., 2007; Macreadie et al., 2011, 2012; Todd et al., 2020). In the Gulf of Mexico, for example, platforms support populations of red snapper (*Lutjanus campechanus*) (Gallaway et al., 2009) and in Southern California rockfish (*Sebastes paucispinis*) (Love et al., 2007). In addition, in the Italian context, there is the reserve of *Paguro*, which is the wreck of a drilling platform, built by General Italian Oil Company (AGIP)<sup>1</sup> in Porto Corsini in 1963 for the extraction of natural gas. Recognized in 2010 as a site of community interest by the Emilia-Romagna region, it is the first reusing case of a former offshore platform as an artificial reef in the Italian context. The above has led to a revisiting of the regulations in favour of a more flexible approach, as outlined above, depending on specific technical and environmental assessments. Following these considerations, this chapter proposal inquiries about the possibility of reusing offshore extraction platforms, as artificial reefs. By carrying out economic considerations, all the divestiture possibilities applicable to an offshore platform and the relative Sustainable Business Models (SBMs) will be analysed in a wide framework of the circular economy and sustainable principles. The reconversion of these platforms in favour of multi-purpose initiatives, indeed, can have significant potential also in terms of reduction of operational costs for the offshore energy and aquaculture industry by means of concerted spatial planning and sharing of infrastructure (Abhinav et al., 2020). In addition, the increasingly urgent issues related to sustainability have triggered the need to balance all the social, organizational, and environmental concerns and have prompted future organizational efforts to define and adopt sustainable business models aimed at the well-being of the population and the improvement

23 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the product's webpage:

[www.igi-global.com/chapter/the-role-of-oil-and-gas-offshore-platform-reconversion-in-creating-artificial-reefs/303909?camid=4v1](http://www.igi-global.com/chapter/the-role-of-oil-and-gas-offshore-platform-reconversion-in-creating-artificial-reefs/303909?camid=4v1)

This title is available in Business and Management e-Book Collection, Business Knowledge Solutions e-Book Collection, Computer Science and IT Knowledge Solutions e-Book Collection, e-Book Collection, Environmental, Agricultural, and Physical Sciences e-Book Collection, Government and Law e-Book Collection, Practice, Progress, and Proficiency in Sustainability.

Recommend this product to your librarian:

[www.igi-global.com/e-resources/library-recommendation/?id=62](http://www.igi-global.com/e-resources/library-recommendation/?id=62)

## Related Content

---

Exploring the Impact of Organizational Citizenship Behavior on Perceptions of E-Filing Success  
Lemuria Carter, Gwendolyn McFadden-Wade and Jean T. Wells (2016). *International Journal of Public Administration in the Digital Age* (pp. 43-52).

[www.igi-global.com/article/exploring-the-impact-of-organizational-citizenship-behavior-on-perceptions-of-e-filing-success/143031?camid=4v1a](http://www.igi-global.com/article/exploring-the-impact-of-organizational-citizenship-behavior-on-perceptions-of-e-filing-success/143031?camid=4v1a)

Agency vs. Stewardship Theory in Local Government Contracted Mobile Apps: Analysis of Survey Data on User Satisfaction in China

Bruce J. Perlman, Christopher G. Reddick and Yueping Zheng (2020). *International Journal of Public Administration in the Digital Age* (pp. 16-34).

[www.igi-global.com/article/agency-vs-stewardship-theory-in-local-government-contracted-mobile-apps/270245?camid=4v1a](http://www.igi-global.com/article/agency-vs-stewardship-theory-in-local-government-contracted-mobile-apps/270245?camid=4v1a)

The Simulation Presented in the ODD Protocol

(2017). *Agent-Based Modeling in Humanitarian Interventions: Emerging Research and Opportunities* (pp. 52-67).

[www.igi-global.com/chapter/the-simulation-presented-in-the-odd-protocol/172953?camid=4v1a](http://www.igi-global.com/chapter/the-simulation-presented-in-the-odd-protocol/172953?camid=4v1a)

Crisis Response and Management

Sergey V. Zykov (2019). *Advanced Methodologies and Technologies in Government and Society* (pp. 1-12).

[www.igi-global.com/chapter/crisis-response-and-management/215844?camid=4v1a](http://www.igi-global.com/chapter/crisis-response-and-management/215844?camid=4v1a)