

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 WIJSMAN, 2005; and MEAKINS *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-

¹ Non-metallic marine sediment deposits (sands and gravels), used in the construction industry (e.g. in the construction of highways and buildings), as fill material and in beach replenishment, dune restoration, and foreshore nourishment (<http://www.walesenvtrust.org.uk/content.asp?id=548>). The marine aggregate industry classifies granular sedimentary material consisting of particles with diameters ranging between 0.063 and 4 (or 5) mm as sand, and material with particle-sizes greater than 4 (or 5) mm as gravel.

² Mostly in England and Wales (<http://www.crownestate.co.uk/>).

³ MA extraction is a mining activity carried out in shallow marine areas (usually up to 45-50 m water depth) with the sole purpose of collecting granular sedimentary material to be used as aggregates. Bottom sediment removal and

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.mceu.gov.uk/mceu_local/FEPA/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 DALFSEN *et al.*, 2004), which are planned to be extracted from the

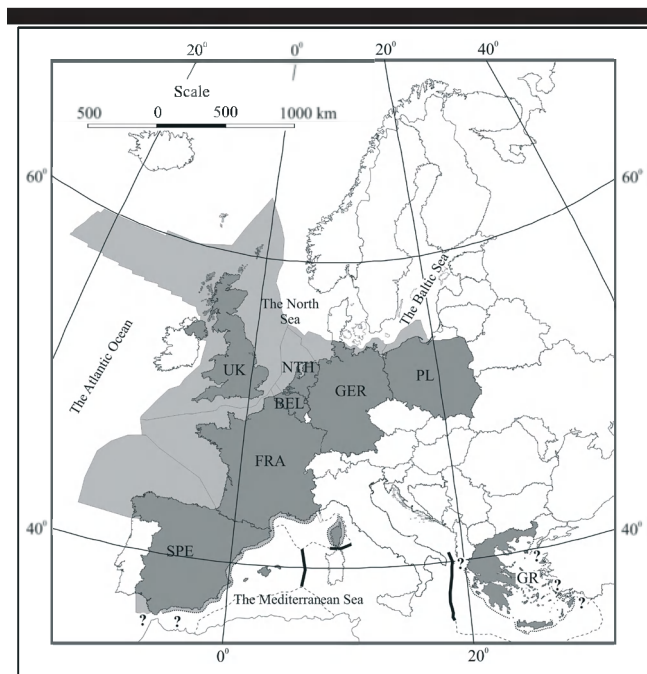


Figure 1. Overview map of 8 EU Member States which were considered and involved in the EUMARSAND Project. (Note: The map does not give the exact boundaries of maritime areas of the coastal states). Key: BEL, Belgium; FRA, France; GER, Germany; PL, Poland; NTH, The Netherlands; SPE, Spain; GR, Greece; and UK, The United Kingdom. The Atlantic and Baltic waters under the jurisdiction (including the Territorial Waters (TW) and the Exclusive Economic Zones (EEZ)) of 7 EU Member States and the Mediterranean waters (only the TW) under the jurisdiction of 2 EU Member States are shown in light grey. In the Mediterranean Sea, the bold line shows the agreed boundaries between two coastal states, whereas the dash line shows the median line between two coastal states. Adapted from the WWF/S.Christiansen (see Unger, 2004), Alsied, 2006, Polish Geological Institute (see <http://www.pgi.gov.pl/>), http://www.offshore-sea.org.uk/site/scripts/sea_archive.php, and BSH maps (see <http://www.bsh.de/en/>).

ropean coasts are under increasing coastal erosion (EUROSION, 2003; 2004a and 2004b), coastal protection schemes (e.g. DEAN, 2002) requiring large quantities of marine aggregates⁵ are necessary in order to facilitate and manage coastal zone development (HUMPHREYS *et al.*, 1996; PHUA *et al.*, 2004; and VAN DALFSEN *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...[it] 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 (BIRKLUND and WIJSMAN, 2005; BRAMPTON, EVANS, and VELEGRAKIS, 1998; DE GROOT, 1996; ELLIS and MACDONALD,

North Sea. Moreover, huge quantities of marine aggregates will be needed for the construction of the new London Olympic facilities.

⁵ For example the future need of sand for beach nourishment in the Netherlands is predicted to be between 9.8 and 14 x 10⁶ m³ per year (VAN DALFSEN *et al.*, 2004) and in Germany at least 1.3 x 10⁶ m³ per year (in Schleswig-Holstein and Mecklenburg-Western Pomerania) (<http://www.dredging-in-germany.de>).

1998; GUBBAY, 2003; and KENNY and REES, 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 m⁶. 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, ELEMA, and VAN DER MOLEN, 2003; BMAPA, 1995; 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 operations⁷ 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 regulations⁸.

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.

⁶ See <http://www.ihcholland.com/t/ihcholland.com/>; http://www.ukdredging.com/our_services/dredging.htm and <http://www.dredging.com/>.

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, GUBBAY (2004); (2005a); (2005b); RICHARTZ and SPORRONG (2003) and SCHMIDT and CHRISTIANSEN (2004).

resource exploration (prospecting) and its licensing and mining operations and their licensing⁹. 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.

⁹ The management/regulation of associated activities, such as the sea transportation to land-based treatment facilities of the extracted marine aggregates, their treatment and transport to placement sites, which are also related to this regime, are not going to be dealt with here.

¹⁰ Final draft presented and signed in Montego Bay on the 10/12/1982 and entered into force on 16/11/1994. For further details, as well as the text and latest status of ratification of the Convention and related agreements, see: <http://www.un.org/Depts/los/index.htm>. Attention should also be drawn to the “Agreement relating to the Implementation of Part XI of the Convention”, which deals with deep-sea mining in “*The Area*”. The term is defined, in Art. 1(1)(a) of the Convention, as “*the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction*”. The Agreement, which entered into force on 28/7/1996, has had important implications on the ratification of the Convention by most developed States, having also been adopted by all of the EU Member States under consideration here.

¹¹ For the ratification status of the Convention for the 8 EU Member States considered, see <http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/> and <http://www.oceanlaw.net/texts/index.htm>.

¹² The maritime zones are the Territorial Sea, the Contiguous Zone, the Continental Shelf, the Exclusive Economic Zone and the High Seas.

¹³ 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.

¹⁴ See UNCLOS Articles 2 and 3.

¹⁵ See UNCLOS Article 57.

¹⁶ See UNCLOS Article 56.

¹⁷ 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 ...*”.

¹⁸ Adopted in Geneva on 29/4/1958; entered into force in 10/6/1958.

¹⁹ Gibson, 2004; see also UNCLOS Webpage: <http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/>, where an up to date table of maritime claims can be found.

²⁰ Art. 192. This is regulated in great detail in Part XII of the Convention which is devoted to “Protection and Preservation of the Marine Environment”.

²¹ 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 ...*”.

²² See UNCLOS Articles 204 and 206.

²³ See UNCLOS Article 205.

²⁴ 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.

(<http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/>, <http://www.oceanlaw.net/texts/index.htm>, www.ices.dk/indexfla.asp, www.ospar.org, www.helcom.fi, www.unepmap.org/home.asp and <http://www.unece.org/env/eia/>).

COASTAL STATE	CONVENTIONS					
	UNCLOS	ICES	OSPAR	Helsinki	Barcelona	Espoo
Belgium	X	X	X			X
France	X	X	X		X	X
Germany	X	X	X	X		X
Greece	X				X	X
The Netherlands	X	X	X			X
Poland	X	X		X		X
Spain	X	X	X		X	X
The United Kingdom	X	X	X			X
European Community	X	X	X	X		X

The Convention for the Protection of the Marine Environment of the North East Atlantic 1992 (OSPAR Convention)

The OSPAR Convention²⁶ 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 3²⁶; these clearly cover MA operations. In 2003, a specific "Agreement on Sand and Gravel Extraction" was adopted²⁷. 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 overriding 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 ...".

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

The Helsinki Convention²⁹ 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 The OSPAR Convention opened for signature in Paris on the 22/9/1992 and entered into force on the 25/3/1998. For further details, as well as the text and status of ratification of the Convention, see www.ospar.org.

²⁸ 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 30/8/2000. 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).

²⁹ In accordance with the ICES Guidelines or with the EC Habitats Directive, as appropriate. ICES Guidelines and the relevant EC Directives are considered below.

³⁰ 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.

³¹ Helsinki Convention Art. 3(1).

³² Adopted on the 23/3/1998, http://www.helcom.fi/Recommendations/en_GB/rec19_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*”³². 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 prepared³³. 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 2003³⁴, 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 Convention for the Protection of the Mediterranean Sea against Pollution, 1976 and Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, 1995 (Barcelona Convention).

The Barcelona Convention³⁵ sets out a legal framework for regional and sub-regional agreements and cooperation³⁶ 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 Protocols³⁷ 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 Convention³⁸ 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 Protocol³⁹.

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

The International Council for the Exploration of the Sea (ICES)⁴⁰ 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 Convention⁴¹. 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)”⁴² investigate the

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.

³³ Baltic Sea Environment Proceedings No. 105, Planning and management of Baltic Sea Protected Areas: Guidelines and tools, HELCOM 2006 <http://www.helcom.fi/stc/files/Publications/Proceedings/bsep105.pdf>

³⁴ HELCOM 24/2003, Compliance with the requirements of the Convention and HELCOM Recommendations, Bremen, 25/3/2003. <http://www.helcom.fi/stc/files/BremenDocs/HCSuppCphDecl.pdf>

³⁵ The original 1976 Barcelona Convention entered into force on the 12/2/1978; it has been modified/replaced by the amended 1995 Convention adopted in Barcelona on the 10/6/1995, which entered into force on 9/7/2004. For details see <http://www.unepmap.org/home.asp>

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/indexfla.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 protection of 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, 1991 (ESPOO Convention) and the Protocol on Strategic Environmental Assessment, 2003 (SEA Protocol)

The Convention on Environmental Impact Assessment in a transboundary context was signed in Espoo, Finland, in 1991 and entered into force in 1997⁴³. 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 Convention⁴⁴. 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 Kiev⁴⁵, 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 Protocol⁴⁶. In the European Union,

the requirements of the Convention and of the SEA Protocol are reflected in two Council Directives, namely the EIA 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 Zones⁴⁷ is an initiative of the Coastal Union (EUCC)⁴⁸, 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.

⁴³ The Convention was signed on 25/2/1991 and entered into force on 10/9/1997. It counts 41 Contracting States, including the European Community and all EU Member States. The Convention has been amended twice, in February 2001 (to extend participation by non-UNECE Member States) and in June 2004 (to affect some changes to the Convention), but neither of the two amendments has yet entered into force. For the text of the Convention and a full list of Contracting States, see <http://www.unece.org/env/eia/>.

⁴⁴ See the case study referred to in a presentation on the Convention by the UNECE Secretariat, "An Introduction to the Convention including Case-Studies", November 2005, <http://www.unece.org/env/eia/>

⁴⁵ The SEA Protocol to the Espoo Convention was signed in Kiev, on 21/5/2003 at an Extraordinary Meeting of the Contracting Parties to the ESPOO Convention.

⁴⁶ The Protocol requires 16 ratifications or accessions. Only seven States have so far ratified or acceded to the Protocol, see <http://www.unece.org/env/eia/>. A

great deal of explanatory material and guidance on aspects of the Convention can be found in <http://www.unece.org/env/eia/>. Related material, such as the World Bank Environmental Assessment Sourcebook and Updates is also available at www.worldbank.org under "Environmental Assessment". See in particular Chapter 2 of the Sourcebook and Update 7, published in 1994, which deals with "Coastal Zone Management and Environmental Assessment".

⁴⁷ <http://www.eucc.net/>.

⁴⁸ <http://www.eucc.net/>. Please note that the Code of Conduct is also available for purchase from the Council of Europe website at <http://book.coe.int/> (Model law on sustainable management of coastal zones and European code of conduct for coastal zones (Nature and Environment No. 101) (2000).

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)⁴⁹. 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 tourism⁵⁰. 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*”⁵¹. In the field of environmental protection, a considerable amount of secondary EC legislation has been enacted, in particular in the form of Directives⁵². 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 legislation⁵³. 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 Justice⁵⁴. Failure to comply with any resulting judgment of the European Court of Justice may lead to the imposition of substantial fines⁵⁵. Annual surveys on “Implementation and Enforcement of Community Environmental Law”⁵⁶, and on “Monitoring the Application of Community Law”⁵⁷, as well as leading judgments of the European Court of

Justice in the field of environmental law⁵⁸ 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 field⁵⁹.

In relation to MA operations, a number of EC Directives are directly relevant⁶⁰, in particular the Environmental Impact Assessment Directive (Directive 85/337/EEC (hereafter the EIA Directive) as amended by Directives 97/11/EC (hereafter the EIAA Directive) and 2003/35/EC), as well as Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the so called Strategic Environmental Assessment Directive, hereafter the SEA Directive). Also relevant are Council Directive 92/43/EEC on Conservation of Natural Habitats and of Wild Fauna and Flora (hereafter the Habitats Directive) and Council Directive 79/409/EEC on the Conservation of Wild Birds (hereafter the Wild Birds Directive), as well as Council Directive 2003/4/EC on Freedom of Access to Information on the Environment.

The Environmental Impact Assessment Directive

The EIA Directive was introduced in 1985⁶¹ and was amended in 1997⁶². The Directive outlines which categories of projects shall be made subject to an Environmental Impact Assessment (EIA)⁶³, 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

⁴⁹ The present EC Treaty results from amendments made to the Treaty establishing the European Economic Community, which was signed in Rome in 1957 and entered into force on 1/1/1958. That treaty has been amended several times, in particular by the Single European Act, which came into force in 1987, the Treaty on European Union (Maastricht Treaty), which came into force in 1993, the Treaty of Amsterdam, which came into force in 1999 and the Treaty of Nice, which entered into force in 2003. A consolidated version of the EC Treaty and EU Treaty has been published in the Official Journal (*Official Journal C 321E of 29/12/2006*) and is available electronically on the EU website at: <http://eur-lex.europa.eu>.

⁵⁰ See Articles 2 and 3 of the EC Treaty. See also Art. 175 (4).

⁵¹ Art. 174 (1) and (2) of the EC Treaty, as amended by the Treaty of Amsterdam. See further Art. 174 (3), which provides that in preparing its policy, the Community shall take into account the available scientific and technical data.

⁵² For environmental legislation in force, see <http://eur-lex.europa.eu/en/legis/index.htm>. See also the website of the Commission's DG Environment, http://ec.europa.eu/environment/index_en.htm.

⁵³ For a useful brief summary of the effect of primary and secondary Community legislation, as well as legislative procedures and the respective role of different Community institutions, see “About EU Law - Process and Players” on the EU website at: <http://eur-lex.europa.eu>.

⁵⁴ See further <http://europa.eu.int/comm/environment/law/index.htm>.

⁵⁵ Art. 228 EC Treaty and Case C-304/02, *Commission v. French Republic*, 12/7/2005. For clarification, see MEMO/05/482, issued by the Commission on 14/12/2005, <http://www.europa.eu/rapid/>.

⁵⁶ <http://europa.eu.int/comm/environment/law/implementation.htm>

⁵⁷ Available on the EC website at <http://eur-lex.europa.eu/>.

⁵⁸ http://europa.eu.int/comm/environment/law/cases_judgements.htm

⁵⁹ See 23rd Annual Report from the Commission on Monitoring the Application of Community Law (2005), COM(2006) 416 final, dated 24/7/2006. See also the Annex to the Report, covering different sectors, SEC(2006) 999, 24/7/2006, http://eur-lex.europa.eu/LexUriServ/site/en/com/2006/com2006_0416en01.pdf

⁶⁰ In relation to protection of the marine environment, note should also be taken of Council Directive 2000/60/EC establishing a framework for Community action in the field of water policy, which applies to coastal waters, as well as the proposed Marine Strategy Directive (COM/2005/505 final), which envisages the creation of national as well as regional strategies for the protection of the wider marine environment. Discussion of these instruments is unfortunately beyond the scope of this contribution. For further information, see <http://ec.europa.eu/environment>.

⁶¹ Council Directive 85/337/EEC (27/6/1985) on the Assessment of the Effects of Certain Public and Private Projects on the Environment, which was required to be implemented by 3/7/1988.

⁶² Council Directive 97/11/EC (3/3/1997) amended Directive 85/337/EEC. The EIAA Directive was required to be fully implemented by the Member States by 14/3/1999. The main purpose of the amendment appears to have been a recognized need to clarify, supplement and improve the rules on the assessment procedure (cf. 4th preamble) and the expansion of projects subject to environmental impact assessment.

⁶³ For further information and analysis on environmental impact assessment issues, see <http://europa.eu.int/comm/environment/eia/home.htm>.

II projects and providing minimum information requirements, as well as introduced changes to align the Directive with the requirements of the ESPOO 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(c) of the EIAA 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.

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, *WWF v. Autonome Provinz Bozen and ors.*, C-435/97 (<http://www.europa.eu.int/cj/en/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 LAMBRECHTS (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 Art. 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 (*WWF v. Autonome Provinz Bozen 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(1) of the EIAA Directive.

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-

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. 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 See <http://ec.europa.eu/environment/eia/eia-support.htm>.

⁷⁶ *Commission v. Belgium*, C-337/89 [1992] ECR I-6103.

⁷⁷ 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 EIAA 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.

⁷⁸ For further details see a five year report, “How successful are the Member States in implementing the EIA Directive, Report from the Commission to the European Parliament and the Council on the Application and Effectiveness of the EIA Directive (Directive 85/337/EEC as amended by Directive 97/11/EC)” COM/2003/334 final, published on 23/6/2003 and available at <http://europa.eu.int/comm/environment/eia/news.htm>. See also EC Press Release IP/03/876 of 23/6/2003.

plaints to the European Commission⁷⁹. 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 narrow⁸⁰ 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' requirements⁸¹.

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”⁸².

According to a guidance document on implementation of the Directive, prepared by the European Commission⁸³, “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 EIA⁸⁴.

Minerals planning is, in principle, subject to the SEA Directive⁸⁵. 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 taken⁸⁶. 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 Netherlands⁸⁷.

There are other Directives, which may affect MA mining operations. Although these Directives are related mainly to the protection of marine areas that enjoy 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 favour-

⁷⁹ Seventh Annual Survey on the implementation and enforcement of Community environmental law 2005, SEC(2006) 1143, 8/9/2006 (<http://europa.eu.int/comm/environment/law/implementation.htm>). The report also states that a number of Member States had failed to transpose the requirements of Directive 2003/35/EC (public participation) by the deadline of June 2005, including Germany, Spain and France.

⁸⁰ This is the case, for instance, in France.

⁸¹ See for instance the situation in the UK, further explained below, and also e.g. ALDER (1993) and SHEATE (1996) for the previous regulatory framework. The UK had transposed the EIAA and Habitats Directives in respect of most activities, but not in respect of marine minerals dredging projects prior to the adoption of a new statutory regime which entered into force in May 2007.

⁸² See Article 1 of the SEA Directive. The SEA Directive's provisions apply to plans and programmes the preparation of which begins formally after the 21/7/2004 or which have not been adopted or submitted to a legislative procedure by the 21/7/2006.

⁸³ See European Commission Guidance on the Implementation of Directive 2001/42/EC; see also SHEATE *et al.* (2005); both documents are available at <http://europa.eu.int/comm/environment/eia/home.htm>.

⁸⁴ See Art. 3(2) of the SEA Directive and n. 83.

⁸⁵ For detailed information in relation to minerals planning, see Strategic Environmental Information Service (<http://www.sea-info.net/>) a website maintained by the Centre for Sustainability and supported by the British Government. Apparently, a free SEA Minerals Newsletter is also available on the website. See also the website of the Mineral Industry Research Organization, MIRO (<http://www.miro.co.uk/>) and a most informative report commissioned by the British Geological Survey (British Geological Survey Commissioned Report CR/04/003N, by E.J. STEADMAN *et al.* 2004) (http://www.mi-st.org.uk/research_projects/final_reports/final_report_ma_1_1_002.pdf). Further reports on EIA in relation to minerals extraction are also available on the Mineral Industry Sustainable Technology (MIST) website, accessible through the MIRO website, above.

⁸⁶ Strategic Environmental Assessment (SEA) covers more activities, wider geographic areas and often longer time periods than the project EIAs. SEA might be applied to entire sectors or geographical areas. SEA does not generally replace or reduce the need for project EIA, but it can assist in streamlining the incorporation of environmental concerns (including MA extraction) into decision-making, making project EIA more effective. It can deal with the synergy of small impacts of multiple projects/activities, any of which may be insignificant by themselves, but which together have a significant impact (see SHEATE *et al.*, 2005).

⁸⁷ Seventh Annual Survey on the implementation and enforcement of Community environmental law 2005, SEC(2006) 1143, 8/9/2006 (<http://europa.eu.int/comm/environment/law/implementation.htm>).

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 significant⁸⁸.

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 equivalents⁸⁹. 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 Commission⁹⁰.

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 Germany⁹¹.

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 request⁹². The Directive replaces an earlier Directive⁹³ on the same subject matter, expanding the existing access granted. However, there are also some narrowly defined exceptions⁹⁴. The information must be supplied within one month⁹⁵ 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 information⁹⁶. 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*"⁹⁷ 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 information⁹⁸. 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 Commission⁹⁹.

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 law¹⁰⁰, adequate implementa-

⁸⁸ For more details and discussion on this matter, see VELEGRAKIS *et al.*, 2001; ROGERS 2001; CHRISTIANSEN and JONES, 2001a and 2001b. See also "The Interpretation Manual of European Union Habitats - EUR27", published in July 2007, a scientific reference document based on the version for EUR15, which was adopted by the Habitats Committee on 4/10/1999 and consolidated with the new and amended habitat types for the 10 accession countries (adopted by the Habitats Committee on 14/3/2002) with additional changes for the accession of Bulgaria and Romania (adopted by the Habitats Committee on 13/4/2007). For marine habitats, it follows the descriptions given in "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. Both documents are available on the Commission website at http://ec.europa.eu/environment/nature/index_en.htm.

⁸⁹ 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 CO/1336/1999, 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 200 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 limit of jurisdiction, e.g. within their EEZ, see only "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 UNGER (2004).

⁹⁰ http://ec.europa.eu/environment/nature/natura2000/marine/index_en.htm.

⁹¹ Seventh Annual Survey on the implementation and enforcement of Community environmental law 2005, SEC(2006) 1143, 8/9/2006 (<http://europa.eu.int/comm/environment/law/implementation.htm>).

⁹² See Articles 2 and 3 of the Directive 2003/4/EC.

⁹³ The Directive repeals the earlier Directive 90/313 EEC.

⁹⁴ 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.

⁹⁵ 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.

⁹⁶ Art. 7(2) of Directive 2003/4/EC.

⁹⁷ Alternatively, "a reference to the place where such information can be requested" should be published.

⁹⁸ See Explanatory Memorandum in Proposal for a Directive of the European Parliament and of the council on public access to environmental information. EC Brussels, 29/6/2000, 29p.

⁹⁹ Seventh Annual Survey on the implementation and enforcement of Community environmental law 2005, SEC(2006) 1143, 8/9/2006 (<http://europa.eu.int/comm/environment/law/implementation.htm>).

¹⁰⁰ For instance, in the UK, where the Environmental Information Regulations 2004, S.I. 2004/3391 and the Environmental Information (Scotland) Regulations

tion in accordance with the aims of the Directive has not yet been achieved¹⁰¹.

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 2005. Council Directive 2003/4/EC is complemented by 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 justice¹⁰². A new EC Regulation, directly effective in all EU Member States as from 28th June 2007, has also been adopted (Regulation 1367/2006)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*”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-making¹⁰⁵; 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”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 2007¹⁰⁷. 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 1958¹⁰⁸ and Greece has not (yet) exercised its rights under the Convention due to political tensions with neighbouring Turkey¹⁰⁹.

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.

2004, SSI. 2004/520, which entered into force on 1 January 2005, transpose the Directive, or in Spain, where Ley 27/2006 contains the relevant legislation.

¹⁰¹ In the U.K., information about legislation and policy guidance is available on different websites and it is often difficult to ascertain the latest position or obtain a coherent overview. While correct information on new responsibilities for marine dredging licences is available on the website of the MFA (<http://www.mfa.gov.uk/met/default.htm>), a sub-site on the website of DEFRA (http://www.mceu.gov.uk/MCEU_LOCAL/FEPA/aggregates.htm), updated on 30/5/2007 and last accessed on 13/11/2007, still contains out-of-date information. Various minerals policy guidance documents are only available on the Communities and Local Government website, but not on the MFA website. At the same time, the Communities and Local Government website does not provide any information about the licensing process or responsible Government Departments. The website of the Scottish Executive, on the sub-site dealing with “Planning Legislation, Policy and Circulars” provides a circular on the Environmental Assessment of Plans and Programmes (Scotland) Regulations 2004, but makes no reference to the Environmental Assessment (Scotland) Act 2005, which entered into force on 20/2/2006 and repealed the earlier Regulations. Accurate information about the 2005 Act is available elsewhere on the Scottish Executive website, under “sustainable development” (<http://www.scotland.gov.uk/Topics/SustainableDevelopment/14587>). Although statutory regulations on marine aggregate dredging in England and Northern Ireland entered into force on 1/5/2007, the website of the Crown Estate, last accessed on 13/11/2007 still refers to “proposed statutory procedures” and states that the Government View Procedure remains relevant “pending introduction of the statutory procedures”. The situation is equally, if not more, bewildering in some of the other EU Member States considered in the present contribution, where often numerous pieces of legislation and regulation need to be consulted.

¹⁰² See the Commission’s Aarhus website at <http://ec.europa.eu/environment/aarhus/index.htm>

¹⁰³ Regulation (EC) No. 1376/2006 of the European Parliament and of the Council (6/9/2006) on the application of the provisions of the Aarhus Convention on access to information, Public Participation in decision-making and access to Justice in Environmental Matters to Community institutions and bodies. Available through the Commission’s Aarhus website.

¹⁰⁴ Art. 2(1)(c) 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.

¹⁰⁵ According to the Commission’s Aarhus website “Arrangements are to be made by public authorities to enable the public affected and environmental non-governmental organisations to comment on, for example, proposals for projects affecting the environment, or plans and programmes relating to the environment, these comments to be taken into due account in decision-making, and information to be provided on the final decisions and the reasons for it”.

¹⁰⁶ See the Commission’s Aarhus website, <http://ec.europa.eu/environment/aarhus/index.htm>.

¹⁰⁷ Ibid.

¹⁰⁸ Continental Shelf Act 1964, see also Continental Shelf (Designation of Areas) (Consolidation) Order 2000, SI 2000/3062 (amended by SI 2001/3670). See also GIBSON (2004).

¹⁰⁹ The relevant Greek law in relation to the territorial sea continues to be found in Law No. 230/17/9/1936 and Decree 6/18/9/1931. 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 not 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 Ireland¹¹⁰. 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)¹¹¹ have responsibility for MA extraction. For the territorial sea of Wales and Scotland, the same responsibility now resides with the Welsh Assembly Government (WAG)¹¹² and the Scottish Executive (SE)¹¹³ respectively. In Northern Ireland, the Department of the Environment (DoE(NI))¹¹⁴ 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 UK¹¹⁵ and the rights to explore and exploit natural resources of the UK continental shelf are vested in the Crown¹¹⁶ and are administered by the Crown Estate Commissioners (CEC)¹¹⁷.

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 EIAA and Habitats Directive in relation to marine aggregate extraction¹¹⁸. Prior to the new legislation, MA extraction regulation was exercised through a non-statutory "interim Government View Procedure" (GVP)¹¹⁹, 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 companies¹²⁰. 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 law¹²¹.

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 dredging¹²². They cover English and Northern Ireland territorial waters, the continental shelf around England and Northern Ireland and some outer marine areas around Scotland and Wales¹²³. As is pointed out in "Marine Minerals Guidance Note 2" (MMG 2), which provides detailed guidance on the new statutory procedures¹²⁴, 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

¹¹⁰ Since 1/7/1999, many statutory responsibilities have been transferred to the National Assembly for Wales through the Government of Wales Act 1998 and the Scottish Parliament through the Scotland Act 1998; others should be assumed in the future by the Northern Ireland Assembly through the Northern Ireland Act 1998 (ATKINS, 2004; BOYES, WARREN, and ELLIOT, 2003; and GIBSON, 1999).

¹¹¹ Until recently, the Department for Communities and Local Government (www.communities.gov.uk) - formerly Office of the Deputy Prime Minister (ODPM) - was responsible for the planning and co-ordination of the procedure of licensing MA dredging. The Department for Environment, Food and Rural Affairs (DEFRA - <http://www.defra.gov.uk/>), among others, was responsible for environmental protection and, with the Centre for Environment Fisheries and Aquaculture Science-CEFAS (<http://www.cefass.co.uk/homepage.htm>), for environmental monitoring of MA dredging. Recently, as of 1/4/2007, the Marine and Fisheries Agency (MFA), an executive agency of DEFRA has taken on new environmental responsibilities, including the responsibilities previously exercised by the Department for Communities and Local Government with regard to MA. The MFA will be responsible for the implementation of the new statutory regime governing marine aggregate extraction as from 1/5/2007, see <http://www.mfa.gov.uk> for further information.

¹¹² <http://www.wales.gov.uk/index.htm>

¹¹³ <http://www.scotland.gov.uk/Home>

¹¹⁴ DoE(NI) - Department of the Environment of Northern Ireland, Planning Service <http://www.planningni.gov.uk>

¹¹⁵ For a detailed discussion of the legal position regarding ownership of the foreshore and seabed in the UK, see SCOTTISH LAW COMMISSION (2003), where it was also proposed that the extent of the Crown Estate's ownership of the foreshore and seabed adjacent to Scotland be defined by statute. The Crown's property rights are qualified by the public's rights to use the sea and foreshore, which rights the Crown is obliged to respect.

¹¹⁶ Ownership of the foreshore and seabed between low water mark and the limit of territorial sea is *prima facie* vested in the Crown, unless it has passed to other persons by grant or adverse possession. In the Bristol Channel area, for example, the ownership of both the seabed and foreshore is divided between the Crown Estate and a variety of other parties. In Wales, this is due particularly to the historical status of the Marcher Lords. In 1849, the Duke of Beaufort was also judicially declared to be the owner of the entire foreshore of the Gower Peninsular, although some of that land has now been transferred to other proprietors. Elsewhere, there are numerous examples of privately owned foreshore, frequently derived from the historic titles of major landowners. Nevertheless, the Crown Estate owns around 55 % of the foreshore (between mean high and mean low water) and approximately half of the beds of estuaries and tidal rivers in the UK. It also owns the seabed out to the 12 nm territorial limit, as well as the rights to explore and exploit the natural resources of the UK continental shelf, excluding oil, gas and coal, but including renewable energy. The Crown Estate does not own the water column, or govern public rights such as navigation and fishery over tidal waters (GIBSON, 2004; The Crown Estate <http://www.thecrownestate.co.uk>).

¹¹⁷ Under the Crown Estate Act 1961, all mineral rights (except oil, gas and coal) are administered by the Crown Estate Commissioners (CEC). See also GIBSON (2004).

¹¹⁸ See Explanatory Memorandum to the Environmental Impact Assessment and Habitats (Extraction of Minerals by Marine Dredging) Regulations 2007, Final regulatory impact assessment, at paras. 10, 11 and 32.

¹¹⁹ DETR (1998) "Government View: New Arrangements for the Licensing of Minerals Dredging". The GVP procedure was first introduced in 1968. See also "Offshore Dredging for Sand, Gravel and Other Minerals", dated 1989 and published by the Department of the Environment and the Welsh Office.

¹²⁰ For further details, see <http://www.thecrownestate.co.uk>. See also ADNITT, STANILAND, and LEWIS, 2004.

¹²¹ The U.K. had failed to transpose the EIAA and Habitats Directives in respect of marine minerals dredging projects and infraction proceedings against the UK were pending prior to the adoption of the new statutory regime. See Explanatory Memorandum to the Environmental Impact Assessment and Habitats (Extraction of Minerals by Marine Dredging) Regulations 2007, at paras. 4.3 and 4.5.

¹²² A first draft of the Regulations was first published in 1999, but the Regulations were only adopted, after extensive consultations, in April 2007. They entered into force on 1/5/2007 and apply to all new marine mineral dredging proposals, as well as to pending proposals, and to some specified changes to existing operations. The GV procedures will continue to apply to existing MA dredging operations unless either the operators propose to alter them or if the Secretary of State considers that they are likely to have a significant effect on a European site, i.e. a SAC or SPA protected respectively under the Habitats Directive or the Wild Birds Directive or a site proposed for designation as a Special Area of Conservation under the Habitats Directive. See Regulations 2.31, and Schedule 3.

¹²³ Namely the parts of the continental shelf adjacent to Scotland which do not fall within the Scottish zone, as defined in the Scotland Act 1998 and the continental shelf adjacent to Wales, see Explanatory Memorandum to the Environmental Impact Assessment and Habitats (Extraction of Minerals by Marine Dredging) Regulations 2007, at para. 5.1.

¹²⁴ "The Control of Marine Minerals Dredging from British Seabeds", published by DEFRA in 2007, see www.mfa.gov.uk.

Continental Shelf. In practice, therefore, the regulations will control MA extraction close to the English coastline¹²⁵.

The Welsh Assembly¹²⁶ has, in relation to Welsh waters, recently enacted similar legislation¹²⁷, and the Scottish Parliament is expected to make separate legislation in relation to marine areas¹²⁸ covered by its competence under devolved administration¹²⁹. 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 procedure¹³⁰. 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 costs¹³¹.

Under the new statutory procedures, these activities will be the responsibilities of the regulator¹³². 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 decision¹³³. 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 regulator¹³⁴. 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 courts¹³⁵. 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 Regulations¹³⁶. 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 range¹³⁷. 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)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 (ODPM, 2004). The guidance in MMG1 continues to remain relevant under the new statutory procedures for the control of aggregate extraction¹³⁹. 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.

¹²⁵ 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.

¹²⁶ 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 I, Sect. 2 (c).

¹²⁷ The Environmental Impact Assessment and Natural Habitats (Extraction of Minerals by Marine Dredging) (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>.

¹²⁸ 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 Dredging) (Scotland) Regulations 2006". For consultation responses, see <http://www.scotland.gov.uk/Publications/2007/10/31101519/0>. 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.

¹²⁹ 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

¹³⁰ 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.

¹³¹ See Explanatory Memorandum to the Environmental Impact Assessment and Habitats (Extraction of Minerals by Marine Dredging) Regulations 2007.

¹³² 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 DoE(NI). 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.

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

¹³⁴ For a definition of "dredging agreement" and "dredging permission", see the glossary in MMG2, Annex A.

¹³⁵ Regulations 4, 14 and 27.

¹³⁶ <http://www.mfa.gov.uk/pdf/fees2007.pdf>.

¹³⁷ <http://new.wales.gov.uk/consultations/closed/plancloscons/MMD/?lang=en>.

¹³⁸ "Marine Minerals Guidance Note 1 - Guidance on the Extraction by Dredging of Sand, Gravel and Other Minerals from the English Seabed", which is applicable in England and Wales. Available at <http://www.communities.gov.uk/publications/planningandbuilding/marinemineralsguidance>.

¹³⁹ 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 extraction¹⁴⁰. For England, Northern Ireland and Wales respectively, relevant Regulations were adopted in 2004¹⁴¹. In the case of Scotland, the relevant rules are those in the Environmental Assessment (Scotland) Act 2005, which came into force on 20/2/2006¹⁴².

For England, the relevant planning policy guidance in respect of marine aggregates was contained in "Minerals Planning Guidance Note 6" (MPG6). MPG6 has been replaced by "Minerals Policy Statement 1" (MPS1), published in November 2006, the MPS1 "Annex on the Supply of Aggregates, and the current National and Regional Guidelines for Aggregate Provision in England 2001-2016", published in 2003. MPS1 needs to be read together with "Planning and Minerals: Practice Guide", published in November 2006¹⁴³.

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 WAG¹⁴⁴. In Scotland, there has been very little interest in marine dredging¹⁴⁵, but it has been suggested that this may change in the future¹⁴⁶. Scottish "Guidance on Minerals Planning" is documented in NPPG4¹⁴⁷, 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 50¹⁴⁸. 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 (BOYES, S.; WARREN, L., and ELLIOTT, M., 2003)¹⁴⁹.

Finally, it should be noted that consultations have just been completed on a white paper for a Marine Bill, published on 15 March 2007¹⁵⁰. 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")¹⁵¹. 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)¹⁵² 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 States¹⁵³.

In the Territorial Sea, administrative competence is divided between the Federal Government and the government

¹⁴⁰ Each of the respective pieces of legislation adopts the relevant text in the SEA Directive, referring to plans and programmes which are prepared for "agriculture ..., energy, industry, ... water management, town or country planning or land use" and set "the framework for future development consent in respect of projects listed in Annex I or II of the [EIA Directive]". Reference is also made to cases where assessment is required under Art. 6 or 7 of the Habitats Directive. The text would seem to cover plans and programmes related to projects for "extraction of minerals by marine or fluvial dredging", as these are listed in Annex II of the Directive. However, it is interesting to note that only the Scottish legislation expressly lists relevant projects in a Schedule, whereas the Regulations for England, Northern Ireland and Wales do not.

¹⁴¹ The Environmental Assessment of Plans and Programmes Regulations 2004, SI 2004/1633. Similar Regulations were enacted, also in 2004, for Northern Ireland (SR 2004/280) and Wales (WSI 2004/1556 (W.170)). For further information on the different Regulations applicable in England, Northern Ireland and Wales, as well as the relevant Scottish legislation, see <http://www.communities.gov.uk/planningandbuilding/planning/sustainabilityenvironmental/>.

¹⁴² The Act repealed secondary legislation (Regulations) enacted in 2004. The legislation is relevant to MA operations, as it applies to plans and programmes, which set the framework for future development consent of projects involving extraction of minerals by marine or fluvial dredging, see Section 5(3) of the Act and para. 24 (3) of Schedule 1.

¹⁴³ All documents are available on the website of the Department of Communities and Local Government which took over the responsibilities of the ODPM in May 2006 (see www.communities.gov.uk, under Planning Policy and Guidance, Minerals and Waste).

¹⁴⁴ Welsh Assembly Government (2004) Interim Marine Aggregates Dredging Policy South Wales, available at (<http://www.wales.gov.uk/subiplanning/content/guidance/sand-gravel-e.htm>).

¹⁴⁵ There are currently only two extant dredging licenses in Scotland, one in the Firth of Forth and the other in the Tay Estuary. Only minor activity has taken place at both locations, see Extraction of Minerals by Marine Dredging Consultation Paper, July 2006, available on the website of the Scottish Executive.

¹⁴⁶ Friends of the Earth Scotland (1999) Foundations for Sustainable Resource Use: A Strategy for Scotland, Edinburgh (see the web page of the Scottish Executive) that in recent years there has been growing interest in the potential of marine dredging for aggregates, particularly in the Firth of Forth, and Tay, Clyde and Moray Firth Areas.

¹⁴⁷ "National Planning Policy Guideline NPPG 4: Land for Mineral Working" was issued in 1994 <http://www.scotland.gov.uk/Publications/2005/03/3085211/52124>, which provides, in principle, for the development of up to 4 coastal exporting superquarries in Scotland. Scottish Planning Policy 4 (SPP4): Planning for Minerals, published in September 2006, which replaces NPPG 4 makes no reference to marine minerals dredging.

¹⁴⁸ "Planning Advice Note PAN 50: Controlling the environmental effects of surface mineral workings" <http://www.scotland.gov.uk/library5/planning/pan50-00.asp> This provides a framework within which planning authorities can prepare policies for all types of mineral development likely to arise in their area, taking into account coastal processes, natural heritage issues as well as possible implications for the transport of material by sea.

¹⁴⁹ However, see "Regional Planning Policy – Minerals" on the DoE(NI) website.

¹⁵⁰ See Consultations on a Marine Bill White Paper, A Sea Change, <http://www.defra.gov.uk/corporate/consult/marinebill-whitepaper07/>

¹⁵¹ According to the Basic Law ("Grundgesetz"), i.e. the constitution of the Federal Republic of Germany.

¹⁵² Bekanntmachung der Proklamation der Bundesregierung über die Erforschung und Ausbeutung des deutschen Festlandssockels, 20/1/1964 (The Declaration by the Federal Government of 20/1/1964), BGBI 1964 II S. 104 (amending 2/9/1974). All federal German laws referred to in this paper are available electronically at <http://bundesrecht.juris.de/aktuell.html>.

¹⁵³ For example, the Federal States own the imperial waterways ("Reichswasserstraßen"), which may run through the coastal waters.

of the Federal States¹⁵⁴. 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 Wattenmeeres¹⁵⁵. Nevertheless, the Federal Government¹⁵⁶ is responsible for providing national guidelines and co-ordinating planning policy from which the individual coastal States ("Länder") derive their own planning legislation¹⁵⁷.

Regarding MA permits (i.e. exploration/extraction licenses), these must be obtained from the Land¹⁵⁸ or Bezirksregierung responsible for the relevant territorial waters¹⁵⁹. The principal regulations are similar to those regarding land mining. The Federal Mining Law¹⁶⁰ applies to all solid, liquid and gaseous mineral resources in the German territory as well as to activities pertinent to their development¹⁶¹. Moreover, the Environmental Impact Assessment Act (UVPG)¹⁶², which implements the EIA/EIAA and SEA Directives into German law¹⁶³, 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 UVPG¹⁶⁴.

Although Germany shows notable consideration for nature protection and conservation, information on MA licensing procedures is not easily accessible. Although the Federal Ministry for the Environment ("Bundesumweltministerium") maintains a good website¹⁶⁵, 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 extraction¹⁶⁶. 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, 2003b¹⁶⁷) are used in respect of extraction in the North Sea, whereas the HELCOM Recommendation 19/1 is applicable for extraction sites in the Baltic Sea¹⁶⁸. Finally, it should be noted that the administrative Directives HABAK and HABAB might also be relevant in some cases¹⁶⁹.

Spain

Competence in the management and protection of the marine environment¹⁷⁰ is shared by the different levels of the Spanish administration¹⁷¹. The Central (national) Government has exclusive jurisdiction regarding the Territorial Sea, the

¹⁵⁴ The Territorial Sea environmental legislation is very complex, encompassing, amongst others, relevant parts of Environmental Law, Water Law and the Law 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.

¹⁵⁵ http://sh.juris.de/sh/NParkG_SH_1999_rahmen.htm. The Wasserhaushaltsgesetz is a Federal Act designed to regulate the maintenance 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).

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).

¹⁵⁷ Regarding regional planning, nature conservation and water management, the Länder enjoy a 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>).

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

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 State and Federal Government bureaucracy as well as the presence of extensive nature protection zones along the German coastline has made exploitation licensing a time consuming process (KNIGHT, 2005).

¹⁶⁰ Bundesberggesetz - BbergG (13/8/1980, amended 9/12/2006) <http://bundesrecht.juris.de/bundesrecht/bbergg/>.

¹⁶¹ Competence for activities on the Continental Shelf rests with the respective Länder. Under Arts. 132 and 133 of the Federal Mining Law, research surveying 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 Seeschifffahrt 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 Meeresbodenbergbaus - MbergG of 6/6/1995, as last amended on 31/10/2006, <http://bundesrecht.juris.de/mbergg/>.

¹⁶² Gesetz über die Umweltverträglichkeitsprüfung - UVPG (12/2/1990, fully revised 25/06/2005 and last amended 23/10/2007) <http://bundesrecht.juris.de/bundesrecht/uvpg/gesamt.pdf>.

¹⁶³ The requirements of the SEA Directive were incorporated into the UVPG in 2005 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).

¹⁶⁴ See Paragraph 18, as well Annex I (No. 15.1) UVPG and Paragraph 1(1) of Verordnung ueber die Umweltverträglichkeitspruefung bergbaulicher Vorhaben, UVP-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“ (UVPVwV, 1995), 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).

¹⁶⁵ <http://www.bmu.de>.

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_rechts/00_start.html

¹⁶⁷ <http://www.ices.dk/iceswork/wgdetail.asp?wg=WGEXT>.

¹⁶⁸ www.sandandgravel.com.

¹⁶⁹ Although the original purpose of these instruments was to ensure environmentally sound handling/disposal of material dredged for navigational purposes, they might also be relevant for use of dredged material as fill and/or for beach replenishment purposes. HABAK, Handlungsanweisung für den Umgang mit Baggergut im Küstenbereich (Directive for Dredged Material Management in Federal Coastal Waterways) (HABAK-WSV), Second Revised Edition, 1999, Federal Institute of Hydrology (Bundesanstalt für Gewässerkunde), Koblenz, Germany, <http://www.bafg.de/servlet/is/11509/HABAK-engl.pdf>. HABAB, Handlungsanweisung für den Umgang mit Baggergut im Binnenland (Directive for Dredged Material Management in Federal Inland Waterways) (HABAB-WSV) 2000, Second Revised Edition, Bonn, Koblenz, 2000. <http://www.bafg.de/servlet/is/11509/HABAB-08-2000.pdf>

¹⁷⁰ The Shores Act ("Ley de Costas") sets out the overarching legal framework concerning the marine environment. (Ley 22/1988 (28/7/1988), de Costas http://noticias.juridicas.com/base_datos/Admin/122-1988.html).

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")¹⁷². The state controls and regulates¹⁷³ 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 $3 \times 10^6 \text{ m}^3$ 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 EIA 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 EIA 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 Environment¹⁸³ is responsible for the protection and policing of the marine-terrestrial zone¹⁸⁴ and the authorisation/licensing of MA extraction. As MA extraction is permitted only for beach creation/replenishment, the Ministry for Public Works¹⁸⁵, 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 planning¹⁸⁶. 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.

Finally, it should be noted that another relevant piece of legislation, Decree 27/2006¹⁸⁷, was introduced in July 2006 to transpose into Spanish law Council Directive 2003/4/EC, on Freedom of Access to Information on the Environment, and Council Directive 2003/35/EC¹⁸⁸, reflecting the requirements of the Aarhus Convention on public participation in decision-making and access to justice in environmental matters.

¹⁷² The article 132.2 of the 1978 Spanish Constitution declares (affirmed 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-shores, beaches, Territorial Sea and all natural resources of the Exclusive Economic Zone and the Continental Shelf (http://noticias.juridicas.com/base_datos/Admin/122-1988.html).

¹⁷³ The powers of the State Administration are set out in Arts 110-112 of the Shores Act. With regard to State powers and responsibilities, the Act refers to "la Administración del Estado" (State Administration). The State Administration's responsibilities include the management of the public coastal domain including the granting of permits (licenses) and concessions and the overseeing of the fulfillment of the conditions of these permits. The State Administration has also the responsibility to oversee waste discharges, human safety in bathing areas and maritime safety.

¹⁷⁴ Real Decreto 1471/1989 (1/12/89), por el que se aprueba el Reglamento General para Desarrollo y Ejecución de la Ley de Costas 22/1988, (28/7/1988). http://www.juridicas.com/base_datos/Admin/rd1471-1989.html.

¹⁷⁵ Ley 6/2001 (8/5/2001) de modificación del Real Decreto Legislativo 1302/1986 (28/6/1986), de evaluación de impacto ambiental http://noticias.juridicas.com/base_datos/Admin/16-2001.html.

¹⁷⁶ Real Decreto Legislativo 1302/1986, (28/6/1986), de Evaluación de Impacto Ambiental http://noticias.juridicas.com/base_datos/Admin/rdleg1302-1986.html.

¹⁷⁷ These requirements, which are laid down at the Federal level, are observed closely in the planning legislation of the coastal Autonomous Communities. In the OSPAR area, Andalucía has established an extraction threshold of 3 million m^3 over which a regulated EIA procedure is required, whereas a simpler study on the environmental impacts (an environmental statement) is sufficient for smaller projects. However, Galicia and Cantabria have established a mandatory full-blown EIA for all sediment exploitation activities, including MA extraction. In comparison, the EIA Act of the País Vasco does not specifically mention marine sediment extraction, but establishes a mandatory and regulated EIA procedure for all conservation and regeneration activities in the coastal public domain; thus, EIA is required in order to authorise marine aggregate extraction for beach nourishment, which is the only marine sediment exploitation allowed in Spain (ICES, 2006).

¹⁷⁸ Annex I of Real Decreto Legislativo 1302/1986 (28/6/1986), de evaluación de impacto ambiental, lists the projects which require a full EIA procedure according to the Directive 97/11/EC (as it was transposed to the Spanish legal system by Ley 6/2001). Projects listed in Annex II (including extraction of less than 3 million m^3 of marine aggregates) only require a full EIA if this is considered necessary, on a case by case basis, in accordance with the "screening" criteria in Annex III.

¹⁷⁹ Real Decreto 1131/1988 (30/09/1988) por el que se aprueba el Reglamento para la ejecución del Real Decreto legislativo 1302/1986, de 28 de junio, de evaluación de impacto ambiental http://noticias.juridicas.com/base_datos/Admin/rd1131-1988.html.

¹⁸⁰ Note that an independent guide was published in 2004 (BUCETA-MILLER, 2004).

¹⁸¹ Ley 9/2006 (28/04/2006) sobre evaluación de los efectos de determinados planes y programas en el medio ambiente http://noticias.juridicas.com/base_datos/Admin/19-2006.html.

¹⁸² Dirección General de Costas - <http://www.mma.es/costas/htm/actua/infor/infor-index.htm>.

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.

¹⁸⁷ Ley 27/2006 (18/07/2007) por la que se regulan los derechos de acceso a la información, de participación pública y de acceso a la justicia en materia de medio ambiente (incorpora las Directivas 2003/4/CE y 2003/35/CE) http://noticias.juridicas.com/base_datos/Admin/127-2006.t3.html.

¹⁸⁸ Council Directive 2003/35/EC amends the EIA 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")¹⁸⁹, they are controlled/regulated by the state and are subject to significant restrictions in relation to property rights¹⁹⁰.

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 planning¹⁹¹ 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 Pêche¹⁹² and Ministère de l'Économie, des Finances et de l'Industrie (MINEFI)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 seabed¹⁹⁵, including the Continental Shelf¹⁹⁶. The provisions of the Mining Code are supplemented by several other pieces of legislation which are relevant to the exploitation of the Continental Shelf¹⁹⁷ and the French territorial waters¹⁹⁸. Mining (dredging) permits require Environmental

Impact Assessments¹⁹⁹. 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 vary²⁰⁰.

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 Industry²⁰¹, the DRIRE²⁰² (responsible for granting "Mining title investigation" concessions), the DDE²⁰³ (responsible for sanctioning the use of public domains) and local authorities²⁰⁴ (responsible for mining permits). Scientific organisations were also consulted; for example, IFREMER²⁰⁵ 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 2006-798²⁰⁶, which entered into force in October 2006, only one application is required²⁰⁷ 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 ap-

¹⁸⁹ Land within the public domain is not in principle capable of alienation, nor can it legally be acquired or abandoned through prescription. Special procedures have to be followed in order to declassify the land as part of the public domain before the State can transfer property rights. However, it is not clear the extent to which this declassification might occur in respect of the foreshore and seabed (See also SCOTTISH LAW COMMISSION, 2003).

¹⁹⁰ Article 1 of the Coastal Act 1986 gives support to public interest issues concerning coastal ownership. It provides that "the coastal area in France is a geographical entity that calls for a particular system of development, protection and exploitation".

¹⁹¹ In 1983, Article 57 of Loi 83-835 introduced the option of development plans for marine areas, called "Schémas de Mise en Valeur de la Mer" (SMVM). The detailed procedure for their preparation was subsequently elaborated in a 1986 Decree. SMVM are plans concerning marine areas and adjacent coasts, adopted by the Ministère de l'Équipement, des Transports et du Logement, following submissions by the Préfet du Département, consultations with local authorities and other interested parties and public inquiries. They are legally superior to local plans, which must be compliant with them, but it appears that their implementation has been difficult in practice. The SMVM complement the Loi Littoral. Together they provide a statutory planning framework for the whole coastal zone (For further discussion, see GIBSON (1999)).

¹⁹² <http://www.agriculture.gouv.fr/spip/>

¹⁹³ <http://www.finances.gouv.fr/>

¹⁹⁴ Code Minier dates back to 21/4/1810. Law 94-588 of 15/7/1994 is the last amendment of the Mining Code. The present Mining Code codifies existing case law, aims at a better protection of the environment and attempts to bring conformity with relevant European legislation (see BETLEM *et al.*, 2002) <http://www.legifrance.gouv.fr/WAspad/UnCode?code=CMINIERO.rcv>.

¹⁹⁵ The seabed forms part of the public domain. See also (<http://www.ifremer.fr/>).

¹⁹⁶ Article 6 of the Loi du 30/12/1968 (relative à l'exploration du plateau continental et à l'exploitation de ses ressources naturelles) states that "De cette loi qui institue un régime juridique unique sur le plateau continental Français, précise que le code minier est applicable à toutes les substances minérales". See also Law 68-1181, (consolidated version of 20/12/2003), <http://www.legifrance.gouv.fr/texteconsolide/RHEAH.htm>.

¹⁹⁷ In particular, Décret 71-360 du 6/5/1971 ("qui traite des procédures et de diverses dispositions spéciales") amended by Décret 85-1289 du 3/12/1985, Loi 77-485 du 11/5/1977, Décret 71-362 du 6/5/1971 ("relatif aux autorisations de prospections préalables de substances minérales ou fossiles dans le sous-sol du plateau continental"); see also the consolidated version of 28/12/2003, <http://www.legifrance.gouv.fr/>

¹⁹⁸ Décret 80-470 du 18/6/1980 "portant application de la loi du 16/7/1976 relative à la prospection, à la recherche et à l'exploitation des substances minérales

non visées à l'article 2 du code minier et contenues dans les fonds marins du domaine public métropolitain"; see the consolidated version of 31/10/1998, <http://www.legifrance.gouv.fr/>

¹⁹⁹ Décret 93-245 du 25/2/1993 ("Décret relatif aux études d'impact et au champ d'application des enquêtes publiques et modifiant le Décret n° 77-1141 du 12/10/1977 pris pour l'application de l'article 2 de la Loi n° 76-629 du 10/7/1976 relative à la protection de la nature et l'Annexe du Décret n° 85-453 du 23/4/1985 pris pour l'application de la Loi n° 83-630 du 12/7/1983 relative à la démocratisation des enquêtes publiques et à la protection de l'environnement"). See also the consolidated version of 5/8/2005, <http://www.legifrance.gouv.fr/>

²⁰⁰ It has been suggested that this might be due to the small MA quantities extracted in France, which have not prompted the regulatory authorities to invest in the improvement of the procedures (CAYOCCA and DU GARDIN, 2003).

²⁰¹ Through the Directeur des Mines and the Directeur des Carburants of the Ministère de l'Économie, des Finances et de l'Industrie (supervised also by the Conseil Général des Mines).

²⁰² Directions Régionales de l'Industrie, de la Recherche et de l'Environnement <http://www.drre.gouv.fr/>.

²⁰³ Directions Départementales de l'Équipement, (Ministère de l'Équipement, des Transports et du Logement) http://www.equipement.gouv.fr/rubrique.php3?id_rubrique=21.

²⁰⁴ http://www.interieur.gouv.fr/rubriques/c44_les_prefectures/c46_votre_prefecture.

²⁰⁵ Institut Français de Recherche pour l'Exploitation de la Mer <http://www.ifremer.fr/>

²⁰⁶ Décret 2006-798 du 6/7/2006 relatif à la prospection, à la recherche et à l'exploitation de substances minérales ou fossiles contenues dans les fonds marins du domaine public et due plateau continental métropolitain.

²⁰⁷ Commercial operators must be resident in France or in another EU Member State.

²⁰⁸ The text of the Environmental Code, as well as an English translation, is available on the official governmental website <http://www.legifrance.gouv.fr/>.

plicant. The responsible “Préfet” finally sends the completed dossier, together with his own views, to the Ministry responsible for matters related to mining, who then consults further with a number of other Ministries (e.g. Finance, Environment, Maritime Affairs, Fisheries, Defence). Any objections can only be raised within two months. The Minister in charge of mining is responsible for the issuing of a prospecting licence or extraction concession; favourable decisions are published in the “Journal officiel” and, subsequently, in any journal in the nearest coastal zone to the proposed site. However, unfavourable decisions are not published, and the law provides that silence on the part of the Ministry for 48 months (in the case of applications for extraction concessions) or 36 months (in the case of applications for prospecting licences) is considered rejection of the application. Thus, while an applicant apparently now deals only with one local authority directly, the administrative procedures remain complex and, the time-frame for a final decision on any application is considerable.

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 m², with extraction not exceeding 100.000 tonnes annually, and to activities for non-commercial purposes, in particular coastal zone management²⁰⁹. 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”²¹⁰, 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.

The Netherlands

The national government, provincial governments and municipalities form different levels of public administration with regard to the environment²¹¹. However, the national government has overall jurisdiction in the Territorial Sea, the EEZ and the Continental Shelf²¹². The extraction of sediments from the bed²¹³ is regulated by the Extraction Act of 1971²¹⁴, which applies not only in the Territorial Sea, EEZ²¹⁵ and the Continental Shelf²¹⁶, but in all Dutch waters (“Rijkswateren”)²¹⁷.

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 Management²¹⁸, which has the responsibility for integrated planning²¹⁹ at the national level and is the competent authority for MA extraction licensing, through the North Sea Directorate²²⁰. The policies relevant to the extraction of marine sediments²²¹ are found in the Regional Extraction Plan for the North Sea (RON, 1993) and its updated version (RON2)²²² and the Environmental Impact Assessment Decree²²³. 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 purposes²²⁴. Extraction of sediments more than 2 m of thickness is allowed (under conditions) from areas deeper than 20 m²²⁵.

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 km²) 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 km²) was the limit*”²²⁶.

ers 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 BARETTA (2004) and <http://www.noordzee.nl/waterkwaliteit/>

²¹⁸ Ministerie van Verkeer en Waterstaat <http://www.verkeerenwaterstaat.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 BARRY, 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 BARRY, ELEMA, and VAN DER MOLEN, 2003; and BARETTA, (2004).

²²² RON (1993) - Regionaal Ontgrondingenplan Noordzee and RON2 (2004) - Regionaal Ontgrondingenplan Noordzee 2.

²²³ MER - The Netherlands Commission for Environmental Assessment (1994) http://news.eia.nl/bibliotheek_detail.aspx?id=8404

²²⁴ Pit refilling is permitted only during 2 summer months and 1 winter month (RON2, 2004).

²²⁵ For more details on the Dutch sediment extraction regulation see DGE (2003) and BARETTA (2004).

²²⁶ 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*

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.

²¹⁴ Extraction Law (“Ontgrondingenwet”) 1971 (Wet van 27/10/1965, Houdende regelen omtrent de ontgrondingen) <http://wetten.overheid.nl>

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 riv-

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 contour²²⁷.

Poland

Property rights regarding the seabed are vested in the state and form part of the public domain ("Obszarami morskimi Rzeczypospolitej Polskiej")²²⁸; mineral resources are also the original and exclusive property of the state²²⁹. 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 Areas²³⁰ 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 Offices²³¹ (in Gdynia, Stupsk and Szczecin) and the Ministry of Environmental Protection, Natural Resources and Forestry²³², which guide and control activities with environmental implications. Mineral resource initial investigations, prospecting/evaluation and extraction are subject to the regulations relating to geological investigations²³³. The Ministry of Environmental Protection, Natural Resources and Forestry is the competent authority for mining administration²³⁴ with the Department of Geology and Geological Concessions²³⁵, as task leaders.

Regulation related to MA extraction is similar to that governing land mining. The Polish Mining Law²³⁶ 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)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 extraction²³⁸ or an integrated national policy regarding MA extraction.

Belgium

Belgium is a federal state²³⁹ made up of three communities²⁴⁰ and three regions²⁴¹, which are subdivided into provinces and communes; therefore, competence²⁴² is shared by these entities (GIBSON, 1999; VAN ELBURG-VELINOVA, 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)²⁴³ beyond the baseline and/or the mean low-water line along the coast²⁴⁴ (GIBSON, 1999; NBR, 2005, and VAN ELBURG-VELINOVA, D.; VALVERDE, C.P., and SALMAN, A., 1999). An Advisory Committee²⁴⁵ has been set up²⁴⁶ to co-ordinate actions concerning the management of

²³⁸ 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.

²³⁹ The Kingdom of Belgium, a constitutional monarchy and parliamentary democracy, since 1970 has been gradually transformed into a Federal State. The last radical change of the Constitution ("De Belgische Grondwet / La Constitution Belge") was carried out in 1993, after which the Federal Government is backed up by three Regional Governments (Vlaanderen, Wallonie and Bruxelles), and further by Provincial government and local government structures (see OECD, 1997; WOUTERS and DE SMET, 2001 and http://en.wikipedia.org/wiki/Main_Page).

²⁴⁰ According to Article 2 of the Constitution there are the French Community, the Flemish Community and the German-speaking Community. See <http://www.ejustice.just.fgov.be/cgi/welcome.pl>, http://www.fed-parl.be/constitution_uk.html and http://www.senate.be/doc/const_fr.html.

²⁴¹ According to Art. 3 of the constitution there are the Walloon Region, Flemish Region and Brussels Regions. See <http://www.ejustice.just.fgov.be/cgi/welcome.pl>, http://www.fed-parl.be/constitution_uk.html and http://www.senate.be/doc/const_fr.html.

²⁴² Under the Constitution (Art. 35) powers are divided between the Federal Government and the communities and regions, and Art. 6 of the Special Institutional Reform Law of 8/8/1980 ("Moniteur belge", 15/8/1980, as amended) defines their areas of competence. The constitutional reform and the Special Institutional reform Law extended the competencies of the Communities to social affairs, granted competencies to the Regions and established the institutions of the Communities and the Walloon Region. The competencies of the Flemish Region were exercised by the Flemish Community. The institutions of the German-speaking Community were not established until the law of 31/12/1983, defining its competencies for the same matters as those for which the other two Communities were competent - with the exception of the use of languages - and providing for the possibility of the Walloon Region to transfer the exercising of certain competencies to the German-speaking Community (<http://www.crisp.be/wallonie/en/pouvoirs/creation.html>). See also OECD (1997) and WOUTERS and DE SMET (2001).

²⁴³ Art. 1 of the Belgium Continental Shelf Law, 13/6/1969 ("Wet inzake de exploratie en de exploitatie van niet-levende rijkdommen van de territoriale zee en het continentaal plat") http://www.juridat.be/cgi_loi/loi_N.pl?cn=1969061330 as amended by Art. 27 of the "EEZ" act, 22/4/1999 ("Wet betreffende de exclusieve economische zone van België in de Noordzee"). http://www.juridat.be/cgi_loi/loi_N.pl?cn=1999042247

²⁴⁴ Coastal zone management on land falls under the federal and regional jurisdiction, whereas the federal government (barring some exceptions) is competent for the management of the sea. The dividing line between land and sea is formed by the provincial frontier of West Flanders, which is bounded on the seaward side by the baseline (or the mean low-water line) along the coast. However, divergent laws can assign jurisdiction at sea to the Flemish Region. For example, the Law of 8/8/1988 (B.S. 13/8/1988) provides that certain activities/works in the Belgian part of the North Sea (e.g. the management of waterways, harbours, coastal defence, pilot services, rescue and towing services at sea and nowadays fishing and dredging) fall under the regional authority (NBR, 2005). Nevertheless, MA extraction is under the Federal jurisdiction (see NBR, 2005).

²⁴⁵ To ensure integrated planning and implementation of Belgium's *National Policy on Oceans*. See also <http://www.un.org/esa/agenda21/natlinfo/countr/belgium/natur.htm#oceans>

²⁴⁶ Art. 1 of the Royal Decree of 12/8/2000 installed a Consultative Commission charged with the co-ordination between the different parts of the administration concerned with the management of the exploration and exploitation of the Continental Shelf and the Territorial Sea and the fixation of modalities and working costs ("Koninklijk besluit tot instelling van de raadgevende Commis-

will be incorporated in a new document for extraction from waters under management of the national government".

²²⁷ <http://www.noordzeeloket.nl>.

²²⁸ According to the Act on Polish Marine Areas, Ustawa z dnia 21/3/1991 r. o obszarach morskich Rzeczypospolitej Polskiej i administracji morskiej.

²²⁹ 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 (and exploited by underground mining), whereas landowners have the rights on superficial mineral resources (exploited by open pits).

²³⁰ Op. cit.

²³¹ These offices are under the jurisdiction of the Ministry of Transport and Construction ("Ministerstwo Transportu i Budownictwa") http://www.mi.gov.pl/en/moduly/jednostki/opis.php?id_jednostki=20.

²³² Ministerstwo Środowiska <http://www.mos.gov.pl/>

²³³ Under the Article 34 of the Act on Polish Marine Areas.

²³⁴ Article 33 of the Act on Polish Marine Areas.

²³⁵ Departament Geologii i Koncesji Geologicznych - DGiKG <http://www.mos.gov.pl/dgikg/>

²³⁶ The Act Geological and Mining Law, 1994 ("Prawo geologiczne i górnicze z dnia 1/3/1994") regulates the realisation of geological work, mineral exploitation and protection, and other environmental issues related to mineral resources. It applies all over the Polish territory. [http://www.mos.gov.pl/1akty_prawne/ustawy/ustawy/94.27.96.shtml](http://www.mos.gov.pl/1akty_prawne/ustawy/94.27.96.shtml)

²³⁷ Ustawa o dostępie do informacji o środowisku i jego ochronie oraz o ocenach oddziaływania na środowisko http://www.mos.gov.pl/1akty_prawne/ustawy/dostep.html

the exploration and exploitation of marine non-living resources between several competent national departments²⁴⁷.

Article 3 of the Belgian Continental Shelf Law, together with provisions of the EEZ²⁴⁸ and MMM²⁴⁹ 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 1/9/2004²⁵⁰ prescribes the content of EIAs and relevant procedures²⁵¹ 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 Energy²⁵², the Federal Public Service for Health, Food Chain Safety and Environment and MUMM²⁵³, 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 level²⁵⁴ 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 affected²⁵⁵.

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 ("Περιφέρειες") and counties ("Νομαρχίες")

sie belast met de coördinatie tussen de administraties die betrokken zijn bij het beheer van de exploratie en de exploitatie van het continentaal plat en van de territoriale zee en tot vaststelling van de werkingsmodaliteiten en -kosten ervan"). http://www.juridat.be/cgi_loi/loi_N.pl?cn=2000081283

²⁴⁷ See Art. 3 of the Royal Decree of 12/8/2000.

²⁴⁸ The Law concerning the Exclusive Economic Zone of Belgium in the North Sea – "EEZ" Act, 22/4/1999 ("Wet betreffende de exclusieve economische zone van België in de Noordzee"), http://www.juridat.be/cgi_loi/loi_N.pl?cn=1999042247

²⁴⁹ The Law on the protection of the marine environment in marine areas under Belgian jurisdiction – "MMM" act, 20/1/1999, amended by the Act of 17/9/2005 ("Wet ter bescherming van het mariene milieu in de zeegebieden onder de rechtsbevoegdheid van België"). http://www.juridat.be/cgi_loi/loi_N.pl?cn=1999012033

²⁵⁰ Royal Decree of the 1/9/2004 on the evaluation of the effects on the environment pursuant to the Law of 13/6/1969 on exploration and exploitation of mineral and non-living resources of the territorial sea and the continental shelf ("Koninklijk besluit houdende de regels betreffende de milieu-effecten-beoordeling in toepassing van de wet van 13 juni 1969 inzake de exploratie en de exploitatie van niet-levende rijkdommen van de territoriale zee en het continentaal plat"). http://www.juridat.be/cgi_loi/loi_N.pl?cn=2004090150

²⁵¹ Due to the fact, that exploitation takes place in three clearly defined areas on the Belgian continental shelf, the procedure includes particular specifications on these zones concerning their accessibility and extraction volumes. http://www.ejustice.just.fgov.be/mopdf/2004/10/07_1.pdf#Page37.

²⁵² It issues permits for exploiting MA on the Belgian continental shelf.

²⁵³ Management Unit of the North Sea Mathematical Models and the Scheldt estuary, which is a Department of the Royal Belgian Institute of Natural Sciences (RBINS). <http://www.mumm.ac.be/EN/index.php>.

²⁵⁴ Belgium, together with the UK, the Netherlands and Germany require the monitoring of MA dredging operations through an Electronic Monitoring System (EMS) or "black-box". Specialised positioning devices are installed on all dredging vessels working within their waters to control location and intensity of dredging. In addition all licensees are audited each year to confirm the quantities of material landed from each licence and to ensure that licence conditions have not been breached (see also VELEGRAKIS *et al.*, this volume and www.sandandgravel.com).

²⁵⁵ See, for example, VAN LANCKER *et al.*, this volume.

form different levels of public administration with regard to the environment. Property rights with regard to the seabed are vested in the State, forming part of the public domain; marine mineral resources are also the exclusive property of the state.

The national government has overarching jurisdiction in the marine areas, including the coastal strip²⁵⁶; however, some of its powers are devolved to the lower levels of administration (counties). Aggregate extraction is regulated both onshore and offshore through a series of aggregate extraction laws²⁵⁷, which also define the constitution of the county committees, which decide about the granting of MA extraction concessions²⁵⁸. In the decision-making, other administrative authorities are also involved, such as the Ministry of Public Works, Planning and Environment ("ΥΠΕΧΩΔΕ"), and the Fisheries Directorate of the Ministry of Agriculture.

An EIA is a necessary prerequisite for the granting of an extraction licence. However, since there are no national guidelines on the content of the EIA concerning MA extraction, the quality of EIAs carried out by independent consultants on behalf of MA companies has been very variable.

SUMMARY AND CONCLUSIONS

All eight EU Member States considered here are under wide-ranging obligations to protect and preserve the marine environment based on the relevant provisions of the UNCLOS 1982, to which these States are Contracting Parties. Requirements laid down by the OSPAR, Helsinki, Barcelona and Espoo Conventions need also to be complied with by those States which are Contracting Parties to any of these Conventions (Table 1). Concerning MA extraction and its management, the OSPAR guidelines, drafted by ICES (ICES, 2003b), are of particular significance, as well as the HELCOM Recommendation 19/1 on "Marine Sediment Extraction in the Baltic Sea". Under the Barcelona Convention, there are no specific guidelines for the management of MA extraction; the Offshore Protocol to the Convention, which provides for research/monitoring surveys concerning the effects of any proposed activities on the marine environment, has not yet entered into force.

Although in all the considered States, the central government appears to have the overarching responsibility for MA extraction and licensing, in some States (e.g. the UK, Spain, Germany and Greece) much of this responsibility has been devolved to lower levels of administration. The regulatory framework relevant to MA extraction differs, as in some States there is specific regulation regarding MA exploitation, whereas regulation in other States seems to be applicable to both land-won and marine aggregates (e.g. in Germany).

²⁵⁶ According to the Law 2971/2001 ("Νόμος 2971/2001, 19/12/2001").

²⁵⁷ The Laws ("Νόμοι") 1219/1938, 1416/84, 1473/84 and the Presidential Decrees ("Προεδρικά Διατάγματα") 636/77, 284/88.

²⁵⁸ MA aggregate extraction is usually administered at the county level. The granting of concessions is the prerogative of particular committees, consisting of representatives of the County Engineering Directorate ("Νομαρχιακή Τεχνική Υπηρεσία"), the County Service of the Ministry of Finance ("Οικονομική Εποπρία") and the local Coastguard Service ("Λιμεναρχείο").

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 material²⁵⁹, the Dutch government encourages the use of marine dredged material²⁶⁰ 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 granting²⁶¹ 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 VELEGRAKIS *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 incoherent²⁶². 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 EU²⁶³ 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 and 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 overriding 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 lower 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.

²⁶³ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, An Integrated Maritime Policy for the EU, COM (2007) 575 final, published on 10/10/2007. Available on the European Commission website at <http://ec.europa.eu/maritimeaffairs/>

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.

ACKNOWLEDGEMENTS

This review has been funded through the EC-TMR EUMARSAND Project (EUMARSAND Research Training Network, HPRN-CT-2002-00222). The authors would like to acknowledge the whole EUMARSAND team who provided basic information. Special thanks are due to Adolfo Uriarte, who gave additional material concerning the Spanish regulation, Cristiana Mutiu, who provided additional information on the French regulation and Ms Marien Boers (Rijkswaterstaat), who kindly answered questions and commented on a text concerning The Netherlands.

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