Marine Aggregate Extraction Regulation in EU Member States

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ABSTRACT

This paper provides a brief review of regulations and procedures relevant to the authorization of marine aggregate (MA) operations in eight EU Member States. MA operations are affected by a multi-level legislative/regulatory regime, consisting of international conventions (e.g. the UNCLOS 1982, OSPAR, Helsinki, ICES, Barcelona and Espoo Conventions), secondary EC legislation (e.g. the Environmental Impact Assessment Directives (85/337/EEC and 97/11 EC) and the Freedom of Access to Environmental Information Directive (2003/4/EC)) and national legislation or regulation. It appears that rules and procedures relevant to MA extraction vary considerably between the considered Member States. In general, relevant information is not easily available in accurate, comprehensive and up-to-date form. As a result, it is difficult to assess whether and to which extent national practice in relation to MA extraction authorization is in substantive compliance with the requirements of existing international and European rules and regulations aimed at sustainable development and protection of the marine and coastal environment.

ADDITIONAL INDEX WORDS: Marine aggregates, aggregate mining licensing, environmental law and regulation, marine sand and gravel, environmental impact assessment.

INTRODUCTION

In the past three decades, marine aggregates (MA)1 have emerged as an important mineral resource in a number of European Member States, particularly in the Netherlands, the UK2 and Denmark (Velegrakis et al., this volume) and, to a lesser extent, in Belgium, Germany, France and Poland (ICES 2001; 2003a; 2004; 2005; 2006, 2007). MA exploitation/extraction3 has become an increasingly important activity due to (a) stricter mining regulations (Jewell, 1996; Pring, 1999) and growing social resistance against land aggregate extraction (Phua et al., 2004) and (b) increasing general demand (Birk-Lund and Wijman, 2005; and Meakin et al., 1999).

In the near future, extraction is bound to increase from the current levels in order to provide the marine aggregates needed for the realisation of large-scale infrastructure projects planned for the European coastal areas4. At the same time, since EU-disposal related to the excavation/deepening of navigation channels and berths or other marine construction works (see, for example http://en.wikipedia.org/wiki/Dredging; http://www.iadc-dredging.com/index2.html; http://www.meu.gov.uk/meu_local/PEPA/MENU-IE.HTM) are beyond the scope of this contribution and will not be considered.

4 For example, the construction of the deep-water port of Jade Weser Port (Wilhelmshaven) for large container vessels and the airport facilities for the new mega-airliner A 380 in Hamburg-Finkenwerder in Germany require 50 and 12.5 x 106 m3 sand respectively (http://www.dredging-in-germany.de). In the Netherlands, the enlargement of the Rotterdam harbour (MV2) and the construction of the Westerschelde Container Terminal (WCT) require 250-300 x 106 m3 and 20 x 106 m3 sand, respectively (Van Dalen et al., 2004), which are planned to be extracted from the

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European coasts are under increasing coastal erosion (Euroion, 2003; 2004a and 2004b), coastal protection schemes (e.g. Dean, 2002) requiring large quantities of marine aggregates are necessary in order to facilitate and manage coastal zone development (Humphreys et al., 1996; Phua et al., 2004; and Van Dalgen et al., 2004). New resources must be found and, at the same time, diverse environmental and economic concerns must be addressed.

Mineral resource exploitation affects all environmental media. Pring (1999) states that “mining inherently implies environmental degradation...[i]t is not an environmentally-friendly activity”. MA extraction, in particular, may have significant effects on the coastal water quality, the seabed and the associated flora and fauna and influence significantly the coastal zone morphodynamics (Birkeland and Wissman, 2005; Brampton, Evans, and Velegrakis, 1998; De Groot, 1996; Ellis and MacDonald, 1998; Gubray, 2003; and Kenny and Reeks, 1994; 1996); it must be noted that, as the operating costs of dredging are generally high and increase with the distance from the landing ports and the depth of the deposits, marine aggregate extraction takes place at water depths less than 45-50 m. There are also potential conflicts of interest between the MA industry and other shallow marine water users, such as the fishing, shipping and the oil industries, due to competing demands for space, access and usage (Barry, Elena, and Van Der Molen, 2003; BMAPA, 1996; and Netherlands Ministry of Housing, 2001).

Gradual depletion of the easily accessible resources, coastal ecosystem conservation and diverse stakeholder interests require that resource sustainability, environmental prudence and careful management should be crucial components of the practice and regulation of MA operations; moreover, they demand the development of coherent policies/regulations on the licensing and practice of offshore mining operations. However, it is not clear whether the current regulatory framework governing MA operations in EU Member States adequately reflects the above considerations, as no comprehensive review of MA regulation appears to have been carried out so far.

The present contribution attempts to provide an overview of the regulation of MA operations in a number of European Member States (Figure 1) to help identify existing discrepancies and weaknesses and provide some necessary background for potential areas for improvement. The specific objectives of this contribution are to:

(i) describe the current regulatory regimes governing MA extraction/exploitation activity in several EU Member States and their relation to the relevant international and supra-national environmental legislation; and

(ii) provide some tentative comment on whether the identified existing regulatory regime succeeds in effectively addressing concerns regarding the environmental impact of marine aggregate extraction.

**THE RELEVANT REGULATORY REGIME**

Marine resource exploitation is commonly regulated according to two different regimes, both of which are designed to prevent overexploitation and ensure nature conservation. The first of these regimes, which is the subject matter of this contribution, governs mainly the activity-based management. The second regime, which is beyond the scope of this contribution, applies to marine areas, which enjoy special protection status (e.g. Marine Protected Areas, MPAs) and are subject to particular protection regulations.

Activity-based management measures are predominantly sector-based regulations which, in the case of the MA industry, are dealing with the different stages of exploitation i.e.

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5 For example the future need of sand for beach nourishment in the Netherlands is predicted to be between 9.8 and 14 x 10^6 m^3 per year (Van Dalgen et al., 2004) and in Germany at least 1.3 x 10^6 m^3 per year (in Schleswig-Holstein and Mecklenburg-Western Pomerania) (http://www.dredging-in-germany.de).


7 Every effort has been made to identify primary sources of legislation/regulation using information available electronically in the public domain (information accurate as in February 2008). However, in some cases reliance had to be placed on secondary sources, which are identified as appropriate.

8 For details and analysis of these regulatory regimes, see, for example, Gubray (2004); (2005a); (2005b); Richartz and Stockenberg (2003) and Schmidt and Christiansen (2004).
resource exploration (prospecting) and its licensing and mining operations and their licensing10. The legal and institutional framework which controls these operations will be considered with regard to: (i) seabed ownership/private property rights and their transfer to another public or private entity for the purpose of MA extraction and the relevant administrative regulation (e.g. prospecting regulation, data management and exploitation licensing); and (ii) the environmental impact assessment (EIA) of MA operations, so as to help consider how effective the existing regulations are in terms of environmental protection/conservation (e.g. environmental impact assessment of MA extraction, operation monitoring, liability and sanctions).

As the relevant regulation consists of several layers or levels (i.e. international, European and national), these need to be taken into account and presented in context. The international dimension will be presented by way of an overview of the most relevant Conventions, in particular the UN Convention on the Law of the Sea (UNCLOS) 1982, the OSPAR Convention 1992, the HELSINKI Convention 1992, the Barcelona Convention 1995, the ICES Convention 1964 and the ESPOO Convention 1991 together with its 2003 SEA Protocol. The European dimension will be considered by reviewing relevant EC Directives, in particular the Environmental Impact Assessment Directives (85/337/EEC and 97/11 EC), the Strategic Environmental Assessment Directive (2001/42/EC), the Freedom of Access to Environmental Information Directive (2003/4/EC) and the Habitats (92/43/EEC) and Wild Birds (79/409/EEC) Directives. Finally, the national dimension will be presented by considering the national legislation/regulation in eight EU Member States, namely the United Kingdom, Germany, Spain, France, the Netherlands, Poland, Belgium and Greece. Information available as of the end of November 2007 has been taken into account.

INTERNATIONAL CONVENTIONS

Marine environmental policy development takes place within a framework of over 70 international and regional conventions and agreements; however, only a few of these directly affect MA operations.

The United Nation Convention on the Law of the Sea 1982 (UNCLOS)

The 1982 UNCLOS10, which has been adopted by all of the EU Member States under consideration here11, provides for the

delimitation of maritime zones12 and prescribes a detailed overarching international legal framework of rights and obligations in respect of usage, development and preservation for these zones, including resource mining. According to the 1982 UNCLOS, the starting point for the delimitation of the different maritime zones is the baseline13. Coastal States are entitled to claim territorial seas14 up to 12 nautical miles wide (starting from the baseline) and, in relation to these, enjoy full sovereignty.

Relevant to MA operations is also the Exclusive Economic Zone (EEZ), which can extend up to 200 nautical miles from the baseline15. Within the EEZ, the Coastal States exercise sovereign rights to explore and exploit the natural resources, whether living or non-living, of the waters superjacent to the sea-bed and of the sea-bed and its subsoil; they also have jurisdiction over artificial structures, marine scientific research and marine environment protection16. A similar (though not identical) regime deals with the Continental Shelf (CS) of Coastal States17. It must be noted that for some Coastal States (for example the UK) national claims of CS (reflected in their national legislation) were originally based on the 1958 Geneva Convention on the Continental Shelf (CSC)18 and have not yet been changed according to the 1982 UNCLOS19.

Contracting Parties to the 1982 UNCLOS are under wide-ranging obligations to protect and preserve the marine environment20 and take all necessary measures to prevent, reduce and control pollution21. Thus, the Contracting Parties are under the obligation to monitor and assess whether potential harmful effects of marine mining activities may occur22 and communicate/publish reports on this monitoring and assessment23; moreover, the Contracting Parties are required to: (a) adopt effective laws and regulations to “prevent, reduce and control pollution of the marine environment arising from or in connection with seabed activities ...” and (b) ensure the enforcement of such laws and regulations24.

10 The maritime zones are the Territorial Sea, the Contiguous Zone, the Continental Shelf, the Exclusive Economic Zone and the High Seas.
11 The baseline is a line along the Coastal State’s coastline (at or close to it) from which the breadth of each of the maritime zones is estimated. For details on the different methods used for the determination of the baselines, see Articles 5-14 of the 1982 UNCLOS.
12 See UNCLOS Articles 2 and 3.
13 See UNCLOS Article 57.
14 See UNCLOS Article 56.
15 See Part VI of the Convention, in particular Articles 76 and 77. It must be noted, that there are some differences between the EEZ and CS regimes. A Coastal State’s rights in relation to the Continental Shelf may extend beyond 200 nm (Article 76). However, the rights do not extend to superjacent waters. Art. 77(4) defines natural resources for the purposes of the Continental Shelf regime as “mineral and other non-living resources of the seabed and subsoil together with living organisms belonging to sedentary species ...”.
17 See UNCLOS Article 35.
18 See in particular UNCLOS Art. 194 (3)(b) and (c), which provides for an obligation to take measures to “minimize to the fullest possible extent” pollution from “vessels” and from “installations and devices used in exploration and exploitation of the natural resources of the seabed and subsoil ...”.
19 See UNCLOS Article 204 and 206.
20 See UNCLOS Article 205.
21 See UNCLOS Articles 208 and 214, which are specifically relevant in relation to exploration and exploitation of the seabed and, thus, to marine aggregate operations.
Table 1. Participation in the Conventions referred to in the text, of the EU Member states considered in the paper.

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<tr>
<th>COASTAL STATE</th>
<th>UNCLOS</th>
<th>ICES</th>
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<th>Barcelona</th>
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The Convention for the Protection of the Marine Environment of the North East Atlantic 1992 (OSPAR Convention)

The OSPAR Convention\(^{25}\) provides a legal framework for agreements and cooperation in the North-East Atlantic region (Table 1), with the objective of taking all possible steps to prevent and eliminate pollution and protect the marine environment from the adverse effects of human activities. The Convention includes specific rules in its Annexes I to IV to deal with pollution from land-based sources, dumping, and offshore sources, as well as with monitoring and assessment of the marine environment. Annex V, adopted in 1998, had the aim to extend the cooperation of the Contracting Parties to cover all human activities that might adversely affect the marine environment of the North East Atlantic. It deals with the protection and conservation of marine ecosystems and, when practicable, with their restoration. Criteria for identifying potentially harmful human activities for the purposes of Annex V are set out in Appendix 3\(^{26}\); these clearly cover MA operations. In 2003, a specific “Agreement on Sand and Gravel Extraction” was adopted\(^{27}\). The Agreement requires Contracting Coastal States to take into account the “ICES Guidelines for the Management of Marine Sediment Extraction” (ICES, 2003b) within their procedures for authorising marine sediment extraction. National procedures should also take into account “the ecosystem-based approach to management of human activities”; where appropriate, strategic plans should be developed and subjected to strategic environmental assessment (SEA). Finally, the Agreement provides that authorisations for extraction of marine sediments from any ecologically sensitive site should only be granted after consideration of an environmental impact assessment (EIA)\(^{28}\) and, “where a site is subject to protective measure, but over-riding public interests require the extraction of marine sediments with a consequential significant adverse effect on the site, all necessary steps are taken to avoid adverse impacts on the functioning of the ecosystem of which it forms part …”\(^{29}\).

The Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention)

The Helsinki Convention\(^{29}\) requires its Contracting Parties inter alia, to take “all appropriate legislative, administrative or other relevant measures”, individually or by means of regional co-operation, “to prevent and eliminate pollution in order to promote the ecological restoration of the Baltic Sea area and the preservation of its ecological balance”\(^{30}\). The Contracting Parties (Table 1) are under the obligation to exercise control over their dredging operations (HELCOM, 2002). In addition, the HELCOM Recommendation 19/1 on “Marine Sediment Extraction in the Baltic Sea Area”\(^{31}\) should be taken into consideration when issuing extraction permits. According to these recommendations, all sediment extractions should be carried out in accordance with the detailed guidelines set out in Recommendation 19/1. These require environmental impact assessments to be carried out, in accordance with specified minimum criteria, as part of all extraction permission procedures. The guidelines also require that in extraction practice, “all measures shall be taken in order to minimize the ecological impacts caused by sediment extraction and transport of the extracted material” and that environmental monitoring is to be a component of every kind of extraction activities. Importantly, the guidelines also require that “monitoring data”, as well as


\(^{26}\) Annex V on the protection and conservation of the ecosystems and biological diversity of the maritime area. Note that Annex V and Appendix 3 entered into force on 30/9/2006. Annex V has been ratified by six of the eight EU Member States here considered, namely Spain, the United Kingdom, the Netherlands, Belgium, Germany and France; it has also been ratified by the EC.

\(^{27}\) Agreement 2003-15, adopted in Bremen (Germany).

\(^{28}\) In accordance with the ICES Guidelines or with the EC Habitats Directive, as appropriate. ICES Guidelines and the relevant EC Directives are considered below.

\(^{29}\) The Helsinki Convention, signed in 1992, entered into force on the 17/1/2000. For details, see www.helcom.fi. Of the EU Member States considered here, only Poland and Germany are Contracting States.

\(^{30}\) Helsinki Convention Art. 3(1).

“the results of the environmental impact assessment which has formed the basis for the decision on an extraction permit should be made available for scientific evaluation.” In which way is, however, not specified further.

According to the guidelines, extraction permits for “Sensitive Areas”, shall only be granted if a “thorough EIA” in accordance with the guidelines “is proving that the extraction is not likely to cause significant negative ecological effects or lead to a deterioration of the area”. The list of the sensitive areas in the guidelines includes, among others, Baltic Sea Protected Areas (BSPAs), in relation to which special planning and management guidelines and tools have been prepared. However, the list also includes more generally “marine areas near to the coast with significance for coastal sediment transport or with protective function for the coastline (e.g. sand banks, spits and bars)”. Thus, in respect of MA extraction in relation to such “sensitive areas”, a thorough EIA is always required and extraction permits should only be issued if the EIA proves that significant negative ecological effects or deterioration of the area is not likely.

As concerns compliance with HELCOM Recommendation 19/1, Contracting States are required, under Art. 16 (1) of the Convention to report, at regular intervals, on “legal, regulatory or other measures taken for the implementation of the Convention, its Annexes and of recommendations”, as well as on the effectiveness of such measures and problems encountered. Nevertheless, a report, published by HELCOM in 2003 suggests that none of the HELCOM Recommendations in the field of nature conservation and coastal zone management have been fully implemented and that in many cases, reporting is sketchy and does not allow for any reliable conclusions to be drawn. As concerns Recommendation 19/1, the summary table in the report records implementation by only some of the Contracting States, including Poland, but not Germany.


The Barcelona Convention sets out a legal framework for regional and sub-regional agreements and cooperation for the protection of the marine environment of the Mediterranean Sea from pollution. It requires the Contracting Parties (Table 1) to take all appropriate measures (individually or jointly) in accordance with the provisions of the Convention and those of its Protocols to which they are a party, to prevent, abate and combat pollution of the Mediterranean Sea area and to protect and enhance the marine environment in that area.

The issue of MA extraction is covered by Art. 7 of the Convention, which requires Contracting Parties to “take all appropriate measures to prevent, abate, combat and to the fullest possible extent eliminate pollution … resulting from exploration and exploitation of the continental shelf and the seabed and its subsoil”. The corresponding Offshore Protocol to the Convention which, however, has not yet entered into force, contains more specific requirements relevant to authorization of MA operations, such as surveys concerning the effects of the proposed activities on the environment and, in appropriate cases, environmental impact assessment in accordance with Annex IV (Environmental Impact Assessment) to the Protocol.

The Convention for the International Council for the Exploration of the Sea (ICES), 1964

The International Council for the Exploration of the Sea (ICES) is an international scientific organization with the objective to study and assist in the safeguarding of the North Atlantic marine ecosystems and their living resources. The ICES Convention 1964 sets out a Constitution for the Council with a view to facilitating implementation of its programme, as well as some substantive obligations for the State Parties, such as the obligation to furnish to the Council any information which will contribute to the purposes of the Convention. A strategic plan was adopted by the State Parties in 2002, further strengthening the mandate and activities of ICES.

The Council promotes marine research and publishes and communicates its results. Furthermore, ICES provides formal advice and data handling services to the OSPAR and Helsinki Commissions. In relation to MA extraction, the ICES and its Working Group on the “Effects of Extraction of Marine Sediments on the Marine Ecosystem (WGEXT)” investigate the

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32 See HELCOM Recommendation 19/1, Attachment 1B. The guidelines also state that extraction permits shall not be granted for (a) nature reserves, (b) national parks or (c) areas included in or proposed for the NATURA 2000 network, except when the procedure of Art. 6 of the EC Habitats Directive is followed.
36 See also one of the main tools for the implementation of the Convention and its Protocols, the “Mediterranean Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Areas of the Mediterranean” (MAP Phase II), which amends the previous plan, the “Mediterranean Action Plan” (MAP). It has as its main objectives (a) to ensure sustainable management of natural marine and land resources and to integrate the environment in social and economic development, and land-use policies, (b) to protect the marine environment and coastal zones through prevention of pollution, and by reduction and, as far as possible, elimination of pollutant inputs, whether chronic or accidental, (c) to protect nature, and protect and enhance sites and landscapes of ecological or cultural value, (d) to strengthen solidarity among Mediterranean coastal States in managing their common heritage and resources for the benefit of present and future generations and (e) to contribute to improvement of the quality of life. For further information, see www.unepmap.org.
37 There are a number of Protocols to the Convention, but not all of these have yet entered into force.
38 The Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil was adopted on the 14/10/1994 by the Conference of Plenipotentiaries held in Madrid, but has not yet entered into force and has not been ratified by any of the EU Member States considered here who are Parties to the Convention. According to Art. 3 of the Protocol, the Contracting Parties shall, individually or through bilateral or multilateral cooperation, take all appropriate measures to prevent, abate, combat and control pollution in the Protocol Area resulting from activities, inter alia, by ensuring that the best available techniques, environmentally effective and economically appropriate, are used for this purpose.
39 See Article 5.
40 The ICES was established in 1902. For details, as well as the Convention and the ICES Strategic Plan, see http://www.ices.dk/indexlla.asp
41 See Preamble to the ICES Convention. See also Art. 5 of the Convention.
42 For details see http://www.ices.dk/iceswork/wgdetail.asp?wg=WGEXT
impacts of MA extraction on marine ecosystems and review and report on the status of MA extraction activities and related environmental research, as well as on any reported legislative and regulatory changes. In 2003, a set of detailed "Guidelines for the Management of Marine Sand Extraction" (ICES 2003b) was developed. The guidelines establish general principles for the sustainable management of mineral resources, emphasizing issues such as the need for conservation, efficient use of materials and least adverse methods of extraction, as well as the importance of encouraging an ecosystem approach to the management of extraction activities and the selection of extraction sites, and the need to protect sensitive areas and important habitats. The guidelines recommend that international and regional initiatives are taken into account when developing national frameworks and guidelines and that appropriate administrative frameworks are set up for the management of sand and gravel extraction. Detailed guidance is provided on the recommended contents of EIAs and their assessment, as well as on the monitoring of compliance with conditions attached to any extraction authorization.


The Convention on Environmental Impact Assessment in a transboundary context was signed in Espoo, Finland, in 1991 and entered into force in 1997. All EU Member States are Contracting States to the Convention (Table 1), although in some cases, such as in the case of Germany, only since 2002. The Convention, adopted under the auspices of the United Nations Economic Commission for Europe (UNECE), sets out obligations of Parties to assess the environmental impact of certain activities at an early stage of planning. The activities covered by the Convention are listed in Annex I, referring, inter alia (at para. 14), to "major quarries, mining, on-site extraction and processing of metal ores or coal". It appears that transboundary aggregate dredging activities, such as in the English Channel, are covered by the Convention. The Convention also lays down the general obligation of States to notify and consult each other on transboundary aggregate dredging activities, such as in the English Channel, are covered by the Convention. The Convention also lays down the general obligation of States to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across boundaries. A Protocol to the Convention, adopted in 2003, in Kiev, extends the requirements of the Convention to plans and programmes. However, the Protocol has not yet entered into force and, of the eight EU Member States under consideration here, only Germany has so far ratified the Protocol. In the European Union, the requirements of the Convention and of the SEA Protocol are reflected in two Council Directives, namely the EIAA Directive and the SEA Directive.

OTHER RELEVANT INITIATIVES

European Code of Conduct for Coastal Zones

Although not a legally binding instrument, mention should also be made of this policy document, which addresses marine aggregate dredging. The European Code of Conduct for Coastal Zones is an initiative of the Coastal Union (EUCC), launched in 1993. It was included as a priority action in the Pan-European Biological and Landscape Diversity Strategy –PEBLDS (1995)– and drafted in 1996/97 by EUCC staff under the auspices of the Council of Europe and UNEP. It was officially adopted by the Council of Europe Ministers in April 1999. In respect of guidance for “Sand and Gravel Excavation and Dredging”, the Code states:

(i) “Sand or gravel extraction should only take place in coastal water at a depth where coastal processes are not compromised (i.e. below the so-called active profile of the coastal zone), and never in ecologically sensitive areas. However while this depth is generally appropriate in relation to the influence of normal tides and storms, evidence suggests that sediment can be moved at lower levels by long period waves, residual tidal movement and currents. The impact of this on adjacent coastal areas which rely on sea borne sediment for their continued development is an important and often overlooked issue”.

(ii) “Extraction activities should be timed to avoid conflict with seasonal events such as fish or bird migration.” (iii) “Turbidity plumes should be minimised by utilisation of the best available technology and practices. Extraction should be as "dry" as possible, and working and sailing speed should be regulated so as to reduce environmental impacts. When aggregates with a high content of fines are extracted, equipment with the capacity of retaining very fine particles should be used, if appropriate in conjunction with silt curtains.”

(iv) “The excavation site should be limited in order to facilitate later recolonisation. Complete removal of the bottom sediment should be avoided.”

(v) “Consideration should be given to make better use of harbour and other dredging. Care should be taken with dredge spoils contaminated with hazardous substances which should not be dumped at sea or used for nourishment.”

It is not clear to which extent the Code of Conduct is being taken into account in relation to MA operations in EU Member States. The review of regulation in different States for the purpose of this paper did not reveal any specific reference being made to the Code of Conduct or its substantive content.
THE EUROPEAN LEGAL FRAMEWORK

The functions and powers of the EU institutions and the matters in relation to which the Community is competent to establish and implement common policies depend upon the Treaties establishing the European Community (EC Treaty) and European Union (EU Treaty). The Community has the task of preparing and implementing common policies, inter alia, in the fields of the environment, transport, agriculture and fisheries and to adopt measures in the spheres of energy, civil protection and tourism. Community policy in relation to the environment aims, inter alia, at “preserving, protecting and improving the quality of the environment”. More particularly, “community policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Community. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay”.

In the field of environmental protection, a considerable amount of secondary EC legislation has been enacted, in particular in the form of Directives. In contrast to Regulations, which are directly applicable and effective in all EU Member States, Directives are binding on Member States as to their aims, but require transposition, i.e. implementation at the national level, by way of legislation. If a Member State fails to transpose a Directive into national legislation by the relevant date, or does so incompletely, it is in breach of its obligations under Art. 5 of the EC Treaty. In these cases, citizens may be able to invoke the Directive in question directly before the national courts. Moreover, the European Commission may institute infringement proceedings against Member States, including in the form of actions before the Court of Justice. Failure to comply with any resulting judgment of the European Court of Justice may lead to the imposition of substantial fines. Annual surveys on “Implementation and Enforcement of Community Environmental Law” and on “Monitoring the Application of Community Law”, as well as leading judgments of the European Court of Justice in the field of environmental law are published by the European Commission. It is interesting to note that nature, air, waste, water and impact assessment legislation, which includes the Directives discussed in this paper, are the five areas with the highest number of open cases, accounting jointly for 90% of the total number of complaints and infringement cases in the environmental field.


The Environmental Impact Assessment Directive

The EIA Directive was introduced in 1985 and was amended in 1997. The Directive outlines which categories of projects shall be made subject to an Environmental Impact Assessment (EIA), the procedure to be followed and the content of the assessment. Projects specified in Annex I of the Directive are subject to mandatory EIA, whereas in respect of other projects, set out in Annex II, Member States must determine, whether EIA should apply (so-called “screening”). The EIA procedure set out in the Directive seeks to ensure that environmental consequences of projects are identified and assessed before authorisation is given. The Directive envisages public participation as part of the authorisation procedure and requires the public to be informed about any decisions made.

Directive 97/11/EC widened the scope of EIA by increasing the number of types of projects covered, and the number of projects requiring mandatory EIA (Annex I). It also strengthened the procedural base of the EIA Directive by providing for new screening arrangements, including new criteria for Annex...
II projects and providing minimum information requirements, as well as introduced changes to align the Directive with the requirements of the ESPPOO Convention. The EIAA Directive was further amended by Council Directive 2003/35/EC, to align relevant provisions on public participation in accordance with the Aarhus Convention on public participation in decision-making and access to justice in environmental matters, which had been adopted by the Community in 199864.

Marine dredging projects, which were already covered in Annex II of the original EIA Directive, are specifically referred to in Annex II 2(e) of the EIA A Directive65. In the case of Annex II projects, Member States may determine projects requiring assessment on a case-by-case basis or establish relevant criteria or thresholds to identify such projects (cf. Art. 4(2)). In either case, the decision needs to be made available to the public66. Annex III of the EIAA Directive provides detailed screening or selection criteria focusing on the characteristics, location and potential impact of projects which are to be taken into account in this process67. The EIAA Directive requires that the “competent authorities” responsible for licensing particular (individual) projects68 make their decisions on the basis of a clear appreciation of any significant environmental impacts69. Environmental impact assessment carried out in accordance with the Directives require identification, description and assessment of a project’s effects on human beings, animals and plants, soil, water, air, climate and landscape, cultural heritage, material assets, including any impact interactions that may occur. Moreover, public involvement in decision-making must be ensured. The Directive prescribes that (a) the environmental effects of the proposed project should be properly assessed and (b) all relevant information should be made available to the public within a reasonable time and in an easily comprehensible manner in order to enable the public to express its opinion70.

In exceptional cases, Member States may decide to exempt a specific project from the requirements of the Directive. In these cases, alternative forms of assessment need to be considered and both the public and the European Commission need to be informed of the reasons for any decisions71. According to (non-binding) clarification provided by the Commission, the provision is to be construed narrowly, and is restricted to cases where full compliance with the Directive is not possible, but may cover instances where there is a serious threat to, inter alia, economic stability or to security72. Detailed guidance on “screening”73, i.e. the question of whether an EIA is required in relation to particular project and on “scoping”74, i.e. on environmental information needed for the purposes of an EIA, has also been published by the Commission75.

Effective implementation of EC Directives requires new legislation or a change to existing legislation; changes to administrative practices are not sufficient, as administrative measures may be altered by the administration at any time76. Despite the fact that the EIA Directive was required to be implemented by the 3rd of July 1988 and the EIAA Directive by the 14th of March 1999, in some cases, there has been incomplete transposition through relevant national legislation or regulations77, or failure to ensure that national measures are in full conformity with the EIA and EIAA Directives78. According to the most recent “Annual Survey on the Implementation and Enforcement of Community Environmental Law”, published in 2006, problems with the conformity of national measures with the EIAA Directive continue to persist, giving rise to a considerable number of infringement procedures and com-

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64 For further information, see http://ec.europa.eu/environment/aarhus/index.htm. See also Aarhus Clearing House for Environmental Democracy, maintained by the UNECE, which can be accessed through the same website.
65 MA mining was included in Directive 85/337/EEC, Annex II 2(c) as “... extraction of minerals other than metalliferous and energy-producing minerals, such as [...] sand, gravel [...].” The provision has been amended by Directive 97/11/EC to read: “... extraction of minerals by marine or fluvial dredging.”
66 See Article 4(4).
67 See Article 4(3).
68 The projects requiring impact assessment are defined in Art. 4 and listed in the Directive Annexes I and II. It must be noted that projects serving national defence purposes are not covered by the EIA Directive (see Article 1(4)), although projects serving military as well as commercial purposes are covered, provided they mainly serve commercial purposes, WFP v. Autonne Provinci Bazen and ors., C-435/97 (http://www.europa.eu.int/cej/ien/index.htm). Projects adopted by specific Acts of national legislation are also not subject to the Directive, since the objectives of the Directive, including that of supplying information, are achieved through the legislative process (Art. 1(5)). According to Lumbrecht (1996), this exemption does not serve environmental conservation as, even if it is assumed that the legislative process warrants a measure of democratic information, it is doubtful that this by itself ensures environmental protection. Nevertheless, the European Court of Justice (ECJ) has made it clear that legislation which provides development consent within the meaning of Article 1(2) can only be considered to fall within the definition of Article 1(5), if the law includes the elements necessary to assess potential environmental impacts of the project (WFP v. Autonne Provinci Bazen and ors., C-435/97, at paras. 58-62). Article 1(5), therefore, cannot be used to circumvent the Directive’s aims with regard to specific projects.
69 Article 1(1) of the EIAA Directive (amended Article 2(1) of the EIA Directive) provides that the competent authority should “adopt all measures necessary to ensure that, before consent is given, projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects”.
70 See Article 6(2) and Article 9 of EIA Directive as replaced by Articles 1(8) and 1(11) of the EIAA Directive.
71 Art. 2(3) of the EIAA Directive. Please note that the text of the provision has undergone some change as a result of amendments effected by Directives 97/11 EC and 2003/35/EC.
72 See “Clarification of the application of Art. 2(3) of the EIA Directive” published in 2006 (http://ec.europa.eu/environment/eia/eia-support.htm) “an important criterion for justifying use of Article 2(3) is that full compliance with the Directive is not possible, and not just that the case is exceptional; the exemption might normally be used in a civil emergency, though not all civil emergencies qualify for the exemption; there would need to be a pressing reason to justify the exemption, e.g. a serious threat to life, health or human welfare; to the environment; to political, administrative or economic stability; or to security; the exemption is unlikely to be justified if it is intended to meet a situation that could be both anticipated and prevented; when considering the use of Article 2(3), consideration should be given to providing a partial or other form of assessment; Member States need to act quickly (before consent is granted) to provide the Commission with reasons justifying the exemption.”
73 “Screening” is the process of determining whether or not EIA is required for a particular project. This is particularly relevant in the case of Annex II projects, as Annex I projects are always subject to an EIA.
74 “Scoping” is the process of determining the content and extent of the matters, which should be covered in the environmental information to be submitted to a competent authority for projects, which are subject to EIA.
75 For instance, in 2004, the European Court of Justice condemned the UK (Case C-421/02) for incomplete transposition of the amended EIA Directive as regards Scotland and Northern Ireland. Infringement proceedings against the U.K. in relation to the implementation of the EIA Directive in respect of marine dredging and various other activities were still pending in March 2007, before a new statutory regime was introduced in April 2007; see Explanatory Memorandum to The Environmental Impact Assessment and Natural Habitats (Extraction of Minerals by Marine Dredging (England and Northern Ireland) Regulations 2007.
plaints to the European Commission. Often, Member States appear to have been satisfied with a minimal transposition of the Directive, or national administrations fail to correctly implement and apply the legal requirements of the Directive. Weaknesses in the operation of the Directive identified by the Commission in the 2003 report on the implementation of the EIAA Directive include lack of evidence of systematic screening of Annex II projects, little real commitment to scoping, few formal measures to control the quality of EIA procedures and little monitoring of EIA in practice. The Commission also noted some key information gaps on significant areas of EIA and a considerable variation of public involvement, with some Member States applying a wide and others a very narrow interpretation of the "public concerned".

As concerns MA operations, too, it appears that although the EIA and EIAA Directives may have been implemented in some of the Member States through a variety of Regulations, there have been problems with regard to the universal effective implementation of the Directives’ requirements.

The SEA Directive

The scope of the EIAA Directive is limited to projects for which the decision making process requires consent or permission, but does not cover plans and programmes. To extend the need for environmental impact assessment to plans and programmes which may have a significant effect on the environment, a further Directive was adopted in 2001. The central objective of the Strategic Environmental Assessment Directive (Directive 2001/42/EC, hereafter the SEA Directive) is "to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that an environmental assessment is carried out for certain plans and programmes which are likely to have significant effects on the environment".

According to a guidance document on implementation of the Directive, prepared by the European Commission, "the first requirement in order for plans and programmes to be subject to the Directive, is that they [...] must be both subject to preparation and/or adoption by the prescribed authorities and 'required by legislative, regulatory or administrative provisions'. [...] In identifying whether a document is a plan or programme for the purposes of the Directive, it is necessary to decide whether it has the main characteristics of such a plan or programme. The name alone ('plan,' 'programme,' 'strategy,' 'guidelines,' etc) will not be a sufficiently reliable guide: documents having all the characteristics of a plan or programme as defined in the Directive may be found under a variety of names".

Any plan or programme that has been prepared for one of a number of listed sectors, including, inter alia, industry, town and country planning and land use, and which sets the framework for future development consent of projects listed in the EIAA Directive requires an EIA.

Minerals planning is, in principle, subject to the SEA Directive. Competent authorities which prepare and/or adopt a plan or programme which falls within the Directive’s scope will have to draw up a report on its probable significant environmental effects, consult authorities with environmental responsibilities and the public, and take the findings of both these exercises into account in reaching a decision on how to proceed. In addition, monitoring under the SEA Directive allows, inter alia, for the identification of unforeseen environmental effects so that remedial action may be taken. It should be noted that Art. 3(8) of the Directive includes an exemption in the case of plans and programmes the sole purpose of which is to serve civil emergency. According to the latest available annual report on implementation and enforcement of Community environmental law, published in 2006, a number of Member States had failed to transpose the SEA Directive by the deadline of July 2004, including Belgium, Greece, Spain and the Netherlands.

There are other Directives, which may affect MA mining operations. Although these Directives are related mainly to the protection of marine areas that enjoy a special status and, thus, their analysis is beyond the scope of the present contribution, brief reference will be made here.

The Habitats Directive and the Wild Birds Directive

The main aim of Council Directive 92/43/EEC on Conservation of Natural Habitats and of Wild Fauna and Flora (hereafter the Habitats Directive), is to promote and ensure the preservation of biodiversity; it requires from the Member States to work together in order to maintain or restore to a favourab
able conservation status certain rare, threatened, or typical natural habitats and species. These habitats and species are listed in Annex I and II of the Directive respectively. One of the ways in which Member States are expected to achieve this aim is through the designation and protection of sites known as Special Areas of Conservation (SACs). It is interesting to note that sandbanks, which are a very significant source of marine aggregates, are listed in the Annex I of the Habitats Directive (Habitat 11.25). Although the potential implications of this listing for the MA industry have not yet been appreciated, they may be quite significant.

Council Directive 79/409/EEC on the Conservation of Wild Birds (hereafter the Wild Birds Directive) complements the Habitats Directive by requiring Member States to protect rare and/or vulnerable bird species through the designation of Special Protection Areas (SPAs). The Habitats and Wild Birds Directives apply both to Member States’ territorial waters and the EEZs or equivalents. All marine protected areas designated under both Directives form an ecologically coherent network of protected areas of European importance referred to as Natura 2000. Detailed guidance and information on the implementation of Natura 2000 in the marine environment has recently been published by the European Commission.

According to the latest available annual report on implementation and enforcement of Community environmental law, published in 2006, problems with the implementation or adequate transposition of the Wild Birds and Habitats Directives persisted in several Member States, including Greece, France, Spain, Belgium, the Netherlands, the U.K. and Germany.

**Directive on Freedom of Access to Information on the Environment**

Council Directive 2003/4/EC, on Freedom of Access to Information on the Environment, which was required to be implemented by 14th February 2005, imposes a general duty on Member States’ public authorities and publicly accountable bodies to make environmental information held by them available to any natural or legal person, upon request. The Directive replaces an earlier Directive on the same subject matter, expanding the existing access granted. However, there are also some narrowly defined exceptions. The information must be supplied within one month and judicial or administrative appeals may be made against a refusal or failure to provide it. In addition, Member States are under an obligation to publish, if possible in electronic form, a wide range of relevant environmental information. This includes international as well as national or local legislation and “policies, plans and programmes” relating to the environment; environmental data derived from monitoring activities; periodic reports on the state of the environment, as well as “authorisations with a significant impact on the environment” and “environmental impact studies and risk assessments” on elements of the environment set out in the Directive, such as “coastal and marine areas”. This Directive has changed the approach in the Member States, which previously relied on statutory registers and facilitated access to other sources of information. However, the success of the Directive depends crucially on the ability of the public to exercise their rights, and it is therefore important that sources of information are well publicised, conveniently located, clearly presented and economical to use.

According to the latest available annual report on implementation and enforcement of Community environmental law, a number of Member States, including Greece, Spain and Belgium had failed to transpose Directive 2003/4/EC by the deadline of February 2005 and were referred to the European Court of Justice. At the end of 2005, infringement proceedings remained open against 10 Member States, including Belgium, Germany, Greece, Spain and France for failure to communicate transposition of the Directive to the Commission.

At present, it is not clear in how far the Directive has been fully and effectively implemented in all the Member States under consideration here. As far as the dissemination, in easily accessible form, of national rules and regulation relevant to MA operations is concerned, the difficulty in reliably identifying accurate and up-to-date information for the purposes of this paper suggests that even where the Directive may have been transposed into national law, adequate implementation is required.

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95 Member States exercise full sovereignty over their territorial waters, i.e. the 12 nm maritime zone as measured from the baseline. However, in 1999, the English High Court, in its decision in Regina v. The Secretary of State for Trade and Industry ex parte Greenpeace Ltd, Case No CO1/1306/1999, 5/11/1999, Kay J. held that “...the Council (Habitats) Directive 92/43/EEC applies also to the UK Continental Shelf and to superjacent waters up to a limit of 296 nautical miles from the baseline from which the territorial sea is measured”. The Court also confirmed that the Directive “does have direct effect” (i.e. may be relied on directly before the courts of Member States). Subsequently the European Commission made it clear that the provisions of the Habitats Directive are applicable to all Member States that exert their sovereign rights to the offshore limits of their jurisdiction, e.g. within their EEZ, also known as “Guidelines for the establishment of the Natura 2000 network in the marine environment. Application of the Habitats and Birds Directives” published in May 2007 by the Commission services, and Ünzler (2004).


98 See Articles 2 and 3 of the Directive 2003/4/EC.

99 The Directive repeals the earlier Directive 90/313 EEC.

100 See Article 4 of the Directive 2003/4/EC. Exceptions include cases of manifestly unreasonable or overly general requests or requests relating to material in the course of completion, including unfinished documents or data, as well as requests relating to internal communications, taking into account public interest in disclosure.

101 If this is impossible due to the complexity of the information, the information must be supplied within two months of the request; Art. 3(2) of Directive 2003/4/EC.

102 Art. 7(2) of Directive 2003/4/EC.

103 Alternatively, “a reference to the place where such information can be requested” should be published.


106 For instance, in the UK, where the Environmental Information Regulations 2004, S.I. 2004/391 and the Environmental Information (Scotland) Regulations...
tion in accordance with the aims of the Directive has not yet been achieved\textsuperscript{101}. By way of context, it should be noted that the Directive seeks to implement, at the Community level, one of the pillars of the UNECE Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters 1998, which entered into force in 2001 and was adopted by the Community in 2003. Council Directive 2003/35/EC, which deals with public participation in decision-making in the drawing up of certain plans and programmes, and with access to justice\textsuperscript{102}. A new EC Regulation, directly effective in all EU Member States as from 28\textsuperscript{th} June 2007, has also been adopted (Regulation 1367/2006)\textsuperscript{103}, to extend the application of the Aarhus Convention to Community institutions and bodies, i.e. “any public institution, body, office or agency established by, or on the basis of, the Treaty”\textsuperscript{104}.

The Aarhus Convention establishes a number of rights of the public (individuals and their associations) with regard to the environment and the Parties to the Convention are required to make the necessary provisions so that public authorities (at national, regional or local level) will contribute to the realization of these rights. The Convention has three pillars, namely (a) “access to environmental information”, i.e. the right of everyone to receive environmental information that is held by public authorities; (b) “public participation in environmental decision-making”, i.e. the right to participate in environmental decision-making\textsuperscript{105}; and (c) “access to justice”, i.e. “the right to review procedures, to challenge public decisions that have been made without respecting the two aforementioned rights or environmental law in general”\textsuperscript{106}. In respect of the last pillar, it should be noted that an Inventory on all EU Member States’ measures on access to justice in environmental matters has been published in September 2007\textsuperscript{107}. The relevant country reports, covering all EU Member States suggest that in many cases, there is significant scope for improvement.

NATIONAL LEGISLATION AND REGULATORY FRAMEWORK

This paper does not attempt to comprehensively list every national law and regulation affecting MA extraction, but instead concentrates on the most relevant pieces of national legislation which could be ascertained in the course of this study. All eight EU Member States considered here have ratified the UNCLOS 1982 (Table 1). Based on UNCLOS 1982, Contracting States have the right to claim a territorial sea of up to 12 nm from the baseline and an Exclusive Economic Zone (EEZ), where appropriate of up to 200 nm. It should be noted, however, that not all States have used the UNCLOS as a basis for the delimitation of maritime areas. Notably, the UK has not claimed an EEZ, but continues to base its claims to the continental shelf on the Geneva Convention on the Continental Shelf 1958\textsuperscript{108} and Greece has not (yet) exercised its rights under the Convention due to political tensions with neighbouring Turkey\textsuperscript{109}.

States enjoy sovereignty over their territorial sea and are thus able to assert property rights on the mineral resources under those waters. In addition, the UNCLOS and/or the Geneva Convention on the Continental Shelf 1958 provide sovereign rights over the Exclusive Economic Zone and the Continental Shelf outside the territorial sea for the purpose of exploring and exploiting its natural resources. The decision as to how those mineral rights are distributed and may be exercised is, therefore, a matter for national law.

However, Contracting States to the Helsinki, OSPAR and Barcelona Conventions, as well as the ESPOO Convention, are obliged to take the requirements laid down by these conventions into consideration. Germany and Poland are Parties to the Helsinki Convention. The UK, Belgium, Spain, the Netherlands, France and Germany are Parties to the OSPAR Convention and Spain, France and Greece are Parties to the Barcelona Convention (Table 1). All three of the above Conventions have also been ratified by the European Community. All EU Member States are Parties to the ESPOO Convention. In addition, national legislations of EU Member States must be compliant with the requirements of any relevant European legislation.

\textsuperscript{101} According to the Commission’s Aarhus website.
\textsuperscript{102} Article 4(2) of the Regulation. In respect of Community institutions and bodies acting in a judicial or legislative capacity only, the provisions of Title II, dealing with access to environmental information, are relevant.
\textsuperscript{103} See the Commission’s Aarhus website, http://ec.europa.eu/environment/aarhus/index.htm.
\textsuperscript{104} Ibid.
\textsuperscript{105} Continental Shelf Act 1984, see also Continental Shelf (Designation of Areas) (Consolidation) Order 2000, SI 2000/3062 (amended by SI 2001/3670). See also GIBSON (2004).
\textsuperscript{107} Ibid.
\textsuperscript{109} The relevant Greek law in relation to the territorial sea continues to be found in Law No. 2301/1993 and Decree 6186/1991. The table of maritime claims, available on the UNCLOS website, records that Greece claims a territorial sea of 6 nm, except for the purposes of aviation, where the limit is 10 nm. Turkey, which is a Party to UNCLOS is reported as claiming a 6 nm territorial sea in the Aegean. See http://www.un.org/Depts/los/LEGISLATIONANDTREATIES.
The United Kingdom

The regulatory framework concerning MA extraction in the UK is complicated by the different constitutional status of England, Wales, Scotland and Northern Ireland. The central government has exclusive jurisdiction over the UK's continental shelf. In the English territorial sea, the Central Governmental Departments (since April 2007 in particular the Marine and Fisheries Agency (MFA), an executive agency of DEFRA) have responsibility for MA extraction. For the territorial sea of Wales and Scotland, the same responsibility now resides with the Welsh Assembly Government (WAG) and the Scottish Executive (SE) respectively. In Northern Ireland, the Department of the Environment (DoE(NI)) is responsible for MA extraction. Each of these departments is also responsible for developing national planning policy guidance, including that for marine mineral development. As concerns England, it should be noted that while the MFA is now responsible for marine aggregate licensing, DEFRA retains the overall policy responsibility.

The ownership of most of the seabed out to the 12 mile territorial limit around the UK and the rights to explore and exploit natural resources of the UK continental shelf are vested in the Crown and are administered by the Crown Estate. Ownership of the foreshore and seabed in the UK, see The Crown Estate (www.thecrownestate.co.uk).

The regulatory regime governing MA activities has recently undergone fundamental change, with the entry into force, on 1 May 2007, of the Environmental Impact Assessment and Natural Habitats (Extraction of Minerals by Marine Dredging) (England and Northern Ireland) Regulations 2007 (S.I. 2007/1067). The decision to enact Regulations at this time, following extended consultations, was at least in part motivated by the threat of the likely imposition of substantive fines by the European Court of Justice for continued non-transposition of the EIA and Habitats Directive in relation to marine aggregate extraction. Prior to the new legislation, MA extraction regulation was exercised through a non-statutory “interim Government View Procedure” (GVP), which, since 1989, required an Environmental Impact Assessment (EIA) to be undertaken for all MA extraction operations. Subject to a favourable Government View on the environmental acceptability of a proposal, the Crown Estate, as owners, were responsible for the licensing of marine minerals dredging on a commercial basis to dredging companies. The GVP was an informal, voluntary process, incorporating the various elements of the EIA and Habitats Directives, but not in the legally binding form required by EC law.

The Environmental Impact Assessment and Natural Habitats (Extraction of Minerals by Marine Dredging) (England and Northern Ireland) Regulations 2007 set up a system of regulation to apply to marine aggregate dredging. They cover English and Northern Ireland territorial waters, the continental shelf around England and Northern Ireland and some outer marine areas around Scotland and Wales. As is pointed out in “Marine Minerals Guidance Note 2” (MMG 2), which provides detailed guidance on the new statutory procedures, due to the depth of the waters involved, it is in practice unlikely that any dredging will be proposed beyond the Scottish Zone or towards any of the outer limits of the UK.
Continental Shelf. In practice, therefore, the regulations will control MA extraction close to the English coastline.\textsuperscript{132} The Welsh Assembly\textsuperscript{126} has, in relation to Welsh waters, recently enacted similar legislation\textsuperscript{127}, and the Scottish Parliament is expected to make separate legislation in relation to marine areas\textsuperscript{128} covered by its competence under devolved administration\textsuperscript{129}. For reasons of economy, the following brief overview provides details only for the new statutory regime applicable in England and Northern Ireland and does not make specific reference to the corresponding Welsh Regulations which, however, appear to be substantially similar.

The new statutory regime for MA extraction introduces some significant changes to the previously existing informal GVP regime, by providing a firm legal framework governing the licensing procedure.\textsuperscript{130} The GVP procedure was both lacking in transparency, making the public potentially feel excluded from any real say in decision-making, and lengthy and cumbersome, taking, in some cases, as long as five years; operators were responsible for advertising dredging proposals and carrying out lengthy consultations and had to bear the associated costs.\textsuperscript{131}

Under the new statutory procedures, these activities will be the responsibilities of the regulator.\textsuperscript{132} Statutory and administrative time-scale targets will be established in respect of both handling of applications and monitoring of dredging permissions; there is a target of 17 weeks from receipt of a full and complete application for dredging permission to the issue of a decision.\textsuperscript{133} While under the GVP, applications for commercial licences were made by operators to the CEC, the Crown estate will no longer be involved in this process, and will only enter dredging agreements with commercial operators in accordance with the terms of a dredging permission (and the conditions imposed by it) issued by the relevant regulator.\textsuperscript{134} Thus, the responsibility for the control of marine minerals extraction now rests fully with the relevant Government Departments. Importantly, marine dredging of minerals without permission or failure to comply with the conditions attached to dredging permissions are criminal offences punishable by the courts.\textsuperscript{135}

The regulations also envisage the creation of a public register of all dredging applications and other related marine minerals dredging matters that come to the Secretary of State for decision. The register will be maintained by MFA and is envisaged to be made available in electronic form as soon as is practicable.

Marine minerals dredging fees have been determined with effect from 1/5/2007 by the Secretary of State for Environment Food and Rural Affairs under powers conferred on him by the new Regulations.\textsuperscript{136} Different fees are assessed for pre-application advice (47000 GBP), processing of dredging permissions (29500 GBP) and variation of existing permissions, as well as the consideration of monitoring reports and the interpretation of Electronic Monitoring System data. As concerns fees for minerals dredging permissions in Welsh national waters, an additional consultation document published in July 2007 by the WAG suggests that the envisaged level of fees are in a similar range.\textsuperscript{137} However, it is not clear whether final fees will be published or only notified to parties involved in the consultation.

In England, “Guidance on the Extraction by dredging of Sand, Gravel and Other Minerals from the English Seabed” was published in 2002 in Marine Minerals Guidance Note 1 (MMG1).\textsuperscript{138} The document provides advice on the environmental impacts to be considered and criteria against which applications will be determined, including guidance on the scope and content of environmental statements (OPDM, 2004). The guidance in MMG1 continues to remain relevant under the new statutory procedures for the control of aggregate extraction.\textsuperscript{139} The policy objectives in MMG1 are to: (i) minimise the area licensed for dredging at any one time; (ii) carefully locate new dredging areas; (3) consider all new applications in relation to the findings of an Environmental Impact Assessment (EIA); (iv) adopt dredging practices that minimise the impact of dredging; (v) require operators to monitor, as appropriate, the environmental impacts of their activities during, and on completion of, dredging; and (vi) safeguard resources for specific uses.

\textsuperscript{132} Dredging within the coastal waters may also be regulated by other authorities, namely the Coastal Protection Authorities or the MFA under section 18 or section 34 (Safety of Navigation) of the Coast Protection Act 1949. In some cases, therefore, a dredging proposal may require consent under more than one regulatory regime.

\textsuperscript{133} The specific competence of the Welsh Assembly for measures relating to the extraction of minerals by marine dredging within Welsh territorial waters derives from the European Communities (Designation) (No.3) Order 2000, S.I. 2000/2812, Schedule 1, Sect. 2 (6).

\textsuperscript{134} The Environmental Impact Assessment and Natural Habitats (Extraction of Minerals by Marine Dradging) (Wales) Regulations 2007, W.S.I. 2007 No. 2610 (W.221), which entered into force on 28/9/2007. Note also the consultation by the Welsh Assembly, conducted in late 2006, on proposed Marine Minerals Dredging Regulations and Procedures, which were then expected to enter into force in March 2007, see http://new.wales.gov.uk/consultations/closed.

\textsuperscript{135} No such legislation has been enacted at the time of writing. In Scotland, consultations by the Scottish Executive have recently been conducted on the proposed “Environmental Impact Assessment and Habitats (Extraction of Minerals by Marine Dradging) (Scotland) Regulations 2006”. For consultation responses, see http://www.scotland.gov.uk/Publications/2007/10/3110151518/0. Earlier in 2007, consultations were also conducted on “Revision of Circular 15/1999”. For details, see “The Environmental Impact Assessment (Scotland) Regulations 1999”, the Scottish legislative instrument implementing the EIA Directive, (http://www.scotland.gov.uk). Although reference is made, in Schedule 2 of the 1999 Regulations, to “extraction of minerals by marine and fluvial dredging”, it appears that the Regulations do not apply to marine dredging activities, but deal only with planning permissions required under the Town and Country Planning (Scotland) Act 1997, i.e. developments on land.

\textsuperscript{136} The competence of the Scottish Parliament extends to the limits of the Scottish Zone as defined in the Scotland Act 1998. “The Scottish zone” means the sea within British fishery limits (that is, the limits set by or under section 1 of the Fishery Limits Act 1976) which is adjacent to Scotland, see Sect 126 of the Scotland Act 1998.

\textsuperscript{137} Detailed explanation of the statutory procedures for the control of marine aggregate dredging activities is provided in Marine Minerals Guidance Note 2: The Control of Marine Minerals Dredging from the British Seabed (MMG2), published by DEFRA and available on the MFA website at www.mfa.gov.uk.

\textsuperscript{138} See Explanatory Memorandum to the Environmental Impact Assessment and Habitats (Extraction of Minerals by Marine Dradging) Regulations 2007.

\textsuperscript{139} Relevant regulators are for English territorial waters and the outer marine areas around Northern Ireland, Scotland and Wales the Secretary of State for Environment, Food and Rural Affairs, and for Northern Ireland territorial waters DoSNI. If a proposal straddles the boundary with Scottish, Welsh or Northern Ireland Waters, the prospective applicant must also seek separate determinations on screening and scoping from the relevant devolved administration.

\textsuperscript{133} Provided the application does not need to be referred to an Inspector or be the subject of consultation with another EEA state.

\textsuperscript{134} For a definition of “dredging agreement” and “dredging permission”, see the glossary in MMG2, Annex A.

\textsuperscript{135} Regulations 4, 14 and 27.

\textsuperscript{136} http://www.mfa.gov.uk/knlydf5ees2007.pdf.


\textsuperscript{138} According to the guidance document explaining the new statutory procedures (at para. 3.23), issued by DEFRA in 2007 as MMG2, see above.
It should be noted that the SEA Directive has been transposed into UK law, in relation to plans or programmes related to projects listed in Annex I or II of the amended EIA Directive, which would seem to cover marine aggregate extraction. For England, Northern Ireland and Wales respectively, relevant Regulations were adopted in 2004. In the case of Scotland, the relevant rules are those in the Environmental Assessment (Scotland) Act 2005, which came into force on 20/2/2006.


In Wales, the need for a strategy to deal with aggregate extraction in the Bristol Channel, Severn Estuary and river Severn and an “Interim Marine Aggregates Dredging Policy” for these areas has been published by the WAG. In Scotland, there has been very little interest in marine dredging, but it has been suggested that this may change in the future. Scottish “Guidance on Minerals Planning” is documented in NPPG4, which, at para. 54, refers to marine dredged minerals. However, NPPG4 has recently been superseded by SPP4, which does not specifically refer to marine minerals extraction. Supplementary advice on the environmental effects arising from mineral working operations is set out in PAN 5.

In Northern Ireland, there appears to be a surplus of onshore sand and gravel resources and it seems that so far, no licenses have been issued for the extraction of marine aggregates.

Finally, it should be noted that consultations have just been completed on a white paper for a Marine Bill, published on 15 March 2007. A summary of responses to the White Paper has been published and is available electronically on the DEFRA website. The White Paper proposes the adoption of new legislation to introduce changes related to: the introduction of a new UK-wide system of marine planning, including a streamlined, transparent and consistent system for licensing marine developments; introduction of a flexible mechanism to protect natural resources, including marine protected zones with clear objectives; improvements to the management of marine fisheries in relation to England, Wales and Northern Ireland and the ability to share the costs of management with commercial and recreational sectors; and a new Marine Management Organization delivering UK, England and Northern Ireland functions. An analysis of the potential impacts of the proposed legislative changes outlined in the White Paper is beyond the scope of this contribution. However, it is clear that further developments are worth careful monitoring. Should legislation based on the wide-ranging proposals in the White Paper be adopted, much of the existing regulatory and administrative framework relevant to marine aggregate extraction in the UK may, in due course, change.

Germany

Germany is a Federal Republic and, therefore, competence is divided between the Federal Republic ("Bund") and the Federal States ("Länder"). Moreover, there is also another administrative layer (local authorities - Selbstverwaltungskörperschaften) for counties, towns and municipalities (GIBSON, 1999).

The Federal Republic has sovereign rights over the seawater and the seabed of the Territorial Sea, as well as rights to explore and exploit the natural resources of the Continental Shelf (CS) and the Exclusive Economic Zone (EEZ). However, in some coastal areas, the ownership rights of the Federal Republic are limited by those of the individual Federal States.

In the Territorial Sea, administrative competence is divided between the Federal Government and the government of the relevant Federal State. For example, the Federal States own the imperial waterways ("Reichswassersträße"), which may run through the coastal waters.
of the Federal States\textsuperscript{154}. For instance, although the Federal Republic has ownership rights over the German mudflats, the Schleswig-Holstein mudflats were, in 1985, declared a national park, the protection and administration of which falls under the Gesetz zum Schutze des Schleswig-Holsteinischen Wattenmeeres\textsuperscript{155}. Nevertheless, the Federal Government\textsuperscript{156} is responsible for providing national guidelines and co-ordinating planning policy from which the individual coastal States (“Länder”) derive their own planning legislation\textsuperscript{155}. Regarding MA permits (i.e. exploration/extraction licenses), these must be obtained from the Land\textsuperscript{158} or Bezirksregierung responsible for the relevant territorial waters\textsuperscript{159}. The principal regulations are similar to those regarding land mining. The Federal Mining Law\textsuperscript{160} applies to all solid, liquid and gaseous mineral resources in the German territory as well as to activities pertinent to their development\textsuperscript{161}. Moreover, the Environmental Impact Assessment Act (UVPG)\textsuperscript{162}, which implements the EIA/ EI AA and SEA Directives into German law\textsuperscript{163}, ensures that for projects set out in Appendix 1 to Paragraph 3 (which include mining operations) environmental impact assessments are carried out and taken into consideration in the granting of permits and licences. However, secondary legislation enacted under the statute seems to exclude most mining projects (other than in sensitive areas) which involve extraction areas of less than 25 hectares from the requirement of an environmental impact assessment. Moreover, mining projects appear to be altogether exempt from the requirement for SEA under the UVPG\textsuperscript{164}. Although Germany shows considerable attention for water protection and conservation, information on MA licensing procedures is not easily accessible. Although the Federal Ministry for the Environment (“Bundesumweltministerium”) maintains a good website\textsuperscript{165}, with much information on environmental issues and legislation, including on EIA, the website does not contain any information on mineral extraction, marine or otherwise. Information about relevant legislation and competencies is, therefore, rather difficult to ascertain and it appears that there is no clear national policy on MA extraction\textsuperscript{166}. No uniform guidance exists on the required scope or content of environmental statements concerning the environmental impact assessment of MA extraction. However, it appears that the ICES Guidelines (ICES, 2003\textsuperscript{167}) are used in respect of extraction in the North Sea, whereas the HELCOM Recommendation 19/1 is applicable for extraction sites in the Baltic Sea\textsuperscript{168}. Finally, it should be noted that the administrative Directives HABAK and HABAB might also be relevant in some cases\textsuperscript{169}.

Spain

Competence in the management and protection of the marine environment\textsuperscript{170} is shared by the different levels of the Spanish administration\textsuperscript{171}. The Central (national) Government has exclusive jurisdiction regarding the Territorial Sea, the

\textsuperscript{154} The Territorial Sea environmental legislation is very complex, encompassing, amongst others, relevant parts of Environmental Law, Water Law and the Laws of National Parks and Nature Reserves. Responsibility for the coastal environment is shared between several public institutions such as the Federal State Water Authorities (“Wasserverbände”), the Federal State Land Authorities (“Bodenverbände”), the “Gemeinden”, the Federal States and the Federal Republic.

\textsuperscript{155} http://sh.juris.de/sh/NParkG_SH_1999_rahmen.htm. The Wasserhaushaltsgesetza is a Federal Act designed to regulate the management of the coastal water chemical and ecological balance. Under §19 of the Act, the Federal States are empowered to create nature reserves (water reserves) if in the public interest. §22 provides for liability in case of changes to the chemical, physical or biological condition of water; see also SCOTTISH LAW COMMISSION (2003).

\textsuperscript{156} The Federal Government environmental responsibilities are primarily exercised through the Ministry for the Environment, Nature Conservation and Nuclear Safety (“Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit”) http://www.bmu.de/english/. The Ministry for Regional Planning, Building and Urban Development is responsible for preparing national guidelines (in conjunction with the Länder) and for co-ordinating planning policy (See also ICM in Europe - http://www.coastalguide.org/icm/index.html; BULTHUIS et al., 2004).

\textsuperscript{157} Regarding regional planning, nature conservation and water management, the Länder enjoy high degree of freedom, subject to conformity with the federal legal framework (See BULTHUIS et al., 2004; GIBSON, 1999; ICM in Europe http://www.coastalguide.org/icm/index.html).

\textsuperscript{158} There are five coastal Federal States (Länder): Lower Saxony, Hanseatic Brunswick and Hanseatic Hamburg (North Sea), Schleswig-Holstein (North and Baltic Seas) and the Mecklenburg-Western Pomerania (Baltic Sea).

\textsuperscript{159} One of the major implications of divided competence is the fragmented and lengthy procedure of licensing offshore activities, particularly within the 12 nautical mile zone i.e. the Territorial Sea. The combined Federal and Federal Government bureaucracy as well as the presence of extensive nature protection zones along the German coastline has made exploitation licencing a time consuming process (KNIGHT, 2005).


\textsuperscript{161} Competence for activities on the Continental Shelf rests with the respective Länder. Under Arts 132 and 133 of the Federal Mining Law, research surveys in the continental shelf which does not relate to mineral resource exploitation (e.g. fiber optics cable routing) is subject to approval by the Bundesamt fuer Seeschiffahrt und Hydrographie. Deep Sea Mining in “The Area” under Part XI of UNCLOS, i.e. the seabed beyond national jurisdiction, is governed by the Gesetz zur Regelung des Meeresschiffahrts- und Bergbaus (MiibG of 6/1995, as last amended on 31/10/2006, http://bundesrecht.juris.de/mibergg).


\textsuperscript{163} The requirements of the SEA Directive were incorporated into the UVPG in 2000 on the basis of a separate law, (Gesetz zur Einführung einer Strategischen Umweltprüfung und zur Umsetzung der Richtlinie 2001/42/EG (SUPG) (25/06/2005)).

\textsuperscript{164} See Paragraph 18, as well Annex I (No. 15.1.) UVPG and Paragraph 1(1) of Verordnung uber die Umweltverträglichkeitsprüfung bergbaulicher Vorhaben, UVPG-V Bergbau, (13/7/1990, last amended 9/12/2006). Note that in 1995 a “Federal General Administrative Guideline on the Execution of the EIA Act of 18/9/1995” (UVWPVw’95), was passed, with further details concerning the implementation of the law and the handling of the single categories. It should be noted that any EIA in relation to fluvial dredging is regulated by State Law, see UVPG, Annex I (No. 13.15).

\textsuperscript{165} http://www.bmu.de.

\textsuperscript{166} For an overview over Coastal Zone Management issues in Germany, see http://www.coastalguide.org/icm/index.html. Information can be also found in the following web-portal http://www.dredging-in-germany.de/sites/english/g-rechtsg/00_start.html.

\textsuperscript{167} http://www.ices.dk/iceswork/wgdetail.asp?wg=WGEXT.

\textsuperscript{168} www.sandandgravel.com.


\textsuperscript{171} Spain is a “Union State”, comprising different administration levels: the Central Government, the Autonomous Communities, the Provinces, and the Local Authorities. There 17 Autonomous Communities (“Comunidades Autónomas”), 12 of which are coastal, and 2 autonomous cities (“Ciudades Autónomas”; Ceuta and Melilla) which group 50 Provinces (“Provincias”) http://en.wikipedia.org/wiki/Spain. Each of the Autonomous Communities has individual founding statutes and enjoys varying degrees of autonomy. The Provinces have no formal powers as such, as they form groups of local authorities. In fact, Spain functions as a highly decentralized Federation of Autonomous Communities and might be regarded as the most decentralized European State.
EEZ and the Continental Shelf; in comparison, jurisdiction in the internal waters is divided between the Central Government and the Autonomous Communities. Mineral rights are vested in the state, forming part of the public domain (“dominio público marítimo-terrestre”)173. The state controls and regulates the rational use of the resources “in agreement with nature” i.e. with respect to the landscape and the historical patrimony.

MA extraction is referred to in Art. 63 of the Shores Act. An interesting feature of the Act is that it allows MA extraction only for beach creation and/or replenishment purposes; the Act also requires evaluation of the environmental impacts of MA extraction. In addition, Royal Decree 1471/1989174 approves General Regulations to develop and execute the Shores Act and includes guidelines/specifications on the authorisation procedures of MA extraction (in Articles 124-127). The requirements for the evaluation of the environmental impact of activities affecting the coastal zone and the marine environment were mainly regulated in the Decree 6/2001175 which modified the Royal Decree 1302/1986176 so as to make it compatible with the requirements of the EIA Directive (Directive 1997/11/EC) and the ESPOO Convention, which Spain had ratified in 1997. According to these requirements177, full EIA studies are mandatory if MA extraction volumes exceed 3x10^6 m³ per year; for lower extraction volumes simpler environmental impact statements are sufficient, unless it is decided, on a case by case basis, in accordance with “screening” criteria set out in Annex III of the (amended) Royal Decree 1302/1986, that a full EIA is required178. The procedure is regulated by Royal Decree 1131/1988179. However, there was little official guidance on the detailed methodology/content of the required EIA contained in Royal Decree 1131/1988180. It appears that Spain was in fact facing infringement proceedings for incomplete transposition of the EIAA Directive and new legislation was introduced, in April 2006. The relevant legislation, Decree 9/2006181, primarily transposes the SEA Directive into Spanish law, so as to make plans and programmes subject to environmental impact assessment. However, Decree 9/2006, also modifies Royal Decree 1302/1986 in several respects, so as to make it fully compatible with the requirements of the EIAA Directive. In particular, the legislation now provides more detailed requirements as to the substantive contents of any EIA which the relevant authorities require in relation to the licensing of projects, including MA operations.

In addition, under the new legislation, mandatory EIA is also now required, irrespective of the extraction volume, in relation to marine dredging activities in specially sensitive environments protected under the Habitats and Wild Bird Directives.

The Directorate for the Coasts182 of the Ministry of the Environment is responsible for the protection and policing of the marine-terrestrial zone183 and the authorisation/licensing of MA extraction. As MA extraction is permitted only for beach creation/replenishment, the Ministry for Public Works184, which carries out and funds beach replenishment projects, is also relevant.

The powers of the Autonomous Communities include, inter alia, the demarcation of the shoreline, coastal-terrestrial planning and zone planning185. Processing of MA extraction applications in coastal and internal waters also takes place within the coastal Autonomous Communities. However, as MA extraction is permitted only for beach nourishment, the Autonomous Communities have also an interest in MA extraction in the Territorial Waters.


173 The article 132.2 of the 1978 Spanish Constitution declares (inferred also by Art. 3 of the Shores Act (“Ley de Costas”) that State public property shall consist of all properties in any event of the marine-terrestrial zone: the fore- 


177 These requirements, which are laid down at the Federal level, are observed in the state, forming part of the public domain (“dominio público marítimo-terrestre”) and include the state’s responsibilities for marine safety in bathing areas and maritime safety. The State Administration also has the responsibility to oversee waste discharges, human safety in bathing areas and maritime safety.


180 Note that an independent guide was published in 2004 (Beccia-Miller, 2004).


183 Ministerio de Medio Ambiente - http://www.mma.es/

184 See also http://www.mma.es/costas/guia_playas/index.htm.

185 Ministerio de Obras Públicas y Urbanismo

186 Relevant also is the Sectorial Conference of Medio Ambiente, an organisation facilitating co-ordination between the Autonomous Communities and the State Administration.


188 Council Directive 2003/35/EC amends the EIAA Directive to align relevant provisions on public participation in accordance with the Aarhus Convention on public participation in decision-making and access to justice in environmental matters, which had been adopted by the Community in 2005.
France

Property rights in the French foreshore and seabed are vested in the state. As these areas form part of the public domain ("domaine public de l’état")\(^{198}\), they are controlled/regulated by the state and are subject to significant restrictions in relation to property rights\(^{199}\).

The primary responsibility for the management of marine areas lies with the Ministère de l’Équipement, des Transports et du Logement, which is responsible for development planning\(^{200}\) and administration of navigable waters. Several national government departments have functions relevant to the marine environment (e.g. Ministère de l’Aménagement du Territoire et de l’Environnement, Ministère de l’Agriculture et de la Pêche\(^{192}\) and Ministère de l’Économie, des Finances et de l’Industrie (MINDEF)\(^{193}\). Competence in environmental management is also given to regional authorities (Régions, Départements and Communes), as well as to national agencies such as the Conservatoire du Littoral. The national government appears to have complete jurisdiction over mining on the Continental Shelf, whereas jurisdiction within territorial waters appears to be shared between the national and regional governments.

The French Mining Code ("Code Minier")\(^{194}\) sets out the legal framework for the exploitation of mineral resources of the French seabed\(^{195}\), including the Continental Shelf\(^{196}\). The provisions of the Mining Code are supplemented by several other pieces of legislation which are relevant to the exploitation of the Continental Shelf\(^{197}\) and the French territorial waters\(^{198}\). Mining (dredging) permits require Environmental Impact Assessments\(^{199}\). However, EIA studies are not in all cases mandatory. The content of EIAs is not adapted specifically to MA dredging projects, but is determined on a case-by-case basis. Since there is no clear and uniform guidance on the required content of the EIA concerning MA extraction, the quality of EIAs carried out by independent consultants on behalf of MA companies may vary\(^{200}\).

Overall it appears that, until recently, the administration and regulation of MA activities in France was quite fragmented. The administrative authorities responsible for licensing MA prospecting and extraction were the Ministry of Economy, Finance and Industry\(^{201}\), the DRIRE\(^{202}\) (responsible for granting "Mining title investigation" concessions), the DDE\(^{203}\) (responsible for sanctioning the use of public domains) and local authorities\(^{204}\) (responsible for mining permits). Scientific organisations were also consulted; for example, IFREMER\(^{205}\) advises on the preliminary and follow-up studies needed to assess the environmental impact of extraction.

However, new legislation was introduced in July 2006 to streamline and simplify the procedure for applications pertaining to MA operations ("prospection, recherche et extraction"). Under the new legislation, Décret 2006-798\(^{206}\), which entered into force in October 2006, only one application is required\(^{207}\) for the purposes of obtaining licences and concessions related to MA operations. The full application, containing, among other things an EIA as provided for in R. 122-3 of the “Code de l’environnement”\(^{208}\), should be submitted to the Minister in charge of mining (Ministry of Economy, Finance and Industry), but is subsequently handled by the local authority ("préfecture") who then consults with all other competent authorities, which appear to remain the same as previously.

The internal consultations are followed by a public enquiry and, four months later, by a meeting involving all the competent authorities, commissions, concerned parties and the...
The Dutch State is the owner of the seabed in the Territorial Sea. Moreover, it has exclusive rights on mineral resources found on and beneath the seabed of the Dutch Continental Shelf (Article 4b of the Extraction Law). Therefore, in addition to the issuing of an extraction license, a contract must be drawn between the operator and the State i.e. the seabed owner.

The state powers relating to the MA extraction are primarily exercised through the Ministry of Transport, Public Works and Water Management\(^212\), which has the responsibility for integrated planning\(^213\) at the national level and is the competent authority for MA extraction licensing, through the North Sea Directorate\(^214\). The policies relevant to the extraction of marine sediments\(^215\) are found in the Regional Extraction Plan for the North Sea (RON, 1993) and its updated version (RON2)\(^216\) and the Environmental Impact Assessment Decree\(^217\). The ICES Guidelines (ICES, 2003b) have been chosen to prescribe the content and scope of the assessment of environmental impacts of MA extraction.

When MA extraction is of small scale, then a full-blown EIA is not necessary and an environmental impact statement/report is sufficient; in addition, the application procedure is short (MER, 1994). Shallow and small-scale sediment extractions are defined in the RONs as those involving the extraction of a sediment layer less than 2 m thick and covering a seabed area less than 500 ha (in the Territorial Sea less than 100 ha); however, if the sediment extraction takes place in water depths less than 20 m, an environmental impact study is compulsory. RON2 allows extraction of sediments up to 5 m in thickness and the sediment storage (filling) in extraction pits outside the 7 m water depth line for coastal protection purposes\(^218\). Extraction of sediments more than 2 m of thickness is allowed (under conditions) from areas deeper than 20 m\(^219\).

It appears, however, that the position has recently undergone some change. According to ICES (2007), “In 2006 the limits for the requirement of an Environmental Impact Assessment for the extraction of marine sediments are set on an area of more than 500 ha (5 km\(^2\)) and/or an amount of more than 10 million cubic meters per license. These limits were already valid for the Exclusive Economical Zone (EEZ). They are now also set for the Territorial Zone (less than 12 miles from the coast line), were previously an area of more than 100 ha (1 km\(^2\)) was the limit”\(^220\).

The Netherlands

The national government, provincial governments and municipalities form different levels of public administration with regard to the environment\(^221\). However, the national government has overall jurisdiction in the Territorial Sea, the EEZ and the Continental Shelf\(^222\). The extraction of sediments from the bed\(^223\) is regulated by the Extraction Act of 1971\(^224\), which applies not only in the Territorial Sea, EEZ\(^225\) and the Continental Shelf\(^226\), but in all Dutch waters ("Rijkswateren")\(^227\).

The legislation also provides that prospecting and extraction activities are subject to control ("police des mines en mer") to ensure that any licence or concession conditions are complied with. Further details in this respect are set out in the legislation.

It should be noted that the legislation does not, however, apply to small extraction projects, which are defined as involving an area of less than 3000 m\(^2\), with extraction not exceeding 100,000 tonnes annually, and to activities for non-commercial purposes, in particular coastal zone management\(^228\). In respect of small extraction projects, reference is made to Title I of Book V of the “Code de l’environnement” (Environmental Code), which deals with “Classified facilities for the protection of the environment”\(^229\), including mining operations, which are subject to authorisation on the basis, inter alia, of an environmental impact assessment. In relation to MA operations for coastal zone management purposes or other non-commercial purposes, the new legislation makes no reference to any regulatory regime that may apply.

\(^{209}\) See Art. 2 of Décret 2006-798.

\(^{210}\) The text of the Environmental Code, as well as an English translation, is available on the official governmental website http://www.legifrance.gouv.fr/.

\(^{211}\) Article 21 of the Dutch Constitution states that public authorities shall endeavour to ensure a good quality of life in the Netherlands, and to protect and enhance the environment. Legislation takes the form of Acts of Parliament, supplemented by ministerial orders, decisions and directives (Gibson, 1999).

\(^{212}\) The jurisdiction of provincial governments and municipalities ends at the coastline.

\(^{213}\) Minerals situated at a depth of up to 100 meters below the seabed.


\(^{215}\) Article 3 (1) of the Extraction Law 1971.

\(^{216}\) Article 4a of the Extraction Law 1971.

\(^{217}\) In addition to the marine areas (North Sea and the Wadden Sea), there are other waters ("Rijkswateren") such as lakes, canals, the exposed bed of rivers in summer and all ports. For all these areas, MA extraction is under the national government jurisdiction (Article 5 (1) and Article 8 (1) of the Extraction Law 1971. For details see Barretta (2004) and http://www.noordzee.nl/waterkwaliteit/.

\(^{218}\) Ministrie van Verkeer en Waterstaat http://www.veer en waterstaat.nl.

\(^{219}\) Activities are being coordinated with other competent ministries and government bodies. For details, on the management in the Dutch sector of the North Sea, see Baretta, Elema, and van der Molen, 2003.

\(^{220}\) Rijkswaterstaat http://www.rijkswaterstaat.nl.

\(^{221}\) In the Netherlands, several policy documents have been drawn to provide government guidance/interpretation on sediment extraction (For more detailed information, see Baretta, Elema, and Van der Molen, 2003; and Barretta, (2004). RON (1993) - Regionaal Ontgrondingenplan Noordzee and BON2 (2004) - Regionaal Ontgrondingenplan Noordzee 2.


\(^{223}\) Pit refilling is permitted only during 2 summer months and 1 winter month (BON2, 2004).

\(^{224}\) For more details on the Dutch sediment extraction regulation see DGE (2003) and Barretta (2004).

\(^{225}\) ICES, 2007. The document also states: “The policy and the regulations of the Second Extraction Plan for the North Sea and the policy on shell extraction...
Finally, it should be noted that since 2006, sand extracted for the dredging of shipping lanes in areas with water depths of less than 20 m, has to be placed back on the seabed within the 20 m depth contour\textsuperscript{227}.

### Poland

Property rights regarding the seabed are vested in the state and form part of the public domain ("Obszarami morskim Rzeczypospolitej Polskiej")\textsuperscript{228}, mineral resources are also the original and exclusive property of the state\textsuperscript{229}. The national government has overall jurisdiction in the sea, beyond the mid-tide water mark (including the Inland Waters, the Territorial Sea and the Exclusive Economic Zone). The Act on Polish Marine Areas\textsuperscript{230} sets out the range of competence for the management of both the marine areas ("Obszary morskie Rzeczypospolitej Polskiej") and the newly established "coastal strip". The main authorities responsible for these areas are the three regional Maritime Offices\textsuperscript{231} (in Gdynia, Stupsk and Szczecin) and the Ministry of Environmental Protection, Natural Resources and Forestry\textsuperscript{232}, which guide and control activities with environmental implications. Mineral resource initial investigations, prospection/evaluation and extraction are subject to the regulations relating to geological investigations\textsuperscript{233}. The Ministry of Environmental Protection, Natural Resources and Forestry is the competent authority for mining administration\textsuperscript{234} with the Department of Geology and Geological Concessions\textsuperscript{235}, as task leaders.

Regulation related to MA extraction is similar to that governing land mining. The Polish Mining Law\textsuperscript{236} sets out the legal framework and applies to minerals contained in the seabed of the Polish maritime zones. The requirements of environmental impact assessment procedures are detailed in the Act on Access to Information on the Environment and its Protection and on Environmental Impact Assessments Act (9/11/2000)\textsuperscript{237}, which also lays down the principles concerning environmental protection, provision of environmental information and public participation procedures. There are no national guidelines on the content of EIAs for MA extraction\textsuperscript{238} or an integrated national policy regarding MA extraction.

### Belgium

Belgium is a federal state\textsuperscript{239} made up of three communities\textsuperscript{240} and three regions\textsuperscript{241}, which are subdivided into provinces and communes; therefore, competence\textsuperscript{242} is shared by these entities (Gibson, 1999; Van Elburg-Velino, D.; Valverde, C.P., and Salman, A., 1999). Nonetheless, only the Flemish Region ("Vlaanderen") borders the North Sea.

Sovereign rights in the seabed are vested in the State. The Federal Government has competence in the North sea (i.e. the territorial waters, the continental shelf and the EEZ)\textsuperscript{243} beyond the baseline and/or the mean low-water line along the coast\textsuperscript{244} (Gibson, 1999; NBR, 2005, and Van Elburg-Velino, D.; Valverde, C.P., and Salman, A., 1999). An Advisory Committee\textsuperscript{245} has been set up\textsuperscript{246} to co-ordinate actions concerning the management of

\textsuperscript{227} An EIA is not mandatory for small-scale onshore mineral (sand and gravel) resource exploitation if the extraction volumes are less than 20000 tonnes per year and the affected area is smaller than 2 hectares.

\textsuperscript{228} The Kingdom of Belgium, a constitutional monarchy and parliamentary democracy, was established in 1830 and has been a member of the European Union since 1993.

\textsuperscript{229} Under the Article 34 of the Act on Polish Marine Areas. Rzeczypospolitej Polskiej.)

\textsuperscript{230} Op. cit.

\textsuperscript{231} According to Article 2 of the Constitution there are the French Community, the Flemish Community and the German-speaking Community. See http://www.juridat.be/cgi_loi/loi_N.pl?cn=1969061330 and http://www.juridat.be/cgi_loi/loi_N.pl?cn=1979051951.

\textsuperscript{232} To ensure integrated planning and implementation of Belgium’s National Policy on Oceans. See also http://en.wikipedia.org/wiki/Main_Page.

\textsuperscript{233} For example, the Law of 8/8/1988 (B.S. 13/8/1988) provides that certain activities (exploitation of water, mining of oil and gas and non-renewable resources, etc.) have to be submitted to the Federal Government, which decides to authorize or not the execution of these activities.

\textsuperscript{234} An Advisory Committee has been set up to co-ordinate actions concerning the management of MA extraction.

\textsuperscript{235} An EIA is not mandatory for small-scale onshore mineral (sand and gravel) resource exploitation if the extraction volumes are less than 20000 tonnes per year and the affected area is smaller than 2 hectares.

\textsuperscript{236} The Kingdom of Belgium, a constitutional monarchy and parliamentary democracy, was established in 1830 and has been a member of the European Union since 1993.

\textsuperscript{237} Under the Article 34 of the Act on Polish Marine Areas. Rzeczypospolitej Polskiej.)

\textsuperscript{238} Op. cit.

\textsuperscript{239} According to the Polish Mining Law, the state owns the seabed of the Internal Waters, the Territorial Sea and EEZ, and has the rights to explore and exploit mineral resources. In comparison, the rights of onshore mineral resources are dependent on the type of exploitation. The state has exclusive rights of the mineral resources found beneath the surface (exploited by underground mining), whereas landowners have the rights on superficial mineral resources (exploited by open pits).

\textsuperscript{239} This includes the jurisdiction of the Ministry of Transport and Construction ("Ministerstwo Transportu i Budownictwa") http://www.mi.gov.pl/ under the National Commission for the Protection of the Environment and the Land (Komisja na Ochronę Środowiska i Ziemi).

\textsuperscript{240} According to the Polish Mining Law, the state owns the seabed of the Internal Waters, the Territorial Sea and EEZ, and has the rights to explore and exploit mineral resources. In comparison, the rights of onshore mineral resources are dependent on the type of exploitation. The state has exclusive rights of the mineral resources found beneath the surface (exploited by underground mining), whereas landowners have the rights on superficial mineral resources (exploited by open pits).

\textsuperscript{241} Art. 1 of the Royal Decree of 12/8/2000 installed a Consultative Commission (Commissie voor de exploitatie van niet-levende rijkdommen van de territoriale zee en de exclusieve economische zone van België in de Noordzee).
the exploration and exploitation of marine non-living resources between several competent national departments\textsuperscript{247}.

Article 3 of the Belgian Continental Shelf Law, together with provisions of the EEZ\textsuperscript{248} and MMM\textsuperscript{249} Acts set out the legal framework for MA exploration/exploitation. Generally, the exploration and the exploitation of the mineral resources of the seabed and subsoil are subject to a concession regime, which requires environmental impact studies. The Royal Decree of 1/9/2004\textsuperscript{250} prescribes the content of EIAs and relevant procedures\textsuperscript{251} concerning the exploration and exploitation of mineral and other non-living resources of the territorial sea and continental shelf.

Management of MA extraction from the Belgian wates is primarily exercised through the Federal Public Service for Economy, SMEs, Self-employed and Energy\textsuperscript{252}, the Federal Public Service for Health, Food Chain Safety and Environment and MUMM\textsuperscript{253}, which represents the relevant Federal Ministry and is responsible for marine environmental protection from marine activities and resource assessment. The MA activities are monitored both at the operational level\textsuperscript{254} in order to assess compliance with the prescribed terms of the licence and at the environmental impact level with physical and ecological monitoring of the immediate area of MA extractions as well as neighbouring areas that could be potentially affected\textsuperscript{255}.

It appears that changes to the Belgian legislation are under consideration, but no further details are, at this stage, available.

Greece
The national government (“Εθνική Κυβέρνηση”), provincial governments (“Περιφερειακές”) and counties (“Νομαρχίες”) between several competent national departments\textsuperscript{247}.

...
Regulation in the UK differed, until earlier this year, significantly from that in all other States considered here, as MA dredging used to be administered through a non-statutory procedure (interim Government View Procedure). New statutory regulations have now been enacted in respect of MA operations in English, Welsh and Northern Irish waters, as well as on the UK continental shelf; statutory Regulations have not yet been enacted in respect of Scottish waters, but are expected to be adopted soon. If and when legislative changes, based on the proposals in the White Paper for a Marine Bill, are adopted in the U.K., the regulatory landscape for MA operations may change further.

Some States (e.g. the UK, the Netherlands) have laid down particular policies and guidelines concerning marine aggregates. For example, there is a UK policy towards the increased use of recycled material\(^{259}\) the Dutch government encourages the use of marine dredged material\(^{260}\) and Spain allows marine aggregate extraction only for the purpose of beach creation/replenishment.

National legislation must be compliant with the requirements of any relevant secondary European legislation, in particular the Environmental Impact Assessment Directive, as amended (Directive 85/337/EEC as amended by Directives 97/11 EC and 2003/35/EC), which is the most significant regarding the administrative decision-making procedures for the approval of MA projects. The Directive has been transposed into national legislative systems in the form of separate statutes (e.g. Poland, Spain, Germany, France and the Netherlands) or incorporated into marine extraction regulation acts (e.g. Belgium and, very recently, the UK). Although all the Member States considered here prescribe environmental impact assessments of the extraction sites as a prerequisite to extraction licence granting\(^{261}\) as well as physical and ecological monitoring of the extraction sites following the commencement of the dredging activities, only few of the Member States considered (e.g. the UK and the Netherlands) appear to have published national guidelines on the content and scope of MA extraction-related EIAs. In addition, the quantity and quality of MA reserve and operation data held by the considered States varies widely, with the most modern and uniform data sets held by the UK, the Netherlands and Belgium (see also Vlekgrakis et al., this volume).

This paper only provides a relatively general overview over the regulatory regime governing MA operations in some EU Member States. This in itself, however, has not been an easy task. As an incidental finding, this review, relying to a considerable extent on published information and electronically available sources in the public domain, has shown that it is rather difficult to access accurate, up to date and complete information on administrative structures, regulations, procedures and practice pertaining to the authorization of MA extraction. In many instances, information available on the websites of the diverse relevant regulatory bodies is out of date, incomplete or incoherent\(^{262}\). As a result, it is rather difficult to properly assess whether and to which extent the various environmental protection requirements and guidelines arising from international conventions as well as the pertinent European legislation have been complied with. Considered analysis of national regulatory frameworks for MA extraction in the light of existing international requirements has not been possible within the scope of this contribution. However, while further research in this area is clearly required, the results of the present review suggest that there are a number of areas for improvement. In particular, it would appear appropriate that rules, regulations and procedures in relation to MA licensing within the EU are more streamlined, transparent, and uniformly consistent with international obligations than seems to be the case at present. Improved transparency of regulation would potentially serve the interests of effective protection of the marine environment, but could also benefit commercial stakeholders in terms of ensuring competitiveness and an equal playing field throughout the EU.

The “Blue Book”, recently published by the European Commission in response to its wide-ranging consultations on an integrated maritime policy for the EU\(^{263}\) appear to be encouraging in this respect, in particular as concerns the proposed streamlining of maritime spatial planning as a tool for the sustainable development of marine areas and the establishment of an appropriate marine data and information infrastructure.

In this context, the potential relevance of Council Directive 2003/4/EC on Freedom of Access to Information of the Environment should also be noted. Under the Directive, EU Member States are, inter alia, required to publish, if possible in electronic form, a wide range of relevant environmental information, including (a) “international, national or local legislation” and “policies, plans and programmes” relating to the environment; (b) environmental data derived from monitoring activities; (c) periodic reports on the state of the environment; (d) “authorisations with a significant impact on the environment” and (e) “environmental impact studies and risk assessments” on elements of the environment set out in the Directive, such as “coastal and marine areas”. Effective national implementation of these aspects of the Directive would play an important role in providing better access to information on rules, proce-

\(^{259}\) According to MPG6, there should be a reduced emphasis on the supply of aggregates from traditional onshore or offshore sources. Hence, the contribution from marine sand and gravel to the overall aggregate supply should remain at around 7% of the total, and future increasing demand should be met from recycled and secondary aggregates. MPG6 has now been replaced by MSP1 Annex on supply of aggregates which, in relation to marine sand and gravel states: “It is Government policy to encourage the supply of marine dredged sand and gravel to the extent that environmentally acceptable sources can be identified and exploited, within the principles of sustainable development. ‘Environmentally acceptable’ in this context is in terms of both the natural and historic environments. Subject to this overarching consideration, it is assumed that marine dredging of sand and gravel is likely to continue to contribute to meeting part of the national and regional demand for aggregates at a proportion no less than that of the recent past, currently about 8% of total demand for primary aggregates”.

\(^{260}\) By offering economic incentives.

\(^{261}\) At least in the case of MA extraction volumes above a particular threshold.

\(^{262}\) The situation in the UK is a pertinent example in this respect. See for instance fn. 101, above. However, it should be noted that proposals currently considered as part of the consultations on a Marine Bill could provide some improvement in terms of coordination and consistency of marine licensing rules and procedures throughout the UK.

dures and practices governing MA extraction. This, in turn, would assist in monitoring compliance with the requirements of the multi-layered legal framework for the protection of the marine and coastal environment and, ultimately, benefit environmental protection efforts. For the time being, however, the difficulty in identifying, for the purposes of this review, accurate, complete and up-to-date information on national rules, practices and procedures relevant to MA operations suggests that adequate implementation of the Directive, in accordance with its aims, has not yet been achieved.

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