

## HarmoNIA



Harmonization and Networking for contaminant assessment  
in the Ionian and Adriatic Seas

# HarmoNIA methodological proposals. Part II: Harmonizing Environmental Impact Assessment (EIA) procedure of offshore platform installation and produced formation water (PFW) discharge



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# 1. Introduction

Marine pollution may derive from the release of chemical substances in the environment from specific sea-based sources, such as shipping, mariculture, offshore oil and gas production, marine renewable energy devices, seabed mining, dredging of sediments, dumping of dredged material and historical dumping (Tornero and Hanke, 2016). These activities may threaten 'Good Environmental Status', which is essential for the environmental sustainability, marine socio-economic activities and the human health. In their extensive review, Tornero and Hanke (2016) have listed about 276 chemical substances that may be released into the marine environment from sea-based sources. Offshore oil/gas activities contribute to this list with the highest percentage (36%) of substances. Using offshore installations, the oil and gas industry is able to explore, extract and transport oil and gas reserves from the geologic layers situated under the seabed.

In the ADRIAN region, there are 138 operating oil and gas platforms for exploitation of hydrocarbons (Fig. 1), which are in Italian (123) and Croatian (15) waters. In addition, Montenegro, Albania and Greece have exploration and exploitation concessions along the Adriatic and Ionian coasts (Fig. 2). Offshore operations can be classified according to two main phases: exploration phase (the work required to install and drill a well) and production phase (production of oil/gas). Rock cuttings from drilling (drill cuttings) and produced formation water (PFW) brought up with the hydrocarbons are considered as the major sources of contaminants entering the sea during regular operations (Bakke et al., 2013). In particular, PFW contains inorganic compounds (i.e. trace metals), volatile aromatic compounds (benzene, toluene, ethylbenzene, xylenes), semivolatile substances (i.e. naphthalene, phenanthrene, dibenzothiophene), phenols, organic acids and additives (Manfra et al., 2007).



Fig. 1 Operational offshore platforms in the ADRIAN area  
(HarmoNIA GeoPortal on Vulnerability of coastal areas; <http://jadran.izor.hr/harmonia/#>).

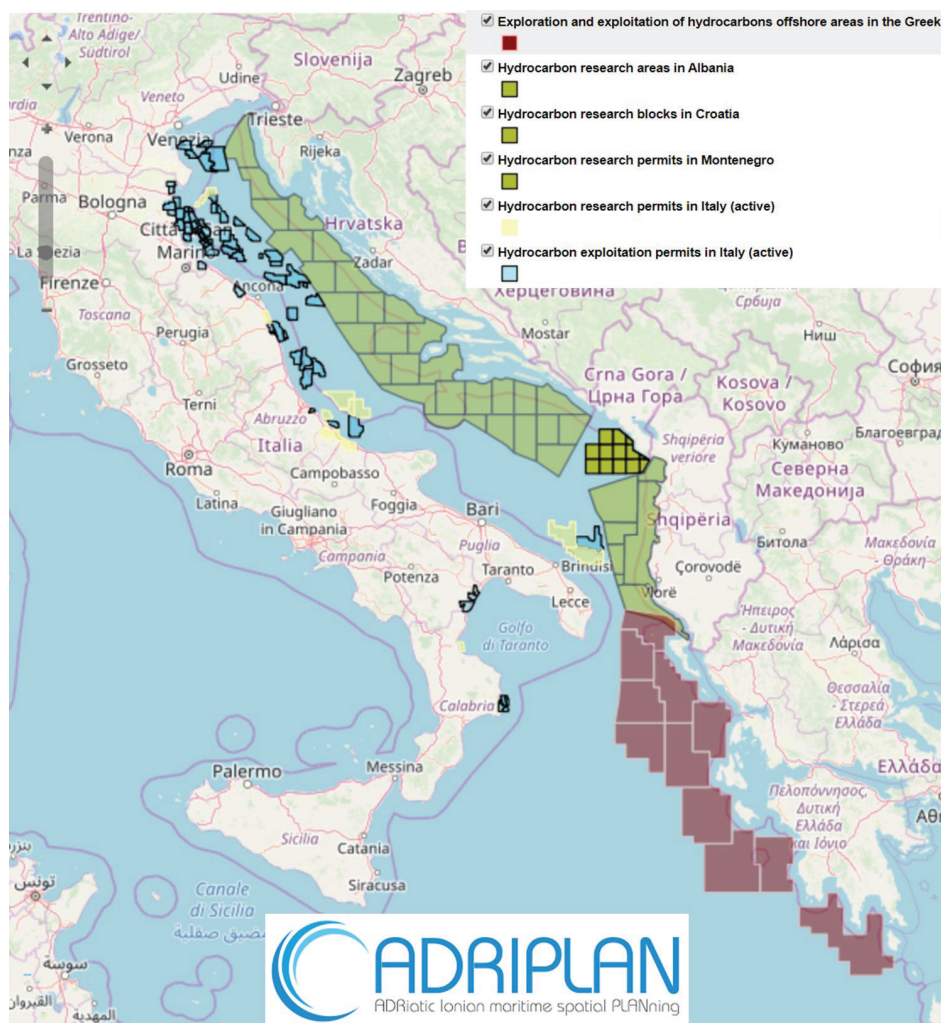


Fig. 2 Oil and gas research and exploitation permits in the ADRIAN area  
(ADRIPLAN Data Portal; <http://data.adriplan.eu/>)

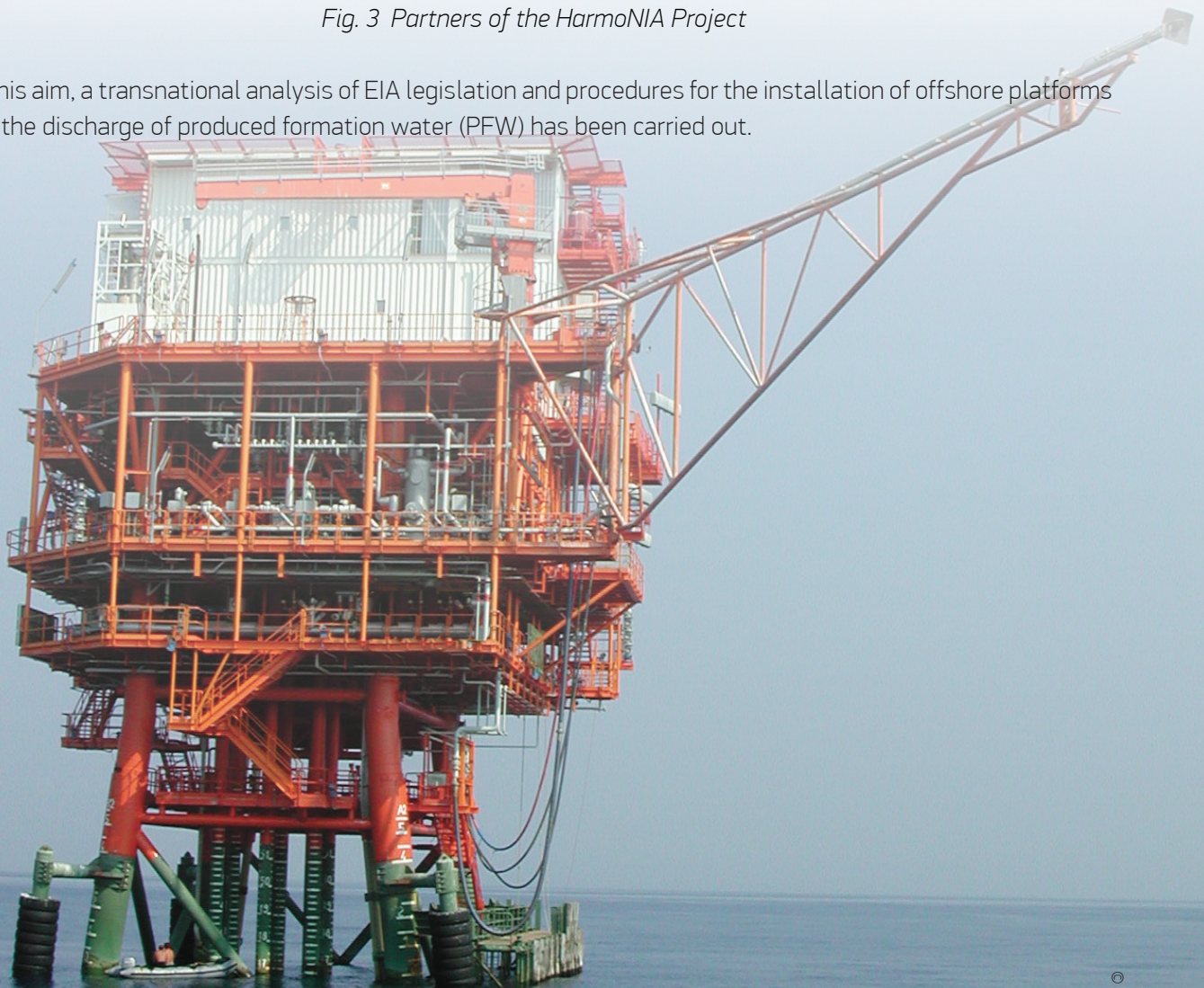
This kind of pollution is a key issue for the in the ADRIatic-IONian (ADRIION) region, which is a hot spot for biodiversity, natural habitats and communities of great environmental importance. Common strategies towards environmental impact assessment and good environmental status assessment are recommended among countries sharing a marine region or sub-region. Transnational shared approaches need to evaluate the impact of offshore activities, by harmonizing legal aspects, monitoring procedures and technical guidelines.

With the aim to improve a shared and harmonized approach, the countries involved in the Project HarmoNIA (Albania, Croatia, Greece, Italy, Montenegro and Slovenia) (Fig. 3) propose a harmonization of Environmental Impact Assessment (EIA) procedures in the ADRIION region, for offshore platforms.



Fig. 3 Partners of the HarmoNIA Project

To this aim, a transnational analysis of EIA legislation and procedures for the installation of offshore platforms and the discharge of produced formation water (PFW) has been carried out.



## 2. Legislation and procedures for EIA studies

Information on EIA legislation and procedures followed by the ADRION countries was gathered by all HarmonoNIA partners. A dedicated questionnaire was shared with a specific focus on the installation of offshore platforms and the PFW discharge. The comparative analysis of responses highlights both commonalities and differences in the ADRION area, which are summarized below.

All countries comply to a national EIA legislation, transposing specific European Directives, the more recent Directive 2014/52/EU or previous ones. In particular, all countries establish an EIA authorization procedure in the case of projects that have significant adverse environmental impacts across boundaries.

Regarding International Conventions or regional agreements regulating environmental impact of the offshore oil and gas platforms, although the Barcelona Convention and UNCLOS have been ratified by all countries, only Croatia and Albania have ratified the Offshore Protocol of the Barcelona Convention.

In Italy and Greece, legislation requires an EIA procedure specific for installation of offshore platforms. In the other countries, such projects have to be subject to EIA, but there is no specific EIA for offshore platforms. In Slovenia, according to the Mining Act, offshore oil and gas exploration and exploitation is actually prohibited.

The EIA procedures for offshore platform installation are similar at ADRION level according to the following general steps:

- Presentation of the EIA report by the offshore developer.
- Initiation of the EIA procedure, public consultation and advice acquisition.
- Examination by the Competent Authority of the information presented in the EIA report and any supplementary information provided, where necessary, by the developer.
- Reasoned conclusion and decision by the Competent Authority on the significant impacts of the project for the environment, including a description of measures envisaged to avoid, prevent or reduce and, if possible, offset significant adverse effects on the environment as well as, where appropriate, monitoring measures.

Minimum information to be included in the EIA report is specified in the Directive 2014/52/EU itself, transposed and implemented by the countries belonging to the European Union. Montenegro and Albania have also similar contents for the EIA report.

Table 1 summarizes main issues of the EIA report that are common among ADRION countries and Table 2 illustrates the main aspects of EIA legislation and procedures in the ADRION region.

Table 1 – Minimum information to be included in the EIA Report

- a description of the project including information on the site, design, size and other relevant features of the project
- a description of the likely significant effects of the project on the environment
- a description of the measures envisaged in order to avoid, prevent or reduce significant adverse effects on the environment
- a description of the alternatives considered

The discharge of PFW is subjected to EIA procedure in Croatia, Montenegro and Greece, although not specifically mentioned in the national legislation. In fact, EIA is mandatory for the exploitation of the hydrocarbons and PFW treatment is included in EIA procedure, as part of the exploitation process. Concerning the PFW, EIA is not mandatory in Albania and Italy, although Albania has specific legislation concerning PFW discharge. In Italy, the project developer can choose to follow an EIA procedure or be compliant to PFW discharge procedure under a specific national Decree. In these two countries, the demand for PFW discharge authorization include: a) information about the installation (marine district, type of production, geographic position etc.), b) information about the discharge (geometry of the pipe discharge, expected volumes of PFW discharge, physical-chemical and ecotoxicological characterization of PFW and of potential chemicals used), c) information about the marine environmental conditions (local meteorological and oceanographic conditions; description of the biocoenosis; presence of marine protected areas (MPAs)), d) mariculture activities or other sensible areas, e) specific monitoring plan aimed to verify the absence of hazard for marine ecosystems.

In the whole ADRION area, the EIA process requests a monitoring project of environmental components, as a baseline study, to assess potential negative impacts.

Table 2 - Main aspects of EIA legislation and procedures by countries of the ADRION region

|   | Albania | Croatia | Greece | Italy | Montenegro | Slovenia |
|---|---------|---------|--------|-------|------------|----------|
| Installation EIA                              | ✓       | ✓       | ✓      | ✓     | ✓          | ✓        |
| PW discharge EIA                              |         | ✓       | ✓      |       | ✓          |          |
| EIA report guidelines                         | ✓       |         | ✓      |       | ✓          | ✓        |
| PW discharge legislation                      | ✓       | ✓       |        | ✓     | ✓          |          |
| PW discharge monitoring legislation           |         |         |        | ✓     |            |          |
| PW discharge monitoring guidelines            |         |         |        | ✓     |            |          |
| Restrictions with respect to coastline & MPAs |         | ✓       |        | ✓     | ✓          |          |



### 3. Gaps and needs

The following gaps emerge regarding the harmonization of the EIA legislation and procedures for offshore platforms installation and operation at ADRION level:

- Absence of Offshore Protocol ratification in Greece, Italy, Montenegro and Slovenia.
- Absence of restrictions for prospecting, exploration and production of hydrocarbons, with respect to the distance from coastline and MPAs presence in Albania and Greece.
- Absence of guidelines to draw up EIA report in Croatia and Italy.
- Only Italian guidelines for monitoring potential impacts of PFW discharge into the sea.

Consequently, the following needs emerge at ADRION level:

- To ratify the Offshore Protocol of the Barcelona Convention in all ADRION countries.
- To establish restrictions for exploration and production of hydrocarbons, with respect to the distance from coastline and MPAs presence, in the entire ADRION area.
- To propose a task force of experts belonging to each ADRION country to share best practices and normative evolutions on the EIA requirements in case of offshore platform installation and PFW discharge.
- To propose harmonized guidelines for the environmental monitoring of possible impacts of PFW discharge, by recommending concentration limits of particular pollutants (as oil) in PFW discharge.



## 4. Methodological proposal

On the basis of the HarmoNIA analysis, it appeared that a quasi-similar approach is followed by the ADRION countries regarding EIA procedures for offshore platforms installation and operation. Although, this was expected from the EU member states, in agreement with the European Union Directives, several discrepancies emerged between EU and non-EU countries as well as among EU countries.

In order to support a harmonized approach at ADRION level the sharing and adoption of the following elements is proposed:

- Ratification of the Offshore Protocol of the Barcelona Convention by all ADRION countries.
- A common EIA report template including minimum information as specified in the Directive 2014/52/EU.
- A common EIA strategy for PFW discharge (follow EIA procedure or be compliant to other authorization procedure), including concentration limits of particular pollutants in PFW discharge.
- Harmonized guidelines for environmental monitoring of possible impacts of PFW discharge.
- Common restrictions for exploration and production of hydrocarbons, with respect to the distance from coastline and the presence of MPAs.
- A task force of experts belonging to each ADRION country to share best practices and normative evolutions on the EIA topic in case of offshore platform installation and PFW discharge.

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