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COMMISSION STAFF WORKING DOCUMENT

Gouvernance économique européenne - Semestre européen - Projet de plan budgétaire pour 2021- Slovénie

Accompanying the document

REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL AND THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE

assessing the implementation of Directive 2013/30/EU of the European Parliament and of the Council of 12 June 2013 on the safety of offshore oil and gas operations and amending Directive 2004/35/EC

{COM(2020) 732 final}

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Executive Summary

Executive Summary

The Offshore Safety Directive, applicable for oil and gas operations, addresses control of risk of major offshore accidents, in addition to response and recovery mechanisms, should preventive measures fail. The Directive applies to all Member States and predominantly affects the 15 Member States who are active or planning offshore oil and gas operations. At the date of drafting, it applies to the UK until 31 December 2020 when transitional arrangements expire. The Directive draws on existing international best offshore practices for control of risk and improved emergency response.

The general deadline for implementation for Member States was 19 July 2015, and transitional periods for the industry applied until 19 July 2018. One year after the latter deadline, in accordance with Article 40 of the Directive, the Commission was obliged to assess the experience of implementing the Directive.

According to notifications from Member States of their national transposition measures, the Directive's measures have been adequately implemented. Crucially, industry has adopted clear duties for management of risk, with each offshore installation having a detailed risk report. Equally, each Member State has appointed an expert Competent Authority with comprehensive powers of oversight. EU annual reports on Union wide safety for offshore oil and gas operations have been published for the years 2016, 2017 and 2018. These reports in combination with other data enable a risk performance baseline to be developed, although it is early to identify trends.

The content of this assessment is based on intensive stakeholder engagements, including workshops and public consultation. These data collection methods generated a dense database of primarily qualitative information which was complemented by Commission expertise. Based on Articles and Annexes of the Directive, and interactions with stakeholders, 15 priority themes were identified, which were analysed.

The clearest indication of the Directive's success is that the aims of the intervention are being met through the Member States' transposition. Moreover, the Directive's requirements are being followed by industry and Member States, albeit with some differences in the detail of application. Overall, the efforts of implementation appear in line with the Commission's forecast. Most of the emerging themes may be handled under existing communication protocols, as in the European Offshore Authorities Group (EUOAG), whilst a few justify further scrutiny.

In providing feedback, Member States and industry welcomed the introduction of the Directive. The views of environmental non-governmental organisations (NGO's) are more nuanced, and call for then further tightening of some measures. All stakeholders maintain that more time and monitoring is required before considering any changes.

Additional analysis is presented on the topics of liability and the handling of compensation claims, the appropriateness of criminal sanctions, the removal and detoxification of fixed

production platforms, and the mutual recognition of mobile drilling units in Member States' different jurisdictions.

Glossary

ACSNI: Advisory Committee on the Safety of Nuclear Installations
ALARP: As Low As Reasonably Practicable (principle) - Reduction of the risk of a major accident to the point where the cost of further risk reduction would be grossly disproportionate to the benefits of such reduction.
API: American Petroleum Institute
CEN: European Committee for Standardisation
CMAPP: Corporate Major Accident Prevention Policy - The corporate level policy by which owners, licensees, and operators responsible for offshore oil and gas operations establish consistent, corporate-wide mechanisms for preventing major accidents (see Annex I - part 8 of the Directive).
ECD: Environmental Crime Directive
ECI: European Critical Infrastructures - Critical infrastructure located in EU Member States, the disruption or destruction of which would have a significant impact on at least two EU Member States.
EEA: European Economic Area
EERP: External Emergency Response Plan
EEZ: Exclusive Economic Zone - The offshore zone beyond the territorial waters prescribed by the 1982 United Nations Convention on the Law of the Sea which a state has special rights regarding the exploration and exploitation of marine, mineral and energy resources, including energy production from water and wind.
EIA: Environmental Impact Assessment
ELD: Environmental Liability Directive
EMSA: European Maritime Safety Agency
EU: European Union
EUOAG: European Union Offshore Authorities Group
GIRG: Global Incident Response Group (IOGP)
HELCOM: Baltic Marine Environment Protection Commission - Helsinki Commission - An intergovernmental organization and the governing body of the Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention). HELCOM consists of ten members - the nine Baltic Sea countries: Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden, plus the European Union.
HPHT: High Pressure High Temperature - Term referring to oil or gas wells which exhibit characteristics of high temperature and high pressure.
HSE: Health and Safety Executive (UK)
IA: Impact Assessment
IADC: International Association of Drilling Contractors
IERP: Internal Emergency Response Plan - Plan at the level of the operator or owner of an offshore oil and gas installation, regarding their response to emergencies such as oil spills, fire, explosion, vessel collision, or personnel evacuation.
ILO: International Labour Organization
IMO: International Maritime Organization
IMP: Integrated Marine Policy
IOGP: International Oil and Gas Produces Organization
IUMI: International Union of Marine Insurance
KPI: Key Performance Indicator - A measurable value that demonstrates how effectively an objective is achieved.
MODU: Mobile Offshore Drilling Unit
MS: Member State

NGO: Non-Governmental Organization
NIS Directive: Directive 2016/1148/EU on Security of Network and Information Systems
OPA: Oil Pollution Act 1990 (USA)
OPEP: Oil Pollution Emergency Plan (Oil & Gas UK)
OPOL: Offshore Pollution Liability Agreement
OSD: Offshore Safety Directive (2013/30/EU)
OSPAR: Convention for the Protection of the Marine Environment of the North-East Atlantic
REMPEC: Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea
RoMH: Report on Major Hazards
SEA: Strategic Environmental Assessment - Assessment of the environmental impact of certain plans and programmes, in the context of Directive 2001/42/EC.
SECE: Safety and Environmental Critical Element - Element of an offshore oil and gas installation whose function is critical to safety and environmental protection.
SEMS: Safety and Environmental Management System - The system of an offshore installation for managing safety and environmental protection in the context of the Directive (see Annex I – part 8 of the Directive)
SEMS: Safety and Environmental Management System - The system of an offshore installation for managing safety and environmental protection (a list of its contents is provided in the Directive, Annex I – part 8)
SLIC: Senior Labour Inspectors' Committee (UK)
SWD: Staff Working Document
TFEU: Treaty of Functioning of the European Union
TU: Trade Union
UK: United Kingdom
UNCLOS: United Nations Convention on the Law of the Sea
USA: United States of America
WFD: Waste Framework Directive

1 INTRODUCTION

Between 1980 and 2010 there were at least eleven major accidents in offshore petroleum activities which caused significant loss of life and pollution of the sea, as well as economic loss to the coastal states. The two most serious incidents occurred on production installations in European waters, in the North Sea[1]. In April 2010 a disaster in the US Gulf of Mexico at a drilling operation controlled by an EU based company[2] sparked worldwide concerns as to whether the risks of offshore drilling and production were being adequately managed.

Subsequent assessments[3] of the Gulf of Mexico disaster in the US and Europe concluded that the industry was displaying an unacceptable lack of operational integrity, and that major accidents were occurring in situations that were avoidable. Given the offshore petroleum sectors' high-level of maturity, such accidents were occurring in circumstances that should have been eliminated.

Imbalances and fragmentation characterised the EU regulatory systems for offshore petroleum. Whilst some Member States had offshore regulatory systems considered effective, all had room for improvement. No Member State was able to claim that it was making full use of best practices available in case of major accidents.

The intention of the Offshore Safety Directive[4] (hereafter, the "Directive") was to address these shortcomings. The Directive required all Member States to adjust their regulatory systems to a more robust and consistent level, deriving higher standards and greater homogeneity of regulation across the Union.

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[1] In 1980 in Norwegian waters a structural failure caused catastrophic collapse of the Alexander Kielland, a floating production installation, with the deaths of 123 personnel. In 1988 in UK waters, an oversight of risk assessment during maintenance caused a series of explosions of increasing severity leading to the total destruction of the Piper Alpha, a fixed production platform, with the deaths of 167 personnel.

[2] The MODU (mobile drilling unit) 'Deepwater Horizon' was owned by Transocean Inc the world's largest drilling contractor, operated by BP and attended by the world's largest and most technically reputable contractors such as Schlumberger and Halliburton. The water depth at the well location was 1522m and the well itself had drilled through the reservoir to 5486m. The well was extremely valuable and was being temporarily abandoned with cement plugs. Numerous changes to plans failed to be assessed systematically by operator BP and the owner, Transocean, failed to adequately supervise its abandonment operations. A surge of highly pressured reservoir gas overcame the unsuitable cement plug and other barriers, and blew through to the rig. The ensuing explosion killed eleven men working in the drilling area and the flow of ultra-high pressure gas destroyed the sea floor equipment allowing the well to flow petroleum fluids at 62k barrels/day (9.9kM3/day). The MODU sank two days after the explosions and subsequent fires. The well was capped and petroleum flow stemmed after 96 days. By this time 4.9m barrels (780kM3) had been spilled across 658k miles2 (180km2) the size of Oklahoma. Coastal pollution occurred across 1074 miles 1728km) of the US Gulf States. This was the most polluting incident in US history.

[3] For example: Report by the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, January 2011, https://www.govinfo.gov/content/pkg/GPO-OILCOMMISSION/pdf/GPO-OILCOMMISSION.pdf.

[4] Directive 2013/30/EU of the European Parliament and of the Council of 12 June 2013 on safety of offshore oil and gas operations and amending Directive 2004/35/EC, OJ L 178, 28.6.2013, p. 66–106.

The Directive, establishing minimum requirements for safety, environmental protection and emergency response across the EU, entered into force on 19 July 2013. Member States had to transpose the Directive into national rules and regulations by 19 July 2015. The full implementation of the Directive acts upon all duty holders namely regulators, operators, and owners of production and non-production installations (e.g. mobile drilling rigs, mobile accommodation units and well intervention vessels). Industry duty holders were required to fully comply with the Directive, as transposed by Member States, by 19 July 2018.

The Commission was obliged to formally assess the implementation of the Directive pursuant to Article 4 which provides that: *"No later than 19 July 2019, the Commission shall, taking due account of the efforts and experiences of competent authorities, assess the experience of implementing this Directive"*. The overall framework of the assessment shall consider that the aims of the Directive are consistent with the objective of protection of any coastal state.

This assessment addresses the aspects of EU intervention into upstream offshore petroleum activities foreseen by the Directive. These activities include searching for potential underground or underwater crude oil and natural gas fields, drilling exploratory wells, and subsequently drilling and operating the wells that recover and bring the crude oil or raw natural gas to the surface. Foremost is the impact on risk of a major accident occurring, including to the environment. The assessment also includes an in-depth analysis on special themes as for example decommissioning of installations, the mutual recognition between Member States of certified mobile drilling units, liability and the handling of compensation claims by relevant enterprises in the event of a major pollution incident.

The States in this assessment, for which we carry out an in-depth analysis, are the coastal EU Member States with an active offshore petroleum sector, or a policy to become active in coming the years ("focal Member States"): Bulgaria, Croatia, Cyprus, Denmark, France, Germany, Greece, Ireland, Italy, Malta, Netherlands, Poland, Portugal, Romania, Spain and the United Kingdom[5]. The data examined run from 19 July 2015 (deadline for transposition) until July 2019.

Articles 23, 24, and 25 of the Directive concern measures for EU-wide reporting systems, under which the Commission is obliged to make an implementing regulation for common reporting parameters of accidents. This Implementing Regulation (1112/2014/EU)[6] provides reporting formats for Member States for annually publishing incident data and other relevant information. The assessment of the Directive also includes the Implementing Regulation.

Therefore, based on the experience with implementing the Directive, the assessment's results will provide help to determine whether the Directive is fully adequate and whether it has

[5] Despite their legal obligation members of the EEA (Iceland, Liechtenstein and Norway) did not implement the Directive.

[6] Commission Implementing Regulation (EU) No 1112/2014 of 13 October 2014 determining a common format for sharing of information on major hazard indicators by the operators and owners of offshore oil and gas installations and a common format for the publication of the information on major hazard indicators by the Member States, OJ L 302, 22.10.2014, p. 1–25.

achieved its objectives. For any identified shortcomings, the assessment will try to present the reasons behind them. These findings may contribute to possible future changes to the legislation.

2 BACKGROUND TO THE INTERVENTION

2.1 Description of the intervention and its objectives

Following an assessment of the Deepwater Horizon oil spill in the Gulf of Mexico in 2010, the Commission concluded that the EU's own offshore drilling conditions left the Union vulnerable to similar incidents[7]. In response, the Commission launched a policy initiative in 2011 for a regulation aimed at preventing major offshore petroleum accidents. This regulation was intended to include measures for more stringent licensing arrangements of operators, improved public consultation, clearer environmental liability, and more effective financial security provisions.

Significantly, the form of the instrument was changed from a regulation to a directive during negotiations in the Council and "Directive 2013/30/EU of the European Parliament and of the Council of 12 June 2013 on safety of offshore oil and gas operations and amending Directive 2004/35/EC" came into effect on 19 July 2013. In contrast to a regulation a directive leaves to the Member States discretion as to the form and methods they choose to reach the result of the Directive.[8]

The Directive provides measures that encompass cumulative best global practice regarding the mitigation of major accidents in offshore drilling and oil and gas production. Furthermore, the Directive attempts to improve levels of homogeneity across the sector by applying equal standards and ensuring consistent implementation across geographical areas. Every Member State was required to overhaul its regulatory systems, and the industry was required to produce substantial improvements to its control of major accident hazards.

Furthermore, the Directive specifies an entire regulatory framework for an intensive and technically challenging system for the prevention of major accidents, including to the environment. Since North Sea Member States and Italy had more experience with offshore operations than others, the efforts necessary for adopting new systems and arrangements for both Member States and operators were unevenly distributed in the EU.

The Directive was introduced to remedy the inadequacy of EU legislation regarding the prevention of major accidents through offshore petroleum operations in EU waters, including environmental concerns. Whereas the North Sea countries had overhauled their legislation in

[7] Commission Staff Working Paper Impact Assessment, SEC/2011/1293 final, chapter 2.5 "Need of EU action".
[8] Under the assumption that the regulation had followed the same structure as the Directive does, the advantages of a regulation are its speed of application, efficient implementation at the EU level and clarity and consistency through direct application. Given the need for EU action to establish a common minimum safety level in the precise activity field of offshore oil and gas, the principles laid down in a regulation would have been immediately applicable to all actors concerned.

the period 1982 to1992, other Member States had relatively undeveloped regulatory systems, with the exception of Italy.

The Directive requires regulators and industry stakeholders with duties relating to the protection against accidents in offshore petroleum activities to undertake all suitable measures to:

- Prevent a major incident from occurring during adjacent offshore oil and gas activities[9] (relating, in particular, to mechanisms to control major accident hazards); and
- Provide affected coastal states with measures for effective response to and remediation from a major emergency, should preventive systems fail.

The following figure summarizes the intervention logic, illustrating how the Directive was intended to work.

[9] The term 'adjacent' is taken at its widest sense of being within prospect of adverse impact. For example a blowout in N Australia in 2009 polluted 6,000km2 of the Timor Sea, extending to Indonesia's coastal waters.

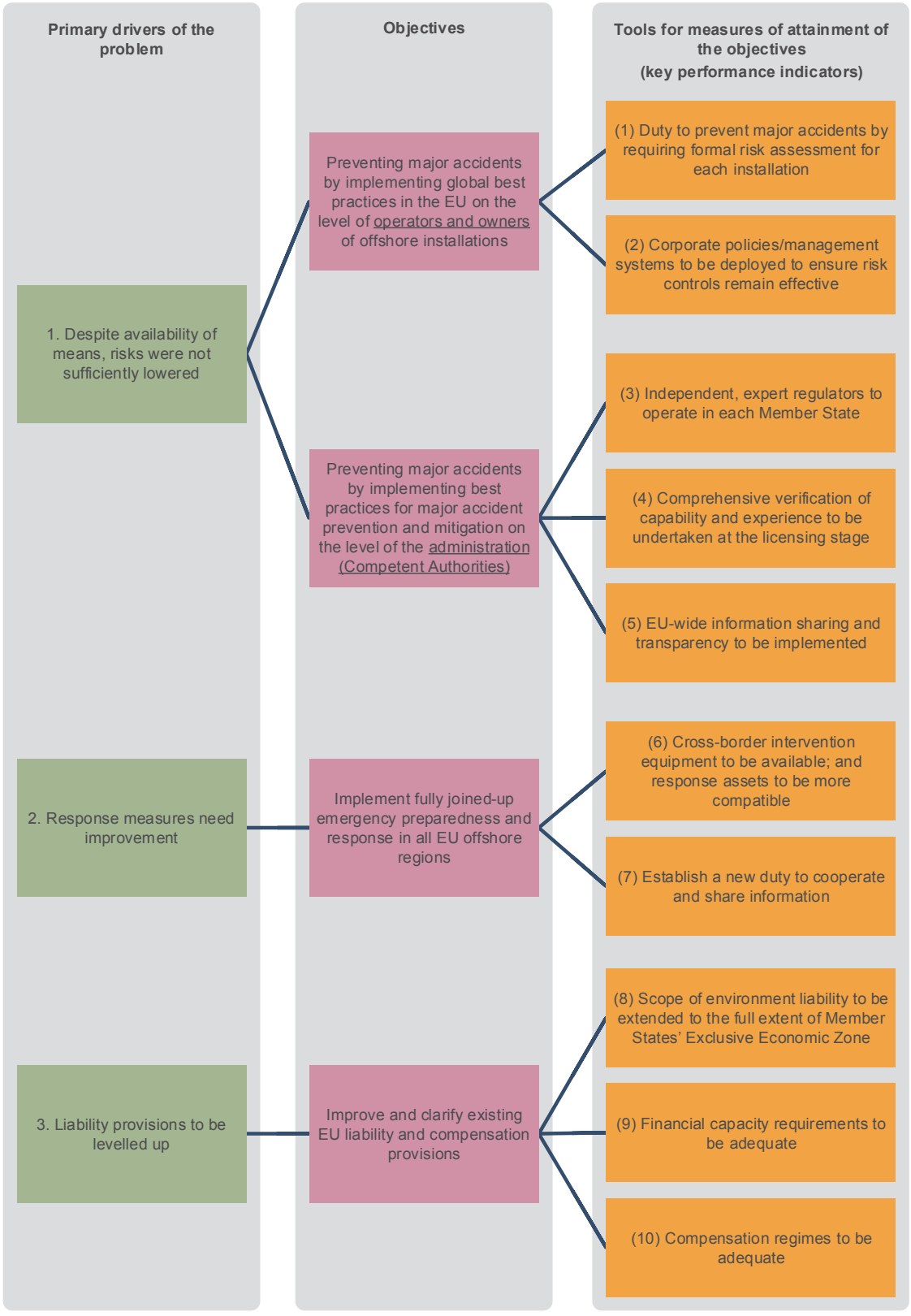

Figure 1: Intervention logic of the Offshore Safety Directive

Whereas the Directive has a unique focus on the safety of offshore operations and the avoidance of major accidents a complex web of EU legislation, international conventions and

protocols regulate and frame the area and the way how the offshore sector operates. Part IV of the Annex provides an overview on legislation and conventions applicable.

2.2 Baseline and points of comparison

The chapters below summarise the baseline situation, at the time of coming into effect of the Directive on 19 July 2013, and the main problems faced at that time.

2.2.1 Problems related to industry evolution

The offshore oil and gas industry in the EU, and globally, had been facing significant changes in its operational environment. These challenges persist and are driven by three key issues. Firstly, ageing infrastructures related to many of the industries traditional operations, secondly, structural shifts towards smaller specialist companies, thirdly, discoveries of new hydrocarbon reserves in complex environments.

- *Ageing infrastructure and maturing industrial environment*

The industry was and continues to be, increasingly reliant on ageing installations, often in service well beyond their original design lifetime. One reason is that new technology has enabled mature installations to continue to access oil reserves that would otherwise have long been stranded.

In the UK, more than half of the fixed platforms had exceeded the original design life of the field[10]. The situation is similar for Italy in the Mediterranean. The consequence of the passage of time on the integrity of structures and process equipment is that challenges accrue for the maintenance of reliability. The costs of these challenges were compounded by declining profit margins as production rates in these fields decline.

- *Structural shift of the industry towards diversification*

Ageing platforms and declining reservoirs often led their primary owners to divest these assets into smaller, specialist oil companies who have low overheads and are in the business specifically for these low yielding operations. This can lead to a loss of corporate memory concerning the operation of the installation, thus posing a potential safety risk.

This was prevalent in 2011, but the involvement of smaller companies is, however, not inherently undesirable as they generally operate with a shorter decision chain for expenditure (including safety-related). On the other hand, smaller companies often have limited in-house resources (e.g. for well design), and their emergency response capabilities are usually less than those of the larger, original operators who developed the installation.

- *Shift to "frontier" operations and new technologies*

[10] Source: http://www.offshore-mag.com/index/article-display/9114015229/articles/offshore/eauipment-engineering/north-sea-northwest-europe/2010/08/hse-launches uk platform.html.

The scarcity of new discoveries of large, conventional reservoirs had, around the turn of the century, directed the industry to explore more challenging frontier environments. These include high-temperature and high-pressure (HPHT) reservoirs, and reservoirs in hostile climatic conditions, in deep water, or in geographically remote locations. For example, in the North Sea the majority of operations had been at depths of 200 to 300 metres, whereas new projects in 2011 were operating as deep as 1,700 metres[11]. Similarly, in the Mediterranean and the Black Sea, there was a trend towards expanding offshore activities into more distant areas, partly in deep water. New players were coming into the eastern Mediterranean and Black Sea regions.

2.2.2 **Problems related to company-specific corporate practice**

Besides the drivers that are common to the industry as a whole, level of risks in the offshore sector are impacted by the practices and behaviours of individual companies. Two main types of drivers are distinguished here: one type related to the level of use of best available technology and practices, the other reflecting the degree of compliance with the regulatory framework. The latter is often related to the existence of a strong safety culture within a company (or absence thereof). These factors are described in the three sections below.

- *Inconsistent use of state of the art practices and technology*

Inconsistencies amongst offshore operators were identified in the degree to which operators and owners focused on major accident preventive systems and systemic corporate responsibility. There was an uneven focus on individual responsibility, and occupational safety compliance[12]. Despite progress in this area, greater divergence of practices were to be expected in the absence of a consistent template for industry and regulators. The reason for this was that a greater number of players were expected to engage in offshore exploration and production, bringing their own corporate approaches.

- *Failures of compliance with rules and standards*

Investigations of offshore incidents frequently found that whilst the planned measures were indeed appropriate to prevent critical events, operators did not maintain or follow them. According to available reports, this was clearly evident in the Deepwater Horizon and Montara[13] accidents. Achieving consistency between plans and actual performance is dependent on the degree of compliance with the national regulatory framework and the internal operating rules and procedures within a company. These rules and procedures are designed to comply with the regulatory requirements and often go further than is legally necessary. Nevertheless, if they are not properly adhered to, they cannot support the prevention of incidents.

[11] There are activities planned in the UK, west of Shetlands at sea depths of up to 1,600 metres, near the Faroe Islands at sea depths of 1,100 metres and in Norway at up to 1,700 metres.

[12] Occupational safety, and environmental protection measures are unwanted incidents occurring in day to day operations, and are accounted for in risk reduction measures. Examples are slips, trips and falls from heights; and accidental noxious emissions and polluting discharges to the sea. Major accidents are a special category of events and are entirely unacceptable.

[13] Further explanations see below.

- *Inadequate safety culture*

Within an organisation, the degree of compliance with external and internal safety rules is directly related to the degree to which safety is prioritised as a standalone corporate value and an integral part of the business model. This is often characterised as a strong "safety culture"[14]. Gaps in safety culture significantly contributed to the Deepwater Horizon incident. Reports by Member States and professional bodies active in offshore operations in the EU agreed that those behaviours were having global impact, including in other European companies. Analysis showed that levels of enforcement in the strongest EU regimes had been broadly constant for the previous 10 years[15].

2.2.3 Problems related to the regulatory framework

The level of safety and prevalence of residual risks in the offshore sector is determined not only by industry practices but also by the quality of the regulatory environment and the oversight enforced by the competent public authorities. Several aspects of the existing EU regulatory environment were deemed to adversely affect the industry's management of risk in offshore oil and gas operations. These are described in three sections below.

- *Uneven technical expertise amongst regulators*

Various Member States responded to the accident at the Deepwater Horizon drilling rig in the Gulf of Mexico, which happened in the Macondo[16] area (Mississippi Canyon block 252, offshore Louisiana, Gulf of Mexico, USA) by evaluating national regulatory systems[17]. Their initiatives showed that national regulatory practices vary. While this inconsistency does not necessarily mean that the regimes were *per se* ineffective, the variable degree to which national regulators balanced the attention given to major hazards and to occupational safety factors in their assessments and inspections influenced the behaviour of industry accordingly.

National regulators play a role in verifying that operators correctly account for the safety and long term integrity of their undertakings. It is the regulators that need to provide adequate supervision and guidance to the industry in all relevant EU waters. To achieve this, regulators need to have access to expertise to underpin their interventions and judgements. This was determined in 2011 to be problematic, especially in cases where Member States have only a

[14] The UK HSE's Advisory Committee on the Safety of Nuclear Installations (ACSNI: HSC, 1993) produced a definition of safety culture that has been re-used extensively: 'The safety culture of an organisation is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation's health and safety management. And: 'Organisations with a positive safety culture are characterised by communications founded on mutual trust, by shared perceptions of the importance of safety and by confidence in the efficacy of preventive measures' This is referred to in the USA Presidential Commission report Ch.8 pp 217.

[15] UK offshore enforcement statistics since 2001/02 (comprising the total number of prosecutions and statutory improvement or prohibition notices) are broadly steady over the past 10 years at 49/year.

[16] During the Macondo disaster, which happened in the Gulf of Mexico (US) in April 2020, 4.9 million barrels were spilled across 68k miles2 (176k km2) the size of Oklahoma. Coastal pollution occurred across 1,074 miles 1,728km) of the US Gulf States. This was the most polluting incident in US history.

[17] E.g. of OSPAR countries five (UK, N, NL, DK and D) have evaluated their operations and all have identified improvement needs (source: Investigations of Drilling in Extreme Conditions and their Relevance to Potential Environmental Impacts - Preliminary report).

handful of offshore installations.

- *Suboptimal transparency and sharing of information*

Reports on industry performance are most authoritative when prepared by the regulator based upon statutory submissions of the duty holder. Good initiatives existed between some Member States and within some regions for information and experience sharing between regulators. However, there were clear differences in the extent to which key safety information was acquired and shared across EU borders, and to which adequate public assurance concerning the integrity of offshore activities was provided. At the time, there were no EU-wide mechanisms for sharing intelligence or for convening regulatory forums, including relevant adjacent regions. Gaps existed in the quality of data in terms of regional coverage (no EU-wide/global data), in terms of comparability (different formats, indicators etc.), and in terms of lack of precision (e.g. data from some industry databases were fully anonymised and narrowly focused). These shortcomings were conspicuous in contrast to arrangements in other high risk industries such as aviation or the chemical industry.

There was also a notable inconsistency in the way relevant information was made accessible to the public. Most national regulators make available information concerning breaches of law (prosecutions, the issue of enforcement notices) either through publishing lists, or having registers that can be viewed by the public. Such enforcement reports give an incomplete picture, however, and are not comparable between jurisdictions. At the time of preparing EU-wide legislation, some regulators published annual reports of safety performance in their offshore jurisdictions. In view of the EU as a whole, there was no common system to provide the public with easily accessible and comparable information on the offshore activities of companies and their regulators in all EU regions/ Member States.

In summary, the benefits of transparency in encouraging key learning and continuous improvement across the EU were being missed. Complex procedures for accessing information were hindering the development of new research and reducing inter-state pressure for the deployment of state of the art safety practices.

- *Fragmented regulatory framework*

International law covering offshore exploration and production is, much less comprehensive than in maritime transport, and mainly deals with rights of access to reserves in adjacent seas[18]. Therefore wide differences exist in how the sector is regulated around the world. For example, some European Member States and some other countries (Canada, Brazil, Australia and New Zealand) had adopted a goal setting regime, whilst other influential countries had not[19]. Some countries had a more prescriptive regulatory regime whilst others had no discernible safety regulation.

[18] United Nations Convention on the Law of the Sea, 1964.

[19] Under this approach, operators are required to identify and assess the major risks case by case and demonstrate to the national authorities how these risks would be managed. In certain jurisdictions, the document used was called 'safety case' (which became the basis of the Directive's Report on Major Hazards – RoMH).

Discrepancies between different regulatory regimes lead to considerable variations in costs for the industry. For example, in countries that rely on self-regulation, industry can decide to deploy rigs and equipment that would not be permitted in the North Sea. Conversely, high integrity operators and MODU owners may be inclined to maintain North Sea standards throughout their operations, this was by no means universal. In such circumstances, the EU had an interest in adopting measures to encourage a *global* level playing field with suitable standards of performance. One clear example of this interest is that Member States can be directly affected by incidents in adjacent, non-EU waters. Achieving a consistent EU approach to offshore safety and environmental protection would clearly be a great assistance for the EU to promote higher standards beyond the Union's footprint.

In addition, no Member State had developed a holistic, independent, single offshore regime that encompassed major hazards to both humans and the environment, and that took account of civil and economic liabilities. Whilst the risks arising from oil and gas activities are broadly similar everywhere, the national institutions and arrangements in the EU-28[20] varied considerably.

2.2.4 Problems related to the state of risk-based planning

Whilst preventing major incidents should remain the primary focus, the risk can never be entirely removed, and therefore provisions need to be present to ensure a suitable and sufficient response in the event of a major incident. The factors that make escalation a higher risk than necessary are: inadequate risk assessment in emergency plans, lack of joined-up responsibility for response (failure to maximise the resources available), and incompatibility of physical assets and expertise for intervention in an incident.

The contemporary regional arrangements for risk based maritime response planning across the EU were not optimal, vis-à-vis ensuring oil and gas activity is properly considered. Both, regions such as the Mediterranean and the North Sea were developing a similar approaches. At the time, there were EU-wide coordination schemes and EU-level instruments like the Civil Protection Mechanism which played an important role in the coordination of emergency response, and provided information on the availability of public resources for emergency response.

The two underlying drivers for this issue are further highlighted below.

- *Inconsistencies in emergency planning between Member States*

The external emergency plans (those pertaining to a national emergency) also depend on the adequacy of the initial risk assessment by the operator. Therefore, the same concerns must apply to preparedness for a national scale offshore incident as for a localised 'internal' incident in some regions. In addition, a national scale emergency will require the deployment of national assets, coordination by national representatives, consideration to adjoining Member States and others, and the support of EU marine contingency organisations such as EMSA

[20] Croatia had not joined the EU-27 at the launch of the legal negotiations, but had done so at the coming into effect of the Directive.

(European Maritime Safety Agency). Some Member States were cooperative with their neighbours on emergency planning, particularly where risk based regimes facilitated the development of site specific risk based scenario planning.

It was shown to be necessary to coordinate the essential environmental sensitivity data relating to the state of the water column and the seabed so that the correct responses could be planned if an emergency arises. At the time, this data was not consistently collected and collated throughout the EU.

- *Cross-border incompatibility of response assets*

Industry responded with resolve to the Deepwater Horizon incident by actively researching means of dispersing major spills as well as multi-functional devices for capping damaged wellheads. This was commendable and encouraged to continue. Nevertheless, this incident illustrated the scope of the response required to manage a disaster of this scale. Including not only the operating company and national civil contingency, but indeed the efforts of the entire industry and the combined resources of all adjoining countries.

On the matter of compatibility of the response equipment and services, only the immediate response tools need be available at the site of the accident, or in close proximity. Other necessary equipment may be available at a distance, even if it is in a different continent. The identified need was for the rapid transportation of equipment that can be connected to locally available equipment and which may be handled using available lifting and transport systems. This applied also to human expertise.

2.2.5 Problems related to the integration of public and industry emergency plans and assets

The maritime safety and response arrangements in the EU provided for joined up planning and intervention in a maritime emergency, including for pollution incidents. Compared to this benchmark it became clear that the offshore oil and gas sector could attain a greater degree of joined up planning between Member States than was evident at the time, taking the EU as a whole. This is especially important given that the capacity of the offshore oil and gas sector to cause pollution is many times greater than any single shipping incident. Given the specialised nature of the offshore sector as a sea based factory environment and not a shipping sector, maritime standards were not fully adequate and therefore the risk of a major incident escalating further than necessary remained an issue. The specific drivers for this category are discussed below.

- *Lack of information on industry emergency response inventories*

In order for the national emergency response plan to be effective, it was essential that the plan account for all emergency response assets and inventories that could be made available at the start of and during a major incident. As such, this would ensure the coordination of assets and inventories required for the incident to make effective and efficient use of all available resources.

Before the Macondo incident, there were indications of insufficient coordination of assets

between industry and national authorities, often resulting in ad hoc responses. After the Deepwater Horizon incident, the oil and gas industry reviewed and in certain cases extended and increased their response inventories. National authorities dealing with emergency response of some of the Member States (mainly the countries around the North Sea) were involved in this process, which rectified the coordination deficits to some extent. However, this was seen to be insufficient to remedy similar issues around the Mediterranean and Black Seas.

- *Consistency in the quality of company emergency plans*

Analysis of the Deepwater Horizon incident revealed shortcomings in the preparedness of the companies involved, both in the initial response and in the race to cap the well and contain the spilled oil. The report of the US Coastguard was instructive that in spite of the obvious potential scale of the pollution and the challenges of ensuring a good prospect of survival of the personnel, the risk assessments and response plans were relatively modest. It was also found that major operators in the Gulf of Mexico were prone to copy-out similar emergency response plans rather than develop site specific plans based on proper risk assessments.

It was noted that the situation in the EU was different from the US, particularly where a risk based or goal setting regime was deployed such as the North Sea. Also, the EU had a long tradition of maritime response against which the provisions for the offshore oil and gas sector could be tested. However, emergency planning can only be as good as the risk assessment undertaken for the activity as a whole. The first responsibility would be to limit the consequences of an incident once it has occurred to the area under the control of the operator (i.e. the immediate vicinity of the rig or platform or subsea facility). Because such 'internal emergency plans' are a natural derivative of an effective risk assessment of the entire undertaking, and because only some Member States had a risk based offshore regulatory regime, it followed that emergency planning was, in some regions, inadequate to ensure rapid and effective response.

2.2.6 Problems related to clarity and comprehensiveness of liability provisions

The operator of the Macondo license, BP, estimated the final outcome costs of the incident at $ 63bn. Very few companies could then or now accommodate such a sum, which would therefore leave the host country exposed to unwarranted financial risk. The insurance market cannot furnish an instrument that guarantees unlimited financial indemnity. In order to prevent liability transferring to the citizens of Member States in which the incident occurs some form of financial instrument would be required. In the UK the OPOL[21] scheme is a risk pooling instrument amongst licensees, but as the limit is set at $250m the arrangement is not sufficient in the extreme situations such as Macondo. However OPOL had evaluated that the $250m safety net was sufficient for all but the main outlying incidents This is a complex issue, and it is accompanied by the issue of how to make compensation available quickly to businesses and communities stricken by the effects of a major offshore incident such that they are prevented from failing (compensation that is paid too late to a community that is permanently damaged is not reasonable). The three drivers for this problem are discussed

[21] http://www.opol.org.uk/downloads/OPOL%20Agreement%20-%2021%20June%202017.pdf.

below.

- *Clarity and scope of EU legislation on environmental liability*

The Environmental Liability Directive (ELD[22]) 2004 was not applicable beyond territorial waters (a distance of 20km/12miles from the shores). This was in line with the Waste Framework Directive[23] (WFD) 2000. However, the Marine Strategy Framework Directive[24] (MSFD) 2008 extended protection to all marine waters in Member States jurisdiction. This difference created an ambiguity in delineating which regulation was applicable in a given circumstance. For example, "water damage" only applied to inner and coastal waters, whereas current EU policy was to treat all EU waters as common good. Therefore this issue needed to be determined in the light of the review of offshore major incidents in the EU.

The status quo would have caused the consequences of a marine accident to continue to be limited to the Member State, in contradiction to the polluter pays principle. Also, during an extreme emergency the prevailing framework did not make it clear whether Member States could enforce compensation from the polluter for the deployment of national contingency assets.

- *Lack of financial capacity guarantees*

It was evident that not all Member States' licensing authorities fully accounted for the capacity of applicants, who may be consortia, or joint ventures, to deal with the financial challenges of responding to a major incident. This was a missed opportunity to provide assurance of capacity and to reinforce to operators that their responsibility for the adverse consequences of offshore activity is without limitation.

- *Inadequate compensation schemes for traditional damages*

Even when the financial capacity of an applicant has been established by the licensing authority, there is no assurance that sufficient funds would be made available in time to settle third party claims. The funds made available in the event of a major incident would most likely be initially required for this incident itself (e.g. capping and containing the flow from a well). Without clear and unambiguous provisions to swiftly settle third party claims, local business and communities would suffer unduly the consequences of a major incident entirely without control or responsibility.

2.2.7 Baseline costs of a major accident

The cost of accidents in the offshore oil and gas industry is related to the extent of undesired consequences of these accidents, namely:

- Injuries or deaths;

[22] Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage, OJ L 143, 30.4.2004, p. 56–75.
[23] Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (Text with EEA relevance), OJ L 312, 22.11.2008, p. 3–30.
[24] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive), OJ L 164, 25.6.2008, p. 19–40.

- Damage to equipment and facilities;
- Environmental pollution;
- Fines due to non-compliance;
- Lost work time and lost revenues due to installation down time.

Indirect impacts of accidents include:
- Legal costs and lawsuits;
- Effects on oil prices;
- Damage to offshore industry reputation;
- Effects on security of energy supply.

The quantification of all direct and indirect impacts of accidents is a complex undertaking due to the scarcity of comparable data. For this reason, the Commission's Impact Assessment[25] covered only the two largest directly quantifiable categories of cost: infrastructure losses, and costs associated with the clean-up of oil spills. In this respect the results were considered conservative.

The annual cost of offshore accidents was estimated by the cost of the damages caused by such accidents, annualized over their recurrence time. The calculations of recurrence time, or of the frequency with which these accidents occur, were performed based on publicly available historical data[26], with adjustments for trends. A detailed and complete account of the calculations can be found in Annex I of the Impact Assessment.

Two main categories of accidents were identified:

a) oil well blowouts; and
b) other major accidents (e.g. releases, fires and explosions, with multiple injuries or fatalities, total loss or severe damage to offshore units and/or environmental pollution).

The cost of an oil well blowout depends on the duration and flow rate of the blowout, i.e. on the amount of oil spilt into the sea. The main cost component here is the clean-up of the oil spill. The average per-tonne cost varied among different countries, ranging from Euro 2500 for UK to Euro 18500 for Norway. This brought the estimated average clean-up cost for an oil well blowout lasting for ca. 50 days to Euro 5 billion. This figure was the lower bound of the blowout cost, with upper bound being the cost of the accident, which was taken at the time to be Euro 30 billion. Therefore, taking note of Macondo accident, the blowout cost from one accident was estimated to be in the range Euro 5-30 billion.

The calculation of the recurrence period of an oil well blowout was based on historical data, which indicated a probability of 0.65 per year for a blowout of any type and duration to occur

[25] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011SC1293&from=EN.
[26] Sources: "Risk Assessment Data Directory – Major Accidents", Report No. 434-17, March 2010, *International Association of Oil and Gas Producers*; "Risk Assessment Data Directory – Blowout Frequencies", Report No. 434-2, March 2010, *International Association of Oil and Gas Producers*; "Blowout and Well Release Frequencies – Based on SINTEF Offshore Blowout Database, 2005", 26/06/2006, *Scandpower*.

in European waters. Annualizing the blowout cost (Euro 5-30 billion) over the period of 35 years (dividing them by 35), gives an annual oil well blowout cost in the range of Euro 140-850 million. Added to this was the annual figure of Euro 65 million in property losses of less costly, but more common, major accidents.

The cost of other major offshore accidents, smaller but more common, reflect mainly loss in property. Taking into consideration case histories which indicated a range in costs from tens of millions to over Euro 1 billion, it was estimated at an average of Euro 50 million. Historical data from major accidents occurring in the North Sea in the years 1970-2007 indicated an aggregated rate of 2.6 major accidents per year, with a declining trend for the years immediately preceding 2011. Adjusting for this trend, the rate became 1.3 major accidents per year. This brought the annualized cost of major offshore accidents to Euro 65 million. Therefore the total annual direct tangible cost of offshore accidents in Europe was estimated at Euro 205-915 million. This was the baseline that the implementation measures of the Directive were intended to deal with.

3 METHOD

3.1 Short description of methodology

The baseline scenario described demonstrates potential safety concerns and shortcomings in the period before the Directive came into force; new legislation was supposed to address them. With reference to the experience of implementing the Directive and specifically with regard to establishing adequate levels of safety for offshore oil and gas operations, and environmental protection, by this assessment the Commission has verified whether:

- The main objectives of the Directive have been achieved and if not, whether the problem is one of implementation of the rules or with the rules themselves;
- Any gaps in legislation exist that have an impact on the level of safety in offshore oil and gas operations;
- Certain provisions of the Directive impose undue burden on Member States or the industry;
- The Directive has adequately harmonised the regulatory structure and level of safety across the EU offshore operations, proportionate to the activity levels of the Member States;
- The Directive is effective, efficient, coherent, relevant, and provides added value at EU level.

The Commission has carried out its' analysis by using a broad range of information channels. To deal with the experiences of the Directive, both experts and the wider public were asked to contribute to the knowledge base. With regard to the expert input, the Commission focussed

on the EUOAG[27]. Although the UK has left the European Union on 31 January 2020 the UK's experiences and contributions to the knowledge used for the assessment are taken into account.

In a first step, the Commission consulted competent authorities in order to obtain feedback on their technical and regulatory experience of implementing the Directive. Secondly, the Commission consulted stakeholders represented in the EUOAG's plenary meetings, which included industrial associations, unions, and NGOs. These meetings facilitated fact finding and thematic discussions on liability, handling of compensation claims, the financial security of operators and owners of installations, as well as a further stakeholder event, and several workshops. Data gathering from these diverse sources incorporated input from parties involved in the practical implementation of the Directive, and the handling of rules and legislation on offshore safety. Details on data collection and consultations are included in the annex (part I and II).

To complete the knowledge base, the Commission carried out a broad public consultation[28], based on a comprehensive questionnaire targeting both the Directive and the Implementing Regulation on the reporting of accidents. All interested parties, e.g. private, business, public entities, were asked to provide views and comments.

Within the Commission, the relevant services contributed to the assessment actively in the framework of an Inter-Service-Group and a bilateral dialogue with the Directorate-General for Energy.

Both Member States and industrial associations have shared their views on the assessment of the Directive with the Commission, and NGOs actively contributed to the discussions. The assessment has taken this information into account in the context and comparison with the Directive's objectives, as established in the Impact Assessment from 2011 preceding the adoption of the Directive. Furthermore, for the years 2016, 2017 and 2018 quantitative information on the safety performance of the EU offshore sector as a whole or in individual Member States is available, in the form of Commission annual reports[29]. This information in combination allowed for conclusions to be drawn on the assessment criteria of effectiveness, efficiency, coherency, relevance and value-added.

[27] Its members are designated by Article 4(1) of the Commission Decision of 2012 concerning the functioning of the EUOAG as the responsible authorities (competent authorities) for the regulatory oversight of offshore oil and gas activities and related policy issues.

[28] https://ec.europa.eu/info/consultations/public-consultation-on-the-assessment-of-the-offshore-safety-directive_en.

[29] (i) REPORT FROM THE COMMISSION Annual Report on the Safety of Offshore Oil and Gas Operations in the European Union for the Year 2016, COM/2018/595 final.

(ii) REPORT FROM THE COMMISSION Annual Report on the Safety of Offshore Oil and Gas Operations in the European Union for the Year 2017, COM/2019/358 final

Through this methodology the Commission attempted to incorporate the perspectives of a representative range of stakeholders. Firstly, the assessment considers the experience of Member States with the implementation of this Directive. Secondly, through the stakeholder consultation, the experiences of competent authorities enforcing the Directive's provisions are accounted for, in addition to owners and operators of offshore oil installations working within the national legal frameworks. Thirdly, the methodology also collected and analysed the views of parties not directly involved in these activities, for example citizens and NGOs.

3.2 Limitations and robustness of findings

Member States were obliged to implement the Directive by 19 July 2015. However, additional transitional periods for applying laws, regulations and administrative provisions in Member States, following the implementation of the Directive, ended only on 19 July 2018. Therefore, so far the Directive had a full impact on the safety of offshore oil and gas operations only for a relatively short period of time.

Although the Directive requires implementation by Norway – the Directive is EEA relevant - Norway did not take steps to comply with this legal obligation. The Commission could not persuade Norway to change its negative stance; accordingly the EEA committee may work on a solution to settle this dispute.

As a former Member State, after Norway the UK is the most important producer of offshore oil and gas. It contributed constructively to the design and drafting of the Directive, which it implemented in a very satisfactory manner. Since the assessment and implementation report shall analyse the experiences with the Directive and shall cover the years from the adoption of the Directive until recent days, and the UK has been a Member State during this period, it was included in the assessment. Depending from the final Treaty between the UK and the EU, it is unclear whether the UK may apply at least some parts of the Directive's provisions.

Despite the loss of more than 70 % of the EU's indigenous offshore oil and gas production due to the departing UK, the Directive remains of outmost importance for the safety of installations in the North Sear, the Baltic Sea, the Mediterranean and the Black Sea.

Due to consultations with stakeholders concerned, the assessment is rich in qualitative information. This information includes: anecdotal evidence, commentary supporting assessment of the themes, assisting determination of the efficiency, effectiveness, coherence, relevance, and EU-added value in implementing the Directive in the context of the original design intent.

The analysis incorporates data to establish a North Sea performance benchmark, based primarily on trend data published by the UK. From international data Europe can be placed as a regional performer, but doubts persist as to the completeness of international reporting on a voluntary basis.

The Commission established three reports, for the years 2016, 2017 and 2018, on the safety performance of the EU offshore sector, based on reporting templates of the Implementing

Regulation. Taking also note of data from the global operators' association (IOGP) and the UK the assessment attempts to establish trend data.

Regarding the financial cost of implementation, it does not appear that there has been a calculation by operators or regulators of one-off costs of implementation and uplift of running costs against which we may compare the estimate in the Commission's Impact Assessment. North Sea Operators and some regulators have claimed, anecdotally, that start-up costs have been excessive, but the organisations concerned have not investigated the data to support their claims.

There is some data from south-east Member States that have introduced the regime as virtually a starting point for regulation in this area, providing no insight into uplift of prior running costs, nor one-off costs. Furthermore, data is provided by 34 of the 37 North Sea MODU fleet from which introductory costs can be identified. These are relatively modest, in line with expectation that the change in operational requirements are themselves relatively modest in the North Sea region.

At this stage there is insufficient data to differentiate incident performance between Member States, and to compare with the baseline. In the coming years new data will allow for the establishment of trends in EU offshore safety and to compare them with the situation before application of the Directive.

Currently however, it is not possible to estimate the risk of a major polluting blowout in EU waters following the application of the Directive, nor to compare it with the baseline calculation in the Commission's 2011 impact assessment.

Not all initial suggestions and proposals required a follow-up. For example, it appeared that cyber security at offshore installations do not require more specific measures than other industrial sectors, and that horizontal legislations provides the necessary legal frame.

4 STATE OF PLAY AND IMPLEMENTATION

4.1 The offshore oil and gas sector

4.1.1 Offshore operations and the Green Deal

End of 2019, the European Commission published the "European Green Deal" Communication[30], with the objective to reset the Commission's commitment to tackling climate and environmental-related challenges that is this generation's defining task …".It is a new growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in the year 2050; economic growth shall decouple from the use of resources. It also aims to protect, conserve and enhance the EU's natural capital, and protect the health and well-being of citizens from environment-related risks and impacts". The European Green

[30] https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf

Deal also introduces the "green oath to do no harm" principle. As part of this strategy, the European Commission intends to assess EU legislation – that includes the Offshore Safety Directive - to bring it in line with the objectives of the Green Deal. .

The offshore hydrocarbons industry has, by virtue of the Green Deal, a clear instruction to further improve its environmental performance within the EU. Operators and Member States alike are now expected to suggest and implement more ambitious means of reducing their environmental footprint. These may include large-scale approaches ranging from examples such as carbon capture and storage (CCS), to facility-specific measures like increasingly stringent targets for offshore flaring, as well as other more novel solutions.

The Offshore Safety Directive is concerned with the prevention and management of major accidents, which – if they occur – are typically comprised of both safety and environmental aspects. For example, an accident that results in injuries or fatalities to offshore personnel may also be responsible for a release or spill of hydrocarbons into the environment. The Directive is a tool for nudging operators and Member States, also via industry and EU fora, towards more sustainable environmental practices.

As the transition to a low carbon economy occurs, personnel safety will continue to be a priority for society and there is hence little doubt of the continuing relevance of the Offshore Safety Directive for Member States with an upstream hydrocarbons industry. In an era in which operators strive to make the most of ageing assets this must certainly be the case. However, regardless of the level of activity occurring within the sector at any given moment, a comprehensive, risk-based and functional Directive is considered a minimum requirement for ongoing high EU safety performance.

4.1.2 Offshore Safety and COVID-19

The COVID-19 viral pandemic of 2019-2020 brought about unprecedented global change in terms of societal adaptation to new health and safety issues, cross-border and domestic mobility restrictions, and social and cultural norms. While the long-term effects of this pandemic are still being evaluated throughout the EU and elsewhere, and although the scale of economic impact is yet to be fully realized, a number of immediate repercussions within specific sectors are clear, including in the offshore hydrocarbons industry.

One important impact of the crisis on the industry was that the price of crude oil fell significantly in a short time, taking billions off the stock prices of major oil and gas companies. This left many offshore projects in doubt due to their vulnerability in what is typically a higher operating cost environment. For existing facilities this meant trying to achieve required output without adding new infrastructure, while for planned projects cancellation or suspension were preferred, pending market stabilization.

In the early days of the pandemic, understanding the spread of COVID-19 was challenging, leading to varied approaches by individual Member States and industry to limit its spread within their own contexts. For the offshore industry, an immediate concern was preventing infections in a workforce with personnel commuting from a wide geography. This brought with it several implications, not least of which was ensuring personnel could be tested for the virus and their health status tracked.

As offshore facilities have limited space and hence potential for higher infection risk, interim strategies were adopted to try to reduce this risk. One example was “minimum manning” whereby Operators limit the number of personnel offshore by temporarily deferring non-essential tasks. On some facilities, workers were also requested to remain offshore for longer shifts, to limit the risk of infection brought about by the arrival of any new personnel. Such strategies could be considered a stopgap rather than a long-term sustainable strategy.

In the event of a drawn-out crisis, Member State Competent Authorities have an increasingly important role in ensuring that offshore strategies adopted by operators do not compromise safety. Although the Offshore Safety Directive was not developed with a pandemic such as COVID-19 as context, it is nevertheless considered fit-for-purpose in this situation. It provides meaningful steer on how Competent Authorities may adapt to ever-changing circumstances, including a focus on risk management approaches, key roles and responsibilities and reporting requirements.

It is to consider whether the Directive in light of COVID-19 is warranted to strengthen its remit, or for considering renewed policies relating to different ways of working offshore and throughout industry. With regard to national rules and legislation that are implementing the Directive, Member States may identify potential amendments extenuating circumstances as a viral pandemic.

4.1.3 Oil prices, investments and offshore safety

The first quarter of 2020 began with a gradual fall in the world crude oil price following the outbreak of the COVID-19 virus in China. The global market viewed the virus as likely to affect oil demand, and the Organization of Petroleum Exporting Countries (OPEC) subsequently met to negotiate supply cuts. Due to the unstable nature of these negotiations against the backdrop of an ongoing pandemic, dramatic price falls ensued leaving parts of the hydrocarbons industry facing unsustainable operating costs.

Fluctuations in oil prices are not uncommon, the most recent substantial falls having occurred in 2014, also because of market oversupply. The effect on the offshore industry at the time was similar, with many unviable projects cancelled or suspended, and major cost-cutting exercises implemented amid significant industry consolidation. The lessons from this period are perhaps useful in the current crisis, particularly with respect to the challenges faced by operators of reducing operating costs without compromising safety.

In order to ensure high safety performance, close links between company safety strategies, their implementation, critical spending decisions and appropriate performance indicators are required. Previous surveys conducted within the offshore industry indicate that many feel industry cost reductions have an inevitable impact on safety performance. However, it is also true that major operators tend to set high standards for safety and have active programs in place to embed the values of their Safety Management Systems within workforce culture.

Going forward, the mandate for applying the Directive as implemented by Member States is as strong as ever, particularly when the global industry is in a state of flux. The Directive stands as a benchmark for rules and legislation in Member States, which ultimately push companies towards better safety and environmental performance. Equally clear is the remit of

the EU and competent authorities working closely with operators to provide them with the best advice and to facilitate continuous improvement in all of their offshore activities.

Looking back to recent years and summarising the prospects and ambitions of the petroleum sector in European waters, there was a sharp decline in exploration activity and capital expenditure for the development of production throughout the period of implementing the Directive (2014-2018). This change was caused by a fall in crude oil prices from $110 down to $30 per barrel. Since 2016 but only until February 2020 when oversupply and the impact of the corona virus hit the oil markets, a 'new normal' price has stabilised at ca. $65 per barrel. The sharp decline of oil prices in the first and second quarter of 2020 threatens the business model of EU offshore oil and gas production and may lead to the closure of production sites due to the operation's lack of profitability.

Looking forwards from 2019 and 2020 there appears to be a confidence in (i) the critical mass of expertise in the region, (ii) the proximity of the consumer base for natural gas, and (iii) new petroleum basin prospects. Due to the vast consequences of the spread of the corona virus, the expectation is therefore negative for growth, particularly in the North Sea and North East Atlantic, but less negatively pronounced for the southern offshore sectors. In the Mediterranean benefits are derived from the experience in cost reductions and efficiency gains achieved in the North, as well as developments in technology that enable more reliable identification of petroleum reservoir prospects in southern EU waters.

Before the spread of the coronavirus and the economic decline, the UK, Netherlands and Denmark were projecting capital expenditure of $20bn, $1.5bn and $1bn respectively in their offshore sectors by 2025. Even without the economic downturn that started in the first half of 2020, overall, growth was expected to remain slow, incremental, and fragile due to much cheaper sources of oil and gas in the Middle East and onshore USA (from shale deposits).

4.1.4 The European offshore sector

Eight of the ten largest European oil and gas fields are in Norway, and two are in the UK, jointly producing 13.3 billion tonnes of remaining oil equivalent. In 2019, the UK alone produced 72 % of EU offshore oil and gas. After the withdrawal of the UK from the EU on 31 January 2020, both the most important EU producers of offshore oil and gas are Denmark, the Netherlands and Italy. The operators and main co-ventures comprise the super-major oil companies: Exxon Mobil, Shell, BP, Total, Chevron, Equinor, and Conoco Phillips. Large oil companies are also present: Lundin, Petoro (100% owned by Norway), Suncor, INEOS, CNOOC (China), Idemitsu Kosan (Japan), Wintershall DEA, and Eni.

Third country companies are purchasing an increasing share of European oil and gas production with Chinese companies most predominant. The Italian Adriatic is the major offshore active country outside the North Sea, with Eni predominant, others include: Edison and Zorh.

The following table illustrates the distribution of off-shore oil and gas production in the EU, based on the annual Commission report on offshore safety published in 2018[31].

[31] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2019:0358:FIN.

REGION	Country	Total production in 2018 in ktoe*	% EU Total
Baltic Sea		**210.98**	**0.19%**
	Poland	210.98	0.19%
Black Sea		**1138.87**	**1.01%**
	Bulgaria	4.71	0.00%
	Romania	1134.16	1.01%
Mediterranean		**4139.61**	**3.69%**
	Croatia	528.20	0.47%
	Greece	211.01	0.19%
	Italy	3311.00	2.95%
	Spain	89.40	0.08%
North Sea and Atlantic		**106727.60**	**95.11%**
	Denmark	9589.00	8.55%
	Germany	915.00	0.82%
	Ireland	311.17	0.28%
	The Netherlands	11681.00	10.41%
	United Kingdom	84231.43	75.06%
Total		**112217.06**	**100.00%**

Figure 2: Offshore oil and gas production in the EU in kilotons of oil equivalent (ktoe), source: Annual Report on the Safety of Offshore Oil and Gas Operations in the European Union for the year 2018.

* All petroleum: crude oil, condensate; natural gas; kilo tonnes oil equivalent; no offshore production: CY; FR; MT; PT

Of the 112 million tonnes (ktoe) produced in EU countries in 2018, the main contributor is the North Sea (UK, Netherlands and Denmark) but Italy is also significant.

Looking back to decades of EU offshore oil and gas operations, the following table recalls the entry of operation of installations in EU regions from 1950. Figures underline a clear downward trend in new installations from the year 2010 onwards.

Year of construction	Region				
	Baltic Sea	Black Sea	Mediterranean	North Sea and Atlantic	EU Total
1950-1959	0	0	0	4	**4**
1960-1969	0	0	7	21	**28**
1970-1979	0	0	14	41	**55**
1980-1989	0	2	53	82	**137**
1990-1999	1	3	42	119	**165**
2000-2009	1	3	40	70	**114**
2010-2019	0	0	10	43	**53**
2020	0	0	0	0	**0**
EU Total	**2**	**8**	**166**	**380**	**556**

Figure 3: Number of installations present in EU waters, by decade of entry into operation and by region, source, Annual Report on the Safety of Offshore Oil and Gas Operations in the European Union for the year 2018.

4.1.5 Incident rates and safety performance

The Commission assesses the safety of the EU's offshore oil and gas operations based on the data provided by Member States in accordance with the provisions of the Implementing Regulation on reporting. Accordingly, the accuracy of the Commission's assessment depends on the information submitted by Member States.The table below provides a snapshot of incidents by categories in line with the reporting requirments set out in the Directive and its Implementing Regulation.

Annex IX categories		Number of events	Share of events in category	Share of total events
(a)	**Unintended releases – Total**	**99**	**100.0%**	**79,8%**
	Ignited oil/gas releases – Fires	1	1,06%	0,8%
	Ignited oil/gas releases – Explosions	0	0.0%	0.0%
	Not ignited gas releases	56	56,5%	45,2%
	Not ignited oil releases	31	31,3%	25,0%
	Hazardous substances releases	11	11,1%	8,9%
(b)	**Loss of well – Total**	**17**	**100.0%**	**13,7 %**
	Blowouts	0	0.0%	0.0%
	Blowout / diverter activation	8	47.1%	6,4%
	Well barrier failure	9	52.9%	7,3%
(c)	**Failures of SECE**	**2**	**100.0%**	**1,6%**
(d)	**Loss of structural integrity – Total**	**2**	**100.0%**	**1,6%**
	Loss of structural integrity	0	0.0%	0.0%
	Loss of stability/buoyancy	0	0.0%	0.0%
	Loss of station keeping	2	100.0%	1,6%
(e)	**Vessel collisions**	**0**	**0.0%**	**0.0%**
(f)	**Helicopter accidents**	**0**	**0.0%**	**0.0%**
(g)	**Fatal accidents(*)**	**0**	**0.0%**	**0.0%**
(h)	**Serious injuries of 5 or more persons in the same accident**	**0**	**0.0%**	**0.0%**
(i)	**Evacuation of personnel**	**2**	**100.0%**	**1,6%**
(j)	**Environmental accidents(**)**	**2**	**100.0%**	**1,6%**
Total[32]		**124**	**100.0%**	**100.0%**

(*) *Only if related to a major accident*

(**) *According to reports of Member States, the major accidents did not qualify as environmental accidents*

Figure 4: Incidents by categories (Annex IX of the Offshore Safety Directive, EU level), source, Annual Report on the Safety of Offshore Oil and Gas Operations in the European Union for the year 2018.

In its report for the year 2018, the Commission concluded: "As in 2016 and 2017, no fatalities were reported in 2018 but 10 injuries and 17 serious injuries occurred. According to the reports of competent authorities, the number of accidents significantly increased in the United

[32] A single incident may appear more than once, for example: the evacuation of personal linked to the loss of well control would count for the total as two points.

Kingdom, which requires both an in-depth analysis of causes and follow-up measures by the competent authority. The Commission will seek cooperation with the United Kingdom to bring the safety performance level back to that of recent years. Apparently, following a high level of safety in 2016 and 2017, maintaining an adequate performance of safety requires additional efforts.

4.2 Implementation of the Directive by Member States

The Commission has assessed the transposition of the Directive by Member States and has found that the overall level of transposition was adequate, although the integrity and quality of implementation across the Member States varies significantly. Member States presented different approaches for the implementation of the Directive (either in full or in relation to specific provisions). Some Member States have adopted new legislation that transposes the provisions of the Directive, whereas others have amended existing legislation and included the transposition of the Directive's different provisions into several pieces of legislation. Certain Member States have largely literally included the provisions of the Directive in their national law, while others have partly or fully adapted the wording of the Directive with the intention to convert it better into their specific legislative culture.

Drawing attention to specific parts of the Directive, it appears that the implementation of the principles of risk management is satisfactory. Furthermore, most Member States did completely and correctly transpose the rules on the submission of major hazard reports. The same is true for the provisions on the internal emergency response plans and the schemes for independent verification. The overall level of implementation of rules for co-operation between Member States was very comprehensive. Provisions on public participation and involvement in planned offshore oil and gas operations were implemented in a satisfactory manner. The Directive's Article regarding the liability for environmental damages was correctly transposed.

Almost all Member States did correctly transpose provisions on confidential reporting of safety concerns, for example by workers. The same is true for Articles on the sharing of information between owners, operators and competent authorities, and the establishment of rules for investigations following major accidents.

In contrast, some Member States had difficulties in setting up effective criteria for the assessment of the technical and financial capability of an applicant for a license. Denmark provides an example of a very good implementation of this part of the Directive. In some Member States there are weaknesses of transposition regarding external emergency response plans and emergency preparedness. With regard to the obligation of Member States to establish effective proportionate and dissuasive penalties applicable to infringements, further analysis is necessary to determine whether this part of the Directive was adequately implemented. Despite the formal implementation it remains unclear whether penalties are effective, proportionate and dissuasive in the individual social, legal and economic framework of Member States that are active in offshore oil and gas production.

Regarding the set-up of Competent Authorities, Member States did less closely implement the provisions (e.g. public availability of information, providing adequate human and financial resources) than expected. The Commission services are in contact with several Member States to clarify the rules for the functioning of the Competent Authority. Additional information on the assessment of the Directive's implementation by Member States Article by Article provides the Staff Working Document in its Annexe IX.

Annex III includes detailed, additional information on the implementation of the Articles of the Directive, which highlights shortcomings. The dialogue with Member States is an ongoing process. If necessary, in order to achieve improvements and a fully adequate level of implementation the Commission may start infringement proceedings in case of severe shortcomings.

Technology is constantly developing, however, without major technological pushes. Improved shelter booths and detection devices, supported by artificial intelligence, are deployed on offshore installations. Following the Commission's analysis of safety performance as published in the annual reports, offshore safety performance appears adequate in all Member States.

Member States with offshore waters that do not have offshore oil and gas operations under their jurisdiction (e.g. Belgium, Estonia, Finland, Latvia, Lithuania, Portugal, Slovenia, Sweden), and which do not plan to license such operations shall implement only those measures, which are necessary to ensure compliance with Article 20 (operations outside the EU), Article 32 (transboundary emergency preparedness) and Article 34 (penalties). In general terms, these Articles were adequately transposed.

In line with the provisions of the Directive, landlocked Member States, e.g. as Hungary, Austria, the Czech Republic and Slovakia, adequately implemented Article 20 of the Directive.

5 ACHIEVEMENTS ASSESSED BY THEMES

5.1 Overview on the themes analysed

The assessment has been structured around themes that each bring together several Articles from the Directive and issues proposed during consultations with stakeholders, the public and experts. The majority (10) of themes concern the functionality of the Articles in the Directive. The next largest category (3) emerge from stakeholder representation on issues only indirectly related to functional Articles. Two themes derive from direct mandated actions in Article 39 (liability, compensation claims, financial security and criminal sanctions). An assessment matrix served as data and information tool for analysing themes and for concluding on the Directive's achievements measured by criteria (see annex. Part 4, specifically table 4).

(1) Themes of functioning of the Directive	(2) Themes directly mandated by the Directive	(3) Themes of special interest to stakeholders

Description	Article / Source
Applying risk management principles for control of major accidents	Art.3(1)(3)(4)
Public participation in release of new areas for licensing	Art.5
Assignment of the competent authority	Art.8,9
Functioning of scheme of independent verification for installations and wells	Art.17
Safety in operations conducted outside EU	Art.19(8), 20
Arrangements for worker involvement in major accident prevention, (relating to protection of whistle-blowers and tripartite consultation mechanisms	Art.22, 6(8)
Transparency concerning reporting of incidents	Art.23, 24, 25
Emergency preparedness and response arrangements of operators/ owners	Art.14, 28, 29, 30
Emergency preparedness and response arrangements of Member States	Art.28, 29, 30, 31
Availability of dissuasive penalties for breaches of duty	Art.34
Assignment of liability; financial responsibility; and schemes of civil compensation Parliament resolution 2015/2352(INI)	Art.4, 7, 39(1)(2)
Prospect of extending criminal sanctions to breaches of duty to safeguard the environment from major accidents (within the scope of Directive 2008/99/EC)	Art.39(3)
Post- decommissioning responsibility for ensuring permanent sealing of wells, and for determining extent of removal of fixed installations	Art.12, Annex I(6)
Deepening of the internal market through mutual recognition between Member States of mobile installations and of common systems that are not Member States-specific	Art.13
Recovery of costs of maintaining the competent authority	Art.8(5)(7)

Figure 5: Overview of themes subject to the assessment

5.2 Applying risk management principles for control of major accidents

The foundation of risk assessment in major hazard sectors is the identification of all foreseeable hazards, and the assignment of scale of harm or the consequence of the hazard being realised (see also Article 3 of the Directive).

Both industry and authorities observed an occasionally inconsistent use of risk assessment by both operators and regulators as the precursor to a decision on suitability of control measures for identified major hazards. The historical concern of risk assessment is that methodology may be directed to achieve a preferred outcome, for example, deliberately selecting a statistical assumption in the risk calculus that gives a bias in the result.

However, there is no statistical evidence that bias is widespread or frequent. The provisions in the Directive directly attempt to mitigate bias in the areas of: independent verification of safety, environmentally critical elements, and well plans. In addition, the expert and independent competent authority's assessment of the operator's or owner's risk assessment report for the installation (Report on Major Hazards or RoMH)[33] is a further control against bias in risk assessment.

There is a reported inconsistency when the condition of 'risks tolerable and as low as reasonably practicable (ALARP)' is achieved. This may result in disagreement between the operator or owner of the installation and the Competent Authority, regarding the adequacy of the risk assessment presented in the installation RoMH. Alternatively, there may be agreement between the operator/owner and the competent authority where the ALARP condition may not have in fact been achieved: this can be the case where the competent authority fails to undertake a thorough, expert assessment of the RoMH.

Linked to the matter of inconsistency in identifying the ALARP threshold in complex risk assessment, are reports that risk assessment measures adopted by Member States are insufficiently stringent. This is a generic concern that applies to different forms of intervention, such as the threshold for taking enforcement action.

Although there is no statistical data that supports these concerns, it appears that there is inconsistency in applying risk assessment methodologies between Member States. Since the legal instrument bringing the measures into effect was a Directive, different approaches were anticipated because most of the 16 focal Member States are relatively unfamiliar with risk-based regulation.

Accordingly, upskilling of Member States unfamiliar with risk-based regulation may provide substantial added-value. Joint peer reviews carried out by smaller competent authorities from the North Sea and Italy may reveal where weaknesses persist.

Civil society needs assurance that industry has improved its control of major accident hazards. Former North Sea joint audits[34], for example from the North Sea Offshore Authorities Forum (NSOAF), demonstrated that there is room for improvement. Taking note of their contribution to offshore safety, the methodologies deployed in the North Sea joint audits could be usefully transferred to the Mediterranean and Black Sea regions, and the results published by the EUOAG.

According to the views of workers unions, efforts may be needed by employers to upskill their field staff. Unions argue that worker representatives in particular should reserve more input time, to contribute both more confidently and more comfortably to the formulation of the installation's RoMH.

[33] A RoMH is an *ex ante* report by the operator or owner of an installation demonstrating that all major hazard risks are ALARP. Comments of the workforce are to be taken into account. The competent authority must issue an acceptance of the RoMH prior to operations starting.
[34] http://www.hse.gov.uk/offshore/NSOAF-Supervision-report.pdf.

Finally, according to views received from experts, risk assessment and management should take note of climate change. Predictions suggest that in the coming years and decades, climate change may lead to extreme heat, stronger winds, and higher waves. To adequately address these risks, safety and environmental critical elements at installations may require adjustments.

5.3 Public participation in release of new areas for licensing

Environmental assessment is a procedure that ensures environmental implications of decisions are taken into account before the decisions are made. Environmental assessment can be undertaken for individual projects, such as a dam, motorway, airport or factory, on the basis of Directive 2011/92/EU[35] (known as 'Environmental Impact Assessment' – EIA Directive) or for public plans or programmes on the basis of Directive 2001/42/EC[36] (known as 'Strategic Environmental Assessment' – SEA Directive). The common principle of both Directives is to ensure that plans, programmes and projects likely to have significant effects on the environment are made subject to an environmental assessment, to provide a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation of such projects, plans and programmes with a view to reduce their environmental impacts, prior to their approval or authorisation. Consultation with the public is a key feature of environmental assessments.

The provisions of Article 5 of the Directive for public participation apply to new areas for licensing from 19 July 2013. These areas are regions in the sea anticipated to be utilised for exploration and production. Article 5 should prevent drilling, including explorative drilling unless the public was consulted and the results of the assessment accommodated. Paragraph 2 (a) to (f) describes minimum suitable arrangements to achieve the aims. According to information provided for the assessment by NGOs, it appears that Member States have taken due note of these aims of the Directive but did not always fully implement these provisions. The environmental NGO community has raised certain concerns, primarily directed at licensing and re-licensing in mature basins, which partially have been exploited for decades.

The practice that the Member States' licensing authority may re-license a previously licensed area without recommencing the full SEA procedures and associated public participation, is not transparent. However, it has not been possible to collect data that demonstrates the approaches adopted in different Member States under the provisions of the Directive.

In general, there is limited public awareness of the offshore oil and gas sector in general, with its technology and functions scarcely understood. These factors may prevent the public from taking a deeper interest in consultations. Most citizens may not be aware of public consultations or may hesitate to participate, due to a perceived lack of expert knowledge.

[35] Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment Text with EEA relevance, OJ L 26, 28.1.2012, p. 1–21.

[36] Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment, OJ L 197, 21.7.2001, p. 30–3.

However, if stakeholders as NGOs, enterprises, local authorities carry out a campaign participation rates can substantially increase.

Taking note of national rules and legislation regarding public participation in Member States, the provisions for stimulating public consultation relating to offshore projects appear suitable. However, their practical application may require additional efforts from national administrations.

Member States may publish citizen's guidance to facilitate access of citizens to the sector and to encourage their informed participation in consultation exercises. Furthermore, NGOs would welcome arrangements made by the Member States that ensure consultees can be confident that their views are processed effectively in decision making.

5.4 Assignment of the Competent Authority

Whenever six or more installations operate in a Member State, according to Articles 8 and 9 of the Directive, Member States shall establish a Competent Authority to assure structural independence from economic interests (e.g. maximising revenues from offshore activities). The upward reporting chain, within which the priorities, strategies and work plans of the competent authorities are agreed, should be entirely separated from economic regulation.

It follows from consultations with stakeholders and NGOs that it is often not entirely clear as to whether or not suitable and sufficient independence has been attained in all competent authorities, following the formal implementation of the Directive.

Some respondents and interviewees from the industry have expressed a reservation that the intended unification of environmental and safety oversight by regulators is insufficiently joined-up compared to expectations, and that duplication of effort and an additional administrative burden results from this. However, even where the competent authority is not fully integrated, it seems that with the Directive, Member States are in a better position to avoid duplication of interventions and unaligned strategies, which may impact efficiency and costs of the sector.

The strong fragmentation of regulatory approaches around the EU, as explained in the Commission's impact assessment, was a major driver to establish the Directive. It seems that systems and arrangements have been less harmonised than expected. This is supported by survey's respondents and workshops. Therefore, whilst Member States may well have implemented the Directive in an appropriate manner, the process of harmonising the regulatory playing field in the EU remains incomplete. Therefore, the full benefits of inter alia, standardisation, efficiency, benchmarking, and effectiveness are unlikely to be realised, compared to the situation of adopting a common Regulation.

A number of respondents and interviewees, mainly from the industry, have reported that the organisational arrangements of some competent authorities remain unstable, and that the full depth of skills and expertise is yet to be integrated into the body of the regulator.

The Commission produced a report in 2016 concerning the adequacy of resources of the Member States' competent authorities[37] to carry out their functions under the Directive. It noted that Member States were on average 10% under-staffed, recruitment was demonstrably difficult and that pay levels were often a root problem. The report called on Member States to ensure they provide sufficient resources to attract and train expert staff, relative to the size and complexity of the offshore activity of each Member State. It is also important to recall that such inconsistency and instability does impose administrative burdens on industry.

There is a lack of clarity concerning whether or not suitable and sufficient independence has been attained in all competent authorities. Given the importance of safety and environmental protection in the management of the marine space, the independence of judgement of offshore competent authorities is a matter of public interest. There is an ongoing dialogue between the Commission and the Member States in the framework of the European Offshore Authorities Group. In forthcoming sessions this Group may discuss arrangements for ensuring full compliance with Articles 8(2) and 9(a) of the Directive on independence from economic regulation, with the objective to provide more information to social partners and civil society. Competent authorities may specifically analyse the increased decommissioning of fixed installations.

5.5 Functioning of scheme of independent verification for installations and wells

Major technical projects of high capital investment will be subject to independent verification by the project owner as a safeguard. The danger from not referring to independent verification is the adoption of unknown bias into project risk assessments.

The Directive adopted best international regulatory practice by requiring, in Article 17, the adoption of independent verification for installations and well plans within the safety management systems of operators and owners. The main provisions are:

- The system is to be integral to the operator or owner's management system rather than a stage of compliance or permitting.
- The arrangements must pass strict tests:
    - of independence of the verifier from any connection to the installation or well project; and
    - of the integrity of the working environment of the verifier such that their work is free of influence from the operator or owner.
- The scheme is applied to verification of safety and environment critical elements (SECE's)[38] and their continuing effectiveness in practice, and to wells including changes to design intent.

[37] REPORT FROM THE COMMISSION on the adequacy of national expert resources for complying with the regulatory functions pursuant to Article 27(4) of Directive 2013/30/EU, COM/2016/0318 final.

[38] Safety and environment critical elements (SECE) i.e. parts of an installation including computer programmes, the purpose of which is to prevent or limit the consequences of a major accident, or the failure of which could cause or contribute substantially to a major accident.

- The records are to be retained, and made available to the competent authorities on demand.

Most contributors to the assessment express approval of the conceptual system. The Member States active in offshore operations in the North Sea area (UK, the Netherlands, and Denmark) report a 'significant advantage' in their major accident prevention systems by virtue of the availability of the independent verifiers' reports.

In contrast, there are also some concerns and misinterpretations of the various entities.

- Member States with decades' long experience with offshore oil and gas operations (e.g. North Sea and Italy) and co-located operators found introduction of the scheme too difficult. This was due to independent verifiers' market unreadiness, and lack of specificity in the requirements allowing numerous options.
- Some Member States' Competent Authorities, and NGOs consider 2nd party verification unsuitable, either on an objection of principle, or because of potential societal aversion.
- Some actors (mainly from large verification-based vendors) favoured strict 3rd party verification but only using large players with extensive experience of independent verifiers' services. They claim smaller, niche companies, lack capability in depth and become captured by the client. They also claim the Directive spawns an increase of niche vendors.
- The Trade Unions (TU's) observe that there is insufficient depth of resources with all the relevant expertise and experience to underpin the introduction and proper functioning of the schemes.
- Other actors (the smaller *niche* vendors) warned of the large verification companies who may encourage *homogeneous* rather than *independent* approaches. They also warn of profiteering through standardisation of systems, irrespective of the individual nature of production installations.
- Some Member States consider that there is a lack of sufficient clarity in Article 17 and Annex V relating to the operation of schemes for independent verification, and ask for additional Commission guidelines.

According to the information obtained, it appears that the scheme of independent verification complies with the minimum requirements as set out in the Directive. To facilitate the handling of schemes in Member States, it would be useful to collect and disseminate all available guidance of industry and regulator.

5.6 Safety in operations conducted outside EU

Analysis

Article 19(8) of the Directive establishes the principle that an operator's or owner's CMAPP[39] is to be the policy of the main board of the company and should apply throughout the

[39] CMAPP: Corporate Major accident prevention policy, i.e. a document setting out the owner's or operator's corporate policy for the avoidance of major accidents at their installations located anywhere in the world. Suitable arrangements to be made for monitoring the effectiveness of the policy which is to apply throughout the

organisation. Operators should be able to demonstrate this without ambiguity to their Competent Authority. The measure is in response to apparent and largely unexplained differences of performance of operators as measured by incident reports in different regions of the world.

Annex I Part 8 of the Directive provides the minimum components to be incorporated in a CMAPP, and these broadly reflect the worldwide standard for a high integrity organisation[40]. The components of the CMAPP address corporate behaviour such as process auditing, rewarding desirable behaviours for major accident prevention amongst staff, extemporising corporate goals, values and capabilities, and requiring high levels of competency throughout the organisation.

There are reports from duty holders regarding inconsistency of requirements by Member States' Competent Authorities for the demonstration of the CMAPP in the set of productions submitted for assessment alongside the installation RoMH by the duty holder. There are further reports, also in the framework of stakeholder consultation, that the practical application of national laws transposing the Directive, via competent authorities, has included additional features that may be out of context of a CMAPP.

It has not been possible within the assessment of the Directive to verify these reports. In any case it would be necessary to take evidence from duty holders, which they may be reluctant to give. However, in the context of a CMAPP, there should by definition be only one version per company throughout its global operations. Any additional relevant requirements should be an addendum to the safety and environmental management system document (SEMS).

On the subject of the SEMS, it has been reported that some duty holders do not themselves identify the difference between the SEMS and the CMAPP. The relevant lists of content in the Directive for CMAPP (Annex I Part 8) and SEMS (Annex I Part 9) are distinctively different. If the distinction is not understood by a duty holder, or duplication arises from a Member State's approach to the handling of, and the relationship between, the two documents, actors may not have fully understood the subject.

In the framework of the public consultation, the NGO's have expressed particular concern on this point by issuing a joint statement:

"Companies registered in the EU should be bound worldwide by all Directive obligations that can be applied directly to operators. Allowing companies to skip Directive standards in developing countries does not sit well with the initial intention of avoiding a second Deepwater Horizon…/… In addition, the obligations already applicable for extraterritorial activities should be enforced in a consistent and transparent manner. At this point it is not very clear whether Member States do in fact ask for accident prevention plans covering extraterritorial activities, and even more so if and how they verify that that the plans are applied."

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lifecycle of any installation controlled by the operator or owner, and in the case of an operator to take account of their primary responsibility for control of major accident risk.

[39] Formal tripartite consultation is required under auspices of each Member States' to allow operators, regulators and worker representatives to discuss formulation of major accident prevent policy and standards.

[40] A high integrity organisation possesses strong safety culture and conducts itself so as to achieve a high probability of safe and continuous operations.

Conclusions

The Directive may not always ensure effective accident prevention outside of the EU. However, further research and fact finding appears necessary before being able to draw a firm conclusion. Furthermore, the consistency between Member State provisions for assuring EU-based operators maintain high and equivalent standards in their overseas activities, is a topic that Member States might consider collaboration on. For example, in a management audit exercise for operations outside the EU. As a preliminary exercise, Member States may consider a joint audit to examine the mechanisms that Member States' deploy for verifying operators' effectiveness in examining joined-up safety management of their operators throughout their global operations. Safe offshore operations contribute to the protection of the environment and the fight against climate change. For example, by preventing large leakages of methane.

5.7 Arrangements for worker involvement in major accident prevention

Analysis

The practice of tripartite consultation was already adopted by the International Labour Organisation (ILO 144 1976)[41] as the foundation of its strategy making and policy formulation. The ILO has produced a principal standard (#144) for strategic consultation between representatives of workers, regulators and employers, both generically and related to sectors. Despite the maturity of ILO 144 1976 and the widespread adoption of tripartism in the EU, some Member States had no mechanisms for it prior to the Directive.

Article 6(8) requires Member States to establish mechanisms for effective tripartite consultation between the competent authority, duty holders, and worker representatives in formulating standards and policies relating to major accident prevention.

Aligned to the measure in Article 6(8) is the requirement in Article 22 for owners and operators to put in place arrangements for confidential reporting of concerns by staff on installations and for protection of whistle blowers. The arrangements are to be communicated to all workers on the installation. Typically information and contact details for the competent authority will be posted on notice boards and staff trained on this subject.

The competent authority is to make compatible arrangements for conducting investigations into confidential reporting, and making authoritative reports, whilst preserving anonymity.

The Commission has examined how these arrangements are working out. It found wide approval of all stakeholders of the fundamental right bestowed under Article 22. Similarly, whilst some Member States have practiced tripartite consultation since the ILO standard, duty holders in previously non participating Member States were vocal in support to new arrangements under which they have a voice in strategy. Duty holders report significant value-added where the scheme of tripartite consultation was newly introduced, especially outside the North Sea region where no specific safety legislation was formerly in place.

[41] https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C144.

Some Member States reported that their tripartite committees had become somewhat torpid. Moreover, in some Member States there are excellent tripartite arrangements under the auspices of the operators associations attended by top management and leaders from Member States and TU's. An example is the UK's 'Step Change in Safety'[42], formed more than 40 years ago and probably the most influential standing safety body of its type.

It is a major key performance indicator and a leading indicator for offshore major accident prevention, that industry establishes and maintains effective consultative forums under its own auspices. The statutory committees have the added driver of law. Furthermore, it appears that the establishment of a level aspect of statutory tripartite consultation throughout the EU will of itself will add value in policy terms.

With regard to the Directive's provisions on whistle blowing[43], there are signs from the Commission's interactions with stakeholders that Member States take insufficient interest in training for workers and managers and in developing the applications of whistle blowing as a surrogate to the values of transparency, safety culture, and integrity issues for the sector.

The TU's consider the protection of whistle-blowers is insufficient across the sector as a whole, and favour a link between whistleblowing arrangements and tripartite consultation mechanisms relating to policy and standards. No concrete examples of a lack of rigour have been forwarded to support the TU assertions, but no doubt the position will be kept under review.

Tripartite consultation may not yet be fully embedded in many Member States, and time and encouragement will make the difference. However, we note that at present, no voluntary sharing of learnings or other information exists or has been encouraged between tripartite committees of Member States (not required by the Directive).

Conclusions

Although taking note of critical comments, it appears that in general terms the confidential reporting mechanisms for workers to directly contact the competent authority in their area appear to be working, and is welcomed particularly in Member States where no such provisions existed before the Directive. In the future, competent authorities and the EUOAG may receive advice from TU's and other worker representatives on the functioning of the arrangements throughout the EU.

Apparently, there is also considerable support to the measures relating to tripartite consultation, and that the development of a tripartite culture is improving.

5.8 Transparency concerning reporting of incidents – the Implementing Regulation

Articles 23, 24, and 25 of the Directive concern measures for EU-wide reporting systems, under which the Commission is to make an implementing regulation for common reporting

[42] https://www.stepchangeinsafety.net/about.

[43] Recital 41 of the Directive provides: "To ensure that no relevant safety concerns are overlooked or ignored, it is important to establish and encourage adequate means for the confidential reporting of those concerns and the protection of whistle-blowers.".

parameters. This Implementing Regulation (1112/2014/EU) includes a simplified reporting format for Member States' for publishing incident data and other relevant information.

The Member States are to make public important information relating to incidents occurring in their territory and to report to the Commission annually. Finally, the Commission is required to make annual reports.

The cycle of reporting to the EU-level is as follows.

Year 1: Member States' Competent Authorities receive data from duty holders.

Year 2: Competent authorities aggregate data and carry out a quality check. Member States send a report in the format of the Implementing Regulation, to the Commission. The Commission undertake a quality check and subsequently transfer all information provided by Member States into the Commission's own data base, in order to assemble an EU-wide report (latest 1st of June).

Year 3. The report is published at the beginning of year 3.

As illustrated by the above timeline, there is a lag between the focus year (of industry reporting incidents to the Member States) and the Commission report. Already two reports have been published to date (2019) covering 2016[44] and 2017[45]. There is now a baseline for future trend analysis.

The scheme is functional; it is the first statutory inter-country reporting system anywhere and therefore represents a significant step. Given that there is a widely held public view that the oil industry and its regulators are not transparent, the requirement for a common reporting system is key to greater public acceptance.

Looking through the data for the first of the EU annual reports, there is a disparity of data reporting and handling between Member States that suggests the system needs time to stabilise.

Some Member States believe the current guidance is insufficiently detailed. This was not expected as the expert committee that assisted in the preparation of the Commission's draft Regulation assembled a detailed guidance document, including practical examples of how to complete and provide information on incidents.

The work of the expert committee took into account advice and guidance from regulators and industry and was a compromise of systems. Nevertheless, some duty holders are dissatisfied with some of the incident severity thresholds (e.g. relating to release volumes of hydrocarbon escapes) where these are different to standards that are already in use. Consequently, there is an inevitable disparity between the new system and some of the pre-existing thresholds of reporting.

Some Member States active with offshore operations in the North Sea region, specifically the UK, have claimed that the data set to be collected and published under the Implementing

[44] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2018%3A595%3AFIN.
[45] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2019:0358:FIN.

Regulation is not a useful tool to determine leading indicators for major accident risk. The Member States concerned suggest, notwithstanding their representatives were on the expert comitology committee, which agreed on the templates, that significant revision is required to allow more meaningful reporting.

The EU-wide incident reporting system that collates all qualifying incidents, including near-misses in EU waters, reported under obligation from all actors (duty holders, Member States and the Commission) that this reporting initiative represents a significant advance in transparency of the sector from a global perspective.

All of the actors need to focus on the efficacy of the system, specifically regarding full, prompt and accurate reporting. The EUOAG monitors the system, is the interlocutor to civil society, and ensures continual improvement in the system over time.

Where stakeholders perceive that critical improvements need to be made, the EUOAG (and the initiator of further implementing regulations) should be appropriately advised with justifications. However, it should be underlined that not all actors have experience with the Implementing Regulation.

5.9 Emergency preparedness and response arrangements of operators/ owners

This particular obligation concerns the emergency response arrangements of the operator or owner to contain an incident to the vicinity of the installation, usually taken to mean within the 500 meter safety zone surrounding it.

Articles 14, 28, and 30, with a related obligation under Article 29, concern arrangements of the Member States, namely, national contingency plans. These should be integrated as necessary with those of adjacent installations and with national contingency plans of neighbouring Member States. The entire plan that encompasses procedures, equipment, responsibilities, and contingencies, with the goal of containment of any incident, is referred in the Directive as the Internal Emergency Response Plan (IERP).

Additionally, the operators' or owners' relevant expertise and equipment for emergency response is to be always available, and emergency response exercises are to be conducted by Member States, operators, and owners.

According to information provided by Member States in EUOAG meetings, installations present in EU waters have appropriate emergency response plans (IERP) in place. Some Member States have agreed extensive procedures with their duty holders that govern the overall response within that Member States' jurisdiction. Nevertheless, it is not shown the extent to which internal emergency response plans are harmonised with national contingency plans of Member States throughout the EU. Focused exercises with Member States' authorities and operators, as for example carried out by the UK, are the most effective means to validate the effectiveness of the integrated arrangements.

The industry's response to implementing the Directive has been for owners of non-production mobile installations (mainly mobile drilling units for exploration of oil and gas (MODUs)) to develop fit for purpose response plans that were different from the plans for the operators of

installations for the production of oil and gas. Prior to the Directive, the requirements varied between Member States, and owners had claimed that the plans required of them by some Member States were more suited to production installations with their concentrations of hazardous process plant and inventories of flammable substances and less to MODUs.

Duty holders have also readily acknowledged that the requirements under the Directive have added value by improving the integration of installation-based emergency response plans with national contingency plans.

Under the Directive, the IERP is required to consider all relevant emergency scenarios as an absolute duty, i.e. the plan will not need to quantify the risk of a potential scenario in order to make response arrangements to deal with it.

There is a significant uplift in confidence of the integration of the modern sophisticated inventories of the industry, and the Member States. The requirements for internal emergency response plans by operators and owners appear to be working as intended.

Requirements for internal emergency response plans by operators and owners appear to be working as intended. It is anticipated that the regulators and social partners will request operators in particular to develop more inventive scenarios to exercise and test the arrangements they have made. The appropriate regulatory authorities in the Member States may take a close interest in the effectiveness of installation-based emergency response plans.

5.10 Emergency preparedness and response arrangements of Member States

Analysis

Articles 29, 30, and 31 of the Directive apply to the emergency response arrangements obligated to Member States, known as External Emergency Response Plans (EERP) or national contingency plans. Article 28 requires Member States to ensure that the IERP's of duty holders are integrated and coherent with the Member States national contingency plans.

Under the measures, Member States must ensure EERPs are executed immediately upon report of a major incident. Furthermore, investigations by Member States into the circumstances of the incident are to be conducted without delay, giving due regard to the circumstances. Member States should not take actions that may have an adverse impact on the emergency response or recovery operations.

Although emergency response is initiated at the national level, emergency arrangements should ensure that equipment and expertise is compatible and interoperable beyond national borders, and also in Member States that do not carry out offshore operations themselves, due to potential implication for further Member States.

In all circumstances, emergency response exercises are to be conducted by Member States, operators and owners. The transboundary risks of pollution are to be specifically addressed and suitable cooperation is to be arranged including with third countries.

Member States that do not have active offshore oil and gas operations are required under Article 32 to establish focal points, to cooperate with active Member States in contingency

planning and to make their own arrangements for responding to a major accident that threatens their marine and coastal environment. Adjacent Member States are also required to cooperate with a major accident investigation launched by the Member States in which the accident occurred.

Duty holders and Member States acknowledge that the requirement for national EERPs to be integrated with IERPs has added value by improving coherence between installation-based emergency response plans with national contingency plans.

Around five Member States and regions were still preparing national contingency emergency response plans during the year 2019. The Commission provided technical assistance at a technical workshop in 2017, attended by competent authorities, national intervention authorities and agencies, specialist systems providers, IADC, and IOGP. The proceedings of the event represent a compendium of the depth of experience and expertise that exists in the North Sea/Atlantic region, and the Mediterranean region coordinated by REMPEC (Malta).

Under Article 10 of the Directive, the EMSA also has obligations. For the most part European Maritime Safety Agency (EMSA) is required to respond to requests by Member States to assist in both preparations and interventions. Some arrangements are agreed with EMSA and Member States. According to Article 10(3) EMSA may assist the Commission in assessing the suitability of Member States' EERPs.

The Commission services carried out a survey on the availability of national plans in 2017. At that time, data showed some fragmented approaches to consideration of transboundary pollution. However, industry claims there is an effective interoperability of expertise and equipment between Member States in contiguous maritime regions, and that harmonisation of expertise and equipment is continually improving. Major inventories or emergency equipment maintained by specialist service providers are available on a regional/transnational basis in the UK, Norway, and Italy. The Commission continues its co-operation with Member States and industry to ensure effective and up-to-date EERPs.

Conclusions

1. Even though there is collaboration and sharing of expertise, it is not clear whether this happens consistently across all concerned MS and whether the efforts made are due to the Directive. It seems that the measures in the Directive including the particulars on external emergency response plans in Annexes VII and VIII have further stimulated collaboration and associated sharing of inventories and expertise of Member States’ personnel throughout the EU. Nevertheless, it remains unclear how far the harmonisation of equipment is adequate to react to large scale offshore accidents.

It would be beneficial to undertake assessments of practical exercises, simulating the response to accidents. Given the limited information available and the importance of this topic, there might be value in further cooperating with EMSA on evaluating Member States' exercises, specifically related to the effectiveness of transboundary cooperation. Commission services may be asked to provide assistance in up-grading and up-dating the EERP.

5.11 Availability of dissuasive penalties for breaches of duty

Analysis

There is an apparent disparity between Member States' approaches to penalties for causing accidents and the enforcement of an appropriate follow-up. Article 34 requires Member States to specify rules on penalties applicable to infringements of the national provisions adopted pursuant to the Directive, specifying that those penalties should be "effective, proportionate and dissuasive". Article 34 also requires Member States to notify their provisions to the Commission by July 2015. Only few Member States submitted information referring to this duty.

Member States may apply in the offshore oil and gas sector administrative, as well as criminal sanctions. Article 34 of the Directive does not specify the type of penalties and so Member States may choose whether to use criminal or administrative sanctions. In some cases, as under the Directive 2008/99/EC (Environmental Crime Directive[46] (ECD)), Member States are obliged to criminalise certain behaviour.

Whilst most sanctions applied by Member States require the offence to include both negligence and harm, other Member States prosecute the breach of duty, not the effect. In others, a near-miss major accident is treated as if a major accident has indeed occurred. In some Member States it is not a criminal offence to spill oil from offshore petroleum activities (although it is an offence to spill oil from a tanker).

It has been clarified in the discussions with the Member States that no consistency between their measures exists, both in terms of powers, functional arrangements, and enforcement. One Member State has embedded criminal enforcement powers within its Competent Authority. A number of Member States prefer direct-acting sanctions which mandate improvements, or prohibit activities, rather than engaging with potentially resource intensive enforcement processes through the courts. At the end of court proceedings, the financial penalties are often modest or insufficient to deter certain behaviour, potentially leading to further accidents.

Concerning the type of sanction, many Member States argue that the publicity attached to enforcement is of itself a significant sanction, as the impact on corporate reputation is more significant than financial penalties themselves. This may be true to an extent, but the level of financial penalties applied to the oil and gas sector across the EU is extremely low. It is rare for a penalty exceeding 1 million Euro to be levied, which relative to the whole market value of the operators' companies may not be significant. Substantially higher penalties, as appropriate for the case at hand, might actually make more of an impact on the aspect of dissuasion. Certainly, the social partners (TU's and NGO's) call for bigger financial penalties

[46] Directive 2008/99/EC of the European Parliament and of the Council of 19 November 2008 on the protection of the environment through criminal law (Text with EEA relevance), OJ L 328, 6.12.2008, p. 28–37.

that are proportionate to the commercial scale of the sector, the high frequency of accidents, and their potentially wide-reaching impacts.

There also appears to be no obvious relationship between offences in the context of a major accident hazard, and sanctions under licensing clauses. The Commission services are unaware of any license holder that has had its license revoked following a proven gross breach of duty.

It seems that several factors contributed to this situation. Firstly, a licensing auction for selecting the best candidate for exploring and exploiting a new offshore area tends to be a buyer's market, and Member States may be unwilling to drive out an operator. Secondly, the view is often expressed that a major accident caused by a breach of duty is a retrospective indicator. From the industry's view, under this argument, an operator having had a major accident will invariably become a better operator going forwards. To remove the license from an operator for a past breach is a severe penalty. Finally, the forced disposal of assets to another operator, even a member of the joint venture under the license involves commercial trading and potential loss and denial of income. Most Member States would avoid being drawn into this difficult area, and perhaps being caught under legal summonses.

As mentioned earlier, there has been no major offshore accident with large scale effects on workers and the environment, occurring anywhere in the EU since the Directive came into effect. Some Member States had no experience of enforcing sanctions previous to this Directive.

Conclusions

There are many different approaches amongst Member States to enforcement and to decisions concerning the follow-up to offences and breaches of duty. For offshore oil and gas operations no information is available to determine the superiority of either the administrative or criminal penalties' effectiveness.

However, Member States' level of financial penalties for breaches of duty does not seem to be suitable to both the need for public interest, and the potential consequences of a major accident in EU waters, irrespective of the level of escalation in the accident concerned. It is unlikely that the current penalties will make a significant impact with either investors or the public.

License authorities are already required, pursuant to the Directive, to take into account the major accident prevention performance of applicants. Whilst there have been no major accidents with blow-outs in recent times, competent authorities should continue to pursue their right to provide independent expert advice to the licensing authorities with the objective to complement the information available for the selection decision.

5.12 Recovery of costs of maintaining the competent authority

Analysis

Under Article 8(5) of the Directive, Member States may establish mechanisms by which the financial costs accruing to the competent authority in carrying out its functions under the Directive, may be recovered from licensees, operators or owners.

During Commission's workshops, duty holders also raised concerns about the cost of applying the existing regulation. All but a very few competent authorities now practice some form of cost recovery. Member States that did not recover their costs prior to the Directive now do so.

Funding levels of the different competent authorities do appear to be proportional to whether there is cost recovery, and the level of recovery. Funding has of course direct impact on the assurance of adequate performance of the duties of the competent authority under the Directive.

There are some considerations attached to cost recovery schemes. Member States have discretion to recover their costs from primary duty holders (operators of production installations, owners of non-production installations). Equally, they may choose not to do so.

Where Member States choose to recover costs, they should act in an accountable and responsible manner. Therefore, Member States may envisage to publish accounts to demonstrate that only pertinent costs are being recovered so that duty holders are not subsidising expenditures of the state unrelated to functions under the Directive.

Duty holders point out that where Member States use a charge-out rate mechanism (based upon an hourly rate for competent authority staff, usually front line inspectors[47]) they sometimes are being overcharged. For example, where a meeting with the competent authority is attended by a large number of inspectors, all of whom count as a cost under the charge-out system but where some of the attendees are unnecessary to the business under discussion. Duty holders also report that where one Member States may require a single RoMH for a production facility comprising several linked installations, another Member States may require a RoMH for each individual installation, increasing costs by Euro1million per additional RoMH. Duty holders also claim that competent authorities are not forthcoming with estimating charges for the next financial cycle, which complicates financial planning.

All such situations are likely to be, in the opinion of the Member States concerned, entirely necessary for the discharging of their responsibilities. Therefore, these become matters of reconciliation between the 'parties'. However, the central point is that cost recovery introduces an obvious tension in the duty holder – regulator relationship, the management of which is primarily the responsibility of the regulator.

Where the operators' sector of a Member State is fully or partially state owned, cost recovery between the competent authority and the duty holder may be a public accounting exercise. However, there have been calls from some members of EUOAG for the recovery of costs from duty holders to be made an obligation, so as to create a level playing field for all competent authorities.

[47] These vary greatly between Member States', e.g. €165/hr (RO) and €247/hr (UK/HSE),b UK has joint Competent Authority and environmental regulator, OPRED, charges €206/hr.

Member States are obligated to ensure that the competent authority has adequate human and financial resources to discharge its functions under the Directive (Article 8(5)), as well as to review the activities of the competent authority and make necessary improvements (Article 8(9)). If reviews revealed that competent authorities are under-resourced, Member States are obligated to make the necessary resources available, in line with the Directive's provisions.

The Commission published a report in 2016, pursuant to Article 27(4), on the adequacy of resources of competent authorities to discharge their functions[48]. This report found that on average Member States had a 10% staffing deficit for specialist experts in areas such as: diving, naval architecture, and environmental engineering. The report also noted a slowdown in activity caused by a rapid fall in the oil price from $105 per barrel in 2013 to $40 at the end of 2015. It called on Member States to ensure they recovered their costs from industry, and ensured the competent authorities had appropriate resources to attract and train expert staff.

In 2016, the Commission also asked Member States to contribute to a stocktake of national arrangements for discharging their functions under the Directive, pursuant to Article 27(5). Regrettably, only 6 of the 16 focal Member States mentioned previously, provided information. Broadly speaking, North Sea Member States replied that their prior resource-bases were adequate, having been improved by combining safety and environmental regulators into a single competent authority. Smaller Member States indicated the nature of their tentative arrangements to reach out to pools of external expertise, should there be an uptick in activity.

Conclusions

Some stakeholders consider it desirable to have all Member States recover the costs of their activities under the Directive, using responsible and accountable mechanisms. There are several possible mechanisms for this, including but not limited to: a levy, a charge per activity (RoMH assessment; installation inspection, etc.), or an hourly charge-out rate per inspector. For these measures, the costs of regulation would be entirely transparent for each Member State and could be an additional parameter in a subsequently revised taxonomy of the Commission's annual reporting. However, since the Directive leaves flexibility for achieving certain goals, it does not prescribe procedural issues such as a statutory duty on Member States to recover costs from industry.

The requirement at Article 8(9) of the Directive for Member States to review and thereafter ensure the effectiveness of their competent authorities provides a future insight to the key point of this theme; that sufficient human and financial resources are available for competent authorities to discharge their responsibilities.

[48] COM(2016) 318 final Report from the Commission on the adequacy of national expert resources for complying with the regulatory functions pursuant to Article 27(4) of Directive 201330/EU. See also the Staff Working Document for further details: SWD (2016) 182 final.

5.13 Special theme: Liability, compensation claims and financial security of offshore oil and gas producers

5.13.1 The framework

5.13.1.1 Overview

This part of the assessment presents the:

- Legal frame of the Directive,
- A summary of the preceding Commission's report on these subjects,
- The issues in the context the European Parliament's resolution, which includes requests how to deal with these themes,
- A summary of rules and legislation in Member States, including the quality of the Directive's implementation,
- A summary of the views of stakeholders, received via the public consultation and expert consultation (see annexe ….).

Finally, this assessment presents an approach taken by the UK to ensure financial security in the event of a costly accident: the Offshore Pollution Liability Agreement (OPOL).

5.13.1.2 Legal provisions of the Directive

The themes of liability, the handling of compensation claims and financial security of the licensee are closely linked to each other. Article 7 of the Directive, with reference to Directive 2004/35/EC (ELD) concerns "liability for environmental damage", which establishes "financial liability for the prevention and remediation of environmental damage as defined in the Directive". Furthermore, Article 4(3) of the Directive uses the term "liabilities", apparently establishing a broader notion. Regarding the financial capability of the applicant for a license authorising offshore operations, the Directive requires the ability to cover "potential economic damages where such liability is provided by national law" (Article 4(3c) of the Directive).

The Offshore Safety Directive frequently refers to the environmental liability regime, designed by Member States when implementing the Environmental Liability Directive. Member States had to implement provisions on liability of the Offshore Safety Directive (Article 4, paragraphs 2 and 3). This assessment uses the term "liability" in reference to "civil liability".

The Directive attributes liability to the licensee (see recital 58, Articles 4 and 7) and requests the licensing authority to take into account the financial security of the applicant before granting a license. However, given that the Directive has merely established a framework, the specific rules in each Member State, for example the assessment of the financial strength of an applicant, depends on national legislation regarding the implementation of the Directive.

The Directive does not establish procedures for dealing with financial claims under civil liability, for example, regarding polluted property, personal injury, or economic losses. According to Article 4 (paragraph 3, point 4), *"Member States shall, as a minimum, establish*

procedures for ensuring prompt and adequate handling of compensation claims including in respect of compensation payments for trans-boundary incidents." The Directive does not provide further details on how such rules should be designed, nor does it provide criteria for examining the financial security of the licensee. Member States set these rules themselves taking into account its culture on legislation and the particular regional situation.

The Directive contains further provisions on liability. It recalls *"the party responsible should always be clearly identifiable before offshore oil and gas operations are commenced"* (recital 9). It also clarifies *"that holders of authorisations for offshore oil and gas operations pursuant to Directive 94/22/EC*[49] *are also the liable 'operators' within the meaning of Directive 2004/35/EC of the European Parliament and the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage, and should not delegate their responsibilities in this regard to third parties contracted by them"* (recital 11).

The Directive requires Member States to ensure that their respective legal systems do not allow the exclusion or limitation of the operator's duties by entrusting the performance of tasks (possibly leading to or contributing to major accidents) to other entities on a contractual basis (Article 3(2)).

Furthermore, its Article 4 (2 c) on "safety and environmental considerations relating to licenses" provides for that already in the phase of granting licenses the authority should take into account *"the applicant's financial capabilities, including any financial security, to cover liabilities potentially deriving from the offshore oil and gas operations in question including liability for potential economic damages where such liability is provided for by national law"*.

Article 4(3) of the Directive obliges Member States to require evidence of licensee's technical and financial capacity for effective emergency response and subsequent remediation, and to assess provided evidence. It also requires Member States to facilitate the deployment of sustainable financial instruments and other arrangements to assist prospective licensees in demonstrating their financial capacity, as well as to *"establish procedures for ensuring prompt and adequate handling of compensation claims"*.

Furthermore, the Directive's Article 7 on "liability for environmental damage" underlines that *"Member States shall ensure that the licensee is financially liable for the prevention and remediation of environmental damage as defined in that Directive [ELD], caused by offshore oil and gas operations carried out by, or on behalf of, the licensee or the operator."*.

The Directive sets only a frame for aspects as liability, financial security and the handling of compensation claims. Furthermore, it requires the Commission to report on the issue of liability. The Commission's report published in 2015 provides an assessment of the

[49] Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the conditions for granting and using authorizations for the prospection, exploration and production of hydrocarbons, *OJ L 164, 30.6.1994, p. 3–8*.

effectiveness of the liability regimes in the Union, with respect to the damage caused by offshore oil and gas operations[50].

5.13.2 Commission report on liability, compensation and financial security

At the time of publication of the requested report by the Commission,[51] on 14 September 2015, only a few Member States had implemented the Directive into national law. Accordingly, the Commission could neither draw final conclusions nor issue recommendation on the potential follow up. Instead, its analysis found the following:

"Broadening liability provisions through EU legislation does not appear appropriate at this point of time. In certain cases, the Brussels I[52] and Rome II[53] regulations prevent differences in national regimes from disadvantaging claimants from other EU Member States. In addition, some Member States may be reappraising their existing liability regimes for offshore accidents in tandem with other changes introduced by the Directive.

However, the Commission will be able to conclude on the need for further steps by the time of the Directive's first implementation report. Notably the Commission can[54]:

• Continue to advance liability issues through structured EUOAG discussions;

• Focus on liability-related provisions in the Directive conformity checks; and

• Use EUOAG meetings for systematic data gathering covering all liability-related aspects of newly transposed laws.

There is currently a lack of uptake of financial security instruments to fully cover the more infrequent and costly offshore accidents in the EU. In addition, there are just two compensation mechanisms currently in place specifically for oil and gas accidents in the

[50] REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL on liability, compensation and financial security for offshore oil and gas operations pursuant to Article 39 of Directive 2013/30/EU, COM/2015/0422 final
COMMISSION STAFF WORKING DOCUMENT Liability, Compensation and Financial Security for Offshore Accidents in the European Economic Area Accompanying the document Report from the Commission to the European Parliament and the Council on liability, compensation and financial security for offshore oil and gas operations pursuant to Article 39 of Directive 2013/30/EU, SWD/2015/0167 final.
[51] REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL on liability, compensation and financial security for offshore oil and gas operations pursuant to Article 39 of Directive 2013/30/EU, COM/2015/0422 final
COMMISSION STAFF WORKING DOCUMENT Liability, Compensation and Financial Security for Offshore Accidents in the European Economic Area Accompanying the document Report from the Commission to the European Parliament and the Council on liability, compensation and financial security for offshore oil and gas operations pursuant to Article 39 of Directive 2013/30/EU, SWD/2015/0167 final.
[52] REGULATION (EU) No 1215/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 December 2012 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters, OJ of 20 December 2012, L 351, p. 1 – 32.
[53] REGULATION (EC) No 864/2007 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 July 2007 on the law applicable to non-contractual obligations (Rome II), OJ of 31 July 2007, L 199, p. 40 – 49.
[54] Commission services have dealt with all three work streams.

Focal States. However, provisions in the Directive should lead to significant improvements in both of these areas.

Should the new national laws not improve the availability of financial security instruments and put in place procedures for ensuring prompt and adequate handling of compensation claims, the Commission may reassess whether and what further EU action could achieve these objectives.

The Commission encourages Member States to share their experiences on financial security instruments, liability, compensation and criminal penalties…"

The Commission report concludes that *"on the basis of this, the Commission should be well placed to conclude on the need for further steps. The effects of the Directive, as implemented by Member States, will show in the coming years whether it is appropriate to bring certain conduct leading to major offshore accidents within the scope of criminal law for further re-enforcing offshore safety. When appropriate, the Commission will put forward a legislative proposal."*

Taking into account the late transposition of the Directive by Member States, it is considered that the report's conclusions are still valid.

5.13.2.1 The European Parliament's resolution on liability and compensation claims

In the year following the Commission's report on liability, the European Parliament carried out an in-depth assessment on "Liability, compensation and financial security for offshore oil and gas operations" and issued a resolution on this subject on 1 December 2016[55]. Specifically, with regard to liability, the European Parliament:

• *"Calls on the Commission to assess the appropriateness of introducing further harmonised rules on liability, compensation and financial security with a view to preventing any further accidents with cross-border implications;"* (page 159)

• *"Regrets, in this context, that the Directive does not deal with liability for civil damage to either natural or legal persons, be it bodily injury, property damage or economic loss, whether direct or indirect;"* (page 160)

• *"Stresses that there is no liability in many of the Member States with offshore and gas activities for most third-party claims for compensation for traditional damage caused by an accident;"* (page 160)

• *"Is of the opinion that strict civil liability rules should be established for offshore accidents in order to facilitate access to justice for victims (both legal and natural persons) of offshore accidents, as this can provide an incentive for the offshore operator to properly manage the risks of operations; believes that liability caps should be avoided;"* (page 160)

[55] Liability, compensation and financial security for offshore oil and gas operations European Parliament resolution of 1 December 2016 on liability, compensation and financial security for offshore oil and gas operations (2015/2352(INI)), OJ of 27 June 2018, C 224, p 157 – 162.

• *"Emphasises, therefore, that it is of the utmost importance to update existing liability systems in the Member States in order to ensure that, should an incident occur in their waters, it would not adversely affect the future of the offshore oil and gas operations of the state in question, nor that of the EU as a whole were it to occur in an area that is largely dependent on tourism for revenue."* (Page 161)

At several occasions, the Commission has discussed questions of liability, compensation claims and financial security with Member States in the European Offshore Authorities Group, also in the context of the European Parliament's resolution. At the same time, the Commission has analysed and assessed to what extent and depth Member States have strengthened the notion of "liability" in legislation related to the implementation of the Directive. Furthermore, the Commission has asked Member States whether horizontal legislation would be effective and adequate in the absence of specific legislation for offshore oil and gas installations. However, the variety of positions and the incomplete set of information requires further analysis before conclusions on a potential follow-up can be drawn.

5.13.3 Diversity of rules on liability, handling of compensation claims, and financial security instruments in Member States' jurisdictions

The applicable environmental liability regime under the 2004/35/EC ELD and the Offshore Safety Directive (Article 7) is a strict liability system for all types of environmental damage if caused by certain dangerous activities, among which are also offshore oil and gas operations.

As mentioned above, all Member States apply the same rules for environmental liability, as established by Art. 7 of the Directive (with reference to the definitions of the ELD): *"…Member States shall ensure that the licensee is financially liable for the prevention and remediation of environmental damage as defined in that Directive, caused by offshore oil and gas operations carried out by, or on behalf of, the licensee or the operator."*. In contrast, on the matter of civil liability, rules and legislation reflect cultural and historical developments in Member States and therefore vary considerably. Liability provisions may have a major impact and potentially significant costs on different actors depending how arrangements are operating in different jurisdictions.

With regard to Member States' legislation, it is important to distinguish between strict liability and fault based (tort based) liability regimes following a major accident, including to the environment, as well as within the traditional damage category of 'economic losses between consequential and pure economic loss[56]. Strict liability means that the identified liable party will be subject to liability, e.g. by compensation payments, without the need to establish fault and even if it properly applied all legal obligations and expected safety measures. In contrast, fault based liability may lead to a financial compensation only in the case of negligence or intent leading to the major accident.

[56] Member States' legislation distinguishes between pure economic loss and consequential economic loss. Pure economic loss occurs independent of any physical damage to the person or property of the victim. Hence, liability for consequential economic loss is in general much wider accepted.

Regarding the remediation of losses arising from a major accident, Member States have different rules on liability and compensation payments in place, which may lead to different financial liabilities for the operators and owners of offshore installations.

Here is an overview of characteristics of applicable Member States' legislation:

General framework:

- Effects of liability provisions may act offshore specific (i.e. geography), sector specific (i.e. industry) or as general rules (i.e. national generic provisions).
- Some Member States did not establish clear legislation on liability, leaving liability and compensation determinations subject to the judgements of national courts.

Specific characteristics of liability and compensation are:

- Liability of the licensee as requested by the Directive at Article 7.
- Strict liability versus fault based liability: the majority of Member States operate a strict liability regime, meaning that the identified liable party may be subject for compensation payments, even if it applied all rules and safety measures (fault or culpa is not a condition), but caused nonetheless the damage.
- Some Member States operate fault-based liability, with the burden of proof for the fault either on the defendant (that would normally be the operator/licensee) or the claimant.
- Beyond environmental liability established under Directive 2004/35/EC, in most Member States, further to compensation for bodily injuries and property damage and other economic loss, an entity liable for an accident (in the offshore sector, normally the operator) shall also compensate for environmental pollution.
- In certain Member States, only bodily injuries and property damages qualify for financial compensation.

In summary, the liability regimes applicable in Member States vary substantially, and each Member State applies, a mix of specific and general provisions, some unique to a particular Member States.

According to Article 14 of the ELD *"Member States shall take measures to encourage the development of financial security instruments and markets by the appropriate economic and financial operators, including financial mechanisms in case of insolvency, with the aim of enabling operators to use financial guarantees to cover their responsibilities under this Directive."*. Since the Directive does not provide additional legislation, Member States are largely free to set rules on the acceptance of financial security instruments.

5.13.4 Implementation by Member States and the effectiveness of rules

Article 3(2) of the Directive aims at ensuring that legal systems of focal Member States do not allow the exclusion or limitation of the operator's duties by entrusting the performance of tasks to other entities on a contractual basis. Its application should not be limited to organisational aspects of offshore oil and gas operations, but should be also reflected in liability regulations related to this type of industrial activity.

It should be noted that the legal systems of some Member States allow for the limitation of an entity's liability, obliged to take or refrain from a specific action, in case of an assignment of this obligation to a contractor (culpa in eligendo). The usual prerequisites of such a limitation are the professional character of the contractor and a due diligence taken by the assigning entity before the assignment. Application of the rule in question may lead to a complete transfer of a potential liability, arising from non-performance or improper performance of the required task, from the initially obliged entity to its contractor. If applied to the relationship between the licensee and any of its contractors, the said rule would limit, at least partially, the liability of the former and transfer it to the latter (i.e. an entity usually of a lower financial capacity than the licensee), possibly stopping potential claims from being fully satisfied. Such a result would contradict the basic principles of the Directive. Thus Article 3(2) should be implemented by the Member States by putting into effect, if necessary, regulations not allowing for the licensee's liability to be limited in case of contracting of certain obligations, arising from offshore oil and gas operations, to a third party. Several Member States have amended the rules existing in their respective legal systems to comply with the Directive's provisions.

It should be added that the accepted protocol in the offshore sector, upheld in all commercial legal instruments used in the offshore sector (usually English or US commercial law provisions), is that the operator is liable for all financial damages from accidents involving subsurface substances. This protocol has been thoroughly tested right up to the present time as operator BP has unsuccessfully pursued its contractors for a contribution to the financial liabilities arising from the Deep Waster Horizon (Macondo) disaster in the Gulf of Mexico[57].

Member States had difficulties demonstrating adequate implementation of Article 4 of the Directive, which includes provisions on safety and environmental considerations relating to licenses, specifically basic provisions on liability, compensation claims and the financial capabilities of applicants for a license. However, Member States' existing horizontal national legislation frequently provides for the principles of Article 4. In certain Member States where this is not the case, jurisprudence by the national courts may ensure that Article 4 is in principal applied. Where Member States do not have adequate provisions in place, the Commission follows up this issue.

Under Article 4(3) of the Directive, Member States *"shall, as a minimum, establish procedures for ensuring prompt and adequate handling of compensation claims including in respect of compensation payments for trans- boundary incidents."* At the current stage, due to the absence of major accidents involving considerable damage, the Commission cannot fully assess the effectiveness of the implementation of this part of Article 4.

It has been noted, however, that the approach to this implementation varies significantly. Many Member States did not amend their legislation to comply with the Directive's provisions, considering that legal frameworks ruling on compensation schemes in their respective systems are sufficient to handle any compensation claim arising from offshore oil and gas operations. Other Member States have foreseen some amendments leading to, inter

[57] See: https://www.govinfo.gov/content/pkg/GPO-OILCOMMISSION/pdf/GPO-OILCOMMISSION.pdf

alia, prioritisation of enforcement of such claims or imposition on licensees of an obligation to set up internal handling procedures applicable to claims arising from offshore incidents.

Prompt handling of compensation claims depends significantly on the efficiency of particular legal systems, especially expressed in the average length of proceedings[58]. In Member States where civil courts have jurisdiction to handle claims arising from offshore oil and gas operations, and where resolving civil cases takes particularly long, ensuring prompt handling of compensation claims may prove especially challenging. Putting in place specific rules might help Member States to ensure that the compensation claims covered by the Directive are handled within a reasonable timeframe.

For example, in the UK any affected party needs to file the claim in line with national rules and legislation (e.g. to an authority, an intermediary or a specialised compensation scheme). If the claim is valid and the financial compensation attributed, the liability party shall settle the claim. The competent authority requires the liable licensee to take the necessary preventive or remedial action to restore the baseline condition of the damaged natural resources (clean-up and primary, complementary, or compensatory remediation) and to bear the full liability.

It remains a political decision whether to consider additional or reinforced EU-wide harmonisation measures, targeting both the environmental and civil liability regimes.

According to the Directive, when assessing the technical and financial capability, including any financial security, of the applicant for a license, due account should be taken of the applicants financial capabilities to cover liabilities deriving from offshore operations (Article 4(2)c). Liabilities apply both for environmental pollution and potential economic liability for economic damages where such liability is provided by national law. However, despite the importance of this provision, from a total of 16 Member States with exploration or production, 8 did not fully or not correctly implement paragraph 2 of this Article.

According to Article 4, paragraph 3, Member States shall ensure that the licensing authority does not grant a licence unless it is satisfied with evidence from the applicant that the applicant has made or will make adequate provision, to cover liabilities. Six Member States did not adequately transpose this part of the Directive.

In the EU so far, enterprises have covered costs from accidents with their financial means. However, even the largest enterprise may face difficulties to deal with accident costs at the scale of the Deepwater Horizon case.

Since Member States had to report accidents to the Commission (from 2016), no major accidents incurring serious pollution or damage have occurred. As a result neither practical experiences nor examples regarding the appropriateness of operators/owners financial means for the effective handling of large scale and numerous compensation claims are available for recent years.

[58] See: The 2018 EU Justice Scoreboard - Communication from the Commission to the European Parliament, the Council, the European Central Bank, the European Economic and Social Committee and the Committee of the Regions COM(2018) 364 final.

5.13.5 The Oil Pollution Liability Agreement (OPOL)

The Atlantic region's Member States are members of the Oil Pollution Liability Agreement. This system is operated by a not-for-profit management group, and provides a financial safety net wherein members indemnify a liability where the liable entity defaults on their financial responsibility.

License-holders active on the UK Continental Shelf are party to the OPOL, as are licensee/operators of offshore facilities located in the territorial waters of Denmark, Germany, France, Ireland, the Netherlands, and Norway (essentially the Atlantic/OSPAR region).

Under the OPOL Agreement (dated 4 September 1974, as subsequently amended), operating companies agree to accept liability for pollution damage and the cost of remedial measures up to a maximum of US$250 million per incident, with only certain exceptions. Within this limit there may also be included the cost of remedial measures undertaken by the party to OPOL involved in the incident.

The parties must demonstrate:

- Financial responsibility to meet claims arising under OPOL safety net (i.e. qualifying incidents) by producing evidence of insurance from insurers with the financial credit strength rating required by the OPOL rules, and/or,
- Guarantees from companies with acceptable financial or credit strength rating required by the rules and/or,
- By demonstrating with acceptable evidence that they qualify as a self-insurer that also meets the financial or credit strength rating required by the rules.

They also jointly agree that in the event of a default by one of the parties, each will contribute proportionally to meet claims.

The responsibility for meeting claims under OPOL rests solely with the operator. As in all joint ventures, the operator may wish to make its own arrangements as to financial responsibility with other participants (known as non-operators) in a venture, but these will not involve a submission to or scrutiny by OPOL of any financial documentation concerning non-operators.

OPOL initially applied to offshore installations within the jurisdiction of the UK. Membership is a prequalification item for application for a license and must be maintained in order to continue to hold a license. The OPOL system was later extended to apply to offshore installations within the jurisdiction of other countries as well, although only the UK requires OPOL membership as a license condition.

To sum up, the OPOL system is set up to:

- Provide an orderly means for the expeditious settlement of claims arising out of an escape or discharge of oil from offshore exploration and production operations;
- Stimulate immediate remedial action by the parties;
- Ensure the financial responsibility of the parties to meet their obligations;

- Provide a mechanism for ensuring that claims are met up to the maximum liability under OPOL;
- Avoid complicated jurisdictional problems.

Under the OPOL system, each operator agrees that it will reimburse the public authorities the costs of remedial damage and pay compensation to third parties for pollution damage arising from a discharge of oil from offshore facilities up to an aggregate maximum of US$ 250 million per incident.

OPOL members must submit evidence of financial responsibility for their offshore facilities throughout the period of their membership. This must be for an amount not less than US$250 million per incident and US$500 million in the annual aggregate. Should a member's financial status alter such that it cannot meet its obligations under the Rules, the entity's OPOL membership will be suspended. In the UK suspension of OPOL membership would automatically suspend the license holding.

The arrangements for monitoring and enforcement under the rules are robust. In the 45 year history of OPOL, during which operators and owners have dealt with the cost of major accidents, OPOL members have never been called upon to indemnify a loss where the liable entity cannot meet its obligations.

5.13.6 Financial security

In industry's estimation, several Member States have brought into effect robust and workable financial responsibility requirements, specifically to implement Article 4. For example, the 2018 publication "Liability Provision Guidelines for Offshore Petroleum Operations" by Oil & Gas UK.

The UK licensing authority (the Oil and Gas Authority, OGA) has adopted guidance first brought into effect by the UK trade body (Oil and Gas UK), a model code of practice to comply with the Directive, specifically Member States obligation to grant a license pursuant to Article 4(3). This has attracted wider interest as a generic good practice guide for other jurisdictions, including third countries.

The Guidelines (which have been adopted by the UK government as a suitable code of practice for both the licensing authority and the applicants for licenses) encapsulate a straightforward process to determine the level of financial responsibility to be maintained by licensees for their operations. The objective is to cover all foreseeable costs, including: bringing a well under control, clean-up, and potential third-party compensation. It uses information which must in any case be prepared as part of the IERP[59].

The guidelines identify the type of financial instruments necessary to satisfy the required level of capacity acceptable to the regulator, as well as the means of verification of security by the licensing authority.

[59] In the North Sea region the IERP is historically called the Oil Pollution Emergency Plan or OPEP.

In the UK, licensees can use different forms of financial instruments to demonstrate financial responsibility. The level of financial responsibility is based on the results of an oil spill cost modelling performed by an external consultant. The modelling uses a range of inputs to determine the level of exposure and subsequent financial responsibility. These include: reservoir characteristics, well fluids, potential direct loss or damage suffered by users of the polluted sea areas, as well as the length of coastline impacted and the estimated volume of oil that may land on the shoreline and associated clean up and remediation costs thereof.

The UK model might help other Member States shape financial responsibility requirements adequate for their environment. It is indeed possible that adequate requirements can be stipulated and implemented at the level of each Member State; however each jurisdiction would be required to identify their specific criteria.

5.13.7 Conclusions

Several Member States did not fully implement the provisions of the Directive on liability, handling of compensation claims and financial security of the licensee. However, in certain Member States, existing horizontal laws and case law may nevertheless include adequate provisions. For clearer conclusions an in-depth assessment of Member States legislation, specifically their civil code, may provide more detailed information. Such an assessment, to be carried out on an individual basis, should take into account data concerning the efficiency of national justice systems. This assessment would aim to identify whether significant differences in the scope of liability, effectiveness, and length of court proceedings can be identified and what consequences these have.

Views from the industrial associations clearly express satisfaction with the current situation of legislation applicable in this context whereas NGOs and the very few citizens who took part in the public consultation, express concerns and propose looking more closely at the option of a European approach (details please seen in the annex, part VII). This is partly in line with the above mentioned resolution of the European Parliament.

The OPOL may serve as an example of how to deal with liabilities going beyond the financial means of the licensee liable for damages, although it has never been used in practice. Clearly, the contribution of OPOL is limited (at $250m) to cover the most likely major accident scenarios in the region but would not be able to cover the extreme major accidents. The UK has produced guidance for industry and regulators on how to comply with Article 4 of the Directive, providing mechanisms for determining liability based upon risk (i.e. the severity levels of geographical locations), and for verifying financial guarantees of license holders. This has been put into effect by the UK licensing authority and may serve as a model elsewhere.

Due to the short period of time since the Directive has been implemented and applied for all installations, there is a lack of practical experience. No major accident leading to major damages has been reported in the last decade. Therefore, it is difficult to draw clear conclusions as to the Directive’s effectiveness now.

Should, however, a major accident occur, the statutory provisions on liability, the handling of compensation claims, and the financial status of the liable party are of major significance for the Member States, the license holder, entities sustaining consequential loss, and citizens. Due to the low level of specificity in this area of the Directive, and often not fully consistent implementation of the relevant parts of the Directive across Member States, national rules and procedures differ. Member States adopt systems in line with their culture and specific regional situation. Although the channelling of liability to the licensee by the Directive provides a high added-value, the Directive contributes only by setting some basic aims for a broader detailed framework of legislation on compensation and financial security that exists to a greater or lesser extent in each Member State. In Member States where operators and owners are not subject to a strict liability regime, meaning that they were liable only if negligence was proved, substantial costs caused by accidents may remain with taxpayers and other parties.

5.14 Special theme: Criminal sanctions to breaches of duty to safeguard the environment from major accidents

Introduction

With regard to the Offshore Safety Directive the Commission addressed this matter in its 2015 report to the Parliament and Council[60] and concluded:

"*It is therefore too early at present to assess whether penalties to be devised by Member States in the context of the OSD transposition and subsequent implementation will provide sufficient deterrence consistently across the EU, or whether EU criminal penalties would be essential to ensure the fully effective safety of offshore operations".*

The ECD contains obligations for Member States to establish certain environmental offences as criminal offences, if committed intentionally or with serious negligence. To some extent, the Directive harmonises sanctions, as it requires that natural persons are subject to criminal sanctions that are effective, proportionate, and dissuasive. In relation to legal persons, the Directive does not require criminal sanctions.

Under the ECD, Member States must attach criminal sanctions to certain acts that cause or are likely to cause death or serious injury, or substantial damage to the quality of air, the quality of soil, the quality of water, or to animals or plants. However, those acts are only to be criminalised when certain acts of EU legislation that are listed in the Annexes of the ECD are infringed. The criminalised acts include, the illegal discharge of hazardous substances into surface water (if it causes or is likely to cause death or injury to persons or significant damage to the environment), the illegal shipment of waste from the European Union (only if a significant quantity of waste is involved and if there is a clear intention to make a profit out of it), and the illegal export of ozone depleting substances to developing countries. However, activities covered by the Offshore Safety Directive are not included.

The current situation in the EU

[60] COM (2015) 422 final dated 14 September 2015.

As reflected in Article 39(3) of the Directive, this lack of application prompts considerations about the implication of not having certain conduct, leading to offshore accidents under the scope of criminal law through EU legislation. While criminal liability for offshore safety breaches would not directly affect the remediation of damage caused, in theory it may add a separate layer of deterrence beyond environmental civil and administrative liability.

Offshore safety breaches already fall under the criminal code of some focal Member States. For example, the laws of both the UK and Denmark contain provisions criminalising certain compliance failures[61]. However, neither the definition of the criminal offences, nor the minimum type and level of sanctions are harmonized in the EU. There are strict legal preconditions that must be fulfilled before considering whether to criminalise offshore safety breaches through EU legislation. Article 83(2) of the Treaty on the Functioning of the European Union establishes the legal basis for creating minimum rules to define criminal offences and sanctions in a particular EU policy area. This expressly enables EU legislators to adopt: "*minimum rules with regard to the definition of criminal offences and sanctions in the area concerned*" if this "*proves essential to ensure effective implementation of a Union policy in an area which has been subject to harmonisation measures*".

The adoption of EU criminal law measures is therefore subject to the assessment of whether they are "*essential*" to achieving effective policy implementation. As such, the decision to include breaches of the Directive under the scope of criminal law can only follow a thorough necessity and proportionality test on whether criminal law measures would be essential to achieve the stated objective. This cannot be done before more experience with the Directive's effectiveness has been gained[62]. The Commission is currently doing an ex-post assessment of the ECD, with a view to establish whether the Directive has achieved its objectives to contribute to better protection of the environment. The assessment started in 2019 and will be concluded in the first half of 2020. It will assess results for the time the Directive has been applicable (2011 to 2018) and from all Member States. The focus will be on waste and wildlife crimes, as these are the areas that Member States are most concerned with, and where most data and information exists in the public domain.

Considering major polluting offshore disasters, the offshore petroleum industry has the potential to cause more damage than any other maritime activity to the waters of the EU and its coastline. The NGO's have argued strongly for criminalisation of behaviour that recklessly or negligently causes a major accident as defined by the Directive. In this context the Commission received a statement by the NGO Consortium:

"In the 2015 Commission report on liability [i.e. the original to this report – COM(2015)422 final, it was stressed that it is important that the Commission returns to the subject of criminalisation in the Directive assessment. The undersigned organisations hold that spills caused by serious negligence should be criminalised by adding major offshore accidents to

[61] SWD(2015) 167 final ANNEX II.

[62] Communication from the Commission: Towards an EU Criminal Policy: Ensuring the Effective Implementation of EU Policies through Criminal Law ', 20 September 2011, COM (2011) 573, available at http://ec.europa.eu/justice/criminal/files/act_en.pdf.

the Environmental Crime Directive. As held in the abovementioned 2015 Commission report, criminalisation could add a separate layer of deterrence beyond civil and environmental liability, which could improve the protection of the environment and compliance with offshore safety legislation.

It is to highlight that impunity for environmental crimes seriously undermines environmental protection. With the financial muscles of some of the major oil companies, liability with its financial consequences is not always enough of a deterrent. A separate layer is needed, and we ask that this is ensured at this juncture."

Conclusions

Article 39 of the Directive requires the Commission to examine the appropriateness of bringing certain conduct leading to a major accident within the scope of the ECD. At this point in time, there has been numerous discussions with competent authorities under the auspices of the EUOAG. There has also been public consultation on the subject.

Synthesising the majority of inputs gives the perspective that, in the absence of major accidents and concomitant enforcement activity in the EU, it remains too early to properly assess whether EU criminal law measures would be essential for achieving effective levels of offshore safety in the Union. In order to conclude whether certain conduct leading to a major accident should be brought under the scope of the ECD, more experience with the Offshore Safety Directive's effectiveness would need to be gained.

The Commission will continue to exchange views with Member States on this issue.

5.15 Special theme: Post-decommissioning responsibility for ensuring permanent sealing of wells, and for determining extent of removal of fixed installations

5.15.1 Overview

As the North Sea Member States and Italy approach a new era of major decommissioning projects, there is heightened societal awareness and anxiety for the integrity of the decommissioning operations. It is to assess whether there are gaps in the machinery of existing requirements and standardisation addressing the extent of removal and how far the Directive provides rules for the installations' end of life cycle.

The Directive does not provide definitions of the terms "decommissioning", "abandonment" and "removal". To fully understand potential environmental implications of the end of the life cycle of an installation we summarize the common understanding of these terms:

- Decommissioning involves the safe plugging of the hole in the seabed and disposal of the equipment used in offshore oil production.
- An abandoned well is a well that is plugged in permanently due to some technical reasons in the drilling process. An oil well is referred to as abandoned if the economic limit of the well is reached. Thereafter, the tubing of the well should be removed and sections of the wellbore filled with concrete.

- Removing installations means first that the topsides are taken apart and lifted onto the derrick barge. Topsides can be removed all in one piece, in groups of modules, reverse order of installation, or in small pieces. Removing supporting structures is the second step in the demolition process and the most costly. First, divers using explosives, mechanical means, torches, or abrasive technology make the bottom cuts on the piles 15 feet below the mudline. Then the jacket is removed either in small pieces or as a single lift. [63].

Alternatively, there is the possibility to reuse the platform or leave the cement structure in the sea as an artificial reef.

Decommissioning activities can be explained in four fundamental stages:

- The permanent sealing of the wells;
- The removal (and treatment) of any hazardous substances and waste including drilling cuttings;
- The removal (and recycling or reuse) of the installation's structure and equipment; and;
- The future monitoring and maintenance of the decommissioned site.

Permanent well sealing is addressed directly under the Directive (Annex I, point 6 (4a)) and is discussed in detail below.

To avoid long term pollution, the removal of all hazardous substances (as such or in waste) is to be expected: for example chemicals stored in tanks, petroleum sludge and petroleum mixtures in the closed drain system and storage cells, toxic and irradiating materials and deposits such as barium sulphate (low specific activity material which is found in some formation fluids) and the contents of pipelines connected to the installation.

Following clean-up, the installation's structure and components would be expected to be removed and the recovered components would ideally be reused or recycled onshore. As a general perspective, all structures would be removed to several meters below the sea floor. In addition, here the issue of partial removal is entered, for example where

- Sections may be too heavy for current lifting technology or capacity;
- Too dangerous to be safely lifted such as very large concrete structures and structural footings;
- Parts of the installations were installed with the intention to remain in place.

Once removal is completed, with the end of the installation’s life cycle, it becomes unclear whether the Directive ceases to have effect or whether it requires liable owners of the former installation to carry out further monitoring of potential leaks.

In the event that certain parts of the original structure remain in place, maintenance of the remaining structure is necessary to ensure the relict does not pose a risk for navigation and to the environment. In practice this means that monitoring is required to assure ongoing integrity and to deal adequately with environmental impacts, governed under, inter alia, the conditions of the license following relinquishment.

[63] https://petrowiki.org/Offshore_decommissioning.

5.15.2 Provisions of the Directive on the decommissioning of installations

Since the Directive covers the whole life cycle of an installation it applies also to the decommissioning phase, both to safety and environmental aspects that are directly linked to potential incidents from decommissioning. However, once the decommissioning is finished, it does not address future environmental concerns.

Furthermore, other legislation as for example the amended EIA Directive applies, which if the requirements of Art. 2(1) thereof are met, covers the whole life cycle of the project, including the demolition phase. Authorities are required to take all relevant legislation into account prior to the issuance of a license.

Subsequent to the interest in the permanent sealing of wells, public interest has arisen concerning the extent of removal of fixed production installations. In such an eventuality, it is determined by the Member States that the physical circumstances of fixture are such that it is justified to leave some (possibly most) of the installation in situ. This eventuality is not addressed in the Directive, nonetheless according to the public consultation there is significant interest in the matter due to its potential implications for the environment and navigation.

The legal provisions of the Directive apply to the decommissioning of an installation as part of a platform's lifecycle. According to the Directive, the offshore safety regime covers the whole lifecycle of exploration and production activities from design to decommissioning and permanent abandonment (recital 24). It uses the term "decommissioning" in the definition of "offshore oil and gas operations" which are defined as: "all activities associated with an installation or connected infrastructure, including design, planning, construction, operation and decommissioning thereof, relating to exploration and production of oil or gas, but excluding conveyance of oil and gas from one coast to another." (Article 2(3)).

In order to obtain authorisation for exploring or producing oil and gas offshore, the licensee should submit a major hazard report to the relevant competent authority and request the report's approval (Articles 12 and 13).

According to Annex III of the Directive on "provisions relating to the appointment and functioning of the competent authority", in undertaking a thorough assessment of reports on major hazards, the competent authority should ensure that certain conditions are met. The risk management has to take into consideration all relevant stages in the lifecycle of the installation and anticipate all foreseeable situations, including how the decommissioning of the installation will be undertaken (Annex III, point 3 v). Accordingly, the Competent Authority should assess the plan for decommissioning before it grants an authorisation for starting oil and gas production.

Furthermore, in the event of a material change or dismantling of an installation, the licensee is obliged to prepare an amended report on major hazards for the Competent Authority (Article 12(5)). The Member States should ensure that the planned modifications are not brought into use nor any dismantlement commenced until the Competent Authority has accepted the amended report on major hazards for the production installation (Article 12(6)). The same provisions apply for non-production installations (Article 13(4) and 5)).

For taking a fixed production installation out of use, the amended major hazard report should at least include "a description of major hazard risks associated with the decommissioning of the installation to workers and the environment, the total exposed population, and the risk control measures" (Annex I Directive, point 6.4 b). Future environmental hazards associated with decommissioning should thus be taken into account.

As a consequence, the decommissioning is subject to the approval of Member States' Competent Authorities, which may require measures and procedures to ensure a safe decommissioning. For example, the operator or owner of an installation should submit a description of major hazard risks associated with the decommissioning of the installation to the authorities (Annex I, point 6). In contrast, the Directive does not stipulate whether, to what extent and how the operator/owner should remove the platform.

5.15.3 The requirements for extent of removal of fixed production installations

5.15.3.1 The Offshore Safety Directive

The RoMH as accepted by the Member States' competent authority is only valid provided that the circumstances on which it was based remain unchanged. Where there is a material change, the RoMH is to be amended by the licensee/operator or owner (Article 12 (5) of the Directive). The intended changes may not be put into effect until the RoMH is submitted to and accepted by the competent authority.

Accordingly, for decommissioning any production installation, under the requirements in the Directive, licensees/operators must prepare an amended RoMH addressing the planned decommissioning of fixed production installations on the basis of risk of a major accident occurring as a result of the decommissioning operations. Significant damage to the environment that may arise as a result of a major accident during decommissioning operations and as a consequence of decommissioning must also be taken into account in the RoMH.

An amended RoMH for the decommissioning of a production installation does not determine the extent of removal of the installation. It should demonstrate that the risks of a major accident from the decommissioning phase as planned by the licensee and agreed with the Member States' licensing authority are ALARP[64]. Nevertheless, risks assessments and measures for management of risks could influence the extent of removal.

Considering the above, it becomes clear that the risk-based mechanisms required under the Directive do not pre-determine the extent of removal of a fixed production installation. Instead, it is a mechanism for assurance that the risks of a major accident from the decommissioning of the installation (including the extent of the planned removal) are controlled ALARP.

The Directive leaves the primary responsibility at the licensee/the operator. If under national law the competent authority was authorised to determine the extent of removal, the responsibility would be shared between the licensee and the competent authority.

[64] For the definition please refer to http://www.hse.gov.uk/risk/theory/alarpglance.htm.

5.15.3.2 Other EU law

In general, there is no specific EU legislation regulating the extent of removal of installations during decommissioning. Removal is, subject to achieving certain conditions (specifically the obligation to achieve good environmental status under the Marine Strategy Framework Directive) a matter of national policy.

The Marine Strategy Framework Directive (MFD) identifies offshore installations as a human activity affecting the marine environment (Annex III as revised through Directive 2017/845/EU[65]). More particularly, the main pressures on the marine environment from oil and gas activities include operational and accidental discharges of chemicals, crude oil and produced water but also underwater noise, marine litter including micro plastics and the drilling and placement of installations and pipelines on the seabed. For decommissioning, this concerns in particular the contamination of leakage from plugged wells, and disintegration of abandoned installations. As a result, the impacts of oil and gas activities and in particular of decommissioning on the marine environment, are both the responsibility and obligation of Member States.

Abandoned offshore installations that are anchored onto the seabed are not within the scope of the Waste Framework Directive (WFD)[66], given that Art 2(1) (b) excludes buildings permanently connected with land. The notion of "land" in this context covering also the seabed. However, movable property that the holder discards or intends/ is required to discard, such as the contents of storage cells and drilling cuttings, could be subject to the WFD. Moreover, given the nature of the contents of such storage cells (oil and oily water and residues) these often can be classified as hazardous waste.

The Ship Recycling Regulation[67] addresses floating offshore installations and requires they be dismantled in EU-listed yards if they are flagged to an EU Member State. This is a legal obligation since 2019, resulting from the full entry into force of the Regulation.

The Environmental Impact Assessment Directive (EIA)[68] applies to the whole project, including its dismantling. For projects after May 2017, it requires the application of monitoring measures for projects with significant adverse effects, applying therefore to decommissioning sites, the question here being raised whether decommissioning should be considered as a new project, to which this provision applies, or as part of the original project (in which case this requirement would not apply).

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[65] Commission Directive (EU) 2017/845 of 17 May 2017 amending Directive 2008/56/EC of the European Parliament and of the Council as regards the indicative lists of elements to be taken into account for the preparation of marine strategies, OJ L 125, 18.5.2017, p. 27–33.

[66] Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste, OJ L 150, 14.6.2018, p. 109–140;
Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives, OJ L 312, 22.11.2008, p. 3–30

[67] Regulation (EU) No 1257/2013 of the European Parliament and of the Council of 20 November 2013 on ship recycling and amending Regulation (EC) No 1013/2006 and Directive 2009/16/EC, OJ L 330, 10.12.2013, p. 1–20.

[68] Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, OJ L 124, 25.4.2014, p. 1–18.

Other environmental directives also apply to decommissioning offshore installations including the Environmental Liability Directive. This Directive addresses the licensee's sole liability, and obliges them to prevent damage in case of imminent threat (and remedy damage if it occurred already). The Birds and Habitats Directive[69], mandates a step-by step assessment of plans and projects (including decommissioning of sites) for their effect on Natura 2000[70] sites, and compatibility with a favourable conservation status of habitats and species. In relevant circumstances, also the Strategic Environmental Assessment Directive[71] and the Maritime Spatial Planning Directives[72] apply.

5.15.3.3 International policies

All European governments' policies for the extent of removal are in alignment with international conventions. These conventions and public expectation call for total removal of decommissioned installations as the default condition.

Not all international conventions, which are further summarized below, are ratified or equitably enforced throughout the EU. Of the EU Member States', with offshore oil and gas activities in their jurisdiction, Denmark, Germany, Spain, France, Ireland, the Netherlands, and Portugal, are contracting parties to the OSPAR Convention[73]. Germany, Denmark, and Poland are contracting parties to the Helsinki Convention; only Croatia and Cyprus have ratified individually the Offshore Protocol to the Barcelona Convention, covering all coastal states in the Mediterranean area, EU and third countries. However, by virtue of ratification by the EU of this protocol, all Member States are legally bound.

Under the relevant regional seas convention of the Member States, which specifically target the protection of the marine environment, the protocol of decommissioning methods presumes total removal of the installation and restoration of the sea bed and water column. But more explicitly, the goals are the protection of navigation and other economic activity in parallel with protection of the marine environment. These are matters of policy pertaining to the restoration of the environment at the end of an episode of industrial use, and not an outcome of case-by-case risk assessment.

Concerning the alignment of national policy with international conventions, the OSPAR convention and IMO guidelines include provisions for the post-decommissioning phase on monitoring. However, obligations under various instruments in the EU environmental acquis apply to post decommissioning, and indeed to matters that bear on Member States' policy regarding the extent of decommissioning or removal of fixed structures and detoxification of the relicts.

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[69] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds, OJ L 20, 26.1.2010, p. 7–25.
[70] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, OJ L 206, 22.7.1992, p. 7–50.
[71] Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment, OJ L 197, 21.7.2001, p. 30–37.
[72] Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning, OJ L 257, 28.8.2014, p. 135–145.
[73] The UK is also a contracting party of OSPAR.

The OSPAR decision 98/3[74] prohibits dumping or leaving wholly or even partly in place installations that are taken out of use. It allows for derogations for certain categories; and there is a mechanism for considering alternative disposal options. Alternative disposal options have been considered for installations defined in Annex I[75] of the decision, where justified on the basis of an alternative options assessment[76]. In this case, the contracting party may issue a permit for such a derogation after having first consulted OSPAR contracting parties on the decision. If one of them expresses an objection, a mediation shall be organised and eventually a consultative meeting shall be created if required by at least two contracting parties. Nonetheless, the final decision is left to the contracting party whether to permit the alternative option.

Regular review of this decision is foreseen by the decision itself every 5 years based on new knowledge and technological developments for decommissioning. It was last discussed at the 2018 Meeting of the OSPAR Offshore Industry Committee (OIC).

The 1982 UN Convention on the Law of the Sea (UNCLOS)[77] requires safe and sustainable removal of all or part of decommissioned installations having regard to safe navigation, other users of the sea and protection of the marine environment. Along with sovereign rights over exploitation of natural resources, states have obligations to protect and preserve the marine environment.

The 1989 International Maritime Organisation (IMO) guidelines and standards for the removal of offshore installations[78] establishes the general requirement of full removal except where partial removal options are consistent with certain guidelines and standards. Importantly, the IMO standard addresses the permanent integrity of any remaining structures, i.e. stability and degradation over time in the sea.

Furthermore, the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972[79], and the 1996 London Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (which is to replace the 1972 Convention, subject to ratification) both apply. The 1996 London Protocol reflects the global trend towards precaution and prevention and the "polluter pays" principle. It has a general ban

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[74] OSPAR Convention for the protection of the marine environment of the North-East Atlantic, OSPAR Decision 98/3 on the disposal of disused offshore installations. Ministerial meeting of the OSPAR Commission, Sintra, 22 – 23 July 1998, Annex 33.

[75] The following categories of disused offshore installations, excluding their topsides, are identified for derogations :

a. steel installations weighing more than ten thousand tonnes in air;

b. gravity based concrete installations;

c. floating concrete installations;

d. any concrete anchor-base which results, or is likely to result, in interference with other legitimate uses of the sea.

[76] This option assessment should consider facility type, disposal methods, disposal sites, and environmental and social impact, including interference with other sea users, impacts on safety, energy and raw material consumption, and emissions.

[77] https://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf.

[78] https://cil.nus.edu.sg/wp-content/uploads/formidable/18/1989-Guidelines-and-Standards-for-the-Removal-of-Offshore-Installations-and-Structures-on-the-Continental-Shelf-and-in-the-Exclusive-Economic-Zone.pdf.

[79] http://www.imo.org/en/OurWork/Environment/LCLP/Documents/LC1972.pdf

on dumping of waste, but with exemptions for some specific categories of waste based on consideration and permitting procedures to be carried out by the national authorities. In order to assist the national authorities in such assessments, the London Protocol has developed Guidelines for the relevant waste categories.

Subject to assessment, offshore installations and other man-made structures at sea are among the categories that may be considered for dumping into the sea, instead of removal, according to these Guidelines. The London Protocol also has Guidelines on artificial reefs. Should installations be considered to be 'reused' as an artificial reef, this would require compliance with the Guidelines.

The existing 'Specific Guidelines for assessment of platforms or other man-made structures at sea[80]' were issued in 2010, and were up-dated in 2019.[81] The London Protocol itself is not up for revision, so the new guidelines cannot appear stricter than the Protocol itself.

Other international agreements and conventions apply to the decommissioning of installations. Leading works are the Geneva Convention on the Continental Shelf 1958[82] and Basel Convention on Control of Transboundary Movements of Hazardous Wastes and their Disposal 1989[83].

The 1992 Helsinki Convention on the Protection of the Marine Environment in the Baltic Area[84], requires zero discharge during decommissioning and removal of installations in an environmentally friendly manner. The EU, Germany, Denmark, Estonia, Finland, Lithuania, Latvia, Poland Russia and Sweden are contracting parties of this Convention.

The Barcelona Convention for the Protection of the Mediterranean Sea against Pollution 1976[85] has a specific Protocol on offshore exploration and exploitation activities. This Convention requires the removal of installations so as to ensure safety of navigation, compliance with guidelines and standards of competent international organisations, and regard for other economic users, the marine environment and rights and duties of other contracting parties. There is an obligation to prevent discharges.

For the removal of installations, countries operating in the North Sea and North Atlantic pay full attention to the OSPAR convention. In the convention's framework Member States are bound to consult both in writing and in formal meetings how best to apply OSPAR guidance. Currently OSPAR members are working to clarify provisions (e.g. by developing a catalogue of criteria) that facilitate the decision making process and enable a consensus on cases where installations may remain in situ after the decommissioning.

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[80] https://www.gc.noaa.gov/documents/gcil_imo_platwag.pdf.

[81] http://www.imo.org/en/OurWork/Environment/LCLP/Publications/wag/Documents/2019%20Revised%20guidance%20for%20platforms.pdf

[82] Geneva Convention on the Continental Shelf 1958.

[83] https://www.basel.int/Portals/4/Basel%20Convention/docs/text/BaselConventionText-e.pdf

[84] http://www.helcom.fi/Documents/About%20us/Convention%20and%20commitments/Helsinki%20Convention/1992_Convention_1108.pdf.

[85] http://wedocs.unep.org/bitstream/id/53143/convention_eng.pdf.

5.15.3.4 Current practice of decommissioning

The OSPAR region serves as an illustrative case for the functioning of decommissioning decisions vis a vis removal. The most problematic installations are legacy designs that would not be installed today, but for which nonetheless, solutions must be found. The OSPAR region covers the northern Atlantic of the UK to Portugal, with 1,357 active installations. Of these, 22 are concrete gravity based, and 58 are steel jackets weighing more than 10,000 tonnes in air, potentially covered by the scope of article 3 of OSPAR decision 98/3 defining derogations to the principles of complete removal. It appears that all other installations can be physically removed.

Between 2002 and 2014, 170 installations have been decommissioned, with 9 derogations granted and a further one in the initial stage. Of the 9 installations, 5 are gravity concrete structures, and 4 are of steel construction.

On the issue of safety, it is unlikely that thorough clean-out becomes a major accident potential hazard[86]. However, the framework of Directive 92/91/EEC[87] applies to work planning for worker safety; the specific measures in Part C (special minimum requirements applicable to the offshore sector) notably at sections 1 and 12 ensure continuing protection of the safety of workers outside of the major accident envelope of the Directive, in both normal and 'critical' conditions. Directive 92/91/EEC does not address environmental factors that need not necessarily be taken into account in these circumstances.

On the issue of technical capability, the EU environmental acquis, and conventions such as OSPAR and IMO pay due regard to the stability of the partially removed structure over time, and also require keeping the technical capabilities under review and to revisit decisions on decontamination. Whereas it is self-evidently necessary to monitor the relict of the installation to ensure structural stability and ongoing containment. The EU-level legislation and international conventions do not address whether or not there must be an effective interval and effectiveness of submarine surveys.

It appears that in some Member States the tax payer may have to contribute to the cost of decommissioning. Accordingly, on cost for the removal, the independence of the relevant authority of the Member States in taking decisions that are free of conflict of interest may become a point of discussion.

With regard to the OSPAR convention, environmental NGOs challenge the rigour in the decision making processes for derogations, and challenge the thoroughness applied to the obligation to protect and preserve the environment falling to Member States. The methodology for evaluating decommissioning options are discussed in OSPAR, aiming at more harmonised approaches to be applied by the Contracting Parties.

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[86] For a major accident to the environment to be addressed under the Directive, the initiating event must be a major accident.

[87] Council Directive 92/91/EEC of 3 November 1992 concerning the minimum requirements for improving the safety and health protection of workers in the mineral- extracting industries through drilling (eleventh individual Directive within the meaning of Article 16 (1) of Directive 89/391/EEC), OJ L 348, 28.11.1992, p. 9–24.

Particular concerns are raised concerning the dismantling of mobile installations. The press reported on bad examples of mobile installations being broken up in third countries causing a significant toll of human life and environmental degradation. There are recent examples of mobile production installations removed from the EU to undesignated breaking ports, potentially not in line with the Ship Recycling Regulation.

5.15.3.5 The decommissioning of Brent platforms

According to the industry and the Competent Authority of the UK, Brent platforms have a weight which does not allow lifting and removal with currently available technologies. The authorities examine which of them may remain in the sea "in situ".

The example of the Brent platforms illustrates the difficulties arising from the lack of an existing harmonized legal framework at EU level and the shortcomings of existing international legislation.

As the owner of the Brent platforms Shell prepared the following decommissioning activities:

- Plugging the 154 wells across the Brent Field;
- Removing the platform's topsides;
- Recovering oil and gas debris from the seabed across the Brent field;
- Removing the oil – known as 'attic oil' – trapped at the top of some of the storage cells;
- Cutting the upper portion of the Brent Alpha steel jacket;
- Leaving in place the Gravity Base Structures (GBS), Brent Alpha footings, the drill cuttings and GBS cell contents.

Pursuant to OSPAR Decision 98/3, Shell informed the UK authorities that, due to the safety risks and lack of appropriate technology, they intend to leave in place, inter alia, a significant quantity of oil and oily residues in storage cells (around 640 000 m^3 of oily water and 40 000 m^3 of sediment containing 11 000 tonnes of crude oil), as well as drill cuttings and concrete platform legs, after the decommissioning of the Brent field. The UK considers the Shell request justified and informed other OPSAR Contracting Parties of its intention to grant a derogation under the above-mentioned OSPAR Decision.

Following a formal objection from Germany to this derogation (based on a report from independent experts), a bilateral meeting between Germany and the UK took place in June 2019. Germany, supported by other Contracting Parties, then requested that a special consultative meeting on the Shell Brent decommissioning be arranged[88]. The special consultative meeting between UK, Germany and other interested Contracting Parties took place on 18 October 2019.

[88] As foreseen by Annex 3 point 5 of OSPAR Decision 98/3.

Germany's concerns address procedural issues (e.g. biased comparative assessment of options, insufficient transparency regarding documentation, inadequate response to stakeholder concerns), and the plans to leave *in situ* the oily residues in the storage cells, parts of the metallic platform, and the concrete based platforms as well as other residues (such as drill cuttings).

During the OSPAR consultation process, but also directly through bilateral exchanges with the UK administration, the Commission expressed concerns regarding the leaving in situ of parts of installations. In particular the Commission was concerned about the option proposed by Shell to leave in place the content of the storage cells, which could qualify as hazardous waste according to EU law, as well as the potential cumulative effects of decommissioning activities in the northeast Atlantic.

The special consultative meeting of OSPAR on 18 October 2019 highlighted knowledge gaps and the need for additional information on the storage cells' contents and on the availability of technologies to extract the residues from the cells.

With regard to the question of whether there are gaps in coverage and where these are found, there are numerous conventions, guidelines, and standards addressing safe, sustainable decommissioning of production installations. This information covers a diversity of issues, including: securing the integrity of the marine space for further economic use as well as the protection and preservation of the environment. In assessing disposal options it is necessary to consider what management measures might be required to prevent or mitigate adverse consequences of the disposal at sea, and shall indicate the scope and scale of any monitoring that would be required after the disposal at sea.

Member States take different views on whether current provisions are adequate for ensuring that installations are removed safely and to the maximum desirable extent, whereas industry clearly does not see the need for additional rules. Less clear is the subject of detoxification of remnants of installations subject to only partial removal, as demonstrated in the example of the Brent case. Furthermore, this case demonstrates the need to further examine all risks involved with emptying fuel storage cells in deep sea, both for the workers and for the environment. Additional analysis may determine which level of costs for a thorough decontamination may qualify as being prohibitive for to the state and the license holder (e.g. risk of bankruptcy).

5.15.4 **Conclusions**

The example of the Brent platforms demonstrates that international rules are in place but that they leave a large margin of discretion on the final decision on the removal of a platform.

Under the Offshore Directive, operators of fixed production installations (and the very few owners of fixed non-production installations) are required to submit an amended RoMH to the competent authority, addressing all aspects of decommissioning (e.g. wells, structure, hazardous materials.) The operator is not allowed to proceed with the intended operations until the competent authority has accepted the amended RoMH. Many other consents and authorisations are required from the Member State prior to decommissioning, due to either national legislation or international obligations. Once the decommissioning is complete and

the structure removed, the Directive ceases to apply as there are no relevant activities under the Directive. However, other conditions continue to apply regarding the operators responsibilities for seabed surveys and so on, pursuant to licensing regulations and other national and international legislation.

Whereas OSPAR's general principle is full removal and partial removal is a derogation from the general principle, the Directive does not address the matter of whether a fixed structure should be partially or wholly removed. This is entirely consistent with the Directives aim to prevent major accidents, including to the environment, by reducing risks ALARP. For example, it may be demonstrated that the risks of attempting full removal of a structure are intolerable under current knowledge and technical capability, or that the risks are significantly higher than partial removal.

The decision on the extent of removal is therefore remitted to other parts of the Member States legal framework, and the Directive will be applied to ensure the major accident risks are ALARP for the selected method (and if not ALARP, a different decommissioning plan is to be formulated).

In the context of discussions in OSPAR, the Brent case points to potential gaps in EU legislation. These may create an uneven playing field between EU regions that may be subject to different protocols in their respective sea convention. This issue would need to be carefully assessed in the future in view of the upcoming decommissioning projects, in particular in the North-East Atlantic. The Directive includes an important measure pertinent to decommissioning. At the stage of bringing a new production installation into use, the operator is to provide information concerning the decommissioning of the installation at the end of field life in their RoMH (Article 12). The assumption is for total removal under the recent conventions and protocols and EU law. The competent authority, when conducting its thorough assessment of the RoMH must, by virtue of the Directive's Annex III(3)(c)(v), take into consideration how the decommissioning of the installation will be undertaken. Whilst the decommissioning plans cannot be known in detail at the commissioning stage, the main concepts must be made part of the original design intent.

Above analysis takes into account the whole framework of the existing obligations under other relevant legislation, specifically the EIA Directive, which, if the requirements of Article 2(1) thereof are met, addresses the issues of public consultation, the demolition phase and also monitoring. Therefore, the presumption is that no new installations will be accepted for use in EU waters where they are not capable of being fully removed at the end of their life. For the future, this would secure, throughout the Union, an obligation for commissioning new installations that are so designed as to be totally removed at the end of the installation's life. However, this does not address the "legacy" issues of older installations that have been built in the 1970's and which must now be decommissioned, such as the Brent installation in the OSPAR region.

Doubts remain as to whether the Directive, also in the context of international conventions, is sufficiently effective in setting adequate rules for decommissioning. Further work appears necessary to address remaining questions:

- Is there sufficient understanding of the whole of the framework of obligations that exist under EU and international law, and is this framework appropriate?
- The standards that exist, are they capable for protecting the marine environment from the after-effects of offshore oil and gas production?
- Does the licensee/operator community, and just as critically, the Member States' authorities for decisions on removal, embrace the entire framework, and are they responsive to evolving expectations?
- Should more clarity be provided regarding the frequency and effectiveness of seabed surveys where there is full removal, in addition to surveying of the integrity, environmental impacts and environmental risks of partially removed installations? What are the obligations for regular monitoring by the licensee and liabilities when installations change ownership in future decades?

The same questions are to be asked regarding the permanent sealing of wells, which remains an integral part of decommissioning. In the forthcoming wave of decommissioning, it is vital that the public can have full confidence that the competent authority is free from a conflict of interest, when exercising its function to accept risk assessments relating to the permanent abandonment of production installations and their wells.

In addition to the rigour expected of Member States in coming to decisions on safe and sustainable decommissioning, Member States need to adopt more transparent obligations into their legislative policy.

At the current stage of analysis, there are arguments in favour of creating additional standards for the degree of removal of offshore installations that would in effect, reinforce obligations that already exist on license holders and Member States. This would reduce potential environmental risks associated with leaving contaminated residues in the sea bed as well as potentially damaging cumulative effects of decommissioning activities in the marine environment.

5.15.5 The permanent sealing of wells

5.15.5.1 The Offshore Safety Directive

Notwithstanding the current application of the Directive to the dismantling and/or removal of production installations, there is no specification for the temporal meaning of 'permanent sealing of the wells from the installation and the environment', when wells on fixed production installations are to be abandoned, as referred to above.

However, the duty to permanently seal the wells from the environment is stated in these exact terms solely in respect of wells connected to a fixed production installation that is to be taken out of use. Otherwise the permanent sealing of the wells is considered an implied duty residing in the term 'permanent abandonment' (Annex I Part 6(4)(a))[89]. There may be a difference in understanding of the terms 'permanent abandonment' and 'permanent sealing of a well'.

[89] Information to be provided to the competent authority: "Means of isolating all hazardous substances and in the case of wells connected to the installation, the *permanent sealing* of the wells from the installation and the environment".

The Directive applies to all petroleum activities carried out on offshore installations, including all well abandonments. Leakages from wells or near installations is a clear major hazard, and is covered by the Directive. When the MODU leaves location, or the production installation is removed, the Directive ceases to apply. Should there be a subsea leak from an abandoned well in EU waters requiring a MODU to return to remedy the leakage, then the measures pertinent to the Directive re-enter into effect.

5.15.5.2 Technical challenges and available technologies

Well seepages (from reservoirs, not shallow gas seepages) and more energetic escapes of reservoir fluids at the sea floor are not identified as an issue of concern by Member States' or by license holders. But, with what is becoming seen as a 'wave of plug and abandonments' looming for the North Sea region in particular, there is a heightened societal interest in decommissioning, coordinated by environmental NGO's. In order to ensure the primary aim of permanently restoring the environment at the production site the most important element of the decommissioning process is to permanently seal the wells.

Isolating the zones of flow potential from each other and ultimately from the seabed by the placement of permanent barriers in the well bore and the spaces between the well casings, is the overall purpose of the plugging and abandonment process. After this process is complete, it is intended that no further leakage or seepage would be possible between the zones of flow potential or to the sea floor. Should well fluids reach the sea floor they will either be dispersed into the water column or, in shallow water or where the seep rate is high, to the sea surface. Fluids would induce a potential contamination of the marine waters, which would therefore have to be monitored in the context of the Marine Strategy Framework Directive (MFD).

Standards for permanent abandonment of wells have been updated continually over the 65-year lifetime of the offshore sector, in the form of authoritative global standards and best practices under ISO, API, NORSOK, and the Energy Institute. Additionally, the Directive sets international best petroleum practice through the requirement for a scheme of independent verification of well design, which applies equally to permanent abandonment.

In some Member States' jurisdictions, decisions and actions taken during the plugging and abandonment are required to be fully documented, and records retained. Changes to plans must also be referred to independent well examiners for a second opinion concerning integrity.

For context, there are less than 1,000 active onshore wells in Europe, most of them in the Netherlands, UK and Poland. It is difficult to identify the number of abandoned wells in Europe, but in the UK and the Netherlands the total is between 5,500 and 6,000. There is not a significant recorded history of leaking from permanently abandoned wells in the EU. The Netherlands recently published a report on methane leakage[90] where 185 wells of the 1,312 abandoned wells in the selected areas were studied in detail. The report concluded there is no evidence of any leakages from the abandoned wells in the study. Overall, in Europe, there are recorded minor incidents of hydrocarbon leaks from abandoned oil and gas wells in the past,

[90] https://www.sodm.nl/onderwerpen/methaan/documenten/rapporten/2018/06/05/methaan-emissiemetingen-aan-buiten-gebruik-gestelde-olie--en-gaswinningsputten.

however, there is no authoritative data on frequency or type. As a result, no major environmental accident potential has been identified at off or onshore well locations in north Western Europe.

However, the raised and levelled standards for preventing the risks of a major accident from wells by virtue of the Directive are highly relevant to the increasing volume of well abandonments in the offshore waters of the EU. Modern offshore wells are considerably more complex in their architecture than the vast number of abandoned older wells in both Europe and elsewhere.

Competent authorities required to assess RoMHs for abandonment of production installations should take particular interest in the risk assessments, planned measures, and barrier integrity assurance procedures for well sealing as a precursor to permanent abandonment. These issues are relevant for of HPHT wells and all wells of complex design, or where internal integrity problems are known from the well's history. The schemes for independent examination of well plans will need to consider these factors.

The so-called 'wave of plugging and abandonments' upcoming in the North Sea region to which is referred to above, will undoubtedly place cost pressures on operators. Where field abandonment costs are defrayed through concessions (wherein the state allows liable parties' revenue tax payments to be set against abandonment costs) a high proportion of the abandonment costs will become internalised to the Member States, placing pressures on the economic regulator.

Therefore two things become apparent. Firstly, in order to fully address environmental concerns, operators of development wells may prepare convincing risk assessments for permanent sealing of the wells on installations that are to be decommissioned. In a further step, independent experts would then verify the well plans' risk assessments. At the end of the procedure, the competent authority may then issue a decision on the risk assessment incorporating the permanent sealing of the wells before any decommissioning work may start.

Secondly, it is vital that the public can have full confidence that the competent authority appointed under the Directive is entirely free of influence. This issue principally regards cost pressures confronting the operators and the economic regulators of the Member States when assessing risk assessments relating to the permanent abandonment of production installations and their wells.

5.15.5.3 Conclusions

There is an absolute duty to ensure the well is sealed permanently when abandoned. This is one of two absolute duties of the Directive, where the standard is not qualified by the 'reasonably practicable' condition. The other duty is to rescue personnel from a stricken installation (that would include the immediate sea vicinity) 'so as to secure a good prospect of personal safety and survival' (Article 28(4)).

Given the potentially vast financial liabilities accruing to parties involved with the abandonment (including potentially the state), further research may provide proposals for best

means. This could help ensure that all development wells are permanently sealed from the environment as a consequence of the removal from use of any production installation.

5.15.6 Biogenic methane seepage

Offshore methane seepage mostly happens due to natural processes and geology. With regard to industrial activities; explorative drilling, as well as oil and gas production may have a causal link to methane seepage and increase the emitted volume of gas. This is an issue principally because methane breaks down ozone through a destructive chemical chain reaction, contributing to ozone depletion and subsequently climate change. Furthermore, the same as carbon dioxide, methane absorbs the sun's heat and warms the atmosphere. Recently, attention has been drawn to shallow gas seepages from the central North Sea region where there is a dense cluster of shallow gas pockets. A study conducted offshore by the GEOMAR institute[91] has attracted interest on environmental grounds. It observed seepage of biogenic gas at locations of abandoned wells in the North Sea, which the study attributes to the well's trajectory through shallow gas pockets. In other words, the penetration of the pocket of gas by the well creates a pathway to the sea floor around the outside of the well. On the occasion of the Geomar study, the three wells were exploration wells, however there was a significant eruption of shallow methane under a production platform (the Forties Delta platform (UK)) in 1983. On this occasion, the penetration of a shallow pocket in the central North Sea region was conducted directly underneath the platform, causing a massive explosion and fire, in which 9 workers were seriously injured.

A response to the Geomar study made by industry challenges the methodology of the Geomar study, claiming it extrapolates.

Biogenic methane accumulations are covered by the Directive should the gas pockets be in the well trajectory as identified from shallow focussing geophysical surveys, or known to be a local hazard and therefore taken into account in the risk assessment of the well plan and incorporated into the scheme of independent verification of it. The preferred control method (i.e. relevant to the hazard) is to move the well and therefore avoid the shallow gas pocket[92].

Biogenic methane seeps are not relevant under the Directive in the post-decommissioning period where qualifying installations are not present. Such seeps per se are not major hazard events as related to the Directive because there are no qualifying installations stationed at the location. However, should the seepages be sufficiently serious as to require the deployment of a qualifying installation (a drilling MODU for example) to intervene then the Directive returns into effect. There is no recorded event where a biogenic methane seep has caused an intervention by a MODU or other qualifying installation.

[91] "Oil & Gas Wells as a Strong Source of Greenhouse Gases", 28 August 2017; GEOMAR https://www.geomar.de/en/service/kommunikation/singlepm/article/oel-und-gasbohrungen-als-starke-quelle-von-treibhausgasen/.

[92] It is most unusual to site a platform over a major shallow gas pocket as in the Forties Delta case, where it should be noted the shallow gas was penetrated only by the 23rd well from that platform.

Whilst methane seeps, are unlikely to have the potential to create a major accident hazard, they would potentially be subject to environmental scrutiny under the broad acquis of other EU environmental legislation (e.g. MFD, EIA/SEA and ELD).

5.16 Special theme: Mutual recognition of mobile drilling units (MODU)

Analysis

As we have seen in previous thematic discussions, there has been quite wide variation in approach. For example, in the contents of corporate major accident prevention plans and in combining safety and environmental functions in the competent authority.

The recognition between Member States of a mobile production installation (overwhelmingly a MODU) that has a RoMH accepted by another Member State, is a criteria for attaining the desired goal of a level regulatory playing field throughout the EU.

In the Offshore Safety Directive the relevant measure is contained in Article 13 on the "report on major hazards for a non-production installation". As mentioned above, the measure relates predominantly to drilling rigs (MODU's), referring to a common acceptance approach between Member States of compliance with Directive related measures.

The principle of common applications also applies to systems deployed by operators on production installations where such systems are not Member State specific. The information received from duty holders is that the outcome from implementation of the Directive is the opposite to that which was intended:

- In general, operators/licensees operating production installations or well operations in more than one Member State report additional burdens following the introduction of the Directive.
- Specifically, industry reports that MODU movements between Member States are delayed by the authorities of Member States, who conduct thorough assessments of RoMHs after each new entry of an MODU into their jurisdiction.
- MODU's returning to the same Member States that issued acceptance within the previous compliance interval (5 years), are also reportedly subject to a lengthy re-acceptance process.
- Operators and owners report CMAPP (Corporate Major Accident Prevention Plan) requirements vary indiscriminately between Member States, creating an administrative burden for duty holders working in more than one Member State.
- In some contradiction to the preceding points, Member States report that a procedure is 'type-based' and fast-tracked for returning, previously accepted MODUs.
- Some Member States suggest they would acknowledge other Member States acceptance of a RoMH for MODU's, subject to strategic checks and reviews of additional Member States requirements, where these may exist.

On the positive side it appears that in line with the Directive, all Member States request RoMHs' and associated productions such as the CMAPP.

Notwithstanding the obvious advantages in resource management, and indeed the higher goals under the pursuit of an internal market (vis a vis TFEU), it seems that Member States are reluctant to explore solutions to freer movement of MODU's.

It is, on the other hand, clear that there are variations of social requirements between different Member States. For example in the arrangements for single cabin accommodation, or in requiring additional capacity of escape capsules. However, we believe it is necessary to discriminate between the technical components in the RoMH and the additional social components (single occupancy cabins) and emergency response (escape capsule seats) that a Member State may require.

In the Commission's discussions with stakeholders, all duty holders support the concept of an internal market for MODU's and are therefore disappointed that the situation has reversed since implementation of the Directive.

Considering that the fixed capabilities of the MODU for the geological and geographical conditions are acceptable for the proposed location, it is difficult to envisage what is the added-value of the receiving Member States duplicating a thorough assessment of the MODU under the Directive. It could easily accept the RoMH of the MODU that has already been accepted by the Competent Authority of the dispatching Member States that has itself conducted a thorough assessment under the Directive. Given estimates for handling of a MODU RoMH by duty holders is estimated around Euro 200,000, the subject is valid for consideration.

Should there be additional particulars required by the receiving Member State regarding number of escape craft and single occupancy cabins and so on, these matters could be addressed as an addendum to the accepted RoMH. There ought to be, in any case, a quality assurance exercise for the record of the receiving Member States.

Some Competent Authorities appear to merge the RoMH assessment with validation of the well plan. An MODU rated to be able to undertake the well plan and having an accepted RoMH albeit accepted by another Member States' Competent Authority, is in effect prequalified to execute that well plan.

Conclusions

No technical case was identified for a Member State to undertake a full assessment of an MODU for the acceptance of a RoMH that has been approved within the previous 5 years by another Member State.

The current status appears out of line with the aims of the internal market. Nonetheless, it seems difficult to alter the status quo, should Member States not voluntarily acknowledge their mutual authorisations of offshore installations. The pursuit of a level playing field will certainly be thwarted if Member States do not reinforce their ambitions in that area.

There is also an identified impact of differential implementation of provisions by Member States, requiring duty holders to amend the intent of certain measures (such as the corporate major accident prevention policy) to satisfy additional particulars to those in the Directive's

relevant annex. Such differential measures ought to be made transparent by the Member States requiring them.

The situation should be kept under review. More information should be gathered by the Member States which have additional requirements and by industry, which claims to have to deal with unnecessary administrative burdens.

6 ACHIEVEMENTS ASSESSED BY HORIZONTAL CRITERIA

6.1.1 Overview

Further to the analysis by themes, for assessing the achievements of the Directive, the Commission has used five criteria[93]:

Relevance looks at the relationship between the needs and problems relating to the societal segment targeted, namely the maritime and coastal users and the environment where the offshore petroleum activities occur, and the objective of the intervention.

Coherence is a factor of the external coherence with other EU legislation and policy, and where relevant, at the Member State or International level. It also is an indicator of how different components of the Directive, as implemented, operate together to achieve particular objectives.

Effectiveness analysis considers how successful the Directive may have been in achieving or progressing towards its objectives. Where objectives may not have been achieved, the assessment will attempt to assess the extent to which progress falls short and attempt to explain the shortfall.

Efficiency is meant as the relationship between the resources required to execute a measure and the gain (i.e. an assessment of costs and benefits). The cost-benefit analysis will be quantified where possible and identify reductions or increases in regulatory burdens.

EU-added value is a deduction of the relative efficacy between the implementation of the directive, and the Member States acting alone in regulating the offshore sector's control of major accident risk.

For the analysis by criteria, the assessment is guided by questions which were addressed for each of the themes. The following sets of questions were applied for the different parts of the analysis:

<u>Relevance</u>

- To what extent is the intervention still relevant?
- Did the change in framework conditions for offshore operation make the Directive less relevant?

[93] These criteria have been developped for formal evaluations of EU legislation and are provided by "better regulaiton guidelines".

- To what extent have the original objectives proven to have been appropriate for the intervention?
- How well do the objectives of the intervention correspond to the needs within the EU?
- How well did the intervention reduce the risks for accidents and the number/quality of offshore accidents?
- How relevant is the EU intervention to EU citizens?

Coherence

- To what extent is the intervention internally coherent?
- Specifically, how far is the intervention coherent with environmental legislation?
- To what extent is the intervention coherent with wider EU policy?
- Specifically, to what extent is the intervention coherent with environmental policy?
- To what extent is the intervention coherent with international obligations?
- Specifically, to what extent is the intervention coherent with international conventions of offshore operations?

EU added-value

- What is the additional value resulting from the EU intervention, compared to what could reasonably have been expected from Member States acting at national and/or regional levels?
- What is the added value from avoided accidents, which may have caused damage, environmental pollution, direct and indirect economic losses?
- What is the added value from the intervention regarding public acceptance of offshore oil and gas operations?

Effectiveness

- What have been the effects of the intervention?
- How far did the intervention contribute to the avoidance of accidents?
- How far did the intervention reduce the risk of accidents?
- How did the intervention influence public perception and support for offshore operations?
- To what extent do the observed effects link to the intervention? Or do you attribute them to different causes?

Efficiency

- To what extent are the costs associated with the intervention proportionate to the benefits it has generated?
- What factors are influencing any particular discrepancies (e.g. regional) of the intervention's effectiveness?
- How do these discrepancies link to the intervention?
- To what extent do factors linked to the intervention influence the efficiency with which the observed achievements were attained?
- What other factors influence the costs and benefits?

6.1.2 Relevance

The intervention has caused a comprehensive overhaul of EU offshore petroleum legislation to bring it at least up to the most relevant jurisdictions that practice major accident prevention

(e.g. UK, Denmark, Italy, and Netherlands). However, the intervention has not encouraged Member States to make steps towards adjustment of liability provisions.

Regarding the aims of the Directive, there is good qualitative and quantitative evidence from competent authorities and industry to suggest that the measures in the Directive remain highly relevant to introducing global best industry practices in the EU. This is particularly relevant for prevention and mitigation measures, introduced to ensure that the risks of a major accident in EU waters are reduced as far as possible. The intervention has directly addressed coordinated national contingency planning, with industry emergency planning and response systems.

No information was received suggesting that the best practice measures under the Directive have been superseded or are no longer relevant. The intervention attempts to maintain relevance by setting aims and goals, rather than prescribing detailed measures. This provides scope for responsiveness to new knowledge and technical innovation, keeping the Directive applicable as the sector develops. Moreover, transparency provisions open the sector to greater visibility and scrutiny by civil society in the EU.

6.1.3 Coherence

The intervention is aligned with wider EU legislation for the safety of workers, assignment of liability, and protection of the environment. The implemented measures co-exist comfortably with occupational safety and environmental protections under EU law.

The Directive strictly focuses on preventing major accidents. Occupational safety and day-to-day environmental protection are adequately provided for in other legislation. The intervention's measures are consistently adapted from global best international offshore petroleum practices for industry and regulators, enabling verifiable tests of these measures.

Furthermore, levels of coherence with related EU legislation were evaluated. Concerning worker protection from a major accident (i.e. an accident with multiple serious injuries and/or fatalities), the intervention has prompted Member States to replace the Safety and Health Document previously required under Directive 92/91 EEC (Mineral Extraction Through Drilling Directive[94]). This has been superseded by an ex ante risk report for each installation, to be verified by the competent authority prior to commencement of activities on the installation.

The EU intervention has compelled Member States to extend liability for water damage to the extent of the exclusive economic zone[95] (previously limited to territorial waters). This change has established an unambiguous coherence with the functioning of the Environmental Liability Directive in other sectors.

[94] Council Directive 92/91/EEC of 3 November 1992 concerning the minimum requirements for improving the safety and health protection of workers in the mineral- extracting industries through drilling (eleventh individual Directive within the meaning of Article 16 (1) of Directive 89/391/EEC), OJ L 348, 28.11.1992, p. 9–24.

[95] In most cases, the Exclusive Economic Zone (EEZ) may comprise an area from 3 to 12 nautical miles, up to 200 nautical miles (370 kilometres) off the coast.

Regarding coherence with wider EU policy, the intervention's requirements to implement best international practices for regulators and industry ascribes responsibilities to entities that control the risks of major accidents, and for the assurance that major accidents will be prevented. This is in line with the integrated maritime policy to create a level regulatory playing field for petroleum activities in all EU offshore waters, and requires good governance jointly with maritime spatial planning.

Under the broad generic framework of EU environmental legislation, there is intentional coherence of the Directive's responsibilities on owners and operators with the Environmental Impact Assessment Directive relating both to preventive measures and emergency preparedness and response.

Regarding coherence with international obligations, the intervention allows application of external protocols and obligations relevant to the sector. These, least effect day to day operations, and most effect navigation of mobile installations, emergency preparedness and response, cross-boundary pollution prevention, and decommissioning of installations including detoxification of partly removed structures. For example, in the context of safety, the Directive's internal coherence means that it does not regulate the extent of decommissioning, which usually does not directly affect safety, but it does regulate for control of risks of a major accident during the activity. The issue is pertinent as a wave of decommissioning is underway and key standards, e.g. the 1996 London Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter[96], are being updated.

6.1.4 Effectiveness

The effectiveness of the EU intervention has been in securing a levelled regime that takes into account global best offshore petroleum practices for industry and regulators for preventing accidents. The Directive has set the necessary conditions to reduce the likelihood of a major offshore petroleum accident in EU waters. Despite the largely adequate quality of implementation by Member States, overall implementation has not always been fully consistent. The Commission services are engaged in a formal dialogue with Member States to address these concerns.

The Directive has clear, direct effects for a number of reasons. Firstly, the intervention creates explicit responsibilities and liabilities for the license holder, operator, mobile installation owner, and contractors. Secondly, it mandates the assignment of a Competent Authority to conduct oversight functions, and finally, the Directive introduces a verified risk report for every installation. These are the most fundamental elements by which a major accident will be prevented in EU waters.

Public consultation and expert meetings undertaken in this assessment suggest that more effective integration and interfaces have been built amongst and between duty holders in industry and regulators, as a direct result of the Directive. These qualitative findings are complemented by quantitative date from the first two annual EU-wide reports of incidents in the offshore petroleum sector. For the first time at EU level, they provide new statistical data

[96] http://www.imo.org/en/OurWork/Environment/LCLP/Documents/PROTOCOLAmended2006.pdf.

on accident risk, thanks to the Directive and its Implementing Regulation. At the current stage of analysis, drawing on the data from these two annual reports, the safety level of EU offshore petroleum sector appears adequate.

Furthermore, the Directive has had extended effects on regulation and reporting. It is apparent that a strong legal hierarchy of duty, an expert regulator, and the obligation to undertake a verified risk report for each offshore installation, forms an effective template for risk control across the EU.

The intervention has led to a horizontal adoption of best international practices by operators/owners and competent authorities within key areas. For example, in safety and environmental management systems based on risk control, as well as the incorporation of independent verification of critical control systems and well drilling plans. The Directive also impacts duty holders, obliging them to report on major accidents in the EU. Moreover, it is evident from this assessment that corporate policy amongst duty holders at the EU level is often mirrored in their operations at a global level, improving global standards of incident reporting, for example. The implementation of the Directive occurred over a period where price of oil dropped dramatically to a steady low level. In absence of the Directive, the resulting cost squeeze may have risked compromising the high level of risk control.

Following the Gulf of Mexico disaster that triggered this EU intervention, there was an unprecedented wave of industry initiatives in technical equipment and in measurement that focused on major accident prevention and response. Through creating transparency of regulation and levelling standards, the Directive has undoubtedly contributed to sustaining the industry's progressive initiatives.

More directly, the integration of environmental protection and mitigation into installation risk reports significantly reduces major accident risk in the Union. The integration of installation based emergency response plans with national contingency plans is a further major advance. One Member State (UK) has produced a new best practice for liability and financial responsibility in direct response to the Directive that may provoke more effective mechanisms elsewhere. Beyond preliminary reports on the overall implementation of the Directive, other Member States have yet to conduct surveys and assessments on the effectiveness of the intervention and how their workers perceive the situation.

The Directive has set a framework that allows Member States to establish national legislation in line with their specific requirements. Accordingly, the functioning of the internal market has been inhibited by wide-ranging interpretations of both technical goals (e.g. standards for installation risk reports) and processes. There is no evidence of insufficient measures in the Directive, however, national policy and cultural objectives contribute to differing implementations, as far as compatible with the Directive.

6.1.5 Efficiency

Financial and practical efficiency gains for industry duty holders and regulators may also benefit social partners, particularly in developing a more consistent approach towards Member States' implementation of the Directive.

Certain aspects of the cost-effectiveness of the intervention have been examined. The arrangements brought into effect by industry to acquire and maintain interoperable response equipment and expertise in accessible locations in EU waters, and to integrate those resources with national contingency plans, is a major efficiency gain as well as a highly effective step. It considerably increases the resources available to react in the event of a major accident, and limit the potential pollution from oil contamination.

The costs of introducing the formulation of risk assessment into the management systems, and the costs of demonstrating compliance to the regulator, are not unjustifiably excessive. So far, neither industry nor Member States have suggested the running costs of the intervention's requirements are unjustified (see also in the annex, part VII). The cost of introducing a risk based control system that is installation-centred is a relatively small component of the estimated benefit for significantly reducing the annualised cost of a major accident in EU waters (the total cost for BP are estimated at $65 billion). This assumption is based on the available information from industry and competent authorities' data.

Other factors are influencing efficiency. The south Mediterranean region (outside the EU) has experienced some of the world's worst major accidents and blowouts. No region in the world has escaped the consequences of a major accident, and the southern EU Member States, as they enter offshore petroleum operations, are not exempt from the hazards. There is no data to make meaningful assessment of risk trends outside of the North Sea area, however the risk management approach of the intervention is demonstrably effective wherever it is deployed, globally. Feedback from Competent Authorities and duty holders outside the North Sea region is strongly in favour of the intervention. Industry however, has challenged some of the administrative cost burdens applied by some new entrant Competent Authorities.

Regarding proportionality, it appears that the cost burden on industry (including administrative costs paid to competent authorities) has been accepted as necessary in the North Sea region, where the historical major accident record has been particularly high. It remains unclear whether the same proportionality applies to the southern seas where the major accident record is reportedly light (relative to the number of installations). The value in the goal-setting nature of the Directive is that Member States are facilitated to develop their specific regimes on an individual, fit for purpose capacity basis. Crucially, the intervention also enables Member States to recover the associated costs of this development from the duty holders, whose activities create the major hazard risks the intervention aims to prevent.

Industry leading representatives, IADC (drillers) and IOGP (producers) continue their development of guidance and standards for best offshore practices in risk control. The intervention requirements for risk reporting and risk management encourage industry to improve, and are inherently economically efficient. These obligations help form the bridge between the stated aim of the industry and what actually happens on the installation.

Elements of the risk management systems required by the intervention identified by industry as causing unwarranted administrative burdens, are typically related to the functioning of the competent authority. In contrast, the competent authorities believe their systems to be cost efficient.

6.1.6 EU-Added Value

The Directive's measures have brought EU-added value to Member States by introducing improved offshore regulation and response from industry. Such a comprehensive overhaul of EU practices would not have occurred without the Directive.

According to the most consistently expressed views of Member States' regulators, industry, NGO's, and TU's, the Directive has added value compared with Member States' acting without EU intervention. The regulators and industry have taken positive views, whilst those of NGO's and TU's are more nuanced. Nevertheless, it can be said with some confidence that even the most advanced regimes have adopted measures that add value to their regulatory oversight that would not have occurred without the Directive coming into effect.

There are specific example of added value that can be attributed to the intervention. Firstly, amongst the new entrant risk-based regimes (outside the North Sea and Italy), both industry and competent authorities note new and better interfaces where there were previously few, or none. Secondly, the intervention established an EU expert group (EUOAG) based on a Commission decision[97], thereby establishing the conditions for continuous improvement of Competent Authorities. Thirdly, the Directive created a consistent standard for all EU regulators. Fourthly, the EU-wide incident reporting system is the world's first statutory international database. Finally, the integration of national contingency plans with industry arrangements, and the sharing of response resources, represent significant tools for mitigating the consequences of a major accident anywhere in EU waters. Moreover, the public consultation revealed that social stakeholders believe offshore petroleum operations in the EU would be less safe had the intervention not been made.

It is especially clear that those Member States that previously did not have risk based regimes would not have adopted such practices without EU intervention. But even the most advanced regimes have adopted measures that have added value to their region that would not, by direct admission, have occurred in the absence of the intervention.

7 CONCLUSIONS

7.1 Strengths and weaknesses

The decision by the Commission, as accepted by both the Council and Parliament, was to focus on the prevention and mitigation of major accidents based on risk management. Therefore the Directive overlooks measures that do not specifically address major accident prevention, most notably occupational safety and health, as well as day to day discharges and emissions. Furthermore, the intervention does not prescribe detailed arrangements to be followed, but instead establishes aims to be achieved. This approach has undoubtedly provided clarity of intent which has been reflected in the implementation.

[97] Commission Decision of 19 January 2012 on setting up of the European Union Offshore Oil and Gas Authorities Group, OJ C 18, 21.1.2012, p. 8–10.

Furthermore, the strategy of proliferating existing best practices rather than experimenting with unpractised solutions, has been very effective. As a consequence, for every measure there is an analogue already in place, usually in one or more Member States. Taking such an approach has assisted in rapidly upskilling new entrant Competent Authorities, as well as catalysing the comprehension of risk-based management practises for duty holders inexperienced in this area.

The nature of the intervention's approach also has inherent limitations, namely diluting the degree of regulatory overlap across Member States by permitting discrepancies in implementation. This outcome is the result of the decision to opt for the creation of a Directive rather than a Regulation, as originally planned. Consequently, the benefits of standardisation, efficiency, benchmarking, and effectiveness through shared applications are less pronounced than initially intended.

A comprehensive vertical sector-based regime such as that introduced by the Directive requires significant supporting clarification and guidance. In particular, because the Directive sets goals to be attained rather than detailed steps to be followed. Duty holders and Member States have extensive discretion on how to implement and apply the Directive whilst remaining in compliance with its provisions. Some Member States prioritise the development of such material for themselves and their duty holders, whilst others do not. Under the loose parameters of this Directive, Member States are not strongly incentivised to follow the guidance published by other Member States.

Another associated limitation is that Member States are less likely to collaborate at their own cost to the production of EU-level guidance, despite the fact that guidance and model practise at the EU-level makes a very beneficial contribution to efficacy of the measures.

Since no disastrous accident has occurred in the EU since the Directive has come into effect, some themes analysed in the SWD lack a practical test.

7.2 Areas to follow-up

With regard to liability, financial security and the handling of compensation claims, it is evident from this assessment that rules in Member States differ substantially. This is true for offshore installations, but also on an upper horizontal level regarding civil code. Owing to the avoidance of catastrophic accidents in recent years, it remains unknown how Member States' national rules and regulation would work in practice.

According to the Directive, the decommissioning of installations is an inherent element of the installations' life cycle. Powers to deal with this aspect have been delegated to Member States' Competent Authorities, which request and assess a major hazard report before authorisation. These reports shall include provisions for the end of the installation's lifetime, including environmental risks. As soon as decommissioning is envisaged, competent authorities shall assess an up-dated major hazard report.

The Directive does not include provisions going beyond the requirement to decommission in a safe manner, including environmental concerns. At the same time, it neither prescribes nor recommends certain processes or guides on when and how to dismantle an installation or the

criteria for leaving an installation exceptionally "in situ". Furthermore, the Directive does not address follow-up monitoring of the site and the sealed wells. The question remains whether the Directive requires an update to deal with these subjects.

On Mutual recognition between Member States of mobile drilling units regarding the authorisation process, Member States and stakeholders took completely different views on this matter. Member States insisted on the need to re-assess the major hazards of an installation, even if already assessed (e.g. by a neighbouring Member State). Conversely, industrial stakeholders called for the abandonment of this procedure, arguing that it creates an unnecessary administrative burden, which both delays operations and leads to substantial additional costs.

In an effort to resolve this issue, this practice of not recognizing the authorisation issued by a different Member State should be cross-referenced with existing legislation on the internal market.

7.3 Overall assessment

The Commission carried out an in-depth assessment of the Directive's application in practice. It was structured by bundling articles from the Directive into a number of overarching themes. These themes were drawn from stakeholder consultations, public consultation, the work of the Commission's Inter-Service-Group, and a European Parliament report on liability.

The assessment examined how Member States implemented the Directive, reaching conclusions on the strengths, weaknesses, options, and challenges of this process. Overall, transposition was carried out to an adequate quality, nevertheless, the Commission follows-up certain weaknesses with Member States individually. Both in terms of implementation and practical application, there has been a comprehensive adoption of the Directive throughout the EU. here is firm evidence that the measures in the Directive, as implemented by Member States and responded to by industry, are relevant to ensuring best industry and regulatory practices for major accident prevention and mitigation, in the EU as well as globally. Best practise can subsequently contribute to the aim of mitigating unacceptably high risks of major accidents in EU waters.

The intervention of the Directive caused a comprehensive overhaul of EU offshore petroleum regulation, including all relevant jurisdictions and regions for major accident prevention. Furthermore, the Directive successfully ascribed primary duties to operators and owners for the prevention of major accidents on their installations, as well as the mitigation of the effects thereof. As such, the primary objective of the intervention was achieved.

The Directive has clearly established a hierarchy of control, including the license holder, operator and owner, in addition to the assignment of an independent expert regulator. These are the most critical and fundamental aims of the Directive because they form the foundation of risk control and major accident mitigation. Effective control and regulation are at the core of a wider, common objective to reduce the risk of major accidents to a level where they are unlikely to occur again in EU waters. Other key measures in the Directive address: means by

which responsible actors are effective, mitigation measures in the event of a major accident, as well as the issue of raising overall standards throughout the Union and in third countries.

On the basis of available data, the cost of introducing the risk based system is a relatively small component of the estimated benefit of significantly reducing the annualised cost of a major accident in EU waters.

The Directive's measures have brought EU-added value to all Member States through introducing more robust offshore regulation and a concomitant response from industry. Such a comprehensive overhaul of EU practices would not have occurred without the Directive.

Amongst the new risk-based regimes, industry has reported the development of constructive relationships with regulators, where previously there were none. The public consultation, though nuanced in its affirmation of the Directive in other areas, was decisively in support of the position that offshore petroleum operations in the EU would be less safe without the implementation of the Directive.

Environmental NGO's call for stronger protection of the environment and stronger financial responsibility mechanisms, whilst broadly aligning themselves with the positive indicators from the implementation experience. Regulators and primary duty holders express that the new regulatory measures and subjective industry arrangements need to stabilise before any consideration can be given to further legal intervention. Further incident and information reports at the EU-level will indeed consolidate the baseline of EU performance indicators and identify critical trends in the major accident risk levels in the EU.

Regarding stakeholders that use the Directive in practice, both Member States' Competent Authorities and operators/owners seem to be largely satisfied with the functioning of the Directive, as implemented by Member States. They feel that potential benefits (derived from avoided accidents) largely outweigh the costs of implementation and the adjustments required at the level of offshore installations.

The experience of implementing the Directive has been broadly positive, with the majority of measures successfully in place. Although further interventions at the EU-level are sometimes unwarranted, issues of concern or thematic indicators have been mapped across the Commission's standard assessment questions. Where these grievances are found to have a reasonable foundation, they can broadly be handled at the administrative level. This kind of response is facilitated by increasing levels of maturity and stability across Member States' regimes.

The preceding analysis illustrates a clearly positive trajectory of development within the industrial safety culture of the EU as a whole. This includes the establishment of regulators and duty holders who share clear, mutual objectives in a common pursuit of major accident prevention, including with regard to the environment.

Through the assessment process three key issues were particularly prevalent, they may therefore warrant a thorough follow up: (i) liability, financial security and the handling of compensation claims, (ii) the decommissioning of installations including questions on

removal or leaving in situ, as well as the follow up after decommissioning (including the monitoring of sealed wells and (iii) the mutual recognition of mobile drilling installation in the EU.

8 ANNEXES TO THE STAFF WORKING DOCUMENT (SWD)

9 ANNEX I: ORGANISATION AND TIMING

9.1 Lead DG & DECIDE planning info

Lead DG: DG Energy

DECIDE PLAN

9.2 Organization and Timing

20-21 September 2017	Meeting with Commission expert committee (EUOAG) and industry stakeholders to initiate engagement with the project
21 November 2017	First meeting of the inter-services group (ISG) on the assessment of the OSD.
21-22 March 2018	Meetings with expert committee (EUOAG) and industry experts to generate first responses to project background.
3 May 2018	Publication of the Evaluation's roadmap and background document. Invitation for comments by stakeholders[98].
May – June 2018	Analysis of comments
19 July 2018	Deadline for full compliance with the Directive by industry
24 July 2018	Publication of draft assessment strategy and preliminary meeting of Regulatory Scrutiny Board
July–September 2018	Preparation of public consultation questionnaire and organisation of stakeholder workshop
19 September 2018	Stakeholder workshop. Launch of public consultation
4-6 December 2018	Interviews with stakeholder groups
21 December 2018	Close of public consultation
16-17 January 2019	Workshops with EUOAG and stakeholder experts. Release of analysis of public consultation
31 January 2019	Second ISG Meeting on the assessment of the OSD
22 March 2019	Interviews with North Sea Regulators forum members
7 May 2019	Commission ISG meeting with expert committee on platform decommissioning
25 October 2019	Third ISG Meeting on the assessment of the OSD

[98] https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-2361494_en

27 November 2019	Fourth ISG Meeting on the assessment of the OSD
12 March 2020	Meeting with the Regulatory Scrutiny Board and proposal to draft an assessment on the experiences with the implementation of the Directive

9.3 Evidence and Sources

The assessment was based on the following evidence and sources of information:

- Data collected from Stakeholders
- Data collected from Member States
- Information exchanged during stakeholder consultation meetings and workshops
- Information gathered from the public consultation process
- Information exchanged during the proceedings of the EU Offshore Authorities Group
- Information collected from experts in the sector
- Various relevant reports and legislation.

9.4 Discussions in the Commission's Inter Service Group

DG ENER has set up an Inter Service Group with representatives from various relevant DGs specifically for the purposes of the assessment of the OSD, which was consulted on a regular basis. The DGs participating in this group were: CLIMA, COMP, ENV, FISMA, GROW, HOME, JRC, JUST, MARE, NEAR, MOVE, SG, SJ and EMPL. On its meeting on the 31st of January 2019, the ISG has discussed the results of the stakeholder and public consultations. In addition, bilateral meetings were held with several DGs for more technical follow-up. During its meeting on 25th of October 2019 the ISG has further refined the assessment SWD and its Annexes.

10 ANNEX II: STAKEHOLDER CONSULTATION

10.1 Consultation scope and objectives

In assessing the effectiveness of the Offshore Safety Directive with regard to its objectives, for example the implementation of adequate levels of safety and environmental protection across the EU, the review aims to verify whether:

- the main objectives of the Directive have been achieved and if not, whether an amendment of the Directive or other legislation is appropriate.
- any gaps in legislation exist which need to be covered for improving the level of safety and environmental protection in offshore oil and gas operations.
- certain provisions of the Directive impose undue burden on Member States or the industry and whether their removal should be considered.
- the Directive has adequately harmonised the regulatory structure and level of safety and environmental protection across the EU offshore operations, proportionately to the activity levels of the Member States.
- the Directive is effective and proportionate with regard to the objectives set.

The European Commission involved in this task several Directorates-General with DG Energy in the lead. These Directorates-General co-operate in the framework of a formal Inter-Service-Group to gather and analyse information for addressing the review and report. The Directorate-General for Energy informed the members of the EUOAG (Competent Authorities of Member States, associations and unions) on its intention to evaluate and review the Directive, in September 2017.

The consultation process has opened the discussion on all relevant topics, including (non-exhaustive list):

- Liability, compensation claims, financial security and criminal law – also with regard to Resolution 2015/2352(INI) of December 1st 2016 of the European Parliament on liability, compensation and financial security for offshore oil and gas operations:
- Decommissioning and abandonment of installations and wells;
- External threats (e.g. cyber security; sabotage, terrorist and criminal attacks, hybrid attacks);
- Independent verification;
- Mutual recognition of Mobile Offshore Drilling Units in Member States' jurisdictions;
- Inconsistencies, shortcomings or unclear wording of the Offshore Safety Directive.

Participants of the consultation are expected to provide their opinion, experience and proposals preferentially supported by facts and figures.

10.2 Mapping and participation of stakeholders

Article 4(1) of the European Commission Decision of 2012 concerning the functioning of the EU Offshore Authorities Group (EUOAG) designates the Member States' Competent

Authorities responsible for the regulatory oversight of offshore oil and gas activities and related policy issues as the members of the Group.

In a first step, the Commission has consulted these competent authorities to get feedback on their technical and regulatory experience of implementing the Directive.

Secondly, the Commission has consulted stakeholders represented in the EUOAG's plenary meetings. These were the European Community Shipowners' Association, the International Association of Drilling Contractors, the International Marine Contractors Association, the International Association of Oil and Gas Producers and the IndustriAll trade union.

Thirdly, the Commission has contacted regional groups and conventions. These were the OSPAR Convention, the Barcelona Convention, REMPEC, the Commission on the Protection of the Black Sea against Pollution, the International Maritime Organization and the International Labour Organization.

Fourthly, further consultation of an enlarged circle of stakeholders and Non-Governmental Organizations took place from international, European and national level. Stakeholders were asked to provide the Commission with the information necessary for an in-depth assessment of the Directive's effectiveness, as well as their opinion on related matters. Numerous organizations were contacted and response / involvement was received by Sea Shepherd Global, the Bellona Foundation, World Wildlife Fund, the Nature Conservancy and Surfrider Foundation Europe.

Finally, all other interested parties, e.g. private, business, public entities, have provided views and comments via a public consultation carried out by the European Commission.

10.3 Selection of consultation activities and their accessibility

The Commission has carried out the following consultation activities:

February-March 2018: Contributions from external experts with specific expertise in safety legislation, including health and safety at work and protection of the environment;

March 2018: Start of consultation with the experts and key stakeholders through the EU Offshore Oil and Gas Authorities Group;

September 2018: Stakeholders' Workshop organised by the Commission in Brussels. The Commission invited participants from organized European groups relevant to the offshore sector. Range and extent of participants invited took into account contributions and interest expressed during the public consultation.

September - December 2018: 12-week long public consultation[99];

January 2019: Additional Stakeholder's Workshop

10.4 Summary /overview on consultation activities by stakeholder groups and indicative timing

[99] Published on Europa Public Consultations Page at https://ec.europa.eu/info/consultations_en

Table 1: Overview of consultation activities

Consultation Activity	EUOAG	EUOAG	Public Consultation	Workshop	Workshop
Indicative Planning	19/09/2017	21/03/2018	Sept-Dec 2018	Sept-18	Jan-19
Targeted Stakeholders					
Member States Authorities	x	x	x	x	x
Industry Associations		x	x	x	x
Regional Groups and Regional Sea Conventions			x	x	x
Worker Union Associations			x	x	x
Relevant Third Countries			x	x	x
Relevant EU Agencies			x	x	x
NGOs			x	x	x
Citizens			x	x	x
Research bodies			x	x	x

10.5 Consultation webpage & communication activities

The Commission has published the roadmap document on the consultation webpage specifically created for this assessment. Announcements at the webpage of the Directorate-General for Energy have further informed the public on this review and provided the link to the webpage for the public consultation.

10.5.1 Roadmap of the Evaluation

The Roadmap document, published in plain language, explains the context of the Directive and its assessment. It clearly sets out the purpose, scope and methodology of the assessment process. Full text of roadmap attached as pdf document.

10.5.2 Questionnaire for public consultation

Text of questionnaire is separately attached as pdf document.

10.5.3 **Position Statements received from Stakeholders**

Official statements were received by the following organizations:

- Irish Offshore Operators' Association
- European Community Shipowners' Association, International Association of Drilling Contractors and International Marine Contractors Association (joint statement)
- LUKOIL
- International Association of Oil and Gas Producers
- The Bellona Foundation, World Wildlife Fund, Friends of the Earth Europe, Surfrider Foundation Europe, Young Friends of the Earth Norway (joint statement)
- World Wildlife Fund Greece

10.6 **Synopsis of Consultation Activities**

10.6.1 **February-March 2018:**

Contributions from external experts with specific expertise pursuant to the scope of the OSD

The first step of the consultation strategy aimed at collecting information to consolidate the Commission's knowledge-base on the evolution of offshore safety systems since the entry into force of the OSD.

The consultation involved independent national experts, representatives from EU countries and groups from the offshore industry affected by the OSD. Other General Directions of the Commission (e.g. DG ENV and JUST) were also consulted.

Five topics previously identified as "specific areas for an in-depth assessment" were addressed through a questionnaire previously sent to participants:

- Liability, compensation claims, financial security instruments and criminal prosecution
- Decommissioning of offshore installations and abandoning of wells
- External Threats and Cyber Security
- Independent Verification
- Mutual recognition of Mobile Offshore Drilling Units in MS jurisdictions

The result of the first step led to the drafting of an "issue paper", which was presented to the EU Offshore Authorities Group (EUAOG) ahead of the meeting of 21 March 2018.

10.6.2 **March 2018:**

Consultation with external experts and key stakeholders through the EU Offshore Authorities Group

Article 4(1) of the European Commission Decision of 2012 concerning the functioning of the EU Offshore Authorities Group (EUOAG) designates the Member States' Competent Authorities responsible for the regulatory oversight of offshore oil and gas activities and related policy issues as the members of the Group.

In a second step, the Commission consulted these competent authorities to get feedback on their technical and regulatory experience of implementing the OSD. This approach went on throughout the whole assessment process along succeeding EUOAG meetings from September 2017 to January 2019.

Members of the EUOAG's plenary and ordinary sessions had been already informed of the procedures and time line of the assessment process at their previous meeting of September 2017. The discussion also recalled the Resolution of the European Parliament of 1 December 2016 on liability, compensation and financial security for offshore oil and gas operations which calls the Commission to take new initiatives in this field.

Most of the agenda of the ordinary session of the EUOAG meeting of 21 March 2018 was dedicated to the consultation of the EUOAG on the review and assessment of the Offshore Safety Directive. The consultation aimed at identifying best practices in selected areas and collect regulators' views. The Commission announced the upcoming public consultation and future workshops back-to-back with the 16th EUOAG.

The following technical issues were discussed both in ordinary and plenary settings of the EUOAG:

- EU cross-sector legislation for environmental liability;
- Liability, financial security and handling of compensation claims;
- National and international rules applicable for decommissioning;
- Cyber Security: specific threats for industrial installations (other sectors);
- Experiences with the mutual recognition of platforms while crossing borders.

10.6.3 **03 May 2018 to 31 May 2018:**

Feedback period on the consultation roadmap

Following the publication of the consultation roadmap, the broader public had the chance to give comments. Four contributions were received from business associations and one from the Polish national oil and gas company PGiNG. All comments are publically available on the consultation webpage.

None of the received comments let to identify new areas for an in-depth assessment. Therefore, there has been no change in the Commission's approach in evaluating the OSD at this stage, or in the drafting of the questionnaire for public consultation.

10.6.4 **19 September and 4-5 December 2018:**

Stakeholder consultation meeting in Brussels, completed by face to face interviews with targeted stakeholders

The primary purpose of the workshop held on 19 September 2019 was to launch the project to the broad base of stakeholders and add to the consultation which took place between the

Commission and the primary duty holders (regulators and industry). This resulted in further broadening the interest to the European community, namely the NGOs. At the workshop, the Commission announced the launch of the public consultation and encouraged delegates to participate in it.

A total of 82 delegates have participated in the event. Participation from regulators and industry was considerably larger in comparison to that of non-governmental organisations (3 NGO's, one phone-in and trades unions (2). Despite the Commission's efforts, it was not possible to attract representatives of the marine economy or coastal communities to the event.

The duty holders were balanced by social partners, speakers from NGOs and trade union sectors, whom reflected on the extent to which the Directive had met the ambitions of the environmental activists and offshore workers. The final item was an introduction to the liabilities and financial indemnities subject from subject matter experts, joined with commentary from NGO's and academia.

Prior to the workshop, the Commission had identified 15 elements of particular interest that were notified to speakers to guide their preparations for the workshop. The workshop itself prompted discussions around twelve major topics, five of which were not amongst the elements previously identified by the Commission.

The workshop's discussion broadly showed the value of the OSD among groups affected by it. However, many of them pointed out a fragmented implementation of the Directive by Regulators. Regulators pointed to slow reaction of some duty holders in taking the necessary steps to implement the OSD requirements, especially operators active in the southern maritime regions. All stakeholders pointed to a lack of maturity in the implementation of the OSD. Except for the operators and NGOs, the audience showed a generally low level of understanding of the topic "financial responsibility". The commission's services also note a general low strategic positioning of trade-unions in the discussion.

In order to complete the input received form stakeholders and in anticipation of the next workshops of January 2019, four face to face interviews between targeted stakeholders with both the industry and the civil society were conducted on 4 and 5 December 2018 by the independent expert supporting the Commission's services in the assessment of the OSD. The interviews involved respectively the International Marine Contractors' Association (IMCA), the European Community Shipowners' Associations (ECSA) and the International Association of Drilling Contractors (IADC), the Bellona foundation, the international organization of oil and gas producers (IOGP) and finally the Offshore Pollution Liability Association (OPOL) and other insurers also supported by IOGP. These interview help to better clarify each duty-holder's positioning vis-à-vis the OSD's implementation.

10.6.5 **19 September to 21 December 2018: public consultation**

The public consultation took place from 19 September to 21 December 2018. The questionnaire comprised 102 questions, broken down into 17 chapters. Fifty-one replies were submitted to the survey portal. Additionally, eleven open letters from National authorities, business associations and oil and gas companies. About 60% of the contributions were public.

Out of the 51 answers received, 16 were submitted by entities registered in the transparency register. Only few national regulators used the public consultation to provide their feedbacks on the implementation of the OSD. It is noteworthy that 200 draft replies to the questionnaire remained after closure of the consultation period. No technical issue was reported nor could be identified subsequently that could explain this rate. While business and business associations authored one-third of all contributions, individual citizens constitute the biggest single contributor group.

Regarding the effectiveness of the Directive in reaching its objective to reduce risks of major accidents on offshore installations, the assessment shows an overall satisfaction across all contributor groups, except for civil society organisations who showed a mitigated view of the topic. Yet, one third of all contributors believe that the Directives' provisions needs to be adjusted. Businesses and business associations disapprove this statement largely. The majority of contributors believe that EU countries' transposition of the OSD should be improved.

The detailed assessment of the fulfilment of the OSD's specific objectives reflects the overall satisfaction across all contributor groups. Nevertheless, all contributors agree, also within each group, that the application of the OSD is not consistent across all EU Member States.

The general assessment of the results of the public consultation confirms the relevance of the OSD. However, the businesses and business associations overly believe that some provisions of the OSD can be simplified without compromising their objectives. The contributors believe that the safety environment of offshore oil and gas operations would be worst, would the OSD not have been adopted.

Comments to the general section pointed out that the review is happening too soon. The general view of the industry is that no changes or additions should be made to the OSD's scope and content. Finally, a recurrent shortcoming of the OSD according to the industry is the lack of mutual and automatic recognition of safety cases between EU member states that leads to increased difficulties and costs when moving rigs between countries.

NGOs called for the OSD to be made fully consistent with the EU oceans and climate policies, targets and objectives also with regards to the impacts of offshore drilling and oil spills on the marine ecosystems.

The public consultation confirmed the offshore industry's position on liability, financial security, financial instruments and the handling of compensation claims. The clear and suitable assignment of responsibilities of risk management between licensees, operators, owners and third party contractors is also confirmed.

It is noteworthy that individual contributors do not consider that public participation in strategic decisions concerning the effects of oil and gas operations is assured and adequate and effective. This is mostly attributed to the practical application or enforcement of the overall legal framework.

The offshore safety duty-holders strongly believe that the information requested in annex IX OSD is sufficient to portray the safety performance levels of oil and gas. However, international organisation and civil society organisation doubt that the operators and owners provide to the competent authorities the requested information correctly and in a manner that reflects reality or that the interested public has easy access to it.

On the topic of internal and external emergency plans, individuals and civil society would like measures to be carried out by the Member States instead of the operators and owners. The consultation shows a certain degree of uncertainty of contributors regarding the adequacy of external emergency plans in successfully dealing with transboundary effects. Finally, civil society contributors voiced concerns for inadequate transparency towards the public concerning emergency incidents. In addition, individual contributors doubt that financial penalties are really applied or even an effective, proportionate and dissuasive tools for preventing violation of the OSD standards.

No clear patterns emerged from the question whether the application of criminal law to gross breaches of duty leading to a major accident, or a near-miss, or a major environmental incident, consistently and across the EU, would enhance the performance of industry in risk management and reduction.

A vast majority of contributors agree that the OSD provisions are adequate for major accident prevention and environmental protection during the decommissioning process and for providing long term environmental protection after decommissioning. Yet, many responses (businesses, civil society and individuals) support the need for additional provisions and/or financial schemes for post decommissioning environmental protection and liability and call for additional technical guidelines for decommissioning and plugging and abandonment. IOGP submitted a statement on the subject with arguments in favour of the current regulatory setup, which they see as adequate.

One third of all contributors consider that additional, sector-specific measures are necessary to adequately protect offshore oil and gas installations from external threats, sabotage and cyber security threats. The business sector disagrees with this statement.

Businesses and their associations do not consider that there is adequate mutual recognition of Mobile Offshore Drilling Units across borders between Member States, without undue restrictions and undue administrative burden. Some propose to regulate mutual recognition at EU level (via a regulation), other argue that bilateral consultation at national level can solve the issue.

Finally, throughout the replies to the public consultation, the offshore industry challenged the meaningfulness of the Corporate Major Accident Prevention Policy (CMAPP), while at the same time, individual contributors called for safety cases to be made part of the public domain. It must be noted that on some questions related to specific articles of the OSD and on specific areas of the review, business associations representing different level of the offshore industry life chain submitted coordinated replies, or referred to the contribution of the IOGP.

Preliminary results of the public consultation were presented to the stakeholders in the EUOAG ordinary and plenary meetings on 16 and 17 January 2019 and were positively received. The Commission’s services explained that the results do not prejudge any outcomes of the assessment regarding a potential revision of the OSD, but were going to be used to strengthen the knowledge base.

10.6.6 **16 and 17 January 2019:**

Two additional workshops with regulators and stakeholders in Brussels.

An additional round of consultation with stakeholder (not announced in the consultation roadmap) took place in the form of two workshops on the side-line of the ordinary and plenary meetings of the EUOAG in Brussels on 16 and 17 January 2019. The first workshop was opened only for national regulators; the latter was addressing all stakeholders.

They served the purpose to stabilise the confidence in the Commission's assessment work, keep on building the community of purpose between all groups impacted by the OSD, re-visit key underlying risk drivers of the Directive and intensify the discussion around key areas for an in-depth assessment. Additionally, the workshop served to secure the stakeholders support in accessing key data for the assessment.

The two workshops were considered successful. No new theme emerged from the discussion. The fault lines between stakeholders emerged more precisely along the discussions on the outcomes of the public consultation and the thematic indicators of the assessment.

Replies to the Commission's request for data arrived in March and April 2019, and allowed the Commission's service to strengthen and refine its assessments on key aspects of the OSD's assessment.

10.7 Stakeholder positions

Throughout the consultation process, various arguments were expressed. On certain subjects, there were clear, distinct positions amongst the various stakeholder groups with regard to the themes and subjects analysed in the discussions. The text below gives a synopsis were such convergence was evident.

On the subject of decommissioning, the industry has strongly advocated that all decommissioning activities, including the plugging and abandonment of wells, take place according to safety and environmental legislation and that wells are fully sealed at the end of operations. Some MS have supported the above, adding that the industry is liable to perpetuity for any need of intervention. Other MS however, expressed doubt about the sealing of wells. NGOs have expressed concern about certain derogations granted to decommissioning projects, which involve leaving in place amounts of oil or harmful substances.

With regard to the mutual recognition of mobile drilling units, the industry has made a strong plea for harmonizing the assessment of the RoMH and other documentation within EU MS, in order to simplify and expedite the process of transferring the units between various jurisdictions. However, MS have strongly opposed such approach, which they consider both risky in terms of the responsibility of the competent authorities, as well as unnecessary due to the low occurrence of such transfers entailing 'first entry' of a unit. According to MS views, the assessment of safety documentation is adequately fast.

On matters involving financial liability and the capacity to cover any environmental or property damage caused by potential accidents, there was a clear discrepancy between the views of MS and industry on the one hand and NGOs on the other. The first consider that the systems in place are adequate to cover any potential damages caused, while the latter express serious doubts.

Overall, both MS and industry consider that the Directive is fit for purpose. In some occasions, the public has expressed concern about important small incidents and leakages not being reported, as well as the effectiveness of the internal, external and transboundary emergency response systems in place.

11 ANNEX III: MEMBER STATES' IMPLEMENTATION OF THE DIRECTIVE

The assessment conducted by the Commission has shown that the overall level of the transposition of the Directive in the Member States is adequate, although the integrity and quality of implementation across the Member States varies significantly. Member States presented different approaches for the implementation of the Directive (either in full or in relation to specific provisions). Some Member States have adopted new legislation that transposes the provisions of the Directive, whereas others have amended existing legislation and included the transposition of the Directive's different provisions into several pieces of legislation.

Certain Member States have largely literally included the provisions of the Directive in their national law, while others have partly or fully adapted the wording of the Directive with the intention to convert it better into their specific legislative culture. The assessment puts the focus on the most important provisions of the Directive, having the largest impact on offshore safety. It follows a summary from the assessment of the quality of Member States' implementation:

- The overall implementation of Article 3 of the Directive, containing general principles of risk management in offshore oil and gas operations and describing fundamental scope of responsibility of operators under the Directive, is considered satisfactory. It should be noted however that several Member States had difficulties with the transposition of its second paragraph, dealing with the exclusion or limitation of the operator's duties.

- Article 4 of the Directive deals with safety and environmental considerations relating to licences. It underlines the Directive's objective to ensure the protection of the environment by avoiding offshore accidents. Some Member States had difficulties appropriately implementing the Article's second, third, and fifth paragraphs. These paragraphs respectively include: criteria for the assessment of technical and financial capability of an applicant, licensee's liabilities, and the availability and assessment of information collected as a result of exploration. The transposition assessment conducted by the Commission, followed-up by an individual dialogue with Member States, has also shown room for improvement in respect of the fourth paragraph. This paragraph relates to the appointment of an operator by a licensee or the licensing authority (e.g. rules of procedure for co-operation between licensing authority and competent authority).

- Article 5 of the Directive covers fundamental rules for public participation on the issue of environmental impacts associated with planned offshore oil and gas exploration. The implementation of the first paragraph (no drilling without public participation) is considered satisfactory. However, Member States did not always fully implement applicable rules for when public participation is not undertaken, covered in paragraph 2.

- The Commission has identified a good level of implementation for Article 6 of the Offshore Safety Directive, setting out rules applicable to offshore oil and gas operations within licensed areas. However, transposition of its sixth and eighth

paragraphs has proven challenging for some Member States. Paragraph 6 covers the obligation to submit a notification of well operations or a notification of combined operation. Paragraph 8 covers the obligation to undertake tripartite consultation between the competent authority, operators and owners, and workers' representatives in the formulation of standards and policies dealing with major accident prevention. It should also be noted that the definitions provided in Article 2, points 21 Directive ('connected infrastructure') and 22 Directive ('acceptance') of the Directive, referred to in the Article in question, have not been correctly and completely implemented by several Member States.

- Article 7 of the Directive, concerning the licensee's potential liability for environmental damages, has been completely and correctly transposed by almost all Member States.

- Article 8 of the Directive concerns the appointment of a national competent authority. Implementation of its second and fourth paragraphs has posed difficulties for many Member States. These paragraphs refer to rules relating to the design of the competent authority, as well as public availability of the information on the organisation of the competent authority, respectively. Some Member States have also experienced problems with the transposition of the first and fifth paragraphs. These paragraphs address regulatory functions of the competent authorities, and the provision of adequate human and financial resources to competent authorities, respectively.

- For Article 9 of the Directive, which sets out rules for functioning of the competent authority, the Commission services are in contact with several Member States to obtain additional information.

- The vast majority of Member States have also completely and correctly transposed Article 12 of the Directive, setting out detailed rules for the submission of the report on major hazards related to production installations. It should be noted, however, that implementation of the definition of 'major hazard', referred to in Article 12 of the Directive, has proven challenging for some Member States.

- A good level of implementation of Article 13 of the Directive was identified, setting out detailed rules for the submission of the report on major hazards for the non-production installations.

- Article 14 of the Directive deals in its entirety with internal emergency response plans. It has been adequately implemented by the Member States.

- Implementation of Article 17 of the Directive was overall successful, setting out requirements for schemes for independent verification prepared by operators and owners. However, transposition of its second paragraph has posed certain challenges for some Member States. This paragraph states that the results of the independent verification should be without prejudice to the responsibility of the operator (or the owner) for the correct and safe functioning of the equipment and systems under verification. A few Member States also experienced problems with the implementation of the definition of 'independent verification', referred to, *inter alia*, in Article 17 of the Directive.

- Article 18 of the Directive sets out powers of the competent authority regarding operations on installations. The national transposition measures of a number of

Member States require improvement (e.g. independence of the authority, unclear mandate, or rules of procedure).

- Article 19 of the Directive, setting out detailed rules for major accident prevention by operators and owners, has been correctly and completely implemented by Member States. However, the fourth paragraph (concerning tripartite consultation) and seventh paragraph (dealing with the obligation to prepare and revise standards and guidance on best practice in relation to the control of major hazards) have proven challenging for several Member States.

- Article 20 of the Directive concerns the offshore oil and gas operations conducted outside the Union, and should have been transposed by all Member States. This includes landlocked Member States and Member States with offshore waters that do not have offshore oil and gas operations under their jurisdiction and that do not plan to licence such operations. Implementation of its first paragraph, obliging companies to report the circumstances of any major accident they have been involved in globally to the Member State where they are registered, requires further improvement by a significant number of Member States. Particularly regarding the empowerment of the competent authority to request adequate documentation and enforce its submission.

- Almost all Member States have fully and correctly transposed Article 22 of the Directive, providing the foundations for confidential reporting of safety concerns. Nevertheless, improvements to the national transposition measures notified by a few Member States are still necessary.

- Article 23 of the Directive concerns the obligation to share information between owners, operators, and competent authorities, Article 24 deals with transparency, Article 25 relates to reporting on safety and environmental impact, and Article 26 sets out rules for investigation following a major accident. All of these Articles have been overall well implemented by the Member States.

- The overall level of implementation of Article 27 of the Directive, setting out rules for cooperation between Member States, is also highly satisfactory. Only its final (fifth) paragraph has posed some difficulties for several Member States. It should also be noted that implementation of the definition of 'industry' provided for by Article 2(35) of the Directive, and referred to in many provisions thereof (including Article 27), has proven challenging for some Member States.

- Article 28 of the Directive, providing the requirements for internal emergency response plans, has been correctly and completely implemented by the vast majority of Member States.

- The overall level of implementation of Article 29 of the Directive, concerning external emergency response plans and emergency preparedness, is satisfactory. However, there are still some weaknesses in national transposition measures in a few Member States.

- Article 30 of the Directive deals with emergency response, and has been completely and correctly transposed by almost all Member States. Only the Article's final (third) paragraph, obliging Member States to collect the information necessary for thorough investigation, has proven problematic for some Member States.

- The large majority of Member States have adequately transposed Article 31 of the Directive, concerning the transboundary emergency preparedness and response of Member States with offshore oil and gas operations under their jurisdiction. In several Member States there are weaknesses regarding the second, fourth, and sixth paragraphs. These respectively include: major hazards in internal and external emergency response plans, coordination of measures outside of the EU, and information obligations.

- Article 34 of the Directive obliges Member States to specify rules on effective, proportionate, and dissuasive penalties applicable to infringements of national provisions and to ensure that such penalties are enforced. Further analysis is required to assess whether the rules enforced by Member States are effective, proportional and dissuasive.

The dialogue with Member States is being continued to achieve improvements and a fully adequate level of implementation. If necessary the Commission may start infringement proceedings in case of severe shortcomings. Following the Commission's analysis of safety performance as published in the annual reports, offshore safety performance appears adequate in all Member States.

12 ANNEX IV: METHODOLOGY FOR THE ASSESSMENT

12.1 Consolidated list of 15 thematic indicators undergoing analysis

Table 2: Thematic Indicators

Ref	Description	Article / Source	Components	Experience of Stakeholders in implementation: (+): overall positive, (-): overall negative, (~) overall neutral but commented
1. OSD-embedded elements				
1.1	Applying risk management principles for control of major accidents	Art.3(1)(3)(4)	• Operators to take 'all suitable' measures to prevent major accidents • Operators to take 'all suitable' measures to limit consequences • All operations c/o on basis of systematic risk assessment to achieve major risks 'ALARP'	• (+) General principle of control of major accident hazards through management of risk is broadly welcomed • (~) Inconsistent use of risk assessment by both operators and regulators as precursor to a decision • (-) Reported inconsistency when the condition of 'risks ALARP' is achieved • (-) Risk assessment measures adopted by Member States insufficiently stringent (generic – applies to different forms of intervention) • (-) Lack of support to worker involvement in Reports of Major Hazards[100] (related to risk assessment, above) o Too tight time frames for assessment – insufficient time given by employer o Workers not prepared/trained • Suggestion to incorporate into tripartite consultation mechanisms

[100] a RoMH is an *ex ante* report by the operator or owner of an installation demonstrating that all major hazard risks are ALARP. Comments of the workforce are to be taken into account. The competent authority must issue an acceptance of the RoMH prior to operations starting.

Ref	Description	Article / Source	Components	Experience of Stakeholders in implementation: (+): overall positive, (-): overall negative, (~) overall neutral but commented
1.2	Public participation in release of new areas for licensing	Art.5	• No new licensing without previous public consultation • MS' to make suitable and sufficient arrangements for consultation and transparency	• (+) Broad appreciation that the measure is important • (-) Inconsistent application of MS 'to dormant licensing • (-) Inconsistent regard to changes in sea conditions over recent time (10 years) • (-) Some licensing authorities avoid full application of EIA and PP requirements in previously licensed areas that have nonetheless been inactive for a number of years o (~) COM invited to consider relinquishment of licenses as a matter of public information and comment
1.3	Assignment of the competent authority	Art.8,9	• MS' to assure structural independence from conflicts of interest with economic regulation • Functional separation acceptable where the number of installations <6. • MS' to ensure integration of safety & environment functions • CA may appoint external experts to support its functions • Where CA comprises 2+ bodies, duplication to be avoided: lead body may be appointed • CA to publish policies and procedures	• (+) Consensus of approval to principle of independent CA for safety and environment • (~) Duty holders concerned that some CA's have yet to stabilise and to acquire all relevant skills and expertise • (-) Observed difference of assignment in each jurisdiction → fragmentary approach to transposition of OSD and different regulatory approaches • (-) Doubtful separation of CA from economic regulation in some jurisdictions • (-) Perceived duplication of safety and environmental regulation leading to increased regulatory burdens
1.4	Functioning of scheme of independent verification for installations and	Art.17	• Integral to the operator/ owner SEMS, equivalent to "2nd pair of eyes" • Requires	• (+) Most MS' express approval of the system • (+) Advanced N Sea MS reports finding significant advantage to major accident risk control once scheme had stabilised • (~) Advanced MS' found introduction of scheme

Ref	Description	Article / Source	Components	Experience of Stakeholders in implementation: (+): overall positive, (-): overall negative, (~) overall neutral but commented
	wells		conformance to tests of independence of verifiers and integrity of work system • Applies to verification of SECE[101] and to wells including changes to design intent • 2nd or 3rd party verification permitted strictly where standards for independence are met	difficult – market unready and numerous design options for IV schemes • (~) Some MS express reluctance to accept 2PV (cross-verification) as completely independent. – interest in making 3PV mandatory, but capacity must be ensured • (-) Some approaches expressed by MS' as possible approaches in applying the OSD provisions: o In prescribing mandatory third party verification o In prescribing or approving the independent verification body o (Latter could be considered contrary to goal-setting, outcome-based design intent of OSD) • (-) MS' claim lack of clarity of Article 17 & Annex V relating to operation of independent verification schemes – expressed need for COM guidelines • (~) Independent verification bodies (i.e. companies who specialise in IV on a global scale) claim smaller niche companies lack capability and become captive to the client • (~) IVB's also claim OSD spawns growth of inexperienced small niche IV providers
1.5	Safety in operations conducted outside EU	Art.19(8) Art.20	• Corporate MAPP[102] to apply even to operations outside the Union • Operators' registered in a MS to report on incidents occurring outside the Union	• (-) Apparent fragmentary approach to implementation by MS' with some adding rules of tenuous relationship into the generic measure • (-) Inconsistency reported in MS' requirements for duty holders demonstration of CMAPP, and for MS' verification of it • (~) Unknown whether a major accident in a 3rd country occurred that would trigger a report by a EU-registered corporation to its MS • (-) Some duty holders unclear of distinction between CMAPP and SEMS and report duplication
1.6	Arrangements for worker involvement in major accident prevention,	Art.22 Art.6(8)	• CA to make arrangements for reports and to preserve anonymity	• (+) Wide approval of all stakeholders of fundamental right bestowed under Article 22 • (~) Signs that MS' take insufficient interest in training for workers and managers and in relationship of

[101] Safety and environment critical elements (SECE) i.e. parts of an installation including computer programmes, the purpose of which is to prevent or limit the consequences of a major accident, or the failure of which could cause or contribute substantially to a major accident

[102] CMAPP: Corporate Major accident prevention policy, i.e. a document setting out the owner's or operator's corporate policy for the avoidance of major accidents at their installations located anywhere in the world. Suitable arrangements to be made for monitoring the effectiveness of the policy which is to apply throughout the lifecycle of any installation controlled by the operator or owner, and in the case of an operator to take account of their primary responsibility for control of major accident risk (see element #1.1)

Ref	Description	Article / Source	Components	Experience of Stakeholders in implementation: (+): overall positive, (-): overall negative, (~) overall neutral but commented
	(relating to protection of whistle-blowers and tripartite consultation mechanisms)		• Operators/owners' to communicate their arrangements to workers • Operators/owners' to include training • Tripartite mechanisms to be established by MS' for consulting on major accident prevention policy and standards	whistle blowing to transparency, culture and integrity issues for the sector • (-) TU's report protection of whistle-blowers insufficient taken as a whole, and favour a link to tripartite[103] consultation mechanisms relating to policy and standards • (+) Duty holders report significant value-added where scheme of tripartite consultation first introduced (esp. outside N Sea region) • (~) Tripartite consultation not yet fully embedded in many Member States • (~) At present, no sharing of learnings or other information exists between tripartite committees of MS'
1.7	Transparency concerning reporting of inciden	Art.23 Art.24 Art.25	• Commission to make implementing regulation[104] for common reporting parameters • Commission to publish simplified reporting format • MS' to make public information relating to incidents • MS' to report to the Commission • Commission to make annual reports	• (+) Scheme is functional (but not fully mature). Is the first statutory inter-State reporting system anywhere • (~) There is a widely held public view that oil industry and regulators are not transparent and industry/MS' not forthcoming during preparation of directive • (-) Remains a disparity of data reporting and handling between MS' (and globally) • (~) Some MS' believe current guidance is insufficiently detailed • (~) Some duty holders dissatisfied with some incident severity thresholds (e.g. relating to release volumes of hydrocarbon escapes)
1.8	Emergency preparedness and response arrangements of operators/ owners'	Art.14 Art.28 Art.29 Art.30	• Operators/owners' to make relevant internal emergency response plans for containment of incidental releases • IERP's to be integrated as necessary e.g. with those of adjacent installations and	• (+) All installations present in EU waters have appropriate plans. Some MS' have agreed extensive procedures with duty holders • (~) some doubts as to extent to which internal emergency response plans are harmonised with national contingency plans of MS? • (+) Duty holders acknowledge the requirement has added value by improving integration of installation-based emergency response plans with national contingency plans (see #1.9)

[103] Formal tripartite consultation is required under auspices of each MS' to allow operators, regulators and worker representatives to discuss formulation of major accident prevent policy and standards.

[104] Comitology committee of experts chaired by Inspector General of NL regulator. Work on common reporting format completed with publication of Commission Implementing Regulation (EU) 1112/2014: http://data.europa.eu/eli/reg_impl/2014/1112/oj

Ref	Description	Article / Source	Components	Experience of Stakeholders in implementation: (+): overall positive, (-): overall negative, (~) overall neutral but commented
			with national contingency plans of the MS • IERP relevant expertise and equipment to be always available • Emergency response exercises to be conducted by MS', operators and owners	
1.9	Emergency preparedness and response arrangements of MS'	Art.28 Art.29 Art.30 Art.31	• MS' to prepare external ERP coherent with IERP's • MS' to ensure plans executed and investigations conducted without delay • Equipment to be compatible and interoperable between adjacent MS' • Emergency response exercises to be conducted by MS', operators and owners • Transboundary risks of pollution to be addressed and suitable cooperation to be arranged with 3rd countries	• (+) Duty holders and MS' acknowledge the requirement has added value by improving integration of installation-based emergency response plans with national contingency plans (see #1.8)[105] • Certain MS' and regions continue to prepare emergency response plans (Commission JRC has provided technical assistance) • (-) Fragmented approach to consideration of transboundary pollution effects (including 3rd countries) • (~) The extent of harmonisation of arrangements across state boundaries unclear • (+) Industry claims effective interoperability of expertise and equipment between MS' in contiguous maritime regions
1.10	Availability of dissuasive penalties for breaches of duty	Art.34	• To be: effective; proportionate; dissuasive • MS' to advise Commission of	• (~) Apparent wide disparity in approach between MS' in powers, sanctions and enforcement • (+) MS' and duty holders claim transparency of enforcement is significant sanction (i.e. impact on corporate reputation more significant than financial

[105] Since 2018, a number of devices – capping stacks – have been strategically deployed to be used to seal a subsea well blowout. These large devices may be lowered over the spewing wellhead on the sea floor and are designed to effect a seal and stem the flow. The equipment is stored in component form and deployable anywhere by large commercial aircraft such and then to be assembled and transported to location by ship within 24 hours of demand. To meet the 24 hours demand time, devices are located in the Gulf of Mexico, UK, Norway, Italy, Angola, Brazil and Singapore.

Ref	Description	Article / Source	Components	Experience of Stakeholders in implementation: (+): overall positive, (-): overall negative, (~) overall neutral but commented
			penalties by July 2015	penalties) • (-) Lack of harmonisation between MS' in relationship between criminal sanctions and licensing conditions • (~) Social partners (TU's, NGO's) call for bigger financial penalties to reflect commercial scale of duty holders • (~) July 2015 report?
2. Arms-length elements				
2.1	Assignment of liability; financial responsibility; and schemes of civil compensation	Art.4 Art.7 Art.39(1)(2) European Parliament resolution December 2016 (2015/2352(INI))	• Financial capability to meet all liabilities to be assessed during licensing • Ongoing commitment to maintain capability • All relevant marine environmental factors to be incorporated • Liability for petroleum pollution ascribed to license holders • Availability of financial responsibility and compensation schemes to be reported to Parliament/Council by 2014 • Commission to report on effectiveness of liability regimes and whether to	• (+) Article 7 imposes strict liability on license holder, without exception. • (+) Two MS' have produced specific detailed guidance for both regulators and license holders / applicants for compliance with financial responsibility guidelines provisions of Article 4[106] • (+) Broad preference of industry to maintain exposure-based approach over 'blanket' universal tariff liability provision • (+) Data exists on EU claims and pay-outs (to be provided to COM) • (+) NGO's direct COM interest to International Oil Pollution Compensation Fund (IOPC)[107] • (-) Clear that liability and financial responsibility regimes in MS' are equally fragmented as prior to OSD • (-) NGO's[108] claim liabilities and financial responsibility models are based on outdated sea models – backward looking to pre 2010 and do not account for rapidly increasing fragility of the marine environment due to human and climate effects • (~) Influx of smaller less financially capable operators in some regions, including frontier harsh environments, is more prevalent than 2010

[106] Potential exemplar provisions are in Oil & Gas UK publication specifically drafted in pursuit of Article 4 compliance: "Liability Provision Guidelines for Offshore Petroleum Operations" OGUK, 2018. Provides a ready reckoner for compensating potential clean-up costs and economic losses in all regions (modest to harsh; mechanisms for financial security and verification methods are provided. Regional spread of financial responsibility for a major petroleum release accident to the environment is US$250m – 1.5bn

[107] IOPC Fund is based on the oil tanker sector following a series of major European spills (Torrey Canyon, Erika …). Transferrable elements are: strict liability – polluter (tanker owner) pays; liability cap per tanker size (<US$285m) but which includes any compensation paid out under Civil Liability Convention (current maximum US$125m); based on levy of members (receivers of the cargo); only applies to MS' signatory to the fund.

[108] Notwithstanding at least one CA is arbiter of financial responsibility provisions pursuant to Art.4, the discourse on this critical topic is entirely between industry associations represented by IOGP and NGO's

Ref	Description	Article / Source	Components	Experience of Stakeholders in implementation: (+): overall positive, (-): overall negative, (~) overall neutral but commented
			broaden EU measures Parliament requires Commission to make a report and recommendations taking account of all factors to be submitted July 2019	• (~) NGO's point out that where pure economic loss where applied in other jurisdictions (particularly in USA and NO fishing sector) it has 'not opened flood gates' • (~) Industry point out where pure economic loss models are applied, limited liability and/or exclusions also apply • (~) Broad debate between operators and NGO's on what does the assessment for Parliament aim to solve regarding financial responsibility and liability? • (~) Would EU legislation apply vertically (by sub-sector, in this case offshore upstream petroleum sector) or horizontally (to level up all civil liability law in MS') • (~) Operators challenge whether OSD is the relevant instrument in the EU *acquis* for intervention in MS' civil liability legislation (~) Any change in EU legislation spawns the question of who drives the liabilities and compensation market (EU, MS, or Industry) Unlimited losses are currently not insurable above US$1.5bn
2.2	Prospect of extending criminal sanctions to breaches of duty to safeguard the environment from major accidents	Art.39(3 (within the scope of Directive 2008/99/EC)	• Commission to report in December 2014 • Commission to consider legislative proposals • MS' to make relevant information available to the Commission	• (+) Criminal sanction applies in certain MS' • (+) Unlikely to be strongly opposed by sector • (~) Some new civil legislation in MS' imposes stronger civil financial penalty than criminal courts and can be straightforward to enforce penalties • (-) Criminal proceedings are time consuming and costly to MS' with typically insignificant fines • (~) Damage to corporate reputation cited as 1ry aversion factor under criminal action • (-) Requires new legislation – presents legal timetabling issues 2019/20
3. Additional elements				
3.1	Post decommissioning responsibility for ensuring permanent	Art.12 Annex I(6)	• All OSD measures apply where installation is stationed in a licensed area,	• (+) All regional seas have governing marine conventions that addresses decommissioning • (~) Post decommissioning surveying (for a limited time) for hydrocarbon emissions[109] may be a

[109] Seepages of oil at abandoned production locations would normally indicate a failure to isolate the oil-bearing residues from the wells, causing migration and leakage over time. It is not known whether there are oil leaks from abandoned production sites. Gas and condensate seepages may come from shallow methane bearing gas pockets that have been disturbed by the making of the wells causing migration along the outside casings of the well ('biogenic' gas). gas from deep reservoirs insufficiently sealed during abandonment, may leak directly from the well or outside casing ('thermogenic gas').

Ref	Description	Article / Source	Components	Experience of Stakeholders in implementation: (+): overall positive, (-): overall negative, (~) overall neutral but commented
	sealing of wells, and for determining extent of removal of fixed installations		including scrutiny of decommissioning wells and physical structures • OSD ceases to apply where field has been decommissioned and the license has been relinquished • OSD is reactivated should an installation be stationed again in the area • Currently, regional seas conventions (e.g. OSPAR, Barcelona) require total removal of fixed installations at end of field life. Derogations may be sought on technical safety grounds	requirement of MS' licensing arrangements, (before operators are released from responsibility on the site). It doesn't currently take place before handover of site and responsibility to state. Post-decommissioning liability provisions do not exist under EU law. • (~) Surveying is not required under EU Hydrocarbons Licensing Directive 94/22/EC • (~) Industry favours all regional seas conventions be aligned with OSPAR with no additional intervention via the Directive/ However, recent practice suggest that Conventions offer a large degree of derogation to Contracting Parties. It should also be noted that EU MS are bound by conventions where EU is a signatory, such as the Barcelona Convention and the Offshore Protocol thereto. • (~) Ongoing technical debate on how many abandoned wells facilitate gas seeps in North Sea[110] and their consequences • (+) Industry contends there is no history of environmental harm from gas seepages around abandoned wells and no change to legislation necessary • (-) Surveys suggest seepage of gas from shallow geological pockets disturbed by exploration wells now abandoned in the North Sea. No surveys could be conducted on seabed of abandoned production wells as they fall under no-access areas. • Surveys conducted around on-shore abandoned wells in Canada confirm unexpected leakage/seepage. Some examples in EU also exist. • (~) Mature basins (N Sea, Italy) preparing for new era of intense physical decommissioning of production installations, fixed and mobile. OSD regulates major accident prevention during decommissioning – wells and physical structures. • (~) By design, OSD does not prescribe extent of physical removal – leave in place, partial or complete removal – but regulates major accident prevention

[110] Report: "Shallow Gas Migration along Hydrocarbon Wells – An Unconsidered, Anthropogenic Source of Biogenic Methane in the North Sea" by GEOMAR Helmholtz Centre for Ocean Research Kiel, 24148 Kiel, Germany, 2017; response: "Biogenic methane seepage - background information on the natural methane seepage landscape and a critical review/response to/of the Geomar report…/… (2017)" a Position Paper by IOGP, January 2019.

Ref	Description	Article / Source	Components	Experience of Stakeholders in implementation: (+): overall positive, (-): overall negative, (~) overall neutral but commented
				relating to the operation on whatever physical removal is agreed between licensee and MS • (-) CA obligated to avoid conflict of interest with MS' authorising authority for granting exemption from total removal, however current practice in UK and NL shows that decommissioning projects are co-financed and co-managed by State (sometimes CA) and operators/licensees. (~) Procedures of OSPAR are under current examination regarding efficacy of measures to enable other Contracting Parties (e.g. EU) to scrutinise derogation applications.
3.2	Deepening of the internal market through mutual recognition between Member States of mobile non production installations and of common systems that are not MS-specific	Art.13	• Relates mainly to drilling rigs (MODU's) • Refers to common acceptance between MS' of compliance with OSD-related measures • Article 13 creates a level playing field and in the absence of further and higher standards for control of major accident risks applying, a RoMH accepted in a MS should be acceptable in all MS' Also applies to systems deployed by operators on production installations where such systems are common i.e. not MS-specific	• (+) All MS' implement the requirement to receive submissions of RoHMs and associated productions (CMAPP, SEMS etc.), and to undertake acceptance measures • (-) Industry reports mobile installations movements between MS's are inhibited by OSD measures in operations in MS' whereby MS' conduct • (-)Operators/licensees operating production installations or drilling operations in several MS' also report additional burdens following introduction of OSD • (-)MODU's returning to same MS that issued acceptance within previous 5 years, are also subject to lengthy approval process as suggested by industry. Worth noting that MS support that procedure is "typical" and fast for returning, previously approved MODUs • (-) Operators and owners report Corporate Major Accident Prevention Plan requirements vary indiscriminately between Member States: o Creates an administrative burden for duty holders working in more than one Member State because CMAPP, by requirement, may not be subject to change in different jurisdictions o Possible advantage taken of the requirement by MS' to add further requirements, leading to differences across MS' • (~) Some MS' suggest they would acknowledge other MS' acceptance of a RoMH for MODU's, subject to strategic checks and any necessary reviews of additional requirements

Ref	Description	Article / Source	Components	Experience of Stakeholders in implementation: (+): overall positive, (-): overall negative, (~) overall neutral but commented
				• (-) Some MS' appear to misconstrue requirements for acceptance of RoMH's – e.g. that there is an incontrovertible requirement for thorough review prior to acceptance of RoMH's. • (-) Apparent lack of interest in MS' to explore solutions to freer movement of RoMH's. Also due to the variation of environmental conditions, operating conditions, labour laws etc.
3.3	Recovery of costs of maintaining the competent authority	Art.8(5), (7)	• MS' may establish mechanisms according to which the financial costs to the CA in carrying out its duties may be recovered from licensees, operators or owners	• (+) Most MS' took advantage of cost recovery measure in Art.8 to argue for funding via industry • (~) Relates to the issue of levels of MS' funding of their CA's - see also #1.4 relating to adequate funding by MS' of CA's to enable adequate performance of duties under OSD • (~) Some MS' argue for a mandatory requirement to recover costs • (+) In keeping with goal-setting nature of OSD, MS' adopt different recovery mechanisms; charge-out rate; fees for service; levy

12.2 Matrix for the detailed assessment

Actions required of the commission pursuant to the directive

(To include recommendations as appropriate)

- Action 1 (Article 40): To assess the experience of implementing the directive;
- Action 2 (Article 39(3) (Within the scope of Directive 2008/99/EC)): To assess the appropriateness of applying criminal law to certain breaches of environmental duty; and
- Action 3 (Article 39(1)(2) & EP Resolution 2015/2352(INI)): To report on the status of liabilities for damages and compensation mechanisms

Primary objectives of the directive by which actions are to be evaluated

(Being the principal objectives underpinning the directive)

- Objective 1: That the significant and unacceptably high risks of a major accident in EU waters be lowered. The sub-objectives being to a*ttain global best industry practices in the EU*; and to *implement global best regulatory practices for major accident prevention and mitigation.*

- Objective 2: That the insufficient arrangements for responding to a major accident in EU waters be improved. The sub-objective being to *implement fully joined-up emergency preparedness and response in all EU offshore regions*.
- Objective 3: That the arrangements for discharging financial liabilities and civil compensation for economic loss be more consistently effective in the EU (Subsequently updated by the European Parliament in 2015). The sub-objective being to *improve and clarify existing EU liability and compensation provisions.*

12.2.1 **Structure of the assessment matrix**

Action 1 to capture Objectives 1 and 2

Pursuant to Article 40, the Commission will evaluate whether and to what extent the experience of implementing the directive by MS' has:

(i) lowered the risks of a major accident in EU waters (and the degree of significance and level of residual risk)

(ii) improved the arrangements for responding to a major accident in EU waters (and the degree of sufficiency attained)

Action 2 (stand-alone)

Pursuant to Article 39(3) and within the scope of Directive 2008/99/EC - The Environmental Crime Directive - to assess the appropriateness of applying criminal law to certain breaches of environmental duty

Action 3 to capture Objective 3

Pursuant to Article 39(1) & (2) and Parliament resolution of 1 December 2016 - on liability, compensation and financial security for offshore oil and gas operations (2015/2352(INI)) – to report on the status of MS' with regard to the consistency and effectiveness of schemes for financial liability and compensation for economic loss

Brief summary of how assessment guidelines are to be applied to the assessment matrix.

The assessment aims to consider progress in relation to how things were expected to happen i.e. referring to the intervention logic behind the directive, and changes against the assessment baseline, and other relevant points of comparison. The criteria conventionally adopted by the Commission are: relevance; coherence; effectiveness; efficiency; and EU-added value.

The assessment also describes the extent to which the practical aims of the Offshore Directive 2013/30/EU have been attained at a substantial factor. The Directive was intended to introduce a substantially complete physical system of primary measures for MS' regulators and petroleum license holders and installation owners and operators and an assessment of whether the practical aims of the measures are physically in effect, i.e. attained, is required before the assessments of efficiency, coherence achieved by such measures are made.

The assessment will also attempt to explore the potential for simplification and burden reduction as an implicit factor.

Assessment criteria

Relevance: looks at the relationship between the needs and problems relating to the targeted societal segment, namely the maritime and coastal users and the environment where the offshore petroleum activities occur, and the objective of the intervention.

Coherence: is a factor of the external coherence with other EU legislation and policy and where relevant, at the Member State or International level. It also is an indicator of how different components of the directive, as implemented, operate together to achieve particular objectives.

Effectiveness: considers how successful the directive may have been in achieving or progressing towards its objectives. Where objectives may not have been achieved, the assessment will attempt to assess the extent to which progress falls short and attempt to explain the shortfall.

Efficiency: meant as the relationship between the resources required to execute a measure and the gain attained (i.e. an assessment of costs and benefits). The cost-benefit analysis will be quantified where possible and identify reductions or increases in regulatory burdens (Where useful, potential (future) savings identified from the assessment findings will be estimated)

EU-added value: a deduction of the relative efficacy between the implementation of the directive, and the Member States acting alone in regulating the offshore sector's control of major accident risk.

Note on the hierarchy of the assessment factors: Relevance and coherence were intensively processed in the impact assessment accompanying the draft directive (originally a draft regulation) and the assessment of these factors in the assessment has therefore, a substantial focus on validation of the original design intent. Conversely, the efficiency and effectiveness factors are the key determinants of the extent and degree of attainment of the directive's objectives, namely, reducing the risk of a major accident occurring, and mitigating the impact should a major accident nonetheless occur. EU-added value will be a deduction based upon some permutation of the efficacy factors processed in the assessment.

Table 4: Assessment Matrix

Colour key:

Measures that secure best industry practices in major accident prevention & mitigation	Measures that implement best regulatory practices in major accident prevention & mitigation	Measures that improve emergency preparedness & response in all EU waters	Measures that improve and clarify existing EU liability & compensation provisions

Full heading

EXTENT OF EU INTER-VENTION	PRIMARY AIMS OF THE INTERVENT-ION expressed as questions	SUBSIDIARY AIMS expressed as questions	PERFORMANCE INDICATORS OF EFFECTS OF 1ry and 2ry AIMS (answers to questions)		DATA SOURCES & RELIABILITY	CONCLUSIONS TO BE DRAWN Inc. further steps to be suggested
			Quantitative	Qualitative		

Abbreviated heading

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
ACTION 1						
Pursuant to Article 40, the Commission will evaluate whether and to what extent the experience of implementing the directive by MS' has:						
(i) lowered the risks of a major accident in EU waters (and the degree of significance and level of residual risk)						
(ii) improved the arrangements for responding to a major accident in EU waters (and the degree of sufficiency attained)						

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
OBJECTIVE 1 That the significant and unacceptably high risks of a major accident in EU waters be lowered. The sub-objectives being to a*ttain global best industry practices in the EU*; and to *implement global best regulatory practices for major accident prevention and mitigation.*						
(1) Duty to prevent major accidents to be made to rest with industry, requiring formal risk assessment for each installation						
Attainment	Is a clear duty to prevent major accidents ascribed to and accepted by industry, requiring formal risk assessment for each installation?	(i) Is control of major accident hazards based upon holistic risk assessment, with directly related principal duties assigned to license holders and operators?	(i) # MS' (as a percentage of the 16 focal MS') transposing the relevant articles; # industry duty holders[111] implementing the hierarchy of risk management controls as a percentage of the sector population.	(i) Positive and inferred evidence regarding: • Operators arrangements and contractor oversight can manage risks ALARP[112]; • clarity of roles between key actors in high hazard functions; • all suitable measures being taken to prevent major accidents and limit their consequences; • overarching responsibility accepted by license	(i) Article 3 ascribes the relevant duties. Reliable evidence derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by MS'; Workshops and interviews with stakeholders;	(i) Is it to be considered whether the scope of the intervention should be widened to encompass cyber security and counter-terrorism measures? Are the principles of control of major hazards by risk assessment broadly

[111] Scope of the 'industry duty holders' under the Directive is: license holders, operators of production installations, and owners of non production installations.

[112] ALARP is the globally accepted condition of risks reduced as low as reasonably practicable. In the field of reduction in occurrence of an accident, the ALARP condition is achieved where the risk is both tolerable in societal terms and where further expenditure in terms of financial cost, time and trouble does not achieve an appreciable reduction in the risk

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		Are significant duties coherently assigned to owners of non-production installations?	(ii) # of reports	holder • high hazard operations being conducted under systematic continuous risk assessments (ii) Positive and inferred evidence including from primary stakeholders [113] pertaining to changes evident regarding: • formal engagement between operators/ owners and competent authorities considering design options for installations;	and Observed experience raising issues of concerns; Subjective evidence derives from: Data submissions from stakeholders; Reports from EUOAG[114] Public consultations; Unsolicited written submissions; (ii) Article 11 ascribes relevant duties to MS'. Reliable evidence	welcomed and adopted? Is there discernible drift by MS' from the core intent of the interevention? Is the application of risk assessment universally accessible eg to workers, citizens? (ii) Have risk assessment reports re-defined the

[113] Scope of the 'primary stakeholders' under the Directive is: MS' regulators, including economic regulators where appropriate, industry duty holders (footnote 1), Trades Union, representatives of coastal and marine economies, and environmental NGO's

[114] EUOAG: EU offshore oil and gas authorities group being a formally convened group pursuant to Commission Decision 19 January 2012/C 18/07. It has been established to serve primarily as a forum for the exchange of experiences and expertise between national authorities and the Commission. It has met 16 times

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		(ii) Are competent risk assessment reports prepared by the relevant duty holders? Are they submitted to the competent authority of the MS?	submitted to regulators competent authorities as a percentage of the number of qualifying installations, classified as production, and non production, installations; # MS' transposing relevant articles; # of reports accepted by Competent Authorities	• optimistaion of major accident risk reduction in high hazard operations on installations and relating to all well operations; • management of change in risk • enhanced decision making regarding removal of fixed installations	derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by MS'; Workshops and interviews with stakeholders; Factual data openly available; and Observed experience raising issues of concerns; Subjective evidence derives from: Data submissions from stakeholders; Reports from EUOAG; and Public consultations.	relationship between MS' and duty holders? Is there a distinct upwards trajectory in the industrial safety culture? Is there a lifecycle approach to risk assessment for preventing major accidents on all petroleum installations, *namely*: design: commissionin g and operation; modification; relocation; and permanent

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
						abandonment and removal? Are all well operations integrated into the risk assessment framework?
Relevance	Do aims 1,(i)-(ii) directly address lowering of major accident risks? Are adverse effects of major accidents to the environment on coastal communities and the marine habitats and economic users likely to be mitigated?		# of reports submitted to regulators competent authorities as a percentage of the number of qualifying installations; Operational density criteria (production volumes; # offshore workers; # wells drilled; # installations; etc) as trends; Trending deployments	Is there evidence that the risk management measures under the Directive no longer represent international best practices? Does any shortfall derive from evolution of best practices elsewhere? or failure of effective	Reliable evidence derives from: MS' reports to Commission under the implementing regulation[115] and via EUOAG; formally authorised technical reports; and observed experience raising issues of concerns; workshops and interviews with	What more may be done to enhance the direct relevance to lowering of major accident risk? Are additional measures required at the EU- level? In the form of guidance and/or clarification?

[115] Implementing regulation No. 1112/2014 on common reporting format for offshore petroleum activities

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			of major capital mobile assets (IADC / IMCA / ECSA) Europe & global, 2008 – present; BOP reliability reports from JIP failure trend-summaries	implementation of the measures?	stakeholders Subjective evidence derives from: suggested experiences raising issues of concerns; public consultations; and Unsolicited written submissions;	Or in the form of revised measures? Are the provisions in the Directive capable of ensuring protection from further hazards related to operations after the installations are removed and the license relinquished?
Coherence	What correlation exists between the aims and EU legislation when addressing reduction in major accident risks?		Is it shown that duplication occurs between the Directive and other specific EU legal measures relating both to the sector	Is the Directive in alignment with Articles 194, 153(1)&(2), and 191(2) of TFEU? (This describes a generic question)	The duties ascribed to primary duty holders are required under Article 3; Article 11 requires measures for preparing risk assessment	Is additional coherence required between the effects of the Directive and other elements of the EU *acquis*?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			and relating to risk reduction and preparation of reports? Is it shown that conflict of legislative intent occurs between the Directive and other specific EU legal measures relating both to the sector and relating to risk reduction and preparation of reports? How numerous are the duplicative	Equally, is there alignment with the EU's Integrated Maritime Policy (IMP) and related management tools/instruments such as Maritme Spacial Planning (MSP) and Marine Knowledge 2020[116] Is coherence maintained in practice between the Directive and the related Council Directives 89/391/EEC and	reports for installations and wells. Reliable evidence derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by MS'; Conflicts with other requirements (eg under 92/91/EEC) in MS' reports to Commission under the implementing regulation[117] and via	Is the Directive shown in practice to be internally coherent? If further consideration at the EU level is to be suggested, should the internal coherence of the Directive be preserved (i.e. as an instrument for the prevention of major accidents including to the environment occurring as a result of

[116] See COM(2008) 791 final of 25.11.2008 and COM(2010) 771 of 17.12.2010 and COM(2010) 461 final of 8.9.2010

[117] Implementing regulation No. 1112/2014 on common reporting format for offshore petroleum activities

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			and conflicting elements?	92/91/EEC? Is a conflict observed between Annex C of 92/91/EEC (referring to offshore petroleum operations) and the Directive?	EUOAG; Observed experience raising issues of concerns; and Workshops and interviews with stakeholders Subjective evidence derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns; Public consultations; and unsolicited written	offshore petroleum operations)? [118] Is there improved coherence between the EU petroleum sector and other advanced jurisdictions; and does this signify a shift towards a more level international playing field as anticipated by the TFEU?

[118] Note this is a generic question that applies throughout the assessment

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					submissions.	
Effectiveness	How is it demonstrated that the intervention leads to a reduction in the risk of an offshore major accident? Is it clear that the required efforts are manifestly good offshore petroleum practices.		Major accident risk trends as formulated by advanced regulatory regimes (annualised reports); Well control incident report trend-summaries; BOP reliability reports from JIP failure trend-summaries; Major accidents as compared to global data Major accidents to the environment as compared to global data Risk assessment reports for installations	Diversification of license holders; population trends towards smaller, niche companies; Industry initiatives adopted by operators and contractors for continuous improvements in perfomance; Availability of KPI's and other statistical publications bearing on risk trends to major accident risk, occupational health & safety and environmental	Reliable evidence derives from: MS' reports to Commission under the implementing regulation and via EUOAG; Formally authorised technical reports; Observed experience raising issues of concerns; Workshops and interviews with stakeholders; and Factual data openly available; Subjective evidence derives from: Data submissions from	Is it becoming apparent that industry license holders have overarching responsibility for reduction in risk from major accidents? Are there indications of weaknesses in management of risk by industry? Are there further means to increase effectiveness of risk management in offshore petroleum

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			as a % of production installations in operation Risk assessment reports accepted for installations as a % of MODU's in operation;	protection;	stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns; Public consultations; and Unsolicited written submissions;	operations? Is there a sufficient record of attainment and effect for consideration of further intervention at the EU-level. Is the overall trajectory of industry suitable and sufficient?
Efficiency	What are the costs associated with the introduction of formal risk assessment systems and the promulgation of comprehensive risk assessment reports by duty holders in relation to the estimated cost of a major accident occurring?		Compliance costs for offshore operators/ MODU owners (€ opex; € capex; € administrative burdens costs; • Averaged cost of producing a risk assessment report	Significance of aging infrastructure, including MODU's: age profile of fixed and mobile installations; Operational density criteria	Reliable evidence derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by MS'; MS' reports to	Can it be established that the costs of introducing the formulation of risk assessment into the management systems and compliance demonstration

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			for: MODU; • production installation - mid water depth oil; • fixed production installation - shallow water gas; Availability of KPI's and other statistical markers bearing on risk trends to major accident risk, and environmental protection Cumulative elements of cost derived from the implementation of the Directive set against the perceived annualised costs of major	(production volumes; # offshore workers; # wells drilled; # installations; etc) as trends; Trending deployments of major capital mobile assets (IADC / IMCA / ECSA) Europe & global, 2008 – present; Oil price trends Industry initiatives adopted by operators and contractors for continuous improvements in	Commission under the implementing regulation and via EUOAG; and Workshops and interviews with stakeholders Subjective evidence derives from: Data submissions from stakeholders; Suggested experiences raising issues of concerns; and public consultations	s of primary duty holders were unjustifiably excessive? Is industry able to establish that the ongoing or running costs of a risk based system for the prevention of major accidents are excessive? Can elements of the risk management systems be discretely identified as causing unwarranted administrative burdens? Is it possible to derive

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			accidents, including to the environment, from offshore petroleum operations.	performance; Availability of KPI's and other statistical publications bearing on risk trends to major accident risk, occupational health & safety and environmental protection		a cost versus benefit term for this requirement of the Directive?
EU-value added	Is it likely that the intervention has increased the adoption of such good practices across the EU where otherwise would not have been the case?		Indicators may be integrated to derive cost/benefit terms from: • Well control incident report trend-summaries • BOP reliability reports from JIP	Major accident risk trends as formulated by advanced regulatory regimes (annualised reports	*Reliable evidence* derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by	What are the most frequently expressed views of: • MS' regulators • Operators and license holders • Owners on non production installations

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			failure trend-summaries • Exploration wells drilled • Trending deployments of major capital mobile assets (IADC / IMCA / ECSA) Europe & global, 2008 – present; and • Oil price trends	Aging infrastructure, including MODU's. Age profile of fixed and mobile installations Diversification of license holders; population trends towards smaller, niche companies Operational density criteria (production volumes; # offshore workers; # wells drilled; # installations; etc) as trends	MS'; MS' reports to Commission under the implementing regulation[119] and via EUOAG; and Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns; Public consultations;	• NGO's • Trades Union whether the Directive has per se added value compared with MS' acting without EU intervention? Is there a more levelled-upwards approach to risk management comparing EU MS' with IRF and NSOAF states?[120] Is it conceivable that

[119] Implementing regulation No. 1112/2014 on common reporting format for offshore petroleum activities

[120] IRF = International Regulators Forum (of offshore petroleum operating countries) comprising: Australia; Brazil; Canada (Nova Scotia, Newfoundland, and Federal Governments); Denmark; Mexico; Netherlands; New Zealand; Norway; UK; and USA. NSOAF = North Sea Offshore Authorities Forum, comprising: Denmark; France; Germany; Iceland; Ireland; Netherlands; Norway; and UK

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
				Post 2010 Industry initiatives adopted by operators and contractors for continuous improvements in performance	and Unsolicited written submissions;	MS' without prior risk assessment regimes would have adopted this practice without EU intervention?
(2) Corporate policies/ management systems to be deployed to ensure risk controls remain effective						
Attainment	Are there corporate policies/ management systems deployed by operators and owners which ensure risk controls remain effective on every applicabl	(i) Have operators/ owners developed a comprehensive risk management model extending from the main board to the offshore front line? Is there provision	(i) # MS' (as a percentage of the 16 focal MS') transposing the relevant article and its relatives; # industry duty holders implementing the management model as a percentage of the sector population.	Positive and inferred evidence including from primary stakeholders pertaining to changes evident regarding: • overarching responsibility accepted by license holder • high hazard operations being conducted under systematic continuous risk assessments • clarity that policy for	(i) Article 19 describes relevant duties for corporate policy; Article 17 requires integration of independent Reliable evidence derives from: Formally authorised technical reports; Major accident reports published by MS';	(i) Is there a clear relationship between license holders / operators, their workforce and contractors based upon corporate level policy for preventing major accidents? Is the scheme of independent verification for

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
	e installation, and relating to emergency interventions?	for continuous improvement and preservation of critical data to sustain corporate memory? Have all operators / owners established schemes of independent verification within their SEMS[121] for their installation	Schemes of independent verification in place as % of installations (NB qualitative indicators likely to be counted in the breach ie where action taken by regulators for non compliance.)	prevention of major accidents applies globally and emantes directly from governing board • reported failures of SECE's[12] via implementing regulation. (ii) Positive and inferred evidence including	Observed experience raising issues of concerns; and Workshops and interviews with stakeholders; Subjective evidence derives from: Major accident reports issued by duty holders; Suggested experiences raising issues of concerns; Public consultations; and Unsolicited written submissions;	installations and wells consistently applied in all focal MS'? Is the control of risk vertically applicable to the entire lifecycle of installations from design to abandonment ? Is it also horizontally applicable to safety and health of workers, environmental protection, and protection of major capital assets,

[121] SEMS = safety and environment management system, a component of the overall management system of an installation, encompassing policy through execution. All industrial sectors' SEMS are addressed in authoritative standards, such as ISO and BS.

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		s' SECE's[122], and for well plans? (ii) Have EU-registered operators incorporated a function in their	(ii) As previous element – likely to be honoured in the breach - # of non-compliances monitored by regulators (competent authorities for safety and environment);	from primary stakeholders pertaining to changes evident regarding: • elevation of accident preventive policies to the corporate level of duty holders; • management of change in risk of a major accident occurring; • all suitable measures being taken to limit the consequences of major acidents to the environment (iii) Positive evidence can be seen which denotes positive change regarding:	(ii) Article 20 ascribes relevant duties. Reliable evidence derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by MS'; Major accident reports issued by MS'; and interviews with stakeholders Subjective evidence	including petroleum reserves? Is their sufficient elapsed time for objective conclusions regarding further enhancement (ii) Is it perceived that the main duty holders conduct their operations overseas to the same standards as in EU waters? Is it seen that the main duty holders are, upon their

[122] SECE = safety and environmentally critical element, and means any part of an installation, including computer programmes, the purpose of which is to prevent or limit the consequences of a major accident, or the failure of which could cause or contribute substantially to a major accident;

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		management systems to report to their MS the circumstances of their overseas major accidents? Have operators and owners deployed effective measures to contain emergencies within the area of control of their installation?	# overseas incidents reported by operators to the competent authority # of MODU emergency response plans and production installation OPEP's[123] submitted to competent authorities?	• formal engagement between operators/ owners and competent authorities considering integration of response assets; • Availability of cross-EU well capping and transferable ER equipment and expertise	derives from: Suggested experiences raising issues of concerns; Major accident reports issued by operator/owner Public consultations; and Unsolicited written submissions (iii) Article 28 describes the relevant requirements. Reliable evidence derives from: Formally authorised technical reports; Observed experience raising issues	own initiatives, adopting and promoting new knowledge and technical invention?

[123] OPEP = oil pollution emegency plan which relates to the collection of all measures available on a production installation – fixed or floating – to contain a major accident and prevent its escalation beyond the 500m 'safety zone' circumscribing the installation

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		(iii) Have operators and owners made appropriate arrangements to make emergency response equipment available on demand to the MS where they operate?	(iii) # MS' (as a percentage of the 16 focal MS') transposing the relevant article and its relatives; # of cross-EU well capping and transferable ER equipment and expertise available in EU and Norwegian ports; # % of petroleum spills that result in major accident to the environment and deployment of national		of concerns; Major accident reports issued by MS' Workshops and interviews with stakeholders; Subjective evidence derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns; Major accident reports issued by operator/owner Public consultations; and Unsolicited written submissions	(iii) Is it seen that installation-based emergency plans are integrated with national contingency plans? Does industry appear to make a suitable and sufficient contribution to the inventory of response assets available across EU waters?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			contingency plans			
Relevance	Do aims 2(i)-(iii) directly address lowering of major accident risks by licensees, operators and owners of non production installations?		Relevance may be deduced from, *inter alia:* • environmental performance data for EU cf global trends; • Major accident risk control (process safety) performance data for EU cf global trends • Operational density criteria (production volumes; # offshore workers; # wells drilled; # installations; etc) as trends; • Incident reporting as % of requirement under Implementing Act	Indications of relevance may be deduced, *inter alia*, from: • Industry initiatives adopted by operators and contractors for continuous improvements in performance • Availability of KPI's and other statistical publications bearing on risk trends to major accident risk, occupational health & safety and environmental protection	Reliable evidence derives from: MS' reports to Commission under the implementing regulation and via EUOAG; and observed experience raising issues of concerns; workshops and interviews with stakeholders Subjective evidence derives from: suggested experiences raising issues of concerns; public consultations;	Is there evidence that the corporate policy measures under the Directive no longer represent international best practices? Does any shortfall derive from evolution of best practices elsewhere? Or failure of effective implementation of the measures? Are enhancements required at the EU- level? In the form of guidance

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					and Unsolicited written submissions;	and/or clarification? Or in the form of revised measures?
Coherence	What correlation exists between the aims (i)-(iii) and EU legislation when addressing reduction in major accident risks, including to the environment?		Does duplication occur between the Directive and other specific EU legal measures relating both to the sector and relating to risk reduction and preparation of reports? Is there conflict of legislative intent occurs between the Directive and other specific EU legal measures relating both	Is coherence maintained in practice between the Directive and the related Council Directives 89/391/EEC and 92/91/EEC? Is a conflict observed between Annex C of 92/91/EEC (referring specifically to offshore petroleum operations) and the Directive?	The duties ascribed to primary duty holders for maintenance of corporate major accident prevention policies are at Article 19. Article 20 requires measures for preparing risk assessment reports for installations and wells. Reliable evidence derives from: 2016 consultant's report to	Can it be demonstrated that intervention is required to provide additional coherence between the effects of the Directive and other elements of the EU *acquis*? Is the Directive shown in practice to be internally coherent? If further consideration at the EU

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			to the sector and relating to risk reduction and preparation of reports? How numerous are the duplicative and conflicting elements	Is there alignment with provisions under the various machinery and equipment legislation? Namely, the Machinery Directive, the Pressurised Equipment Directive, and the ATEX Directive?[124]	Commission on degree of transposition of the Directive by MS'; Conflicts with other requirements (eg under 92/91/EEC) in MS' reports to Commission under the implementing regulation[125] and via EUOAG; Observed experience raising issues of concerns; and Workshops and interviews	level is to be given, should the internal coherence of the Directive be a priority aim (i.e. as an instrument for the prevention of major accidents including to the environment occurring as a result of offshore petroleum operations)?

[124] *Refer to* Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (Machinery Directive), Directive 97/23/EC of the European Parliament and of the Council of 29 May 1997 on the approximation of the laws of the Member States concerning pressure equipment (Pressure Equipment Directive) and Directive 94/9/EC of the European Parliament and the Council of 23 March 1994 on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres (ATEX Directive).

[125] Implementing regulation No. 1112/2014 on common reporting format for offshore petroleum activities

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					with stakeholders Subjective evidence derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns; Public consultations; and unsolicited written submissions	
Effectiveness	Do the aims (i)-(iii) as implemented by MS' and responded to by industry attain global best industry practices in the EU through their corporate policies and management systems? Are adverse effects of major accidents to the environment on coastal communities and the marine habitats and economic users likely to be mitigated?		Major accident risk trends as formulated by advanced regulatory regimes (annualised reports); Well control incident report trend-summaries;	Diversification of license holders; population trends towards smaller, niche companies; Industry initiatives adopted by	Reliable evidence derives from: MS' reports to Commission under the implementing regulation and via EUOAG; Formally authorised technical reports;	Are further efforts necessary at EU-level to increase overall effectiveness of industry policy and management systems in offshore petroleum

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			BOP reliability reports from JIP failure trend-summaries; Major accidents as compared to global data Major accidents to the environment as compared to global data Schemes of independent verification in place as % of installations	operators and contractors for continuous improvements in perfomance; Availability of KPI's and other statistical publications bearing on risk trends to major accident risk, occupational health & safety and environmental protection;	Observed experience raising issues of concerns; Workshops and interviews with stakeholders; and Factual data openly available; Subjective evidence derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concern; Public consultations; and Unsolicited written submissions;	operations in reducing major accident risk and emergency response? Can the schemes of independent verification for installations and/or wells be made more effective? Are there further enhancements necessary to increase availability of shared industry expertise and assets for emergency response?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
Efficiency	What are the costs associated with the introduction of formal risk assessment systems and the promulgation of comprehensive risk assessment reports by duty holders in relation to the estimated cost of a major accident occurring?		Compliance costs for offshore operators/ MODU owners (€ opex; € capex; € administrative burdens costs in operation of: • schemes of independent verification; • internal emergency response plans; Cumulative elements of cost derived from the implementation of the Directive set against the perceived	Demographic trends in aging infrastructure, including MODU's: age profile of fixed and mobile installations; Operational density criteria (production volumes; # offshore workers; # wells drilled; # installations; etc) as trends; Trending deployments of major capital mobile assets (IADC / IMCA /	Reliable evidence derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; and Workshops and interviews with stakeholders Subjective evidence derives from: Data submissions from	Can it be established that the costs of introducing the formulation of risk assessment into the management systems and compliance demonstrations of primary duty holders were unjustifiably excessive? Is industry able to establish that the ongoing or running costs of a risk based system for the prevention of major

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			annualised costs of major accidents, including to the environment, from offshore petroleum operations.	ECSA) Europe & global, 2008 – present; Oil price trends Availability of KPI's and other statistical publications bearing on risk trends to major accident risk, occupational health & safety and environmental protection	stakeholders; Suggested experiences raising issues of concerns; and public consultations	accidents are excessive? Can elements of the risk management systems be discretely identified as causing unwarranted administrative burdens? Is it possible to derive a cost versus benefit term for this requirement of the Directive?
EU-value adde	Is it likely that the intervention has increased the adoption of such good practices across the EU		Indicators may be integrated to derive	Deriving context of SEMS and overarching	*Reliable evidence* derives from:	What are the most frequently expressed

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
d	where otherwise would not have been the case?		cost/benefit terms from: • Well control incident report trend-summaries: • BOP reliability reports from JIP failure trend-summaries • Failure reports from schemes of independent verification • Exploration wells drilled • Trending deployments of major capital mobile assets (IADC / IMCA / ECSA) Europe & global, 2008 – present; and • Oil price trends	policies via: • Major accident risk trends as formulated by advanced regulatory regimes (annualised reports • Demographic of aging infrastructure, including MODU's and fixed installations • Diversification of license holders; population trends towards smaller, niche companies • Operational density criteria (production volumes; # offshore workers; # wells drilled; # installations; etc) as trends Post 2010 Industry initiatives adopted by operators and contractors for continuous improvements in	2016 consultant's report to Commission on degree of transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; and Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues	views of: • MS' regulators • Operators and license holders • Owners on non production installations • NGO's • Trades Union whether the Directive has per se added value compared with MS' acting without EU intervention? Is there a more levelled-upwards approach to risk management comparing EU MS' with IRF and NSOAF states?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
				performance	of concerns; Public consultations; and Unsolicited written submissions;	What has been the increase in corporate accident prevention policies, SEMS, and schemes of independent verification caused by the Directive?
(3) Independent, expert regulators to operate in each Member State						
Attainment	Are independent, expert regulators appointed to operate in each Member State	(i) Is there a competent authority (CA) to perform functions relating to major accident prevention? Including major accidents to the	(i) Functioning of the CA deduced from: • Completeness of responses to COM re current assessment project (by # MS) • Allocation of resources by technical discipline per MS (technical and environment; assessment; inspection & audit; enforcement)	Has each MS notified appointment of a unitary CA for both safety and for environmental protection from a major accident? Are penalties and sanctions made available (and	(i) Article 8 specifies the arrangements and empowerment of the CA. *Reliable evidence* derives from: 2016 consultant's report to Commission on degree of transposition of the	(i) Has the experience of implementing the Directive secured the goal of best offshore petroleum regulation practice for preventing major accidents consistently across the

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		environment arising out of a major accident on the installation? Is the CA established to ensure independence of conflicts of interest with economic regulation?	• Penalties and sanctions applied by CA's • Major accident investigations launched • Prosecutions launched by CA's/MS' prosecuting authorities (ii) For context of scale and organisation of the CA: • Taxonomy: aging infrastructure, including MODU's.	reported to COM)? Do procedures address decommissioning of installations and permanent sealing of wells? Are there indications of duplication between safety and environmental regulation between joint agencies? Are there observed or potential conflicts of interest between the functions of the CA and	Directive by MS'; Observed experience raising issues of concerns; and Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; Suggested experiences raising issues of concern; Public consultations; and unsolicited written submissions	EU? Is there a perceptible broad level relationship in the EU between the CA and operators and owners and based on the control of major accident risk. Is further consideration at EU-level necessary to enhance the independence of the CA from economic regulation? Is further consideration

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		(ii) Is the CA sufficiently resourced? Is the CA enabled to act transparently? Specifically, has the CA developed, or is	Age profile of fixed and mobile installations • Operational density criteria (production volumes; # offshore workers; # wells drilled; # installations; etc) as trends • Trending deployments of major capital mobile assets (IADC / IMCA / ECSA) Europe & global, 2008 – present • MS staff resources applied to CA cf pre OSD • Operating budgets of CA per active well cf pre OSD • Operating budgets of CA per installation cf pre OSD	economic regulation functions? (ii) Have the MS'/CA's published policies and procedures? (Broadly speaking) Is there observed levelling of the regulatory baseline in EU waters so as to potentially deepen the internal market in human and	(ii) Article 9 specifies the functions of the CA (and Annex III) and Article 8 provides for recoverey of costs from the industry. *Reliable evidence* derives from: MS' reports to Commission under the implementing regulation and via EUOAG; Observed experience raising issues of concerns; Workshops and	at EU-level necessary to enhance the integration of process safety[126] and major environmental risk? (ii) Has their been change to funding systems for CA's following the implementation of the Directive? And is there a concensus amongst CA's regarding cost recovery from industry? Has the

[126] Process safety is the conventionally applied term to the practice of control of major accident risk in high hazard sectors such as offshore petroleum, refining, toxic chemicals production and so on. Reducing risks ALARP in high hazard processes requires the application of complex probabilistic risk assessments throughout from initial design

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		developing effective policies for major accident prevention and making them available to duty holders and the public?		physical assets? Is sufficient guidance available to duty holders to make clear the requirements of regulations? Do any CA's internalise their costs (ie not recover their costs from the industry)	interviews with stakeholders; and Factual data openly available; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns; Public consultations; and unsolicited written submissions	implementation of the Directive led to calls from industry and/or primary stakeholders[3] for further clarification or guidance? At what level? (EUOAG, COM, EU?) What is the experience regarding the free movement of expertise, installations and major equipment between jurisdictions as a result of implementing the Directive?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
						Is their sufficient elapsed time for objective conclusions regarding further enhancement?
Relevance	Do aims (i)-(ii) directly address lowering of major accident risks by duty holders under the oversight of the unitary Competent Authorities of the MS'?		For context: • Aging infrastructure, including MODU's. Age profile of fixed and mobile installations • Environmental performance data for EU cf global trends • Major accident risk control (process safety) performance data for EU cf global trends • Major accidents as compared to global data • Major accidents to the environment as compared to global data Direct indicators as follows	Is there publication by MS' of: • Hydrocarbon releases from permamently abandoned platform wells • Hydrocarbon releases detected from subsea locations attributed to decommissioned production facility (platform or subsea) Can key indicative performance data be retrieved, such as: • Environmental performance data for offshore petroleum	For relevance, *Reliable evidence* derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Observed experience raising issues	Is the experience of implementing the Directive regarding the appointment and functioning of the CA's broadly approved by MS' CA's? Are there regional differences of view? Has the experience of establishing a baseline of best

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			• Is a unitary CA established for both safety and environment • # schemes of independent verification in place as % of installations • Completeness of incident reports collected and reported publicly/to COM (as % of required reporting system)	for EU cf global trends • Major accident risk control (process safety) performance data for offshore petroleum for EU cf global trends • Occupationalv safety performance data for EU cf global trends	of concerns; Major accident reports issued by MS' Workshops and interviews with stakeholders; and Factual data publicly available. *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns; Major accident reports issued by operator/owner Public consultations and unsolicited	regulatory practices across the EU highlighted a lack of specifity in provisions. For example in removal of installations, and hydrocarbon releases following field or well abandonments ? Has the creation of similar CA arrangements in each MS led to a levelling up of consistent requirements as perceived by duty holders?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					written submissions	
Coherence	What correlation exists between the aims and EU legislation when addressing reduction in major accident risks by duty holders under the oversight of the unitary Competent Authorities of the MS'?		What has been the % completeness of responses to COM regarding this assessment project by MS'? Coherence with broad generic legislative intent can be deduced as follows: • Penalties and sanctions applied by CA's • Prosecutions launched by CA's/MS' prosecuting authorities • Major accident investigations launched	As generic point, is the Directive in alignment with Articles 194, 153(1)&(2), and 191(2) of TFEU? Is coherence maintained in practice between the measures relating to the arrangements and functions of the CA in the Directive and the related Council Directives 89/391/EEC and 92/91/EEC?	Article 8 specifies the arrangements and empowerment of the CA, including cost recovery. Article 9 specifies the functions of the CA (and Annex III) *Reliable evidence* derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by MS'; MS' reports to Commission under the implementing	Is there sufficient elapsed time for objective conclusions regarding further EU interventions for greater coherence between the Directive and the relevant EU legislation? Given the draft instrument was for a *regulation,* has the implementation of the Directive by MS' been consistently implemented

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			• Hydrocarbon releases from permamently abandoned platform wells • Hydrocarbon releases detected from subsea locations attributed to decommissioned production facility (platform or subsea) • Environmental performance data for EU cf global trends • Major accident risk control (process safety) performance data for EU cf global trends • Occupationalv safety performance data for EU cf global trends	Is a conflict observed between Annex C of 92/91/EEC (referring specifically to offshore petroleum operations) and the Directive? And maintained with the Seveso III Directive[127] Does the implementation of the Directive infringe the broad generic principles enshrined in the primary legislation,	regulation and via EUOAG; Formally authorised technical reports; Observed experience raising issues of concerns; Major accident reports issued by MS' Workshops and interviews with stakeholders; and Factual data publicly available; *Subjective evidence* derives from: Data submissions from stakeholders;	by focal MS'? Does any inconsistency with the Directive amongst the appointed CA's introduce differential coherence with other legislation? Are the penalties and sanctions available to CA's pursuant ot the Directive broadly consistent with the principles in

[127] Directive 2012/18/EU, the Seveso III Directive (full title: Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC Text with EEA relevance) is a European Union directive aimed at controlling major chemical accident and explosion hazards.

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
				mainly of the IPPC Directive[128]	Subjective technical reports; Suggested experiences raising issues of concerns; Major accident reports issued by operator/owner Public consultations and unsolicited written submissions	TFEU and with closely related HSE regulation[129]?
Effectiveness	Do the aims (i)-(ii) as implemented by MS' for appointing competent authorities attain global best regulatory practices in the EU? Are adverse effects of major accidents to the environment on coastal communities and the marine habitats and economic users		Contextual indicators of scale of industrial risk to be addressed: • Operational density criteria (production volumes; # offshore workers; # wells drilled; #	Practical qualitative indicators of effectiveness are: • penalties and sanctions applied by CA's • Prosecutions launched by CA's/MS' prosecuting	*Reliable evidence* derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by	Is there sufficient elapsed time for objective conclusions regarding further EU interventions in regulatory effectiveness?

[128] *Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control (IPPC Directive) and Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment* (Environmental Impact Assessment Directive), as amended by Directive 97/11/EC, 2003/35/EC and 2009/31/EC?

[129] HSE is a globally accepted acronym for the term 'health, safety and enviroonment'.

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
	likely to be mitigated?		installations; etc) as trends • Trending deployments of major capital mobile assets (IADC / IMCA / ECSA) Europe & global, 2008 – present Practical indications of effectiveness of the CA's: • Completeness of incident reports collected and reported publicly/to COM (as % of required reporting system) • RoMH's assessed by the CA as % of number of MODU's; and # accepted • RoMH's assessed by the CA as % of number of production installations; and # accepted	authorities • Major accident investigations launched • Intensity of inspections of CA as annualised inputs • Preventive programmes planned/executed by CA's Is a unitary CA established for both safety and environment?	MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Formally authorised technical reports; Observed experience raising issues of concerns; Major accident reports issued by MS'; Workshops and interviews with stakeholders; and Factual data publicly available; *Subjective evidence* derives from:	What are the sources and significance of calls for further clarification and guidance? Is there verification available? Where the CA is a joint rather than unitary body, are lead entities appointed? Is there consistency across the EU in the approach to enforcement against breaches of duty by industry?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					Suggested experiences raising issues of concerns; Major accident reports issued by operator/owner Public consultations and unsolicited written submissions	Are there conclusions to be drawn of efficacy comparing civil and criminal penalties (for example between high civil penalty fines (€multi - millions) and criminal financial penalties?
Efficiency	What are the costs associated with the introduction of appointing competent authorities in relation to the estimated cost reduction of a major accident occurring through reduction in risk?		Principal quantitative contexts for the scale of the sector requiring a CA response are: • Operational density criteria (production volumes; # offshore workers; # wells drilled; # installations; etc) as trends	Is a unitary CA established for both safety and environment? What different charging provisions are put into effect by MS?	*Reliable evidence* derives from: MS' reports to Commission under the implementing regulation and via EUOAG; Observed experience raising issues of concerns; and	Is there a more levelled-upwards approach to risk management comparing EU MS' with IRF and NSOAF countries? Can it be seen that the

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			• Trending deployments of major capital mobile assets (IADC / IMCA / ECSA) Europe & global, 2008 – present Practical indicators are: • MS staff resources applied to CA cf pre OSD • Operating budgets of CA per active well cf pre OSD • Operating budgets of CA per installation cf pre OSD • Allocation of resources by technical discipline per MS (technical and environment; assessment; inspection & audit; enforcement) • Cost of handling a RoMH for mobile NPI • Cost of handling operations RoMH	What is the proportion of aging infrastructure, including MODU's in EU offshore regions including age profile of fixed and mobile installations What are oil price trends and the general direction of the sector's economy? What are the relative efforts between established advanced CA's and new jurisdictions in setting up	Factual data publicly available; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns; Public consultations and unsolicited written submissions	establishment of a consistent cohort of EU offshore petroleum CA's promotes the efficiency of individual MS'? And the industry sector? How are the running costs of CA's shared with industry as viewed from the perspective of: 'whom creates the risk and benefits from the subsurface treasure'?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			for PI	their CA's? What dependency on technical consultancies is, on average, required by emerging and new CA's? Have MS' generally avoided duplication of HSE[19] functions between separate agencies?		
EU-value added	Is it likely that the intervention has increased the adoption of such regulatory practices across the EU where otherwise would not have been the case?		Indicators may be integrated to derive cost/benefit terms from: • Well control incident report trend-	Deriving context of SEMS and overarching policies via: • Major accident risk trends as formulated by advanced	*Reliable evidence* derives from: 2016 consultant's report to Commission on degree of	What is deduced of the experience of implementing the Directive in relation to establishing a coherent EU

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			summaries: • BOP reliability reports from JIP failure trend-summaries • Failure reports from schemes of independent verification • Exploration wells drilled • Trending deployments of major capital mobile assets (IADC / IMCA / ECSA) Europe & global, 2008 – present; and • Oil price trends	regulatory regimes (annualised reports • Demographic of aging infrastructure, including MODU's and fixed installations • Diversification of license holders; population trends towards smaller, niche companies • Operational density criteria (production volumes; # offshore workers; # wells drilled; # installations; etc) as trends Are there post 2010 Industry initiatives adopted by operators and contractors for continuous improvements in performance?	transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Formally authorised technical reports; Observed experience raising issues of concerns and/or approval; and Workshops and interviews with stakeholders. *Subjective evidence* derives from: Data submissions from stakeholders;	regime for CA's from perspective of: • NSOAF[10] MS' and Italy? • Southern EU MS'? What are the broadly expressed views of primary duty holders What can be deduced of the establishment of the EUOAG[4] regarding EU-added value? Would such a forum be extant without the intervention of the Directive? Is there sufficient

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					Subjective technical reports; Suggested experiences raising issues of concerns and/or approval; and Public consultations and unsolicited written submissions	elapsed time for objective conclusions regarding further EU interventions?
(4) Comprehensive verification of capability and experience to be undertaken at the licensing stage						
Attainment	Is there comprehensive verification of capability and experience of applicants undertaken at the	(i) Are licenses awarded in consideration of technical capability [130] for the planned operations and emergency response?	Quantitative deductions on the application of technical capability assessment may be available from: • # and frequency of licensing rounds since July 2013?	For context to scale and nature of licensing and licensed areas, the following indicators apply: • Exploration wells drilled • Frontier areas under, or available for, license	Article 4 describes requirements for the assessment and of technical capability of applicants to be considered by the MS; also the requirements for	Has the experience of the Directive been to create consistent technical capability assessments of applicants for licenses? Is it noted that the CA's

[130] Element (4) relates to the *technical* capability of the applicant for a license. The CA performs a significant role in the assessment of this aspect of the application. Element 9 evaluates *financial* capability measures in the Directive (also provided for in Article 4).

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
	licensing stage?	Are there provisions for MS' to ensure licensees maintain capability and compliance during operations?	• CA participation in licensing as % of licenses awarded since 2016 • # National Oil Companies (NOC's) acting as Operators in licensed areas • # licensed areas where no independent oil company IOC) is a venturer? (ii) Relevant data are • # public consultations on areas to be considered for licensing since July 2013?	• Oil price trends • Diversification of license holders; population trends towards smaller, niche companies Is a unitary CA for HSE appointed in each focal MS? Are there procedures published as to technical requirements in each MS' (ii) Are there independent licensing authorities in	monitoring of maintenance of suitable capability. (Article 6 contains general provisions for assurance of best international practices by operators and well operators in licensed areas) Article 5 requires public participation in the seleciton of areas for planned exploration operations. *Reliable evidence* derives from:	appointed pursuant to the Directive do participate in the assessments of technical capability? Is the number of new licenses awarded since 2016 sufficient for an objective assessment of any improvement in technical capability assessments?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		ii) Is exploration limited solely to areas where there has been public consultation? Are there arrangements in MS' that encourage active public participation?	• Number of EIA's[131] required by intervention of the licensing body or Minister in areas of special environmental sensitivity? (i.e where not otherwise mandated)	each MS? What general level of diversification of the marine spaces is there in EU offshore regions? Do licenses lie dormant for significant periods of time?	2016 consultant's report to Commission on degree of transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Formal notices of licensing rounds in OJ; Formal calls for public participation in selection of areas for licensing; Observed experience raising issues of concerns; and	

[131] Environmental impact assessments arerquired under Directive 85/337/EEC and amendments. MS' may require operators to conduct full EIA's prior to exploration drilling but normally an EIA is required at the stage of considering consent to installing a production facility.

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					Factual data publicly available; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns; Public consultations and unsolicited written submissions	
Relevance	Do aims 4, and (i)-(ii) directly address lowering of major accident risks by actively promoting public participation and by consistently evaluating technical capability of license holders and operators by competent authorities?		Suitable statistical data include (all from the date baseline July 2013): • # and frequency of licensing rounds? • # public consultations on areas to be considered for	For context to scale and nature of licensing and licensed areas, the following indicators apply: • Exploration wells drilled • Frontier areas under,	*Reliable evidence* derives from: MS' reports to Commission under the implementing regulation and via EUOAG; Formal notices of licensing	Is the experience of implementing the Directive regarding the licensing requirements broadly approved by MS' CA's?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			licensing? • Number of EIA's conducted? • # exploration wells spudded? • # licenses formally relinquished	or available for, license • Diversification of license holders; population trends towards smaller, niche companies Are there indications that Articles 4 and 6 no longer represent best international regulatory practice in technical capability assurance of license holders? What are oil price trends and the general direction of the sector's economy?	rounds in OJ; Formal calls for public participation in selection of areas for licensing; Observed experience raising issues of concerns; and Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns; and Public consultations and	Are there regional differences of view? Has the experience of establishing a baseline of best regulatory practices across the EU highlighted a lack of specifity in provisions. For example in retention of license approvals in dormant licensing; and in carrying forward environmental assessments in dormant licenses? Also does it raise a question over

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					unsolicited written submissions	CA's technical involvement at relinquishment of licenses where wells have been drilled?
Coherence	What correlation exists between the aims and EU legislation when addressing reduction in major accident risks through promoting active public participation in new licensing and assessing technical capability during licensing?		Suitable statistical data may be integrated from: • Hydrocarbon releases from permamently abandoned platform wells • Hydrocarbon releases detected from subsea locations attributed to decommissioned production facility (platform or subsea)	Is coherence maintained in practice between the measures relating to the Directive in the hydrocarbons licensing directive[132] ? And in respect of EU legislation under the Aarhus convention relating to	Article 4 describes requirements for the assessment and of technical capability of applicants to be considered by the MS; also the requirements for monitoring of maintenance of suitable capability. (Article 6 contains	Is there sufficient elapsed time for objective conclusions regarding further EU interventions for greater coherence between the Directive and the relevant EU legislation? Is it perceived that the Directive has increased

[132] *Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the conditions for granting and using authorizations for the prospection, exploration and production of hydrocarbons*

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
				public participation in environmental matters[133]?	general provisions for assurance of best international practices by operators and well operators in licensed areas)	transparency in national licensing arrangements ?
Effectiveness	Do the aims (i)-(ii) as implemented by MS' and responded to by industry attain global best industry practices in the EU through public participation in selecting new licensing areas and in the appointment of technically competent and suitably resourced license holders and operators? Are adverse effects of major accidents		The following indicators may apply: • # Exploration wells drilled • # Frontier areas under, or available for, license • # and frequency of licensing rounds since July 2013? • CA participation in	Is a unitary CA for HSE appointed in each focal MS? Are there procedures published as to technical requirements	*Reliable evidence* derives from: MS' reports to Commission under the implementing regulation and via EUOAG; Observed experience raising issues of concerns;	Has the experience of the Directive been to create consistent technical capability assessments of applicants for licenses? Is it noted that the

[133] Directive 2003/04/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC; Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC. Provisions for public participation in environmental decision-making are furthermore to be found in a number of other environmental directives, such as Directive 2001/42/EC of 27 June 2001 on the assessment of certain plans and programmes on the environment

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
	to the environment on coastal communities and the marine habitats and economic users likely to be mitigated?		licensing as % of licenses awarded since 2016 • # National Oil Companies (NOC's) acting as Operators in licensed areas • # licensed areas where no independent oil company IOC) is a venturer?	in each MS'? Are there indications that Articles 4 and 6 no longer represent best international regulatory practice in technical capability assurance of license holders? For context to scale and nature of licensing and licensed areas: • Oil price trends • Diversification of license holders; population trends towards smaller, niche companies	and Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns; and Public consultations and unsolicited written submissions	CA's appointed pursuant to the Directive do participate in the assessments of technical capability? Is the number of new licenses awarded since 2016 sufficient for an objective assessment of any improvement in technical capability assessments? Does the integration of the CVA as a formal consultee introduce further

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
						considerations of licensing aspects, eg consultation on standards of relinquishment?
Efficiency	What are the costs associated with the introduction of formal procedures to promote public participation in licensing new areas, and in CA participation in technical assessments of applicants? How do these relate to the estimated annualised cost of a major accident occurring?		Cumulative elements of cost derived from the implementation of the Directive at Articles 4, 5, 6 as set against the perceived annualised costs of major accidents, including to the environment, from offshore petroleum operations.	Can costs of CA participation in licensing be teased from overall set up costs? And running costs? Is it assumed that Article 5 acts in the affirmative rather than creates a new duty to conduct public participation?	*Reliable evidence* derives from: Formal notices of licensing rounds in OJ; Formal calls for public participation in selection of areas for licensing; Observed experience raising issues of concerns; and Workshops and interviews with stakeholders; *Subjective evidence*	Are the measures in the Directive for licensing and public participation broadly welcomed by principal stakeholders? Do social partners with access to CA's identify new matters of interest connected to technical competence in licensing and related public participation?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					derives from: Data submissions from stakeholders; Suggested experiences raising issues of concerns; and Public consultations and unsolicited written submission	
EU-value added	Is it likely that the intervention has increased the adoption of good practices in licensing and public participation across the EU where otherwise would not have been the case?		Relevance of EU-added value contextualised by: • # Exploration wells drilled • Trending deployments of major capital mobile assets (IADC / IMCA / ECSA) Europe & global, 2008 – present; and • oil price trends and the general direction of the sector's economy?	Feedback of principal stakeholders: • affirming the value of the new arrangements in securing the objectives of reducing majoraccident risk; and • identifying areas of other interventions to further imrove the relationship of regulators and civil society with sensible licensing	*Reliable evidence* derives from: Formally authorised technical reports; Formal notices of licensing rounds in OJ; Formal calls for public participation in selection of areas for licensing; Observed experience raising issues	What are the most frequently expressed views of: • MS' regulators • Operators and license holders • Owners on non production installations • NGO's • Trades Union whether the Directive has per se added value to technical licensing and

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					of concern; and Workshops and interviews with stakeholders. *Subjective evidence* derives from: Data submissions from stakeholders; Suggested experiences raising issues of concerns; Also affirmatory feedback; and Public consultations and unsolicited written submissions	concomitant public participation compared with MS' acting without EU intervention? Keeping in mind MS' right for determining offshore petroleum licensing policy, and the original intent of a regulation, has the Directive achieved a more level and upgraded approach to technical licensing and public participation?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
(5) EU-wide information sharing and transparency to be implemented						
Attainment	Is there EU-wide information sharing and transparency relating to sector performance in major accident prevention?	(i) Does industry make reports to CA's in accordance with implementing regulation # 1112/2014 ?	(i) incident reports provided to MS' by operators and owners under reg.1112/2014 as % of qualifying incidents Other reports as required by MS or regional seas conventions	(i) other reports available from industry include corporate annual reports; also industry trade association reports[134]: • Well control incident report trend-summaries • BOP reliability reports from JIP failure trend-summaries • Availability of KPI's and other statistical publications bearing on risk trends • Environmental performance data for EU cf global trends • Major accident risk control (process	Article 23 provides measures for industry reports, and the making of a regulation by the Commission for a common reporting format. Article 24 describes duties of MS' to publish incidents and for Commission to providea format for an EU annual report. Article 25 describes	Can it be seen that a new system of EU-wide reporting of incidents is in place? Is the system sufficiently mature to consider adaptations? Is action required to stimulate complete reporting?

[134] Main Trade Associations contributing to the assessment are: IOGP *International Association of Oil & Gas Producers* (London) – Operators and Licensees; IADC *International Association of Drilling Contractors* (Houston, USA – Owners of MODU's; ECSA *European Commercial Ship Owners Association* (Brussels) – Owners of commercial vessels which includes those servicing the petroleum sector; IMCA *International Marine Contractors Association* (London) – owners of specialised service vessels for the petroleum sector

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		(ii) Do MS' report data pertinent to major accident risk annually to the Commission?	(ii) # completed annual reports from MS' to Commission as % of focal MS', since 2016 # MS' that publish risk trend reports # MS' that contribute to IRF and	safety) performance data for EU cf global trends (ii) Indicators of transparency for MS' include: • Collection of incident data using 10 point taxonomy of the regulation; • Reports of major accident investigations made public • Reports of hydrocarbon spills made public • Publish annual fatal injury rate (iii) Is guidance made available by Commission to MS' and primary duty holders? Whether Commission	duties of MS' to report annually to the Commission and for the Commission to make annual EU-level reports. *Reliable evidence* derives from: MS' reports to Commission under the implementing regulation and via EUOAG; Formally authorised technical reports; Observed experience raising issues of concerns; Major accident reports issued by MS'; Workshops and	

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			NSOAF[10] reporting systems (iii) # annual reports under the implementing regulation published by Commission since 2017	reporting system duplicates existing systems in MS'?	interviews with stakeholders; and Factual data publicly available; *Subjective evidence* derives from: Data submissions from stakeholders; Suggested experiences raising issues of concerns; Major accident reports issued by operator/ owner; and Public consultations and unsolicited written submission	
Relevance	Do aims 5 and (i)-(iii) directly address lowering of major accident	(iii) Are reports published by the Commission in a common format produced under an implementing act?	Relevance may be deduced from,	Indications of relevance may	*Reliable evidence*	Is it seen that the taxonomy of

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
	risks through improved transparency of industry, the MS' and Commission?		*inter alia:* • environmental performance data for EU cf global trends; • Major accident risk control (process safety) performance data for EU cf global trends • Operational density criteria (production volumes; # offshore workers; # wells drilled; # installations; etc) as trends; and • Incident reporting as % of requirement under Implementing Regulation	be deduced, *inter alia*, from: • Industry initiatives adopted by operators and contractors for continuous improvements in reporting of performance • Availability of KPI's and other statistical publications bearing on risk trends to major accident risk, occupational health & safety and environmental protection Is there clarity of primary dutyholders compliance with the system? Is there availability of formal guidance?	derives from: MS' reports to Commission under the implementing regulation and via EUOAG; Formally authorised technical reports; Observed experience raising issues of concerns; Major accident reports issued by MS'; Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences	the reporting system reflects international best practices for offshore petroleum incident reporting? Is the system mature enough to make objecvtive considerations on the question of relevance to major accident prevention? Are there other international systems that focus especially on major accident

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					raising issues of concerns; and Suggested experiences giving affirmation feedback; Major accident reports issued by operator/owner; and Public consultations and unsolicited written submissions	prevention, including to the environment that may serve as a benchmark? Is the quality and completeness of reporting different between the mature regimes (North Sea, Italy) and the less mature?
Coherence	What correlation exists between the aims and EU legislation when addressing transparency of reporting of incidents and accidents in the offshore petroleum sector?		Does duplication occur between the Directive and other specific EU legal measures relating both to the sector and relating to risk reduction	Is coherence maintained in practice between the Directive's measures for transparency of industry performance ansd and the related	*Article 23* provides measures for industry reports, and the making of a regulation by the Commission for a common reporting format.	What may be primarily concluded from implementation and adoption of the transparency arrangements regarding

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			and preparation of reports? Is there conflict of legislative intent occurs between the Directive and other specific EU legal measures relating both to the sector and relating to risk reduction and preparation of reports? How numerous are the	Council Directives on industry sector major accident prevention performance [135]? And in respect of environmental liability and remedy[136]? And for major accident sites (onshore), the Seveso III Directive[137]?	*Article 24* describes duties of MS' to publish incidents and for Commission to providea format for an EU annual report. *Article 25* describes duties of MS' to report annually to the Commission and for the Commission to make annual EU-level reports. *Reliable evidence*	duplication with other reporting systems? Has any such duplication led to conflict of transparency arrangements that need to be avoided?

[135] 89/391/EEC (Framework Directive) and 92/91/EEC esp Annex C referring specifically to offshore petroleum operations (Safety in mineral extraction through drilling Directive)

[136] *Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (Waste Framework Directive) and in Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage (Environmental Liability Directive)*

[137] Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, repealing Directive 96/82/EC for controlling non nuclear major chemical accident and explosion hazards.

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			duplicative and conflicting elements		derives from: MS' reports to Commission under the implementing regulation and via EUOAG; Workshops and interviews with stakeholders; an *Subjective evidence* derives from: Data submissions from stakeholders; and Public consultations and unsolicited written submissions	
Effectiveness	Do the aims 5 and (i)-(iii) as implemented by MS' and responded to by industry attain full transparency in the EU		Contextual data indicating baseline levels of	For context of the current performance of the sector:	*Reliable evidence* derives from: MS' reports to Commission	Can it be seen that the system provides effective

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
	thereby contributing to a redeuction in offshore major accident rik? Are adverse effects of major accidents to the environment on coastal communities and the marine habitats and economic users likely to be mitigated?		industry performance: • # incidents occurring (using 10-point taxonomy of Implementing Act; e.g. collisions, breaches of 500m zone; hydrocarbon releases; etc) • Environmental performance data for EU cf global trends • Major accident risk control (process safety) performance data for EU cf global trends • Occupationalv safety performance data for EU cf global trends	• Major accident risk trends as formulated by advanced regulatory regimes (annualised reports) • Well control incident report trend-summaries • BOP reliability reports from JIP failure trend-summaries As indicators of effectiveness of the Directive: • Transparent collection of incident data (per Implementing regulation • Completeness of incident reports collected and reported publicly/to COM (as % of required reporting system) • Reports of major accident investigations made	under the implementing regulation and via EUOAG; Formally authorised technical reports; Observed experience raising issues of concerns; Major accident reports issued by MS'; Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns; and	overview of major acvcident risk trends across the EU? Is the effectiveness of the transparency system broadly welcomed by primary duty holders? Are there discussions at EUOAG concerning EU-level performance data? Is there sufficient elapsed time for objective conclusions regarding further EU

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
				public • Reports of hydrocarbon spills made public	Suggested experiences giving affirmation feedback; Major accident reports issued by operator/owner; and Public consultations and unsolicited written submissions	interventions on effectiveness?
Efficiency	What are the costs associated with the introduction of formal reporting systems up to the EU level; and in relation to the estimated annualised reductions in cost of a major accident occurring?		Indicators of cost are: • Cost of making the implementing regulation by MS' • and as above by industry • running costs to MS' of operating the new system • as above for industry • Indicators of benefit are deduced from the relative level of EU MS' performance: • Completeness of incident reports	Context of the level of industry performance are seen in: • Availability of KPI's and other statistical publications bearing on risk trends to major accident risk, occupational health & safety and environmental protection • Environmental performance data for EU cf global trends • Major accident risk	*Reliable evidence* derives from: MS' reports to Commission under the implementing regulation and via EUOAG; Formally authorised technical reports; Observed experience raising issues of concerns;	Is the availability of the EU-level report sufficiently known to the public and social partners? Are there calls for further guidance by duty holders? (And are these

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			collected and reported publicly/to COM (as % of required reporting system) • #Incidents occurring (using 10-point taxonomy of Implementing Act; e.g. collisions, breaches of 500m zone; hydrocarbon releases; etc)	control (process safety) performance data for EU cf global trends Occupational safety performance data for EU cf global trends Negative costs are to be inferred from feedback from industry and MS' on duplication with other statutory reporting systems	Workshops and interviews with stakeholders. *Subjective evidence* derives from: Data submissions from stakeholders; Suggested experiences raising issues of concerns; Suggested experiences giving affirmation feedback; and Public consultations and unsolicited written submissions	justified?) Can it be established that the costs of introducing the transparency system to MS' and to primary duty holders were unjustifiably excessive? (And running costs?) Is it possible to derive a cost versus benefit term for this requirement of the Directive?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
EU-value added	Is it likely that the intervention has increased the adoption of transparency of performance across the EU where otherwise would not have been the case?		Quantitative data since 2016/17 may only establish a baseline for further scrutiny of EU-added value: • # incidents occurring (using 10-point taxonomy of Implementing Act; e.g. collisions, breaches of 500m zone; hydrocarbon releases; etc) Practical indicators of change are revealed in: • Reports made to COM under Implementing regulation • Completeness of incident reports collected and reported publicly/to COM	Contextual data establishing baseline levels of industry performance : • Environmental performance data for EU cf global trends • Major accident risk control (process safety) performance data for EU cf global trends; • Occupational safety performance data for EU cf global trends	*Reliable evidence* derives from: Compliance with the Implementing Regulation 2014; MS' reports to Commission under the implementing regulation and via EUOAG; Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; Suggested experiences raising issues of concerns; Suggested experiences giving affirmation	Based upon the experience of implementing the Directive, what are the positions of: • MS' regulators • Operators and license holders • Owners on non production installations • NGO's • Trades Union whether the Directive has *per se* added value in providing enhanced understanding of sector risk compared to the *status quo ante* EU intervention? Is there now a more levelled-upwards

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			(as % of required reporting system) • Intensity of inspections of CA as annualised inputs		feedback; and Public consultations and unsolicited written submissions	approach to risk reporting comparing EU MS' with IRF and NSOAF states[10]
OBJECTIVE 2 That the insufficient arrangements for responding to a major accident in EU waters be improved The sub-objective being to *implement fully joined-up emergency preparedness and response in all EU offshore regions*						
(6) Cross-border intervention equipment to be available; and response assets to be more compatible						
Attainment	Is national and industry-owned intervention equipment available across MS' borders? And, pertinent to such availability, are	(i) Have MS' prepared for effective emergency response to major offshore accidents? Have MS' emergency reponse agencies made	(i) The context for the risks of major accidents occurring in EU waters are: • Major accident risk trends as formulated by advanced regulatory regimes (annualised reports) • Well control incident report trend-summaries • BOP reliability reports from JIP	(i) The qualitative contextual indicators of the requirement for emergency preparedness at the MS level are: • Well control incident report trend-summaries • BOP reliability reports from JIP failure trend-summaries	Article 29 provides measures for MS' planning and preparedness for major accident response. (Article 30 describes measuresnecessary for triggering an immediate response by operators and	Is it apparent that the aims of integrating emergency response assets and expertise and coordinating arrangements across boundaries are attained? For example:

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
	response assets being systematically becoming more compatible between MS'?	arrangements to ensure cross-border availability and compatibility of intervention assets? Have operators, owners, MS' conducted relevant exercises?	failure trend-summaries Indicators from which the readiness of emergency preparedness and response arrangements may be deduced are: • # of emergency response focal points as % of # of coastal MS; • # of cross-EU well capping equipment available; • Precursor major accident events reported aas per implementing regulation • # national emergency response exercises conducted at MS-level; • # cross-border MS' emergency intervention	• Aging infrastructure, including MODU's. Age profile of fixed and mobile installations • Operational density criteria (production volumes; # offshore workers; # wells drilled; # installations; etc) as trends • Trending deployments of major capital mobile assets 2008 - present • Oil price trends as an indicator of the sector's trajectory; and • Efforts ongoing for harmonisation of ER equipment in and between MS	owners) Article 31 ascribes responsibilities to MS' with active petroleum operations for transboundary interventions. Article 32 ascribes emergency response functions to neighbouring MS' who do not have offshore petroleum operations. *Reliable evidence* derives from: 2016 consultant's report to Commission on degree of transposition of the	Do national contingency plans integrate the internal emergency response plans of operators and owners? Are efforts in hand for making more transferable and interoperable the ER equipment and expertise between MS'? Is there sufficient elapsed time for objective conclusions regarding the extent of attainment and whether

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			exercises conducted (ii) Quantitative indicators of transboundary preparedness are derived from: • # reports shared between neighbouring MS', (including inactive MS' • # emergency response exercises conducted across MS' boundaries • # non-active MS' that have established emergency response focal points	(ii) The qualitative contextual indicators of the requirement for emergency preparedness at the MS level are: • Aging infrastructure, including MODU's. Age profile of fixed and mobile installations • Operational density criteria (production volumes; # offshore workers; # wells drilled; # installations; etc) as trends • Trending deployments of major capital mobile assets 2008 - present	Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Observed experience raising issues of concerns; Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; Suggested experiences raising issues of concerns; Suggested experiences giving affirmation feedback; and Public consultations	the system requires further maturity? Is sufficient interest paid by inactive neighbouring MS' to interaction with active neighbours?
		(ii) Do operationally active MS' prepare for and deploy				

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		preventive and recovery measures where any risk of transboundary effects are likely? Do MS' facilitate emergency response collaborations with neighbours? Have inactive coastal MS' appointed focal points in order to collaborate effectively with operationa			and unsolicited written submissions	

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		lly active neighbours ?				
Relevance	Do aims 6 and (i)-(ii) directly encourage a significant uplift in major accident preparedeness and response to a major accident in EU waters?		Relevance may be deduced from data *inter alia* as follows: BOP reliability reports from JIP failure trend-summaries: • # of emergency response focal points as % of all coastal MS' • # emergency response exercises Indicators of connectivity between primary duty holders and MS' licensing authorities and CA's: • # wells drilled • Completeness of incident reports	Contextual indicators of relevance of the measures to raising standards in line with risk of major accident: • Aging infrastructure, including MODU's. Age profile of fixed and mobile installations • Exploration wells drilled • Frontier areas licensed • Trending deployments of major capital mobile assets • Efforts ongoing for harmonisation of ER equipment in and between MS • Unitary CA established for both safety and	*Reliable evidence* derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Formally authorised technical reports; Observed experience raising issues of concerns; Workshops and interviews with	Is the system mature enough to make objective considerations of relevance of new emergency response arrangements to major accident prevention? What is the experience of implementing the Directive in the inactive coastal MS'? Does the implementation of the

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			collected and reported publicly/to COM (as % of required reporting system • RoMH's accepted for installations as a % of production installations in operation • RoMH's accepted for installations as a % of MODU's in operation	environment • CA Participation in licensing • Availability of cross-EU well capping and transferable ER equipment and expertise	stakeholders; and Factual data publicly available; *Subjective evidence* derives from: Data submissions from stakeholders; Suggested experiences raising issues of concerns or affirmative feedback; and Public consultations and unsolicited written submissions	Directive measures for emergency response distinguish effectively between mobile and fixed installations?
Coherence	What correlation exists between the aims and EU legislation when addressing improvement in major accident preparedeness and response to a major accident in EU waters?		Indicators of correlation between primary duty holders and MS' emergency response agencies and	Are the measures for emergency response at the MS level coherent with other relevant sector risk-based systems,	Article 29 provides measures for MS' planning and preparedness for major accident response.	Has the experience of implementing the Directive introduced correlations between national contingency programmes

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			CA's: • # Exploration wells drilled • Completeness of incident reports collected and reported publicly/to COM (as % of required reporting system • RoMH's accepted for installations as a % of production installations in operation RoMH's accepted for installations as a % of MODU's in operation	particularly the related Council Directives for safety in hazardous industries - 89/391/EEC and 92/91/EECand the Directive? And maintained with the Seveso III Directive[10] in relation to preparedness of the MS where the incident escalates beyond the site? Is there a broad coherencewith the Community Civil Protection Mechanism	(Article 30 describes measuresnecessary for triggering an immediate response by operators and owners) Article 31 ascribes responsibilities to MS' with active petroleum operations for transboundary interventions. Article 32 ascribes emergency response functions to neighbouring MS' who do not have offshore petroleum operations.	for emergency response by MS' and arrangements of operators and owners for internal emergency response plans? Have the provisions of implementation by MS' introduced unforeseen conflicts or duplications in emergency response arrangements ?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
				established by Council Decision 2001I792IEC establishing a Community mechanism to facilitate reinforced cooperation in emergency response?		
Effectiveness	Do the aims 6 and (i)-(ii) as implemented by MS' and responded to by industry encourage a significant uplift in major accident preparedeness and response to a major accident in EU waters thereby contributing to a redeuction in offshore major accident rik? Are adverse effects of major accidents to the environment on coastal communities and the marine habitats and economic users likely to be mitigated?		Indicators of effective connection between emergency response arrangements by MS' emergency responders and CA's, and risk assessments by operators and owners are: # Exploration wells drilled	Qualitative and contextual indicators of effectiveness of the emergency response provisions are: Major accident risk trends as formulated by advanced regulatory regimes (annualised reports)	*Reliable evidence* derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Formally authorised	Has the experience of implementing the Directive created a holistic framework of emergency response plans *namely*: *arrangements and provisions by operators and owners for preventing major accidents;* *arrangements for4*

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			• % availability of internal emergency response plans prepared by owners of non production installations • % availability of internal emergency response plans prepared by operators of production installations • RoMH's accepted for installations as a % of production installations in operation • RoMH's accepted for installations as a % of MODU's in operation	Well control incident report trend-summaries BOP reliability reports from JIP failure trend-summaries Diversification of license holders; population trends towards smaller, niche companies • Trending deployments of major capital mobile assets (IADC / IMCA / ECSA) Europe & global, 2008 – present Efforts ongoing for harmonisation of ER equipment in and between MS Establishment of	technical reports; Observed experience raising issues of concerns; Major accident reports issued by MS'; Workshops and interviews with stakeholders *Subjective evidence* derives from: Suggested experiences raising issues of concerns; Suggested experiences giving affirmation feedback; Major accident reports issued by operator/owner; and Public consultations	*containment of escalation beyond the installation by operators and owners;* *itegration of internal plans with national contingency arrangements ;* *sharing of response assets;* *ongoing harmonisation and interoperability of response assets; and* *proactive liaison and sharing of information with adjacent MS' and 3rd countries?* Is the system mature

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
				emergency response focal points in each MS •	and unsolicited written submissions	enough to make objective considerations of relevance of new emergency response arrangements to major accident prevention?
Efficiency	What are the costs associated with the introduction of new arrangements for emergency response; and in relation to the estimated annualised reductions in cost of a major accident occurring?		Quantitative indicators depend upon extracting costs of setting up revised emergency response arrangements and associated running costs from the overall costs of set up and operation by MS'	Qualitative and contextual indicators of efficiency – cost effectiveness - of the emergency response provisions are: Aging infrastructure, including MODU's. Age profile of fixed and mobile	*Reliable evidence* derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by MS'; Observed experience raising issues of concerns; Major accident reports issued by MS';	Can it be evaluated from the experience – so far – of implementing the Directive, that the benefits achieved in emergency response at MS/EU-level outweigh the costs of set-up and operation?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			Compliance costs for offshore operators/ MODU owners (€ opex; € capex; € administrative burdens costs Compliance costs for offshore operators/ MODU owners (€ opex; € capex; € administrative burdens costs Averaged cost of producing a RoMH (for MODU) Averaged cost of producing a RoMH for (FPI mid water oil) Averaged cost of producing a	installations Operational density criteria (production volumes; # offshore workers; # wells drilled; # installations; etc) as trends Trending deployments of major capital mobile assets (IADC / IMCA / ECSA) Europe & global, 2008 - present Oil price trends Availability of cross-EU well capping and transferable ER equipment and expertise	Workshops and interviews with stakeholders; and Factual data publicly available; *Subjective evidence* derives from: Data submissions from stakeholders; Suggested experiences raising issues of concerns; Suggested experiences giving affirmation feedback;and Public consultations and unsolicited written submissions	Have the revised arrangements created a more levellised, joined-up system across the EU *ergo* more efficient than heretofore? Is there sufficient elapsed time for objective conclusions regarding further EU interventions?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			RoMH (shallow water gas)			
EU-value added	Is it likely that the intervention has increased efficacy of emergency response arrangements across the EU where otherwise would not have been the case?		Quantitative data since 2016/17 may establish a baseline for further scrutiny of EU-added value: • # incidents occurring under the implementing regulation; e.g. collisions, breaches of 500m zone; hydrocarbon releases; etc) • # Reports made to COM under Implementing regulation • RoMH's assessed and accepted by CA's • Intensity of	Feedback of principal stakeholders: • affirming the value of the new arrangements in securing the objectives of reducing major accident risk; and • identifying areas of other interventions to further imrove the relationship of regulators and civil society with sensible licensing • Other qualitative indicators: Completeness of incident reports collected and reported publicly		Based upon the experience of implementing the Directive, what are the positions of: • MS' regulators • Operators and license holders • Owners on non production installations • NGO's • Trades Union whether the Directive has *per se* added value in providing enhanced understanding of risk in emergency response

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			inspections of CA as annualised inputs	to COM (as % of required reporting system)		planning Is there now a more levelled-upwards approach to risk based emergency response planning comparing EU MS' with IRF and NSOAF states[10]
(7) Establish a new duty to cooperate and share information						
Attainment	(7) Is there a new duty to cooperate and share information beween MS'?	(i) Have MS' established platforms for regulatory dialogue, including with EUOAG for comprehensive	(i) Quantitative indicators of attainment of enhanced dialogue arrangements are: • # meetings of EUOAG • # Workshops for sharing skills and expertise between	(i) Qualitative indicators of enhanced dialogue between the parties are: • Formal and ad hoc engagements with main duty holders, Trades Union and environmental NGO's	Article 27 sets out dutyies and measures for Commission and primary stakeholders (Articles 6/19 make provision for tripartite forums in each MS)	Has the experience of implementing the Directive clearly raised the level of collaboration and facilitation between all stakeholders in EU and Norway?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		information sharing including in emergency response? Have industry and MS' collaborated on priorities for improving standards jointly between MS' and internationally. (ii) Has the	CA's • Completeness of incident reports collected and reported publicly to the Commission (as % of required reporting system) • Publications by MS' setting out guidance on standards for compliance with the Directive (ii) Quantitative indicators for effective collaboration with 3rd countries and other international players are: • # DG.Ener/B4 as sponsoring Unit, participation in standards workgroups with duty holders • # forums with 3rd countries organised by Commission	• Formation of tripartite forums in each MS • Global and EU industry initiatives adopted by operators and contractors for continuous improvements in performance (ii) Qualitative performance indicators bearing on enhanced international outreach for sharing information and improving standards are: • institutionalised meetings with other	Article 33 commits all stakeholders to cooperate and facilitate continuous improvement in major accident prevention standards. *Reliable evidence* derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Formally authorised technical reports and	Has the implementation of the Directive led to sharing of expertise and experience between MS' in different jurisdictions Are there clear signs of levelling up of skills and effectiveness between mature petroleum regulation regimes and less developed regimes? Is the implementation of the

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		Commission and MS' systematically promoted sharing of information and continuous improvement in standards at international level?	(Ener/B4) • International well control incident report trend-summaries • International BOP reliability reports from JIP failure trend-summaries	key groups (3rd countries, NSOAF, industry etc) • Availability of international KPI's and other statistical publications bearing on risk trends to major accident risk, occupational health & safety and environmental protection • Availability of major accident risk trends in national jurisdictions and with IRF/NSOAF as formulated by advanced regulatory regimes (annualised reports)	training courses; Observed experience raising issues of concern; Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; Suggested experiences raising issues of concerns or affirmation; Major incident reports issued by operator/owner; and Public consultations and unsolicited written submissions	Directive mature enough to make objective considerations of attainment of collaboration and cooperation arrangements so as to improve major accident prevention?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
Relevance	Do aims 7 and (i)-(ii) directly address a significant improvement in collaboration and cooperation between all stakeholders to reduce risks of a major accident in EU waters?		Quantitative indicators of good relevance between the cooperation measures and major accident reduction are: • Completeness of incident reports collected and reported publicly/to COM (as % of required reporting system) • BOP reliability reports from JIP failure trend-summaries • Incidents occurring (using Act; e.g. collisions, breaches of 500m zone; hydrocarbon releases; etc) • Environmental performance data for EU cf global trends • Major accident risk control (process safety) performance	Qualitative indicators of relevance are: • Tripartite forum established and active per MS • Industry initiatives adopted by operators and contractors for continuous improvements in performance • Availability of KPI's and other statistical publications bearing on risk trends to major accident risk, occupational health & safety and environmental protection	*Reliable evidence* derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Incident reports issued by MS'; Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders;	Is the system mature enough to make objecvtive considerations on the question of relevance to major accident prevention? Has the creation of similar CA arrangements in each MS led to a levelling up of consistent requirements as perceived by duty holders? Are there regional differences of view?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			data for EU cf global trends		Suggested experiences raising issues of concern and/or affirmation; and Public consultations and unsolicited written submissions	
Coherence	What correlation exists between the aims of improved cooperation between all the actors and other relevant EU legislation when addressing reductions in major accident risk in EU waters?		Quantitative 'coherence' indicators include: • the % of incident reports submitted to the Commission by MS' • Equally the number of reports on EU incidents and sector information published by the Commission • The number of EUOAG meetings convened by the Commission	Are the measures for enhanced cooperation coherent with other relevant sector risk-based systems, particularly the related Council Directives for safety in hazardous industries - 89/391/EEC and	Article 27 sets out duties and measures for Commission and primary stakeholders (Also, Articles 6/19 make provision for tripartite forums in each MS) Article 33 commits all stakeholders to cooperate and facilitate	Has the experience of implementing the Directive intrtoduced a coherence in the culture of cooperation for the offshore sector in alignment with the Seveso III Drective onshore?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			• The number of standards body projects attended by the actors, including the sponsor Unit of the Commission, since 2013	92/91/EEC and the Directive? And maintained with the Seveso III Directive[10] in relation to preparedness of the MS where the incident escalates beyond the site? Is there a broad coherence with the requirements of transboundary cooperation in developing strategic environmental assessments (SEA Directive / 2001/42/EC)?	continuous improvement in major accident prevention standards.	In particular, has the implementation of the Directive introduced environmental considerations more robustly into the cooperation agendas in alignment with Seveso III and for example coherent with the principles of the SEA Directive and associated legislation (and the UN 'Espoo' convention)
Effectiveness	Do the aims 5 and (i)-(iii) as		Quantitative indicators	Qualitative	The operation and	Is it clear that

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
	implemented by MS' and responded to by industry attain greater cooperation amongst the offshore petroleum stakeholders in the EU thereby contributing to a reduction in offshore major accident risk? Are adverse effects of major accidents to the environment on coastal communities and the marine habitats and economic users likely to be mitigated?		of effectiveness are: • # meetings of EUOAG • # Workshops for sharing skills and expertise between CA's • Completeness of incident reports collected and reported publicly to the Commission (as % of required reporting system) • # participations in standards workgroups with stakeholders • # focal forums with 3rd countries organised by Commission (Ener/B4)	effectiveness indicators are: • Publications by MS' setting out guidance on standards for compliance with the Directive • International well control incident report trend-summaries • International BOP reliability reports from JIP failure trend-summaries Contextual indicators of scale are: • Major accident risk trends as formulated by advanced regulatory regimes (annualised reports) • Well control incident report trend-summaries	outputs of the main cooperation forums established under the Directive provide much of the evidence of effectiveness (EUOAG, tripartite forums and so on) *Other reliable evidence* derives from: MS' reports to Commission under the implementing regulation; Formally authorised technical reports; Observed experience raising issues	implementation of the Directive has led to cooperation in significant areas of risk management? Is it seen from the wider base of competent authorities and formal cooperation mechanisms that there is a clear trajectory towards cooperation and sharing of information between all of the actors? Has the experience of implementing the directive

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					of concerns; Workshops and interviews with stakeholders *Subjective evidence* derives from: Data submissions from stakeholders; Suggested experiences raising issues of concerns and affirmation; and Public consultations and unsolicited written submissions	been to expose differentiation in the competency requirements for regulation of goal setting, risk based systems? How effective has been the shift from subjective, prescriptive regulation? For example in producing guidance on good practice, and clarifying requirements to duty holders?
Efficiency	What are the costs associated with the introduction of formal systems of cooperation and information		Quantitative indicators depend upon extracting	Qualitative and contextual indicators of	*Reliable evidence* derives from: 2016 consultant's	Is the implementation of the Directive

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
	sharing up to the EU level; and in relation to the estimated annualised reductions in cost of a major accident occurring?		costs of setting up cooperation and sharing arrangements and associated running costs from the overall costs of set up and operation by MS' • For example the costs embedded in compliance for offshore operators/ MODU owners (€ opex; € capex; € administrative burdens costs • Compliance costs for offshore operators/ MODU owners (€ opex; € capex; € administrative burdens costs • running costs to MS' of operating the new system • as above for industry	cost effectiveness of the cooperation and information sharing provisions are: • Aging infrastructure, including MODU's. Age profile of fixed and mobile installations • Operational density criteria (production volumes; # offshore workers; # wells drilled; # installations; etc) as trends • Trending deployments of major capital mobile assets Europe & global, 2008 - present • Oil price trends • Availability of cross-EU well capping and transferable ER equipment and	report to Commission on degree of transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Observed experience raising issues of concerns; Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports commissioned	mature enough to make objective considerations of attainment of collaboration and cooperation arrangements so as to improve major accident prevention? Is it the experience of implementing the Directive that workforce participation in major accident risk management has been significantly enhanced? For example,

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
				expertise	by EUOAG; Suggested experiences raising issues of concerns and affirmation; and Public consultations and unsolicited written submissions	participation in risk assessment, whistle-blowing, and in tripartite consultations?
EU-value added	Is it likely that the intervention has increased the adoption of cooperation and information sharing across the EU where otherwise would not have been the case?		Quantitative data since 2016/17 may establish a baseline for further scrutiny of EU-added value: • # incidents occurring under the implementing regulation; (e.g. collisions, breaches of 500m zone; hydrocarbon releases; etc)	Feedback of principal stakeholders: • affirming the value of the new arrangements in securing the objectives of reducing major accident risk; and • identifying areas of other interventions to further imrove the relationship of regulators and civil society with sensible licensing	*Reliable evidence* derives from: MS' reports to Commission under the implementing regulation and via EUOAG; Formally authorised technical reports; Observed experience raising issues of concerns;	Based upon the experience of implementing the Directive, what are the positions of: • MS' regulators • Operators and license holders • Owners on non production installations • NGO's • Trades Union whether the Directive has *per se*

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			• # Reports made to COM under Implementing regulation • RoMH's assessed and accepted by CA's • Intensity of inspections of CA as annualised inputs • # EUOAG meetings convened by the Commission • # training events for new CA's organised by the Commission (JRC)	• Other qualitative indicators: Completeness of incident reports collected and reported publicly to COM (as % of required reporting system) • Setting up and operating tripartite forums where noe previously existed	Workshops and interviews with stakeholders; and Factual data publicly available; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns and/or affirmation; and Public consultations and unsolicited written submissions	added value in providing enhanced discussion, cooperation and sharing of information compared to before the Directive? Has the culture of cooperation and sharing met or exceeded the levels of cooperation between countries and actors that is seen elsewhere?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
ACTION 2* *Pursuant to Article 39(3) and within the scope of Directive 2008/99/EC - The Environmental Crime Directive - to assess the appropriateness of applying criminal law to certain breaches of environmental duty*						
Actions taken						
Relevance						
Coherence						
Effectiveness						
Efficiency						
EU-value added						
ACTION 3 *Pursuant to Article 39(1) & (2) and Parliament resolution of 1 December 2016 - on liability, compensation and financial security for offshore oil and gas operations (2015/2352(INI)) – to report on the status of MS' with regard to the consistency and effectiveness of schemes for financial liability and compensation for economic loss*						
OBJECTIVE 3 That the arrangements for discharging financial liabilities and civil compensation for economic loss be more consistently effective in the EU The sub-objective being to *improve and clarify existing EU liability and compensation provisions*						
(8) Scope of environment liability to be extended to the full extent of MS' exclusive economic zone						
Attainment	Has the scope of	(i) Is it clearly	(i) The primary	(i) The qualitative	*Article 7* ascribes full	What is the degree of

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
	environment liability been extended to the full extent of MS' EEZ?	established that the scope of environmental liability resides entirely with the licensee? (ii) Has protection of the marine	quantitaive indication arises from declared adoption of the specific measure in the Directive by each focal MS (ii) Quantitative indication arises from	indicator of the degree of attainment of clear liability for environmental damage will depend on the extent to which focal MS' have in practical terms made amendment to legal codes and model clauses to licenses to make this effective to licensing terms (ii) Qualitative indications	liability under the ELD[138] to the 'licensee' Article 38 provides particular directions for modifying the ELD to extend water damage liability to the full extent of the EEZ. Other sources of *reliable evidence* derives from: 2015 consultant's report to Commission on degree of transposition of the liability provisions	adoption of changes to liability under ELD by MS'? What is the extent of adaptation of national legal codes, including license terms, giving practical effect of the liability measure? What further measure if any may be necessary to ensure full adoption? Is the implementation

[138] ELD means the environmental liability directive (2004/35/EC)

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
		environment including water damage been extended from the territorial sea of the MS' to the exclusive economic zone of the MS?	confirmation by MS' of amendment to implementing legislation pusuant to Directive 2004/35/EC Article 2(1)(b)(i)-(ii)	are to be deduced from the extent of alterations to processes and arrangements that take the changes into account: • Effects on licensing and adoption of licensee as responsible party • Evaluations of environmental parameters and variations of environmental impact assessment protocols • Interpretative guidance issued by MS'	(Commission report to EP); MS' reports to Commission under the implementing regulation and via EUOAG; Formally authorised technical reports (eg Bio by Deloitte); Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; and Public consultations and unsolicited written submissions.	of the Directive and particularly Articles 7 and 38 mature enough to make objective considerations of the full attainment of liability and extending ELD arrangements so as to harmonise the legal provisions across the EU (16 focal MS')?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
Relevance	Do aims 8 and (i)-(ii) directly implement a significant change in offshore liability arrangements in EU waters outside of the territorial seas line of MS' (20km from coasts)?		(ii) As above, the quantitative indicators fall to # focal MS implementing both measures in the Directive (ie the liable entity; and the zonal extent of the liability)	(ii) Qualitative indicators of relevance include: • Exploration wells drilled • Frontier areas licensed • Operational density criteria (production volumes; # offshore workers; # wells drilled; # installations; etc) as trends • Hydrocarbon releases from wells • Hydrocarbon releases detected from production installations (platform or subsea)	*Reliable evidence* derives from: 2015 and 2016 consultants reports to Commission on degree of transposition of the Directive by MS'; Observed experience raising issues of concerns; Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; and Public consultations and unsolicited written	Is it likely that the measures in the Directive bearing on allocation, and zonal extent, of liability are directly relevant to improving the prevention of major offshore petroleum accidents in EU waters and mitigating the effects.

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					submissions	
Coherence	What correlation exists between the aims and EU legislation when addressing improvement in major accident preparedeness and response to a major accident in EU waters?		Quantitative indicators of coherence relate to the numbers of focal MS' directly amending their relevant national provisions: • Amending the ELD regarding zonal liabilities; • Amending the liable entities within relevant licensing provisions	The qualitative indicators of coherence relate to the legislation on environmental liabilities. Therefore, are the amendments on liable entities and zonal application coherent with EU provisions on waste and on environmental liability? In particular do they clarify the 'polluter' entity and ascribe strict liability on	*Article 7* ascribes full liability under the ELD to the 'licensee' Article 38 provides particular directions for modifying the ELD to extend water damage liability to the full extent of the EEZ. Other sources of *reliable evidence* derives from: 2015 consultant's report to Commission on degree of transposition of the liability provisions	Has the implementation of the Directive introduced environmental considerations more robustly into the licensing agendas in alignment with all related EU legislation for example coherent with the principles of the SEA Directive and associated legislation? Is the implementation of the

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
				such an entity? Is there clear alignment with the Water Framework Directive and ELD[139]	(Commission report to EP); technical reports (eg Bio by Deloitte); Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; and Public consultations and unsolicited written submissions.	Directive and particularly Articles 7 and 38 mature enough to make objective considerations of the full attainment of liability and extending ELD arrangements so as to harmonise the legal provisions across the EU (16 focal MS')? Have guidance notes been issued by MS'

[139] The principle of strict liability for the polluter entity ("polluter pays") is reflected in secondary legislation that also applies to offshore accidents, mainly in *Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (Waste Framework Directive) and in Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage (Environmental Liability Directive).*

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
Effectiveness	Do the aims 8 and (i)-(ii) as implemented by MS' and responded to by industry secure full compliance in the EU thereby protecting all waters and habitats equally? Are adverse effects of major accidents to the environment on coastal communities and the marine habitats and economic users likely to be mitigated?		Quantitative indicators of effectiveness in addition to full transposition (as above) are: • Insurance payments made for asset damages • Compensation payments from operators to 3rd parties	Qualitative indicators are: • Effects on licensing and adoption of licensee as responsible party • Evaluations of environmental parameters and variations of environmental impact assessment protocols • Interpretative guidance issued by MS' • Major accidents to the environment as compared to global data • Hydrocarbon releases from wells • Hydrocarbon releases from production installations (platform or subsea)	*Reliable evidence* derives from: 2015 and 2016 consultants reports to Commission on degree of transposition of the Directive by MS'; Observed experience raising issues of concerns; Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; and Public consultations and	Is the implementation of the two themes of the Directive likely to achieve a levellised and uplifted degree of protection of EU waters from petroleum activities? Also, is the implementation of the Directive and particularly Articles 7 and 38 mature enough to make objective considerations of the full

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					unsolicited written submissions	attainment of liability and extending ELD arrangements so as to harmonise the legal provisions across the EU (16 focal MS')?
Efficiency	What are the costs associated with the intervention at the EU level; and in relation to the estimated annualised reductions in cost of a major accident occurring?		Quantitative indicators depend upon extracting costs of adapting liability arrangements and associated running costs from the overall costs of set up and operation by MS' • For example the costs embedded in compliance for	Qualitative and contextual indicators of cost effectiveness of the amended liability provisions are: • Aging infrastructure, including MODU's. Age profile of fixed and mobile installations • Operational density criteria (production volumes; # offshore workers; # wells	*Reliable evidence* derives from: 2016 consultant's report to Commission on degree of transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Workshops and	How does the experience of implementing the Directive, particularly the liability themes, enhance the efficiency of controlling major accident risks in EU waters? Are there indications that the implementatio

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			licensees (€ capex; € administrative burdens costs) • Compliance costs for licensing authorities and legal administrators • running costs to MS' of operating the new system • as above for industry • # of pollution events in EU waters	drilled; # installations; etc) as trends • Trending deployments of major capital mobile assets • Oil price trends and likely investment in new licenses by industry	interviews with stakeholders; and Factual data publicly available; *Subjective evidence* derives from: Data submissions from stakeholders; and Public consultations and unsolicited written submissions	n of the Directive has reduced liability-related running costs for all sdtakeholders, excepting the licensing entity nominated as "polluter"? And have MS' and/or operator/licensees identified a lack of clarity in the measures? (and what are they?)
EU-value added	Is it likely that the intervention has increased the protection of offshore waters and habitats across the EU where otherwise would not have been the case?		Quantitative data since 2016/17 may establish a baseline for further scrutiny of EU-added	Qualitative indicators may be deduced from feedback of principal stakeholders: • affirming the value	*Reliable evidence* MS' reports to Commission under the implementing regulation and	Based upon the experience of implementing the Directive, what are the positions of: • MS' regulators

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			value: • # incidents occurring under the implementing regulation; (e.g. collisions, breaches of 500m zone; hydrocarbon releases; etc) • # Reports made to COM under Implementing regulation • Insurance payments made for asset damages • Compensation payments from operators to 3rd parties	of the new arrangements in securing the objectives of reducing major accident risk; and • identifying areas of interest in the revised relationship of regulators and civil society with nominated liable entities (the licensee)	via EUOAG; Formally authorised technical reports; Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; Major accident reports issued by operator/owner; and Public consultations and unsolicited written submissions	• Operators and license holders • Owners on non production installations • NGO's • Trades Union whether the Directive has *per se* added value in providing clarity of liability, and extended liability zoning compared to before the Directive?
(9) Financial capacity requirements to be consistent						

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
Attainment	To what extent have financial capacity requirements for license holders bcome more consistent between active MS'?	(i) To what extent have MS' facilitated the deployment of sustainable financial instruments and other arrangements to assist applicants for licenses in demonstrating their financial capacity[140] ?	Quantitative indicators of attainment of sustainable financial instruments are: • # systems adapted by MS' to implement the enhanced requirements for financial responsibility (FR) of liable entities • # new financial instruments introduced to support new FR arrangements • # incidents occurring under the implementing regulation; (e.g. collisions, breaches of 500m zone; hydrocarbon releases; etc) • # Reports made to COM under	Qualitative indications are to be deduced from the extent of alterations to processes and arrangements that implement the FR requirements: • Effects on licensing and considerations of FR of licensee as wholly responsible party • Changes to assessments of environmental parameters and variations of environmental impact assessment protocols • Interpretative guidance issued by MS'	Article 4(3) is relevant. The broad requirements are for the applicant to be scrutinised against consistent and transparent requirements for FR subject to environmental aspects of the area; and for deployment of suitable financial instruments; and for maintenance of FR provisions during the lifetime of the license.	What can be said from reports of the degree of attainment of consistent FR requirements at the licensing stage and during operations on the license? Have any new financial instruments been developed consistent with new FR measures? Overall, what is noted of the consistency of adoption of

[140] The first subparagraph Article 4(3) requires MS' to grant licenses only where applicant conforms to arrangements decided by the MS, and to provide evidence on a continuing basis during the licensed activities

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			Implementing regulation • Insurance payments made for asset damages • Compensation payments from operators to 3rd parties		Other *reliable evidence* derives from: 2015/2016 consultants report to Commission on degree of transposition of the Directive and FR indicators in MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Observed experience raising issues of concerns; Workshops and interviews with stakeholders; and	holistic FR measures across focal MS'? Has the status of FR provisions / financial instruments changed since the publication of the 12/2016 resolution of the Parliament[141]

[141] Parliament resolution of 1 December 2016 - on liability, compensation and financial security for offshore oil and gas operations (2015/2352(INI)) – to report on the status of MS' with regard to the consistency and effectiveness of schemes for financial liability and compensation for economic loss

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					Factual data publicly available on environmental impacts; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns and/or affirmation; and Public consultations and unsolicited written submissions	
Relevance	Do aims 9 and (i) directly address a significant improvement in financial responsibility and capacity to remedy damage and economic losses in response to		Quantitative indicators of relevance are the degree of adoption of FR	Qualitative indicators of context and scale can be deduced from leading	*Reliable evidence* derives from: The 2015 and 2016 consultancy	In the circumstances of the scale and risk of major accidents

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
	a major accident in EU waters?		arrangements in MS' and associated financial instruments in the private sector and also: • #hydrocarbon releases reported to MS' under the implementing regulation from production installations • Insurance payments made for asset damages • As above, for 3rd party economic losses • Averaged marine oil spill clean-up costs • # major incidents in EU waters since 2016	indicators of risk trends: • Major accident risk trends from advanced regulatory regimes (eg UK, NO, AU) • Reliability trends from major associations (IOGP, IADC) • Diversification of license holders; population trends towards smaller, niche companies • Exploration wells drilled • Frontier areas licensed • Trending deployments of major capital mobile assets (IADC / IMCA / ECSA) Europe & global, 2008 - present • Availability of financial instruments on the market	report to Commission on degree of response to the FR requirements, and transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Observed experience raising issues of concerns; Major accident reports issued by MS'; Workshops and interviews with stakeholders	occurring in EU waters, do the measures for FR and financial instruments continue to relevant? Is it relevant to apply specific civil liability measures vertically within a single industrial sector in the EU? Are measures for FR and development of market-based instruments relevant provisions for an

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					Subjective evidence derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns and/or affirmation; and Public consultations and unsolicited written submissions	operationally focussed instrument?
Coherence	What correlation exists between the aims and EU legislation when addressing improvement in major accident preparedeness and response to a major accident in EU waters?		Quantitative indicators of attainment of suitable and equitable compensation regimes are: • # MS' that have adapted their legal	Qualitative alignment indicators with existing provisions are in a level compensation platform in EU (not DK)	Article 4(3) is relevant. The broad requirements [143] are for the applicant to be scrutinised against	Is the experience of implementing the Directive's aspects of FR and financial provisions internally

[143] Excepting Article 4(3) sub para 4, which addresses civil compensation mechanisms and is dealt with in its own account under Aim 10, below

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			codes to implement the enhanced requirements for revised compensation regimes • # MS' introducing safety net or pooling mechanisms to support the new compensation arrangements • upper level of US$ liability protection in current market instruments • #MS' applying strict liability rules without upper limit	to protect compensation disparities experienced by victims between jurisdictions are Brussels I and Rome II regulations[142] Otherwise: • Parliament's resolution of 1/12/16 provides for: to assess the appropriateness of introducing further harmonised rules on liability, compensation and financial security with a view to preventing any further accidents	consistent and transparent requirements for FR subject to environmental aspects of the area; and for deployment of suitable financial instruments; and for maintenance of FR provisions during the lifetime of the license. Otherwise *reliable evidence* derives from: The 2015 and 2016	coherent with the broad generic framework of the Directive? Is the interest in establishing levellised provisions for FR and financial provisions universally evident across the focal MS'? Is the implementation of the Directive and particularly

[142] *Regulation EU 1215/2012 of the European Parliament and of the Council of 12 December 2012 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters[(5)] (the recast Brussels I Regulation)* The recast Brussels I regulation seeks to facilitate access to justice, in particular by providing the rules on the jurisdiction of the courts and the rules on a rapid and simple recognition and enforcement of judgments in civil and commercial matters given in the Member States.

Regulation EU 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non-contractual obligations. The Rome II regulations Rome II lays down uniform rules to determine which national law should apply to issues in cases with an international dimension where the claim is brought to enforce a non-contractual obligation. It concerns private international law

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
				with cross-border implications; • considers that strict civil liability rules should be established for offshore accidents • Emphasises, to update existing liability systems in the Member States	consultancy reports to Commission on degree of response to the FR requirements, and transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Formally authorised technical reports; Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from	Article 4 sufficiently mature to make objective considerations of the full attainment of FR and financial arrangements so as to harmonise the legal provisions across the EU (16 focal MS')?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					stakeholders; Subjective technical reports; Public consultations and unsolicited written submissions	
Effectiveness	Do the aims 9 and (i) insofar as sufficiently implemented by MS' and responded to by industry, attain full financial responsibility and financial capacity in the EU thereby contributing to a reduction in offshore major accident risk and especially mitigation? Are adverse effects of major accidents to the environment on coastal communities and the marine habitats and economic users likely to be mitigated?		The quantitative indicators of effectiveness of the FR and financial instrument provisions are subject to the degree of adaptation by MS' and the financial liability market, *namely*: • # systems adapted by MS' to implement the enhanced requirements for financial	The qualitative indicators of effectiveness of FR and financial provisions are consistent with the transposition by MS of Article 4. The context in which the measures *if attained* may be effective in the reduction of major accident risk,	*Reliable evidence* derives from: The 2015 and 2016 consultancy reports to Commission on degree of response to the FR requirements, and transposition of the Directive by MS'; MS' reports to Commission under the implementing	Is there a detected concensus between MS' regulators and stakeholders *namely*: • Operators and license holders • Owners on non production installations • NGO's • Trades Union and • MS' CA's on whether the measures are broadly necessary?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			responsibility (FR) of liable entities • # new financial instruments introduced to support new FR arrangements • # incidents reported with a bearing on liability • # MS' introducing safety net or pooling mechanisms to support the new FR/ financial security arrangements • #MS' applying strict liability rules without upper limit	and mitigation may be deduced *inter alia* from: • availability of current schemes for liability • Diversification of license holders; population trends towards smaller, niche companies • Exploration wells drilled • Frontier areas licensed • Oil price trends • Major accidents as compared to global data • Major accidents to the environment as compared to global data	regulation and via EUOAG; Formally authorised technical reports; Observed experience raising issues of concern; Workshops and interviews with stakeholders *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; Suggested experiences raising issues of concerns and/or affirmation; and Public consultations and unsolicited	And what form should they take? Should the adaptation of national systems continue to be low scale, what is the cause of the stasis? Is the implementation of the Directive and particularly Article 4 sufficiently mature to make objective considerations of the full attainment of FR and financial arrangements ?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					written submissions	
Efficiency	What are the costs associated with the introduction of enhanced compensation arrangements at the MS level; and in relation to the estimated annualised reductions in cost of a major accident occurring?		The quantitative markers of cost are subject to the degree of implementation by MS' of the requirements of the Article. Therefore, as before, the indicators that require to be costed are: • # cost of systems adapted by MS' to implement the enhanced requirements for financial responsibility (FR) of liable entities • # new financial instruments introduced to support new compensation regime arrangements • # incidents reported	The benefits arising from the costs insofar as they may be quantified (see left) may be calculated based on the arrangements as they become known. The inferred benefits from the Directive and the Parliament resolution on: • further harmonised rules for FR and financial security; • strict civil liability rules; and • updated liability systems in the MS'apply only where the measures have been put in place.	*Reliable evidence* derives from: The 2015 and 2016 consultancy reports to Commission on degree of response to the FR requirements, and transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation and via EUOAG; Formally authorised technical reports Observed experience raising issues	How are the measures in the Directive evaluated by the insurance market? And by NGO's? Given progress to date, what are the *efficiency* grounds for pursuing EU-level civil financial liability provisions applied to national jurisdictions? Equally, what are considered the prospects of achieving similar levels

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			with a bearing on liability for environmental damage • #overall actors as liable entities in the sector (for likely risk *versus* value to the insurance market place)	Otherwise: • MS' that may be considered to have exemplar provisions; • Independent pooling or safety net providers where the provisions may be exported to other regions, including for the protection of neighbouring countries	of concern; Workshops and interviews with stakeholders; and Factual data publicly available; *Subjective evidence* derives from: Data submissions from stakeholders; Major accident reports issued by operator/owner; and Public consultations and unsolicited written submissions	of FR and of reasonable financial security through EU-intervention? Is the relatively small size of the sector an inhibitor to developing *vertical* arrangements ? And what can be considered the way forward for *horizontal* application of FR/security in the EU?
EU-value added	Is it likely that the intervention has or shall increase the adoption of suitable and sufficient FR arrangements and financial		Given the status of the measures in the Directive are to	The qualitative value-added arising from the arrangements	The 2 key sources of evidence come from the progress,	What are the positions of the key stakeholders • MS' regulators

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
	provisions across the EU where otherwise would not have been the case?		'encourage', not a mandate, the quantitative markers of efficacy are subjective to the degree of implementation by MS' of the requirements of the Article. Therefore, as before, the indicators are: • # systems adapted by MS' to implement the enhanced requirements for financial responsibility (FR) of liable entities • # new financial instruments introduced to support new FR arrangements • # incidents reported with a bearing on liability	of FR etc insofar as they may be quantified (see left) may be calculated based on the arrangements as they are put into effect *and may be compared to pre-existing systems:* • Offshore Pollution Liability Association (scheme) • International Oil Pollution Compensation (IOPC) Funds The primary requirement is to understand the degree of movement in MS' towards the EU goal.	if any, of MS' and industry in meeting the objectives of Article 4; and the inputs from the specialist FR sector as to what may be achieved through the market. Hence r*eliable evidence* derives from: The 2015 and 2016 consultancy reports to Commission on degree of response to the FR requirements, and transposition of the Directive by MS';	• Operators and license holders • Owners on non production installations • NGO's • Trades Union towards widening existing approaches to liability coverage – OPOL, IOPC - compared to developing new sector initiatives? Where lies the greater EU added-value? Is it possible to achieve economic equilibrium with strict liability and pure economic loss without

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					Observed experience raising issues of concerns; and Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; and Public consultations and unsolicited written submissions	applying a liability cap?
(10) Compensation regimes to be consistent						
Attainment	To what extent have compensation regimes for damages	(i) To what extent have MS' established procedures for prompt and adequate	Quantitative measures of attainment of fair and level compensation systems are derived from	The qualitative drivers of consistent and equitable compensation regimes across the EU are:	Article 4(3)(sp4) is the relevant Article requiring measures for efficient handling of	What, overall, has the response been of MS' to enhancing their compensation regimes?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
	arising from offshore petroleum activities become consistent across the EU?	handling of compensation claims for economic losses? Do MS' compensation arrangements apply across MS' boundaries?	the performance of individual MS': • # MS who have introduced new measures into their civil code for handling claims by 3rd parties against economic loss from major accidents • and who assure transboundary claims • #MS' who rely on traditional horizontal instruments and systems for handling compensation claims • #MS' who do not have any arrangements for handling 3rd party compensation claims against industry sectors	• the overall level of major accident risk derived from trend analysis of advanced MS' (primarily North Sea) • and the reduction in risk derived from the implementation of the whole Directive • the degree of fragmentation of the compensation regimes across the EU • the legal basis for compensation in a transboundary context • the role of MS' in responding to and containing a major accident to the environment (in liability terms)	claims and for protection of adjacent MS' and 3rd countries. *Reliable evidence* of degree of attainment derives from: The 2015 and 2016 consultancy reports to Commission on degree of response to the compensation scheme requirements, and transposition of the Directive by MS'; MS' reports to Commission under the implementing	Are there significant difference between the mature regimes and the new entrants to risk-based regulation? Is there enough experience to detect whether solutions at MS' level will be forthcoming without further intervention? Equally, is further intervention valid?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					regulation and via EUOAG; Formally authorised technical reports; Workshops and interviews with stakeholders; and Factual data publicly available. *Subjective evidence* of attainment derives from: Data submissions from stakeholders; Subjective technical reports; and Public consultations and unsolicited written submissions	Is the extension or adaptation of existing best practices organised by the sector (OPOL, IOPC) the most likely means of developing a level playing EU playing field?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
Relevance	Do aims 10 and (i) directly address a significant improvement in major accident preparedeness and especially financial mitigation to a major accident in EU waters?		Quantitative measures of relevance, if any so far available, are: • # EU major accidents as quantum of likelihood compared to global data • # as above major accidents to the environment as compared to global data • Value of Insurance payments made for asset damages • Averaged marine oil spill clean-up costs • # and value of compensation payments from operators to 3rd parties • Environmental risk performance data for EU cf global trends	The relevance of the aims derives from the availability of economic damages that repairs the environmental loss and provides economic remedy (ie restores the status quo ante to the victim)? The original driver to the Directive included fragmentation of compensation regimes. Hence qualitative indicators are: • the overall level of major accident risk derived from trend	*Reliable evidence* of whether the measures retain the relevance as calculated in the design model derive from the extent of implementation of the measures, plus any observed effects. Hence, r*eliable evidence* of direct impact of improved availability of compensation derives from: The 2015 and 2016 consultancy reports to Commission on degree of	What objective considerations may be applied to reaffirm the relevance of the measure in the absence of a major accident occurring in EU waters? Is evidence emerging to demonstrate whether the highest risk areas for a major accident occurring have the highest level of compensation arrangements ?

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
				analysis of advanced MS' (primarily North Sea) • and the reduction in risk derived from the implementation of the whole Directive • the degree of fragmentation of the compensation regimes across the EU compared to 2013	response to the compensation scheme requirements, and transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation (risk) and via EUOAG; Formally authorised technical reports; Workshops and interviews with stakeholders; *Subjective evidence*	Is it apparent whether further interventions are to be predicated on risk? Or in pursuing consistency[144]

[144] Subjective interventions by the Commission and other mechanisms to enforce compliance of individual MS' as necessary are outwith the scope of the assessment

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
					derives from: Data submissions from stakeholders; Subjective technical reports; and Public consultations and unsolicited written submissions	
Coherence	What correlation exists between the aims and EU legislation when addressing suitable and sufficient mitigation to environmental and economic loss from a major accident in EU waters?		Quantitative indicators of coherence of compensation regimes with the relevant existing EU legislation are are as above, *namely*: • # systems adapted by MS' to implement the enhanced compensation for financial responsibility (FR) of liable entities • # new financial	The relevant instruments for coherence are in Brussels I and Rome II regulations Otherwise, as above, Parliament's resolution of 1/12/16 provides for: • assessing further harmonised rules; • considering strict civil liability; • updating existing	Article 4(3)(sp4) is the relevant Article requiring measures for efficient handling of claims and for protection of adjacent MS' and 3rd countries. *Reliable evidence* derives from: The 2015 and 2016 consultancy	As a risk-management instrument for preventing major accidents and limiting their consequences, how should the approach to the compensation regime be most internally coherent with the Directive? For example,

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			instruments introduced to support new FR arrangements • #MS' who accept limit of financial liability – a cap • #MS' who do not impose strict liability • #MS' where there are no FR schemes operating	liability systems Therefore, qualitative indicators of coherence reside in the degree of fragmentation of the compensation regimes across the EU focal MS' compared to 2013. Also as in degree of attainment of Aim (8) on environmental liabilities, *namely,* the Water Framework Directive and ELD[29]. And whether any steps are being taken to ensure compensation systems apply	reports to Commission on degree of response to the compensation scheme requirements, and transposition of the Directive by MS'; MS' reports to Commission under the implementing regulation; Formally authorised technical reports; Workshops and interviews with stakeholders *Subjective evidence* derives from: Data submissions from	adaptation of civil legal mechanisms in MS'? Or an operator / insurance market approach based on risk? Is the application of a risk-based monetary cap on liability coherent with unlimited liability inherent to EU environmental liability principles? Are there more practical alternatives to unlimited financial security cover

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
				to neighbouring countries	stakeholders; Subjective technical reports; and Public consultations and unsolicited written submissions	(given the insurance market)?
Effectiveness	Do the aims 10 and (i) insofar as implemented by MS' and responded to by industry attain full transparency in financial liability and compensation in the EU thereby contributing to a reduction in offshore major accident risk, particularly consequential loss? Are adverse effects of major accidents to the environment on coastal communities and the marine habitats and economic users likely to be fully mitigated?		The quantitative markers of effectiveness are subject to the degree of implementation by MS' of enhanced compensation arrangements. Therefore, as before, the efficacy indicators are: • # of MS' with arrangements adapted to implement more effective compensation outcomes, including for adjacent	The qualitative indicators are based on the effect of any new arrangements as they become known. The inferred effectiveness of Directive and the Parliament resolution on: • further harmonised rules; • strict civil liability; and • updated liability systems	*Reliable evidence* derives from: The 2015 and 2016 consultancy reports to Commission on degree of response to the compensation requirements, and transposition of the Directive by MS'; MS' reports to Commission under the implementing	Can the assessment of effectiveness of the measures for consistent and fair compensation schemes be undertaken given the level of adoption, to date, of MS'? Is there enough experience to detect whether solutions at MS' level will

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			countries • # new financial instruments introduced to support new compensation regime arrangements • # incidents reported with a bearing on liability for environmental damage • #overall actors as liable entities in the sector	apply only where the measures have been put in place. Other indicators are: • MS' that may be considered to have exemplar provisions including for the protection of neighbouring countries • Independent pooling or safety net providers where the provisions may be exported to other regions,	regulation and via EUOAG; Observed experience raising issues of concern; Workshops and interviews with stakeholders; *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports; and Public consultations and unsolicited written submissions	be effective without wider adoption? Equally, is the implementation of the Directive and particularly Article 4(3)(sp3) sufficiently robust to objectively consider the likely effectiveness of the measures. Can strict liability plus unlimited financial security work in practice? Therefore is it possible to guarantee adequate and

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
						prompt compensation for all?
Efficiency	What are the costs in time, trouble and money, that are associated with the introduction of compensation regimes up to the EU level; and in relation to the estimated annualised reductions in cost of a major accident occurring?		Given the status of the measures in the Directive are to 'encourage', not a mandate, the quantitative markers of efficacy are subject to the degree of implementation by MS' of the requirements. Therefore, as before, the indicators for efficiency of new compensation regimes are costs associated with: • # systems adapted by	The benefits arising from the costs insofar as they may be quantified (see left) may be calculated from the arrangements as they become known. The inferred benefits from the Directive and the Parliament resolution on: • further harmonised rules for compensation handling; • strict civil liability rules; and • updated systems for compensating neighbouring countries	Reliable evidence is predominantly related to the degree of change; the adequacy of existing regimes, if any; and experience. Otherwise *reliable evidence* derives from: The 2015 and 2016 consultancy reports to Commission on degree of response to the compensation scheme requirements, and transposition of the	Is the compensation and liabilities market solution capable of being driven by EU, MS' or operators? If by operators, is state oversight best exercised? Through thee license? Does the goal of EU-wide consistency between compensation regimes that are efficient and effective (Brussels I and Rome II) outweigh the effort and

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
			MS' to implement the enhanced compensation regimes • # new financial instruments introduced to support enhanced compensation regimes • # cost of producing guidance for claimants and defendents • # incidents reported with a bearing on liability	in the MS'apply only where the measures have been put in place. Otherwise deductions may be taken from: • MS' that may be considered to have exemplar provisions; • Independent pooling or safety net providers where the provisions may be exported to other regions, including for the protection of neighbouring countries	Directive by MS'; MS' reports to Commission under the implementing regulation and Workshops and interviews with stakeholders. *Subjective evidence* derives from: Data submissions from stakeholders; Subjective technical reports and Public consultations and unsolicited written submissions	difficulty in bringing this about?
EU-value added	Is it likely that the intervention has increased the adoption of transparency of performance of the compensation regimes		Given the status of the implementation, the quantitative	The qualitative indicators of EU-added value rely on	EU-added value is a function of changes versus the	What is the extent of EU-added value in the Parliament's

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
	across the EU where otherwise would not have been the case?		markers of efficacy are limited to: • # systems adapted by MS' to implement the enhanced requirements for financial responsibility (FR) of liable entities • # new financial instruments introduced to support new FR arrangements	the degree of change in the MS' Therefore indicators of coherence reside in the degree of fragmentation of the compensation regimes across the EU focal MS' compared to 2013. Also as in the degree of attainment of Aim (8) on environmental liabilities, *namely,* the Water Framework Directive and ELD[29]. And whether any steps are being taken to ensure compensation	*status quo ante* *Reliable evidence* derives from: The 2015 and 2016 consultancy reports to Commission on degree of response to the compensation scheme requirements, and transposition of the Directive by MS'; Formally authorised technical reports; Workshops and interviews with stakeholders *Subjective evidence*	focus on the fragmented regimes for FR, security and compensation arrangements ? Has raising the issue of MS' compliance with access to justice across the EU been effective as a thing of itself? Based upon experience with the Directive and subsequent studies is it reasonably practicable to: resolve the applying of

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
				systems apply to neighbouring countries	derives from: Data submissions from stakeholders; Subjective technical reports; and Public consultations and unsolicited written submissions	risk to financial security (capping); resolve the principle of unlimited environmental liability under ELD with the practicable limits on financial security in the insurance sector; and secure and/or complete EU intervention in the civil legal provisions of MS' for consistent compensation out of industrial major accidents either vertically, or

Extent	1ry questions (aims)	2ry questions (aims)	KPI (quantitative)	KPI (qualitative)	Provenance	Conclusions
						horizontally?

13 ANNEX V: OTHER EU LEGISLATION, INTERNATIONAL CONVENTIONS AND PROTOCOLS RELEVANT TO OFFSHORE OIL AND GAS ACTIVITIES

13.1 Primary law

The provisions and scope of the OSD and its existing legislative environment rely on and refer to the following provisions of the primary law of the Union:

- Regarding the environmental liability, it is noteworthy that article **192.2(c) Treaty on the Functioning of the European Union** grants the Council the right to adopt unanimously in accordance with a special legislative procedure measures significantly affecting a Member State's choice between different energy sources and the general structure of its energy supply.
- Regarding criminal liability, article **83.2 TFEU** provides that directives may establish minimum rules with regard to the definition of criminal offences and sanctions in the area concerned if this is deemed necessary in order to ensure the effective implementation of a Union policy by ensuring the approximation of criminal laws and regulations of the Member States.
- Regarding occupational Safety and Health, article **151 TFEU lays the foundation of the European Union's action in the field of social policy**. **Article 154** TFEU sets the conditions for the consultation of management and labour at Union level.

13.2 EU Directives

13.2.1 Mining and other fossil fuel extraction activities

- **Council Directive 92/91/EEC[145] concerning the minimum requirements for improving the safety and health protection of workers in the mineral- extracting industries through drilling**

(4) Lays down the minimum requirements for improving the safety and health protection of workers in the mineral-extracting industries through drilling (onshore and offshore). Employers must draw up and keep up to date a safety and health document demonstrating that: (i) risks to workers' health and safety in the workplace have been determined and assessed, (ii) adequate measures will be taken to meet the requirements of this Directive, and (iii) the design, use and maintenance of the workplace and equipment are safe.

- ***Directive 94/22/EC*[146] of the European Parliament and of the Council *on the conditions for granting and using authorizations for the prospection, exploration and production of hydrocarbons***

  Provides that *oil and gas* licensing must be open to all interested companies and EU countries must grant licenses in a fair, competitive, and unbiased way. When granting licenses, EU countries can take into account issues such as national security, public safety, public health, security of transport, the protection of the environment, the protection of biological resources, or the planned management of hydrocarbon resources. Regarding liability, this directive introduces the requirement to use

[145] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31992L0091
[146] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31994L0022

technical and financial capacity of an applicant as selection criteria in procurement process.

- **Directive (EU) 2015/1535[147] of the European Parliament and of the Council laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services**

  Establishes a notification procedure conceived as a tool for information, prevention and dialogue in the field of technical regulations on products and Information Society services. It helps aims at anticipating and preventing the creation of barriers to trade likely to affect the smooth functioning of the internal market.

13.2.2 Product safety

- **Directive 2006/42/EC[148] of the European Parliament and of the Council *on machinery***

  One of the main legislations governing the harmonisation of essential health and safety requirements for machinery at EU level. It promotes the free movement of machinery within the Single Market and guarantees a high level of protection for EU workers and citizens. The Machinery Directive only applies to products that are to be placed on the EU market for the first time.

- **Directive 2014/34/EU[149] of the European Parliament and of the Council *on the harmonisation of laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres***

  The "ATEX Directive" defines the essential health and safety requirements and conformity assessment procedures, to be applied before products are placed on the EU market. It covers equipment and protective systems intended for use in potentially explosive atmospheres.

- **Directive 2014/68/EU[150] of the European Parliament and of the Council *on the harmonisation of the laws of the Member States relating to the making available on the market of pressure equipment***

  The "**Pressure Equipment Directive" a**pplies to the design, manufacture and conformity assessment of stationary pressure equipment with a maximum allowable pressure greater than 0,5 bar. The Directive aims to guarantee free movement of the products in its scope while ensuring a high level of safety.

13.2.3 Environmental policies

- **Council Directive 92/43/EEC[151] of the European Parliament and of the Council on the conservation of natural habitats and of wild fauna and flora**

[147] https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32015L1535
[148] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1542297771931&uri=CELEX:32006L0042
[149] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014L0034
[150] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0068

The Habitats Directive ensures the conservation of a wide range of rare, threatened or endemic animal and plant species. Some 200 rare and characteristic habitat types are also targeted for conservation in their own right.

- **Directive 2000/60/EC[152] of the European Parliament and of the Council establishing a framework for Community action in the field of water policy**

  The Water Framework Directive establishes a legal framework to protect and restore clean water across Europe and ensure its long-term, sustainable use. The directive addresses also coastal waters and it establishes innovative principles for water management.

- **Directive 2001/42/EC[153] of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment**

  The "SEA Directive" applies to a wide range of public plans and programs (e.g. on land use, transport, energy, waste, agriculture, etc.). Plans and programs in the sense of the SEA Directive must be prepared or adopted by an authority (at national, regional or local level). Legislative, regulatory or administrative provisions are prepared for (among others) energy, industry, waste/ water management, and land use and which set the framework for future development consent of projects listed in the EIA Directive.

- **Directive 2003/4/EC[154] of the European Parliament and of the Council on public access to environmental information**

  Guarantees the right of access to environmental information and specifies its exercise, and to ensure that environmental information is progressively made available and disseminated to the public to the widest possible scope, promoting, where available, the use of computer telecommunication and/or electronic technology.

- **Directive 2003/35/EC[155] of the European Parliament and of the Council providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment**
  Contributes to the implementation of the obligations arising under the Aarhus Convention, in particular by: (a) providing for public participation in drawing up certain plans and programs related to the environment and improving the public participation and (b) providing for access to justice.

- **Directive 2004/35/CE[156] of the European Parliament and of the Council on environmental liability with regard to the prevention and remedying of environmental damage**

  The "**Environmental Liability Directive" (ELD) e**stablished a system of public/administrative liability at EU level. It establishes a framework based on the polluter pays principle to prevent and remedy environmental damage. It is based on

[151] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043
[152] https://eur-lex.europa.eu/legal-content/FR/TXT/?uri=CELEX:32000L0060
[153] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0042
[154] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32003L0004
[155] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32003L0035
[156] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32004L0035

the powers and duties of public authorities ("administrative approach"). The Directive defines "environmental damage" as damage to protected species and natural habitats, damage to water and damage to soil. Operators carrying out dangerous activities listed in Annex III of the Directive fall under strict liability (no need to prove fault). The ELD was amended four times, which broadened the scope of strict liability by adding the "management of extractive waste" and the "operation of storage sites pursuant to Directive 2009/31/EC" to the list of dangerous occupational activities in Annex III of the ELD. Further, it extended the scope of damage to water by broadening the geographical scope of marine waters beyond the territorial sea to include also the exclusive economic zone and the continental shelf, where applicable, through Article 38 of the Offshore Safety Directive, and adapted the reporting requirements

- **Directive 2008/56/EC[157] of the European Parliament and of the Council establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)**

  Requires protecting and preserving the marine environment, to prevent its deterioration, and to prevent and reduce inputs in the marine environment, with a view to phasing out pollution, to ensure that there are no significant impacts on or risks to marine biodiversity, marine ecosystems, human health or legitimate uses of the sea. It also identifies the four marine regions around which the OSD's framework is defined: the Baltic Sea, the North-east Atlantic Ocean, the Mediterranean Sea and the Black Sea.

  Offshore activities are covered by the Member states duties to (i) make an initial assessment of their marine waters (article 8), (ii) establish environmental targets (article 10), and (iii) identify the measures to be taken in order to achieve or maintain "good environmental status" (article 13). Furthermore, Article 9 (determination of good environmental status) and Article 11 (monitoring programmes) are relevant for offshore safety.

- **Directive 2008/98/EC[158] of the European Parliament and of the Council on waste**

  Introduces the "polluter pays principle" and the "extended producer responsibility". It incorporates provisions on hazardous waste and waste oils. Later jurisprudence from the Court of Justice of the EU (C-188/07, *Commune de Mesquer v Total*, judgment of 24 June 2008) instituted that oil spilled in the sea becomes waste under the scope of the Waste Framework Directive 2008/98/EC. As a result, the operator is regarded as the producer or holder of waste and would, in accordance with the polluter pays principle, bear the costs of waste management. Liability extends to parent companies, which are not able to abrogate liability towards subcontractors.

- **Directive 2008/99/EC[159] of the European Parliament and of the Council on the protection of the environment through criminal law**

  (5) **The "Environmental Crime Directive"** sets minimum requirements to be implemented in national criminal laws. It lays down a list of environmental offences

[157] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1540906597341&uri=CELEX:32008L0056
[158] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32008L0098
[159] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1540905636130&uri=CELEX:32008L0099

that must be considered criminal, set a duty to Member states to ensure that legal persons can be held liable for offences committed for their benefit and that the commission of the offences is subject to effective, proportionate and dissuasive criminal sanctions. It does not touch upon the powers of prosecutors and judges. Annex A of the **Environmental Crime Directive lists Community legislation adopted pursuant to the EC Treaty, the infringement of which constitutes unlawful conduct pursuant to Article 2(a)(i) of this Directive.**

- **Directive 2009/147/EC[160] of the European Parliament and of the Council on the conservation of wild birds (Birds Directive)**

  The Birds Directive covers the protection, management and control of all species of naturally occurring birds in the wild state in the EU Member States. The Directive therefore places great emphasis on the protection of habitats for endangered and migratory species. It establishes a network of Special Protection Areas (SPAs) including all the most suitable territories for these species. The OSD stress the need to pay special attention to environmentally sensitive marine and coastal environments and their ecosystems.

- **Directive 2010/75/EU[161] of the European Parliament and of the Council on industrial emissions**

  The main EU instrument regulating pollutant emissions (emissions into air, water and land) from industrial installations. The directive aims to achieve a high level of protection of human health and the environment taken as a whole by reducing harmful industrial emissions across the EU, in particular through better application of Best Available Techniques (BAT).

- **Directive 2012/18/EU[162] of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances** ("Seveso Directive")

  (6) The "Seveso Directive" aims at the prevention of major accidents involving dangerous substances and at limiting the consequences of such accidents not only for human health but also for the environment.Since its third revision in 2012, the scope of the Seveso Directive covers offshore exploration and exploitation of minerals, including hydrocarbons and the storage of gas at underground offshore. Other aspect of the Directive relevant also for offshore are requirement for industry practices in major hazards risk control, joint regulation of safety and environment of major hazard sites, and emergency preparedness.

- **Directive 2014/52/EU[163] of the European Parliament and of the Council on the assessment of the effects of certain public and private projects on the environment**

  The Revised Environmental Impact Assessment Directive applies to a wide range of defined public and private projects. All projects listed in Annex I are considered as having significant effects on the environment and require an EIA. For projects listed in Annex II, the national authorities have to decide whether an EIA is needed following

[160] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009L0147
[161] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1540984841223&uri=CELEX:32010L0075
[162] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32012L0018
[163] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0052

the done by the "screening procedure". Offshore petroleum production activities fall under the scope of this directive (Art 1.a and Annex II 2.e). However, it is discretionary for some drilling operations – e.g. for transient exploration well projects.

- **Directive 2014/89/EU[164] of the European Parliament and of the Council establishing a framework for maritime spatial planning**

  Maritime spatial planning (MSP) aims at reducing conflict, encouraging investment, increasing cross-border cooperation, and protecting the environment. It is implemented by Member States by means of Maritime Spatial Plans, with the EU (Commission) providing technical support and funding of MSP cross-border projects.

13.2.4 Health and safety of workers at work

- **Council Directive 89/391/EEC[165] on the introduction of measures to encourage improvements in the safety and health of workers at work**

  The basic safety and health legal act (called a "Framework Directive"), which lays down general principles concerning the prevention and protection of workers against occupational accidents and diseases. It applies to all sectors of activity, both public (with exceptions) and private.

- **Council Directive 90/269/EEC[166] on the minimum health and safety requirements for the manual handling of loads where there is a risk particularly of back injury to workers**

  Where the need for the manual handling of loads by workers cannot be avoided, the employer must ensure minimum health and safety requirements for the manual handling of loads, especially where there is a risk particularly of back injury to workers.

- **Directive 92/91/EEC[167] of the European Parliament and of the Council setting requirement for a safety and health document in the Drilling Extractive Industries.**

  Aims firstly at preventing all risks for workers, both major and minor. It contains further minimum requirements applicable to the offshore sector as regards risk assessment, protection from fire and explosions escape and rescue. The major hazards report (MHR) amplified the minimum requirements of Directive 92/91/EEC towards prevention of offshore major hazards, for example marine well control, structural integrity of offshore platforms, and survival of personnel in an emergency.

- **Directive 2002/44/EC[168] of the European Parliament and of the Council on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents**

  Aims at ensuring health and safety of each worker and at creating a minimum basis of protection by timely detection of adverse health effects of exposure to mechanical

[164] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0089
[165] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1542296947551&uri=CELEX:31989L0391
[166] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1542296724403&uri=CELEX:31990L0269
[167] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1540982062305&uri=CELEX:31992L0091
[168] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1542296683148&uri=CELEX:32002L0044

vibration, It defines exposure limit values for hand-arm-vibrations and whole-body-vibrations, respectively on basis of a standardized eight hour reference period, simulating a work day.

- **Directive 2003/10/EC[169] of the European Parliament and of the Council on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents**

  Lays down minimum requirements for the protection of workers from risks to their health and safety arising or likely to arise from exposure to peak sound pressure, daily noise exposure level and weekly noise exposure level and in particular, the risk to hearing.

- **Directive 2009/104/EC[170] of the European Parliament and of the Council concerning the minimum safety and health requirements for the use of work equipment by workers at work**

  Lays down minimum safety and health requirements for the use of work equipment by workers at work.

13.2.5 Cyber security and external threats

- **Directive 2008/114/EC[171] of the European Parliament and of the Council on the identification and designation of European critical infrastructure and the assessment of the need to improve their protection**

  Establishes a procedure for identifying and designating European Critical Infrastructures (ECI) and a common approach for assessing the need to improve their protection. It applies only to the energy and transport sectors. The Directive also requires owners/operators of designated ECI to prepare Operator Security Plans and nominate Security Liaison Officer. Offshore oil and gas installations, pipelines and other relevant infrastructure are classified as critical infrastructure.

- **Directive 2016/1148/EU[172] of the European Parliament and of the Council on Security of Network and Information Systems**

  The NIS Directive is the first piece of EU-wide legislation on cybersecurity. It provides legal measures to boost the overall level of cybersecurity in the EU. It sets a notification requirement for operators of essential services (OES) in various sectors (including energy).

13.2.6 Whistle-blower protection

- **Directive (EU) 2019/1937[173] of the European Parliament and of the Council of 23 October 2019 on the protection of persons who report breaches of Union law**

[169] https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32003L0010
[170] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1542297208196&uri=CELEX:32009L0104
[171] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32008L0114
[172] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1540907629895&uri=CELEX:32016L1148
[173] https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32019L1937

The Directive aims at strengthening the protection of persons reporting on breaches of Union law (whistle-blowers). It requires that Member States ensure the protection of reporting persons through various measures such as offering free and public independent information and advice, exempting reporting persons from liability, reversal of the burden of proof, as well as ensuring remedial measures against retaliation.

13.3 EU Regulations

- **Regulation (EC) No 864/2007[174] of the European Parliament and of the Council on the law applicable to non-contractual obligations**

  The Rome II regulations lays down uniform rules to determine which national law should apply to settle private disputes with an international dimension in case of claims related to non-contractual obligation.

- **Regulation (EU) No 1215/2012[175] of the European Parliament and of the Council on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters**

  The recast Brussels I regulation seeks to facilitate access to justice, in particular by providing the rules on the jurisdiction of the courts and the rules on a rapid and simple recognition and enforcement of judgments in civil and commercial matters given in the Member States.

- **Regulation (EU) No 1257/2013 of the European Parliament and of the Council on ship recycling**

  Aims to reduce the negative impacts linked to the recycling of ships flying the flag of Member States of the Union. It lays down requirements that ships and recycling facilities have to fulfil in order to make sure that ship recycling takes place in an environment sound and safe manner.

- **Commission Implementing Regulation (EU) No 1112/2014[176] determining a common format for sharing of information on major hazard indicators by the operators and owners of offshore oil and gas installations and a common format for the publication of the information on major hazard indicators by the Member States**

  This Regulation specifies common formats in relation to reports from operators and owners of offshore oil and gas installations to competent authorities of Member States (Art 23 OSD) and publication of information by Member States (Art 24 OSD).

- **Regulation (EU) 2016/425[177] of the European Parliament and of the Council on personal protective equipment**

[174] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32007R0864
[175] https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32012R1215
[176] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1540983357254&uri=CELEX:32014R1112
[177] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1542296783607&uri=CELEX:32016R0425

Ensures common standards for personal protective equipment (PPE) in all Member States in terms of protection of health and the safety of users, while enabling the free movement of PPE within the Union.

13.4 EU Decisions

- **Commission Decision of 2008/823/EC[178] amending Decision 95/319/EC setting up a Committee of Senior Labour Inspectors**

  The Senior Labour Inspectors' Committee (SLIC) (created in 1982, formally mandated in 1995) gives its opinion to be Commission on all problems relating to the enforcement by the Member States of Community law on health and safety at work.

- **Commission Decision 2012/C 18/07[179] on "Setting up of the European Union Offshore Oil and Gas Authorities Group"**

  Creates a forum for the exchange of information and expertise between National Authorities, Third Countries, Industrial Associations, the European Commission and other stakeholders on all issues relating to major accident prevention and response in offshore oil and gas operations.

- **Decision No 1313/2013/EU[180] of the European Parliament and of the Council on a Union Civil Protection Mechanism**

  The EU Civil Protection Mechanism was set up to enable coordinated assistance from the participating states to victims of natural and man-made disasters in Europe and elsewhere. The European Commission supports and complements the prevention and preparedness efforts of participating states by improving the quality of and accessibility to disaster information, encouraging research to promote disaster resilience, and reinforcing early warning tools.

- **Commission Decision 2017/848[181] laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardized methods for monitoring and assessment**

  Following Directive 2008/56/EC, this Decision lays down criteria and methodological standards for determining "Good Environmental Status" (GES). Offshore activities have to be taken into account by the MS when defining its GES because of the specific pressures they impose on the maritime environment.

- **Commission Implementing Decision (EU) 2018/1906 of 30 November 2018 to update the European List of ship recycling facilities established pursuant to Regulation (EU) No 1257/2013**

  From 31 December 2018, large commercial seagoing vessels flying the flag of an EU Member State may be recycled only in safe ship recycling facilities included in the European List of ship recycling facilities.

[178] https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32008D0823
[179] https://euoag.jrc.ec.europa.eu/files/attachments/commission_decision_setting_up_euoag.pdf
[180] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1542299171864&uri=CELEX:32013D1313
[181] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1540902589365&uri=CELEX:32017D0848

13.5 International conventions

13.5.1 Regional seas conventions

- **International Convention for the Prevention of Pollution from Ships 1973 as modified by the Protocol, 1978 (MARPOL 73/78)[182]**

  Aims at preserving the marine environment in an attempt to eliminate pollution by oil and other harmful substances and to minimize accidental spillage of such substances. All ships flagged under countries that are signatories to MARPOL are subject to the requirements of its six annexes, each of which deals with the regulation of a particular group of ship emissions.

- **International Convention for the Safety of Life at Sea (SOLAS)[183], 1974**

  Sets minimum safety standards in the construction, equipment and operation of merchant ships.

- **Nordic Environmental Protection Convention[184] between Denmark, Finland, Norway and Sweden, 1974**

  The conventions aims at safeguarding environmental interests in the case of nuisances arising from environmentally harmful activities implemented in other Contracting States.

- **Barcelona Convention[185] for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, 1976**

  The 22 Contracting Parties, under UNEP's umbrella are working to protect the Mediterranean marine and coastal environment while boosting regional and national plans to achieve sustainable development.

- **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989**
  The Basel Convention is relevant for ship dismantling, as a ship that is sent for scrapping usually contains hazardous materials and may be (hazardous) waste. The Conferences of the Parties (COPs) of the Basel Convention have adopted Technical Guidelines and various decisions on this issue.

- **Helsinki Convention[186], on the protection of the marine environment of the Baltic sea area, 1992**

  Covers the entire Baltic Sea area, including inland waters as well as the water of the sea itself and the seabed. Measures are also taken in the entire catchment area of the Baltic Sea to reduce land-based pollution.

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[182] http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx

[183] http://www.imo.org/en/about/conventions/listofconventions/pages/international-convention-for-the-safety-of-life-at-sea-(solas),-1974.aspx

[184] https://www.ecolex.org/details/treaty/nordic-environmental-protection-convention-tre-000491/

[185] http://www.ypeka.gr/LinkClick.aspx?fileticket=30r%2b7BeaSOo%3d&tabid=406

[186] http://www.helcom.fi/Documents/About%20us/Convention%20and%20commitments/Helsinki%20Convention/Helsinki%20Convention_July%202014.pdf

- **Bucharest convention[187] on the Protection of the Black Sea against Pollution, 1992**

  The basic legal framework for regional cooperation to protect the coastal and marine. The European Commission supports financially projects related to marine and coastal environmental monitoring in the Black Sea. The EU is negotiating since 2009 its accession to the Convention.

- **"Offshore Protocol"[188] for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil, 1994 (and Council Decision of 17 December 2012 on the accession of the European Union [to the Offshore Protocol])**

  Protocol of the United Nations Environment Programme whose parties agree to take all appropriate measures to prevent, abate, combat and control pollution in the Protocol Area resulting from activities concerning exploration and exploitation of the resources

- **OSPAR decision 98/3[189] on disposal of disused offshore facilities, 1998**

  Prohibits the dumping, leaving wholly or partly in place of disused offshore installations.

13.5.2 International and regional acquis pertinent for claims for damages from an offshore oil or gas incident

- **International Convention on Civil Liability for Oil Pollution Damage[190] (Civil Liability Convention), 1992**

  The registered ship-owner has strict liability for pollution damage caused by the escape or discharge of persistent oil from his ship. This means that he is liable even in the absence of fault on his part (with exceptions). The ship-owner is normally entitled to limit his liability to an amount determined by the size of the ship.

- **International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage[191] (Fund Convention), 1992**

  Establishes a regime for compensating victims when compensation under the 1992 CLC is not available or is inadequate. It sets up the 1992 International Oil Pollution Compensation Fund, which pays compensation when the damage exceeds the limit of the ship owners' liability under the 1992 CLC, the ship-owner is exempted from

[187] http://www.blacksea-commission.org/_convention-fulltext.asp
[188] https://wedocs.unep.org/rest/bitstreams/2336/retrieve
[189] https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwi4g97tgPTlAhWQDuwKHR6nD54QFjAAegQIBRAI&url=https%3A%2F%2Fwww.ospar.org%2Fdocuments%3Fv%3D6875&usg=AOvVaw3wlKkLy5ub3yrRwGVf7COm
[190] https://www.iopcfunds.org/about-us/legal-framework/1992-civil-liability-convention/
[191] http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-on-the-Establishment-of-an-International-Fund-for-Compensation-for-Oil-Pollution-Damage-(FUND).aspx

liability under the 1992 CLC, or the ship-owner is financially incapable of meeting his obligations.

- **Offshore Protocol to the Barcelona Convention for the protection of the marine environment and the coastal region of the Mediterranean[192] (Offshore Protocol), 1994**

  Sets criteria for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil. The parties must ensure that the best available techniques, environmentally effective and economically appropriate, are used so that offshore activities do not cause pollution. It has not yet entered into force.

- **International Convention on Civil Liability for Bunker Oil Pollution Damage[193] (Bunker Oil Pollution Convention), 2001**

  Ensures that adequate, prompt, and effective compensation is available to persons who suffer damage caused by spills of oil, when carried as fuel in ships' bunkers. The Convention applies to damage caused on the territory, including the territorial sea, and in exclusive economic zones of States Parties.

- **Convention on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters[194] (Lugano Convention), 2007**

  Concerns issues of jurisdiction and enforcement of judgments between the European Union member states and Iceland, Switzerland and Norway according to the same principles as set by the 2001 Brussels Convention on jurisdiction and the enforcement of judgments in civil and commercial matters.

- **Hong Kong Convention for the Safe and Environmentally Sound Recycling of Ships, 2009**

  Adopted by the International Maritime Organisation, this convention has not yet entered into force. The Convention takes a "cradle to grave approach" and will regulate all aspects of the life cycle of ships with the aim to facilitate their safe and environmentally sound recycling.

- **International Maritime Organization's Code for the Construction and Equipment of Mobile Offshore Drilling Units[195] (MODU Code), 2009 as amended by Resolution MSC.359(92) of 21 June 2013**

  (7) The code applies to mobile offshore units constructed on or after 1 January 2012 and details recommended design criteria, construction standards and other safety measures for mobile offshore drilling units so as to minimize the risk to such units, to the personnel on board and to the environment.

[192] https://www.informea.org/en/treaties/offshore-protocol/text

[193] http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-on-Civil-Liability-for-Bunker-Oil-Pollution-Damage-%28BUNKER%29.aspx

[194] http://ec.europa.eu/world/agreements/downloadFile.do?fullText=yes&treatyTransId=13041

[195] http://www.imo.org/en/Publications/Documents/Supplements%20and%20CDs/English/I810E_122014.pdf

13.6 **Others (e.g. resolutions, agreements etc.)**

- **Judgment of the Court (Grand Chamber) of 13 September 2005, *Commission of the European Communities v Council of the European Union*,[196] Case C-176/03 (ECLI:EU:C:2005:542)**

  Ruled that the Community legislature can provide for criminal-law measures when the application of effective, proportionate and dissuasive criminal penalties by the competent national authorities is an essential measure for combating serious environmental offences.

- **European Parliament resolution on facing the challenges of the safety of offshore oil and gas activities[197] (2011/2072(INI))**

  Stresses that all Member States' legislative and regulatory frameworks should adopt a robust regime in line with the current best practice where all drilling proposals are accompanied by a safety case, which must be approved before operations can begin.

- **Report from the Commission to the European Parliament and the Council on liability, compensation and financial security for offshore oil and gas operations pursuant to Article 39 of Directive 2013/30/EU[198]**

  An overview of how liability for damage from offshore accidents in oil and gas prospection, exploration and production is addressed in the EU: who is liable for what kinds of damage and loss to whom; second, how to ensure that liable parties have sufficient financial capacity and third, how compensation should be most efficiently disbursed.

- **Commission staff working document on Liability, Compensation and Financial Security for Offshore Accidents in the European Economic Area[199]**

  This document, and the Report to the European Parliament and Council it accompanies, aim to present an overview of these issues and propose ways in which the European Union (EU) could address any shortcomings that may exist in the current legal frameworks for liability for civil damage resulting from offshore oil and gas operations.

- **European Parliament resolution on liability, compensation and financial security for offshore oil and gas operations (2015/2352(INI))[200]**

  Parliament stresses that the effective application of the 'polluter pays' principle to offshore oil and gas operations should extend not only to the costs of preventing and remedying environmental damage, but also to the **costs of remedying traditional damage claims**, in line with the precautionary principle and the principle of sustainable development.

[196] http://curia.europa.eu/juris/liste.jsf?language=en&num=C-176/03
[197] http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P7-TA-2011-0366+0+DOC+XML+V0//EN&language=EN
[198] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52015DC0422
[199] https://euoag.jrc.ec.europa.eu/files/attachments/celex_52015sc0167_en_txt.pdf
[200] http://www.europarl.europa.eu/doceo/document/TA-8-2016-0478_EN.html?redirect

- **European Parliament resolution on International ocean governance (2017/2055(INI))**[201]

  The European Parliament adopted by 558 votes to 25, with 83 abstentions, a resolution on international ocean governance: an agenda for the future of our oceans, in the context of SDG 14 of the UN 2030 Agenda for Sustainable Development.

- **Best Available Techniques Guidance Document on upstream hydrocarbon exploration and production Techniques**[202]

  The Hydrocarbons Guidance Document addresses 13 onshore and 10 offshore activities of the oil and gas-extracting sector that have the potentially highest impact on the environment and human health. These include handling of drill cuttings, chemicals and hydrocarbons or management of fugitive emissions.

  The identified best practices in the document are intended to serve as guidance for organisations engaged in hydrocarbons activities and for the regulatory/permitting authorities to draw upon when planning new facilities or carrying out modifications to existing facilities, planning changes and investments, as well as in permitting activities across the European Union

[201] http://www.europarl.europa.eu/doceo/document/TA-8-2018-0004_EN.html?redirect

[202] https://ec.europa.eu/info/news/new-commission-guidance-how-consider-environment-hydrocarbon-extraction-2019-apr-09_en

14 ANNEX VI: LIABILITY, FINANCIAL RESPONSIBILITY AND COMPENSATION CLAIMS

14.1 Views from stakeholders on liability, handling of compensation claims and financial security

14.1.1 Liability – views from the industry

The oil company trade association, IOGP, has consulted with its representative associations around the EU and EEA, and submitted a consultative paper on the subject for the EU-wide industry sector as a whole. The operators believe that existing liability regimes in the Member States are adequate and aligned with the polluter pays principle. Whilst there are differences in the way Member States approach liability for offshore accidents there is no evidence that any of the existing liability regimes are less effective in dealing with possible claims arising from offshore incidents.

Regarding pure economic loss, the industry position is that excessive and disproportionate liability should be avoided to prevent an unreasonable burden on economic actors. In those limited national arrangements of strict liability for pure economic losses, the liability is limited to a financial cap, or by the nature of the claims which are accepted e.g. the Oil Pollution Act 1990 (OPA 90)[203], applicable to oil spills in the Gulf of Mexico. It stipulates strict liability, but such liability is limited to US$133.65 million.

In the opinion of industry, legal traditions determine how the justice systems of Member States distinguish between legitimate claims and ordinary risks faced by participants in the economy. The ability to address recovery of pure economic loss is currently within the power of Member States and should remain there. In industry's view, each Member State is best placed to assess potential "gaps" in its current legal and regulatory framework and implement appropriate measures to comply with the already existing obligations in the Directive (Article 4). Furthermore, the Brussels I and the Rome II Regulations help prevent potential differences in national regimes from disadvantaging claimants in different Member States.

According to the views from industrial associations, any harmonisation of civil liability regimes would also run counter to the key goal-setting principles in the Directive, which establish performance and legal objectives to be achieved, while giving operators and competent authorities the flexibility to decide on the most appropriate tool to achieve such objectives.

14.1.2 Handling of compensation claims – views from the industry

The operators point out that national systems have worked well thus far and there are no indications that historic offshore pollution incidents from oil and gas operations in

[203] https://legcounsel.house.gov/Comps/Oil%20Pollution%20Act%20Of%201990.pdf

Europe were not adequately handled. They were not aware of any example where a large group of claimants that were directly impacted by a pollution event from oil and gas operations, did not receive adequate protection. The fact that OPOL (see below) has never needed to be invoked since its formation in 1974 is also an indicator of the adequacy of handling previous incidents. It is also repeated that the Brussels I and the Rome II Regulations aim to prevent potential differences in national regimes from disadvantaging claimants in different EU Member States.

Industry agrees that all licensees should have arrangements in place for the prompt and adequate handling of valid compensation claims as required by the Directive. For example, the UK requires each licensee to have and maintain membership of OPOL plus any additional financial capacity determined as necessary by the licensing authority and to assure this status at all times whilst the licensee has an interest in a license. One of the conditions of OPOL membership is an obligation of transparency of financial status.

IOGP members are particularly concerned about the repeated calls to introduce strict, broad and unlimited liability for pure economic loss. Given there is no history of inadequate compensation or handling of offshore pollution claims in Europe, they believe there is no compelling case to overturn centuries of case law and legal principles developed in every one of the Member States without having considered the cost impacts on the sector and the potential knock-on effect on security of supply in the EU. I their view, such actions require clear policy reasons for doing so that have not been identified let alone demonstrated to exist.

14.1.3 **Financial security – views from the industry**

In IOGP's views there are regulators in the EU who have implemented financial responsibility requirements, which are robust and workable. An example of this are the "Liability Provision Guidelines for Offshore Petroleum Operations"[204] published by Oil & Gas UK in 2018. The Guidelines contain a simple yet objective method to determine the level of financial responsibility to be maintained by licensees for their operations to cover the costs of bringing a well under control, clean-up costs and potential third-party compensation. It uses data which in any case must be prepared as part of the OPEP (Oil Pollution Emergency plan).

The guidelines also clearly identify the type of financial instruments acceptable to the regulator to satisfy the regulatory requirements.

In the UK licensees can use different financial instruments to demonstrate financial responsibility. The levels of financial responsibility to be maintained were set based on the results of an oil spill cost modelling performed by an external consultant to provide assurance that these are adequate. They vary based on the assessed exposure which is mainly influenced by reservoir characteristics, well fluids, potential direct loss or damage suffered by users of the polluted sea areas including fishermen, length of coastline impacted and the estimated volume of oil that may land on the shoreline and associated clean up and remediation costs.

[204] https://oilandgasuk.co.uk/product/liability-provision-guidelines-for-offshore-petroleum-operations/

For higher exposure wells licensees may be required to demonstrate financial responsibility up to approximately USD 1.5 bn – between USD 100 mln to USD 300 mln for well control and up to USD 1.2b n for clean-up and third-party compensation costs. The Oil Spill cost study however concluded that for most wells on the UK's continental shelf USD 250 mln should be sufficient to cover clean-up and third-party compensation costs. For high exposure wells the levels of financial responsibility to be maintained and demonstrated is in excess of the compensation available for spills from oil vessels. In this context it is interesting to note that the historic oil spills from oil tanker accidents were generally worse in terms of volume of oil released from well blow-outs (except for a handful of other well incidents).

The UK model has since informed requirements in other jurisdictions inside and outside the EU (e.g. Denmark, Ireland, Cyprus, Italy, Australia and New Zealand) which stipulate exposure based financial responsibility requirements and allow the use of different financial instruments (including insurance, guarantees and self-insurance) to demonstrate compliance. Hence, IOGP believes the UK model provides sufficient guidelines to help other Member States shape financial responsibility requirements adequate for their environment. They consider it demonstrates that adequate requirements can be stipulated and implemented at the level of each Member State.

14.1.4 Views from non-governmental associations (NGOs)

The Bellona Foundation joined the September 2018 workshop on the assessment. Subsequently Bellona drew together a small corps of colleague organisations that made representations on liability matters. The group comprised Bellona, Surfrider Foundation Europe, Friends of the Earth Europe, Nature and Youth, Young Friends of the Earth, and WWF. A separate submission was initially made by Surfrider that coincided with the public consultation. It called for a financial and liability mechanism similar to the International Oil Pollution Compensation fund (IOPC) with start-up funds to be put in place.

In March 2019, the corps of NGO has made a group submission, going further but also echoing Surfrider's earlier paper calling for a moratorium on offshore activities in marine protected areas and other sensitive areas.

The notable contributions on liability and financial responsibility asked that the Commission's 2015 report and the Parliament's Resolution of 2016 be taken forward to a clear conclusion with concomitant requests that "…civil liability schemes now be uplifted in all Member States to global best practice levels. This must also include some recognition of pure economic loss". The group draws attention to its view that vast economic losses can currently be inflicted upon marine and coastal economies that may go largely uncompensated, and which situation must be remedied.

The group calls for a strong obligation for adequate financial capacity of the license holder to be maintained in all situations, including insolvency, where currently such matters are merely 'to be taken into account'.

14.1.5 Views from the insurance sector

Damage to bio diversity offshore is complex to assess and quantify and many insurers do not insure them. Furthermore, according to the International Union of Marine Insurance (IUMI) the insurance market for offshore operations is complex and may involve several parties insuring the risk of one operator. Although the insurance market is global its financial capacity is nevertheless limited: there is in effect an overall pot of money for insuring all risks everywhere. This means that insurers may not be ready to divert part of the fund to provide cover in the offshore sector, if faced with disproportionate exposure or a client base unwilling or unable to pay for that insurance. Since rules on litigation and liability vary substantially between jurisdictions, barriers for involvement in this business are high.

Overall, it is not felt that sufficient time elapsed since the introduction of the "well-intentioned" Directive to allow it to have had discernible or measurable effect. The requirement was for all EU Member States' to transpose the Directive by 19 July 2015 but several Member States were late. Equally, the Directive has only been applied to existing installations since July 2018. Overall, it would appear premature for any modification to be made, which would lead to more legal uncertainty and change.

According to Insurance Europe, Member States' liability regimes reflect long-standing cultural and societal choices concerning legal responsibility and obligations to compensate for harm caused, and have usually been confirmed by national democratically elected legislatures. They are well established and predictable, facilitating the availability of legal liability insurance and other financial instruments to cover such liabilities.

There is considerable wariness over suggestions that an EU-wide liability regime for offshore activities could be overlain on Member States' existing laws. Insurance stakeholders consider that there is no certainty over how such a novel system would work in practice and whether it would work to the advantage of claimants. National courts would retain discretion over the application of the regime and could interpret it in different ways, removing any prospect of a harmonised European approach. The outcomes of such a regime would be unpredictable, reducing the insurability of operators' liability risk because the pricing of cover would be difficult. It is probable that any such regime would therefore lead to a reduction in the availability of insurance and other financial instruments to operators.

Insurance Europe does not see advantages in legislating to handle compensation claims at EU rather than Member States level. This would shift responsibility for dealing with offshore incidents causing injury and damage from member states to the EU. Such incidents are not necessarily straightforward and any problems, such as delays in providing compensation to claimants, could cause the EU serious reputational harm. Responsibility for the handling of compensation claims should be at Member States level, alongside responsibility for regulating the offshore energy industry: there is no evidence that compensation could be more effectively handled at the EU-level.

The organisation Lloyd's Market Association & International Underwriting Association of London agrees fully with IUMI that sufficient time has not yet elapsed since the introduction of the Directive to allow it to have had discernible or measurable effect.

Lloyd's emphasises the insurance market for energy risks is complex. Typically, a panel of underwriters are involved in providing risk transfer capacity in respect of individual policies. An individual policy will usually insure the interest and liability of a single entity/assured. It is very common for a number of entities to be involved as co-ventures in the drilling of a well. Thus, several insurance policies may be required in order to ensure that the 100% venture interest is insured. Furthermore, a policy will typically provide coverage in respect of the asset and expenses and liabilities arising therefrom. Thus, a policy may provide multi-coverages such as physical damage, well control, clean-up and containment and legal liabilities.

In addition to insurers operating in the commercial insurance markets, some oil and gas companies make use of mutual (re)insurance mechanisms and captive insurance companies. It is possible that use of such mechanisms could increase in order to mitigate the impact of increased compulsory insurance. These (re)insurers may be subject to a different regulatory regime than commercial market insurers.

There has not been a major oil pollution incident from offshore activity since the Macondo incident. Whilst Macondo reportedly cost BP and co-liable entities US$72 billion, there is no reliable estimation to what a big incident in Europe might cost. Such an event would be definitive in identifying how far insurance can help.

The insurance industry is providing up to $750 million of insured indemnity for a limited number of insured parties. From the Willis Towers Watson loss database[205], a data base of energy losses in the world, it is noted that a 'blowout without fire', occurring in the UK in 2012, settled for a total of c. US$469m (€418m). The top event is Macondo (2010) where the pay-out is listed at US$2.56bn (€2.28) – presumably the liable entity was not BP for these losses. The second event is for platform damage during Hurricane Katrina (2005), where the total pay-out is listed as US$1.4bn (€1.25bn).

However, if it is the case that the market can provide a maximum of US$1-3 billion liability cover, as has been suggested by experts, then that gives a pointer as to where legal limits of liability on an operator might be set. These boundaries appear within reach of liabilities for the Macondo, Katrina and Elgin Franklin major incidents appearing on the Willis Loss database. However, the major operators concerned in those disasters hold a significant amount of self-insurance so the database points only to the market coverage. Nevertheless, it might be possible in the future to increase capacity and insurance limits but that would only be possible with substantial increases of premium.

It I appears that there is no need to modify the Directive due to the limited time that has lapsed since its introduction and the absence of incidents. There can be no guarantee that the insurance industry will be ready, willing and able to provide cover

[205]https://www.willis.com/Documents/Publications/Industries/Energy/2155_energy%20_loss_database.pdf

to protect participants engaged in offshore exploration for oil and gas in the EU if they are faced with disproportionate exposures, restricted terms and a client base unwilling or unable to pay for it. They will seek to deploy their capital elsewhere.

The insurance sector summarises some key points to be considered as follows:

- In any offshore operation there are many different players, ranging from major oil companies to vessel operators, drilling contractors to catering subcontractors and soil analysts. Offshore oil activity is not like an onshore factory where the operation is controlled entirely by the owner.
- The operator's legal responsibilities both to third parties and to each other are very complex and are generally regulated by contract with "knock for knock" agreements and indemnities inter se. The terms of those contacts and the limits within them reflect the appetite for risk of the parties and, to some extent, their ability to insure.
- It would be wrong to assume that everyone in the energy industry is a substantial company well able to meet any claim from its own resources (although the biggest can) or that they can necessarily buy insurance to protect themselves.

  Where there is currently little or no legislation within a Member State, Lloyd's Market Association & International Underwriting Association would support the introduction of a uniform approach to offshore safety. The association's committees are unsure of the current status of the Directive's integration into individual Member States' legislature and see no reason to modify the Directive now, when taking into account the limited time that has elapsed since its introduction.

14.2 **Reference documents**

The following documents are relevant to the subject of Liability, Financial Responsibility and Compensation Claims in the sector of offshore oil and gas activities.

- European Parliament Resolution of 1 December 2016 on Liability, Compensation and Financial Security for Offshore oil and gas operations (2015/2352(INI))[206].
- REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL on liability, compensation and financial security for offshore oil and gas operations pursuant to Article 39 of Directive 2013/30/EU {SWD(2015) 167 final}[207]
- Commission Staff Working Document on Liability, Compensation and Financial Security for Offshore Accidents in the European Economic Area[208]

[206] http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+TA+P8-TA-2016-0478+0+DOC+PDF+V0//EN

[207] https://ec.europa.eu/transparency/regdoc/rep/1/2015/EN/1-2015-422-EN-F1-1.PDF

[208] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015SC0167&from=EN

15 ANNEX VII: STATISTICAL BACKGROUND INFORMATION

15.1 Oil and gas industry's activity 2010 – 2020

Figure 1: **10-year trend of Brent Crude price (US$/barrel)**

(Year high: 2012 $128.14; Year low: 2020 $14.85)

Source: Macrotrends[209]

[209] Marcotrends, 2020. Brent Crude Oil Prices – 10 Year Daily Chart, Retrieved from: https://www.macrotrends.net/2480/brent-crude-oil-prices-10-year-daily-chart.

15.2 Accidents and incidents and international benchmarking

Table 1: **Total recordable injury rate by region (2014-2018)**

TRIR	2014	2015	2016	2017	2018
Africa	1.02	0.76	0.50	0.48	0.50
Asia/Australasia	1.01	0.92	0.81	0.75	0.72
Europe	2.58	2.22	2.07	2.07	2.17
Middle East	0.86	0.73	0.48	0.55	0.43
North America	2.40	2.13	1.84	1.96	2.00
Russia & Central Asia	0.59	0.69	0.52	0.44	0.54
South & Central America	2.82	2.08	1.83	1.44	1.64
Overall	**1.54**	**1.21**	**1.03**	**0.96**	**0.99**

Source: IOGP[210]

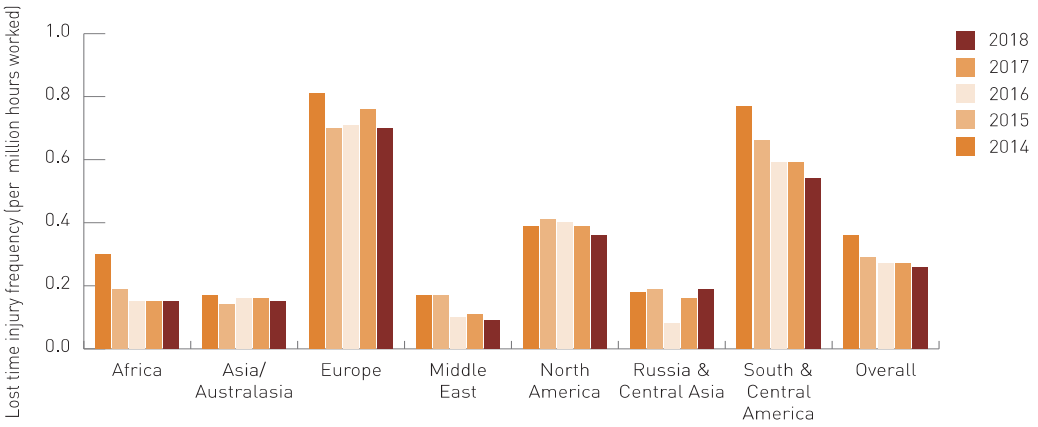
Table 2: **Fatal accident rate by region (2014-2018)**

FAR	2014	2015	2016	2017	2018
Africa	0.86	1.84	2.25	1.23	1.12
Asia/Australasia	1.02	0.76	2.01	0.50	0.94
Europe	1.04	1.17	5.11	0.00	0.00
Middle East	0.33	1.07	0.99	0.66	1.19
North America	1.56	2.32	1.23	2.45	0.54
Russia & Central Asia	0.81	1.60	0.00	2.98	1.36
South & Central America	1.13	1.41	0.30	1.15	1.49
Overall	**1.03**	**1.45**	**1.73**	**1.10**	**1.01**

Source: IOGP[211]

[210] IOGP, (2019). Safety performance indicators –2018 data, Retrieved from: file:///C:/Users/kneebja/Downloads/2018s.pdf.
[211] IOGP, (2019). Safety performance indicators –2018 data, Retrieved from: file:///C:/Users/kneebja/Downloads/2018s.pdf.

Figure 2: **Lost time injury frequency by region (2014/2018)**



Source: IOGP[212]

Table 3: **Total recorded injury rate – European countries (2016-2018)**

(Not all MS' report to this database)

Region	Country	2016	2017	2018
Europe				
	Germany	3.53	3.35	3.69
	Denmark	2.75	2.72	3.25
	Norway	2.77	2.67	2.62
	UK	2.09	1.98	2.35
	Poland	2.19	1.30	2.28
	Europe average			**2.17**
	Netherlands	2.09	2.50	2.13
	Croatia	2.65	1.86	1.49
	Hungary	3.21	2.86	1.32
	Romania	0.53	0.60	1.09
	Italy	1.06	1.22	0.75
	France	1.26	0.15	0.74
	Spain	2.40	1.05	0.50
	Ireland	2.16	6.52	0.00
	Ukraine	0.00	0.00	0.00
	Cyprus	0.00	2.56	0.00

Source: IOGP[213]

[212] IOGP, (2019). Safety performance indicators –2018 data, Retrieved from: file:///C:/Users/kneebja/Downloads/2018s.pdf.
[213] IOGP, (2019). Safety performance indicators –2018 data, Retrieved from: file:///C:/Users/kneebja/Downloads/2018s.pdf.

Table 4: **Worst blowout spills 1977 – 2012**

Key:

EU / Norway blowouts	IRF (non EU) blowouts

Installation/Field	Year	Country/Area	Loss (upper)
Ekofisk Bravo	1977	Norway/North Sea	28k^{T}
Sedco 135F/Ixtoc	1979	Mexico/Campeche Bay	480k^{T}
Ron Tappmeyer/ Hasba Well #6	1980	Iran/Iranian Gulf	19 souls / 260k^{T}
Funiwa #5	1980	Nigeria/Niger Delta	27k^{T}
Nowruz Platform	1983	Iran/Iranian Gulf	267k^{T}
Ocean Odyssey	1988	UK North Sea	NA (ignited condensate)
Timbalier Bay	1992	USA/Gulf of Mexico	38k^{T}
Temsah Platform	2004	Egypt / S Mediterranean	NA (ignited gas)
Mississippi Canyon platform*	2004-now	USA/Gulf of Mexico	1-490k^{T}
Seadrill/Montara	2009	Australia/East Timor Sea	30k^{T}
Deepwater Horizon/ Macondo	2010	USA / Gulf of Mexico	654k^{T}
Elgin Franklin	2012	UK / North Sea	6k^{T}

* Platform destroyed by Hurricane Ivan in 2004. Production wells appear to continue to leak following removal of structure. Extent of spill is disputed between company (Taylor Energy, who claim no more can be done, and seeps, if any, are unrelated) and US regulators / NGO's

Source: European Commission[214]

Between 1977 and 2012 there are data available on 12 major offshore blowouts, three of which took place in the North Sea. Therefore, the baseline rate of a major blowout occurring since 1977 was 1 incident in 3 years for all countries; 1 in 4 years in IRF

[214] https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52011PC0688

countries; and 1 in 12 years North Sea until 2012. There do not appear to have been any blowouts causing major spills since 2012.

There is no established trend in any of the quantitative indicators of major accident prevention performance, given the lack of maturity in this regime that came fully into effect just recently in July2018.

Figures below show the number of oil spills normalised per unit hydrocarbon production by region. Rates for 2017 varied from 0.1 to 1.8 spills per million tonnes of production. The notable reduction in the number of spills and quantity released onshore in the Russia & Central Asia region in 2016 is due to a change in the companies participating.

It's evident that Europe has below average accidental spills of oil from petroleum operations, but it should always be noted that land spills are more frequent, in global terms and that Europe's production is primarily offshore. Other data used by IOGP indicates that the reporting of spills to the statutory agency is higher in Europe than elsewhere (probably except Australia and Canada, which states are included in a much wider region.

15.3 Total running costs of duty holders for implementation of the Directive

Table 5: **MODU running costs in Euro (in thousands) – North Sea fleet**

All sums €000	**Max/Rig**	**Min/Rig**	**Average/rig**	**Totals for 37 rigs**
Internal*	26.88	3.62	11.42	422.69
External	291.20	4.48	54.92	2,032.03
OSDR - Review	84.00	16.48	36.9	1,365.08
Oil Spill Plans	11.2	0.448	3.57	132.12
Other Costs**	22.42	4.40	9.55	353.46
	n/a	n/a	116.36	4,305.38
Other running costs			117.60	4,351.20
Total			233.96	8,656.58
Annual running costs after discounting for RoMH * **			208.13	7,700.81

*calculated at €67.20/hr

** e.g. supporting rigs working in other EU MS'

*** allowing for 5 year acceptance cycle of MODU's -€25.83k/MODU

Source: IADC

This part attempts to calculate the one-off costs for duty holders and the annualised running costs for complying with the Directive. The table was generated from a data sample of 34 rigs from the North Sea fleet of 37 rigs. For the operator community, no data is available from the UK North Sea, either from operators or regulators. It does not appear that any detailed calculations were made of uplift in running costs or one-off implementation costs that support claims by some North Sea operators that costs of introducing the Directive have been excessive.

UK has supplied an impact assessment (Figure below, expressed in £ sterling) for introducing the Directive which accompanied the regulator's application to legislate. The UK has 55% of EU North Sea installations, and 76% of North Sea production. We assume that the UK carries 66% of the North Sea costs.

From the figure below we take the UK estimate of €119,758k (i.e. converted from £sterling) in costs relating to introducing and running the changed legislation introduced by the safety regulator, HSE. We obtained further particulars that accumulated additional costs of € 48,638k from legislation introduced by the environmental regulator of the joint CA, and some additional CA surveys. Therefore, we use an estimated 10-year present value of € 163,309k for costs to industry.

From the impact assessment, we also note costs to government of €3,287 and €202 giving a total cost of €166,798. Note that this is a 10-year present value sum.

Of this sum, the annual uplifted running costs are estimated at €15.53m, and the one-off (transitional) costs are €65,025.

Therefore, in the circumstances of having no current data provided by industry, it is preferred to use the UK 2014 impact assessment made prior to the national legislation coming into effect. From this a further estimation of North Sea equivalent costs is made.

Table 6: **Cost summary for MODUs for implementing the Offshore Safety Directive**

	UK	**North Sea**
One-off costs (over 4 years transition)	€65,025k	€98,523k
Annual running costs uplift	€15,530k/yr	€23,530k/yr
Total transition + year 1 running cost	€80,555	€122,053
Total (10 year present value)	€166,798k	€252,724k

Not including the directly incurred operating expenditure, operators and owners will, in most MS', be required to reimburse the competent authority their administrative costs. Those costs are highly variable for reasons such as the quality of the initially submitted RoMH, the findings of inspections, and investigations etc. Estimates from some individual owners suggests a MODU assessment of a RoMH is billed on average

at €56.0k – 60k/MODU. An average value for the North Sea fleet of €36.90k/MODU or €1,356k for the fleet (of 37 installations), was used.

Table 7: **Summary of costs to industry from implementing the Offshore Safety Directive in the UK**

	Low	Best Estimate	High
Internal Emergency Response Plans	£5,028	£21,402	£43,816
Independent Verification	£11,751	£20,685	£29,619
Corporate Major Accident Prevention Policy	£8,464	£19,590	£32,773
Safety and Environmental Management Systems	£765	£2,149	£3,712
Safety Case	£9,822	£16,071	£22,320
Design and Relocation Notifications	£91	£114	£137
Well Notifications	£8,368	£10,461	£12,553
Combined Operations Notifications	£418	£464	£510
Promoting change to staff	£7,210	£12,617	£18,024
Databases for Reporting Act	£2,025	£3,375	£4,950
Dismantling a fixed installation	Nil	Nil	Nil
Reporting imminent danger or increased risk of a major accident	Nil	Nil	Nil
Reporting major accidents outside the EU	Nil	Nil	Nil
Safety Zones	Nil	Nil	Nil
Collecting and recording data	Nil	Nil	Nil
Enter and Leave Notifications	Nil	Nil	Nil
Total (Options 2 to 5)	**£53,941**	**£106,927**	**£168,414**

Note: figures are ten-year present values. Totals may not sum due to rounding.

Source: IOGP/UK HSE

Southern seas

It is estimated that the owners of the 7 MODU's operating in the southern seas incur costs that are *pro rata* with the 37 analogues in the North Sea, namely, **€1,456.91/yr**.

It's noted that the one-off costs for owners in the North Sea appear to come to €3,108k and assume similar pro rata costs for the 7 MODU's in the southern seas therefore are **€588.00k**.

Some very limited data were obtained from the southern seas region that we are unable to post in this report as it was received on a *Commercial in Confidence* basis. Nevertheless, this data was used to calculate a figure for industry costs comprising one-off and first year running costs total of **€83,614-88,642k.**

This calculation has a large error range by virtue of the limited data that we were able to source. It is also noted that the southern seas region has 30% of the production installations and related installations of the EU (excluding Norway) and 6% of EU production. The installations are generally smaller and less complex than in the North Sea. On the other hand there have been considerable start-up costs to introduce the measures in the Directive outside of the North Sea region.

Table 8: **Summary of costs per installation and per region for implementing the Offshore Safety Directive**

North Sea/Atlantic	
One-off costs MODU owners	€3,108k
Annualised costs MODU owners	€7,701k
One-off costs Operators	€98,523k
Annualised costs Operators	€23,530k/yr
Sub total	*€132,862k (1)*
Southern seas	
One-off costs MODU's	€588k
Annualised costs MODU's	€1,457k
One-off + annualised costs Operators	€86,128k (mean)
Sub total	*€88,173k (2)*
Total one-off & annualised costs in year one. (1 + 2)	€221,035k (3)
Mean one-off + annualised additional costs estimated in the IA	€167,240k
IA estimates updated to 2019 prices (EU Central Bank data)	€177,844k (4)
Difference IA and our estimated actual (4 – 3)	(€43,191k)
Annual Impact Assessment estimated reduction in cost baseline Based on reduced blow-out frequency (2019 prices) Mean value	€295,938k

16 ANNEX VIII: VIEWS FROM STAKEHOLDERS ON LIABILITY, HANDLING OF COMPENSATION CLAIMS AND FINANCIAL SECURITY

16.1 Liability - views from the industry

The oil company trade association, IOGP, has consulted with its representative associations around the EU and EEA, and submitted a consultative paper on the EU offshore petroleum sector. The operators believe that existing liability regimes in Member States are adequate and aligned with the polluter pays principle. Whilst there are differences in the way Member States approach liability for offshore accidents, there is no evidence that any of the existing liability regimes are less effective at dealing with possible claims arising from offshore incidents than the ones in other Member States.

Regarding pure economic loss, the industry position is that excessive and disproportionate liability should be avoided to prevent an unreasonable burden on economic actors. In those limited national arrangements of strict liability for pure economic losses, the liability is limited to a financial cap, or by the nature of the

claims which are accepted. For example, the Oil Pollution Act 1990 (OPA 90)[215] applicable to oil spills in the Gulf of Mexico stipulates strict liability, however, this liability is capped at US$133.65 million.

According to industry, legal traditions determine how the justice systems of Member States distinguish between legitimate claims and ordinary risks faced by participants in the economy. Moreover, industry argues that the ability to address recovery of pure economic loss should remain within the power of Member States. In industry's view, each Member State is best placed to assess potential "gaps" in its current legal and regulatory framework and implement appropriate measures to comply with the already existing obligations in the Directive (Article 4). Furthermore, the Brussels I and Rome II Regulations help prevent potential differences in national regimes from disadvantaging claimants in different Member States.

According to the views of industrial associations, any harmonisation of civil liability regimes would also run counter to the goal-setting principles of the Directive. These principles establish performance and legal objectives to be achieved, while giving operators and Competent Authorities the flexibility to decide on the most appropriate tool to achieve such objectives.

16.2 Handling of compensation claims – views from the industry

The operators point out that national systems have worked well thus far and there are no indications that historic offshore pollution incidents from oil and gas operations in Europe were not adequately handled. They were not aware of any example where a large group of claimants that were directly impacted by a pollution event from oil and gas operations, did not receive adequate protection. The fact that OPOL (see below) has never needed to be invoked since its formation in 1974 is also an indicator of the adequacy of handling previous incidents. It is also repeated that the Brussels I and the Rome II Regulations aim to prevent potential differences in national regimes from disadvantaging claimants in different EU Member States.

Industry agrees that all licensees should have arrangements in place for the prompt and adequate handling of valid compensation claims as required by the Directive. For example, the UK requires each licensee to have and maintain membership of OPOL plus any additional financial capacity determined as necessary by the licensing authority and to assure this status at all times whilst the licensee has an interest in a license. One of the conditions of OPOL membership is an obligation of transparency of financial status.

IOGP members are particularly concerned about the repeated calls to introduce strict, broad and unlimited liability for pure economic loss. Given there is no history of inadequate compensation or handling of offshore pollution claims in Europe, they believe there is no compelling case to overturn centuries of case law and legal principles developed in every one of the Member States without having considered the

[215] https://legcounsel.house.gov/Comps/Oil%20Pollution%20Act%20Of%201990.pdf.

cost impacts on the sector and the potential knock-on effect on security of supply in the EU. I their view, such actions require clear policy reasons for doing so that have not been identified let alone demonstrated to exist.

16.3 Financial security – views from the industry

In IOGP's views there are regulators in the EU who have implemented financial responsibility requirements, which are robust and workable. An example of this are the "Liability Provision Guidelines for Offshore Petroleum Operations"[216] published by Oil & Gas UK in 2018. The Guidelines contain a simple yet objective method to determine the level of financial responsibility to be maintained by licensees for their operations to cover the costs of bringing a well under control, clean-up costs and potential third-party compensation. It uses data which in any case must be prepared as part of the OPEP (Oil Pollution Emergency plan).

The guidelines also clearly identify the type of financial instruments acceptable to the regulator to satisfy the regulatory requirements.

In the UK licensees can use different financial instruments to demonstrate financial responsibility. The levels of financial responsibility to be maintained were set based on the results of an oil spill cost modelling performed by an external consultant to provide assurance that these are adequate. They vary based on the assessed exposure which is mainly influenced by reservoir characteristics, well fluids, potential direct loss or damage suffered by users of the polluted sea areas including fishermen, length of coastline impacted and the estimated volume of oil that may land on the shoreline and associated clean up and remediation costs.

For higher exposure wells licensees may be required to demonstrate financial responsibility up to approximately USD 1.5 bn – between USD 100 mln to USD 300 mln for well control and up to USD 1.2b n for clean-up and third-party compensation costs. The Oil Spill cost study however concluded that for most wells on the UK's continental shelf USD 250 mln should be sufficient to cover clean-up and third-party compensation costs. For high exposure wells the levels of financial responsibility to be maintained and demonstrated is in excess of the compensation available for spills from oil vessels. In this context it is interesting to note that the historic oil spills from oil tanker accidents were generally worse in terms of volume of oil released from well blow-outs (except for a handful of other well incidents).

The UK model has since informed requirements in other jurisdictions inside and outside the EU (e.g. Denmark, Ireland, Cyprus, Italy, Australia and New Zealand) which stipulate exposure based financial responsibility requirements and allow the use of different financial instruments (including insurance, guarantees and self-insurance) to demonstrate compliance. Hence, IOGP believes the UK model provides sufficient guidelines to help other Member States shape financial responsibility requirements

[216] https://oilandgasuk.co.uk/product/liability-provision-guidelines-for-offshore-petroleum-operations/.

adequate for their environment. They consider it demonstrates that adequate requirements can be stipulated and implemented at the level of each Member State.

16.4 Views from non-governmental associations (NGOs)

The Bellona Foundation joined the September 2018 workshop on the assessment. Subsequently Bellona drew together a small corps of colleague organisations that made representations on liability matters. The group comprised Bellona, Surfrider Foundation Europe, Friends of the Earth Europe, Nature and Youth, Young Friends of the Earth, and WWF. A separate submission was initially made by Surfrider that coincided with the public consultation. It called for a financial and liability mechanism similar to the International Oil Pollution Compensation fund (IOPC) with start-up funds to be put in place.

In March 2019, the corps of NGO has made a group submission, going further but also echoing Surfrider's earlier paper calling for a moratorium on offshore activities in marine protected areas and other sensitive areas.

The notable contributions on liability and financial responsibility asked that the Commission's 2015 report and the Parliament's Resolution of 2016 be taken forward to a clear conclusion with concomitant requests that "…civil liability schemes now be uplifted in all Member States to global best practice levels. This must also include some recognition of pure economic loss". The group draws attention to its view that vast economic losses can currently be inflicted upon marine and coastal economies that may go largely uncompensated, and which situation must be remedied.

The group calls for a strong obligation for adequate financial capacity of the license holder to be maintained in all situations, including insolvency, where currently such matters are merely 'to be taken into account'.

16.5 Views from the insurance sector

Damage to bio diversity offshore are complex to assess and quantify and many insurers do not insure them. Furthermore, according to the International Union of Marine Insurance (IUMI) the insurance market for offshore operations is complex and may involve several parties insuring the risk of one operator. Although the insurance market is global its financial capacity is nevertheless limited: there is in effect an overall pot of money for insuring all risks everywhere. This means that insurers may not be ready to divert part of the fund to provide cover in the offshore sector, if faced with disproportionate exposure or a client base unwilling or unable to pay for that insurance. Since rules on litigation and liability vary substantially between jurisdictions, barriers for involvement in this business are high.

Overall, it is not felt that sufficient time elapsed since the introduction of the "well-intentioned" Directive to allow it to have had discernible or measurable effect. The requirement was for all EU Member States' to transpose the Directive by 19 July 2015 but several Member States were late. Equally, the Directive has only been applied to

existing installations since July 2018. Overall, it would appear premature for any modification to be made, which would lead to more legal uncertainty and change.

According to Insurance Europe, Member States' liability regimes reflect long-standing cultural and societal choices concerning legal responsibility and obligations to compensate for harm caused, and have usually been confirmed by national democratically elected legislatures. They are well established and predictable, facilitating the availability of legal liability insurance and other financial instruments to cover such liabilities.

There is considerable wariness over suggestions that an EU-wide liability regime for offshore activities could be overlain on Member States' existing laws. Insurance stakeholders consider that there is no certainty over how such a novel system would work in practice and whether it would work to the advantage of claimants. National courts would retain discretion over the application of the regime and could interpret it in different ways, removing any prospect of a harmonised European approach. The outcomes of such a regime would be unpredictable, reducing the insurability of operators' liability risk because the pricing of cover would be difficult. It is probable that any such regime would therefore lead to a reduction in the availability of insurance and other financial instruments to operators.

Insurance Europe does not see advantages in legislating to handle compensation claims at EU rather than Member States level. This would shift responsibility for dealing with offshore incidents causing injury and damage from member states to the EU. Such incidents are not necessarily straightforward and any problems, such as delays in providing compensation to claimants, could cause the EU serious reputational harm. Responsibility for the handling of compensation claims should be at Member States level, alongside responsibility for regulating the offshore energy industry: there is no evidence that compensation could be more effectively handled at the EU-level.

The organisation Lloyd's Market Association & International Underwriting Association of London agrees fully with IUMI that sufficient time has not yet elapsed since the introduction of the Directive to allow it to have had discernible or measurable effect.

Lloyd's emphasises the insurance market for energy risks is complex. Typically, a panel of underwriters are involved in providing risk transfer capacity in respect of individual policies. An individual policy will usually insure the interest and liability of a single entity/assured. It is very common for a number of entities to be involved as co-ventures in the drilling of a well. Thus, several insurance policies may be required in order to ensure that the 100% venture interest is insured. Furthermore, a policy will typically provide coverage in respect of the asset and expenses and liabilities arising therefrom. Thus, a policy may provide multi-coverages such as physical damage, well control, clean-up and containment and legal liabilities.

In addition to insurers operating in the commercial insurance markets, some oil and gas companies make use of mutual (re)insurance mechanisms and captive insurance

companies. It is possible that use of such mechanisms could increase in order to mitigate against the impact of increased compulsory insurance. These (re)insurers may be subject to a different regulatory regime than commercial market insurers.

There has not been a major oil pollution incident from offshore activity since the Macondo incident. Whilst Macondo reportedly cost BP and co-liable entities US$72 billion, there is no reliable estimation to what a big incident in Europe might cost. Such an event would be definitive in identifying how far insurance can help.

The insurance industry is only now in the early stages of providing $750 million of insured limit of indemnity for a limited number of insured parties. From the Willis Towers Watson loss database[217], a data base of energy losses in the world, we note that a 'blowout without fire', occurring in the UK in 2012, settled for a total of c. US$469m (Euro 418m). The top event is Macondo (2010) where the pay-out is listed at US$2.56bn (Euro 2.28) – presumably the liable entity was not BP for these losses. The second event is for platform damage during Hurricane Katrina (2005), where the total pay-out is listed as US$1.4bn (Euro 1.25bn).

However, if it is the case that the market can provide a maximum of US$1-3 billion liability cover, as has been suggested by experts, then that gives a pointer as to where legal limits of liability on an operator might be set. These boundaries appear within reach of liabilities for the Macondo, Katrina and Elgin Franklin major incidents appearing on the Willis Loss database. However, the major operators concerned in those disasters hold a significant amount of self-insurance so the database points only to the market coverage. Nevertheless, it might be possible in the future to increase capacity and insurance limits but that would only be possible with substantial increases of premium.

It I appears that there is no need to modify the Directive due to the limited time that has lapsed since its introduction and the absence of incidents. There can be no guarantee that the insurance industry will be ready, willing and able to provide cover to protect participants engaged in offshore exploration for oil and gas in the EU if they are faced with disproportionate exposures, restricted terms and a client base unwilling or unable to pay for it. They will seek to deploy their capital elsewhere.

The insurance sector summarises some key points to be considered as follows:

- In any offshore operation there are many different players, ranging from major oil companies to vessel operators, drilling contractors to catering subcontractors and soil analysts. Offshore oil activity is not like an onshore factory where the operation is controlled entirely by the owner.

- The operator's legal responsibilities both to third parties and to each other are very complex and are generally regulated by contract with "knock for knock" agreements and indemnities inter se. The terms of those contacts and the limits within them reflect the appetite for risk of the parties and, to some extent, their ability to insure.

[217] https://www.willis.com/Documents/Publications/Industries/Energy/2155_energy%20_loss_database.pdf

- It would be wrong to assume that everyone in the energy industry is a substantial company well able to meet any claim from its own resources (although the biggest can) or that they can necessarily buy insurance to protect themselves.
- Where there is currently little or no legislation within a Member State, Lloyd's Market Association & International Underwriting Association would support the introduction of a uniform approach to offshore safety. The association's committees are unsure of the current status of the Directive's integration into individual Member States' legislature and see no reason to modify the Directive now, when taking into account the limited time that has elapsed since its introduction.