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ustainable approach to aggregates
SARMa

SARMa – Review of EU Community Legislation
A framework recommendation
WP4. Activity 4.1 Task 1

European Community Law
relevant to aggregates

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1 Introduction

1.1 Objectives of the SARMa-Project

This report presents a part of the results of the Sustainable Aggregates Management project (SARMa, www.sarmaproject.eu) of the European Union South East Europe Programme. Main objectives of the SARMa-project are to develop common approach to sustainable aggregate resource management (SARM) and sustainable supply mix (SSM) planning, at three scales, to ensure efficient and secure supply in SEE. Local, site-level activities will focus on environmentally friendly extraction through best practices, and recycling to reducing use of primary aggregates. Region/national activities will create a SARM framework for effective management, and define SSM, as well as recommend how to integrate SSM into planning and legislation. Transnational activities focus on harmonization of relevant policies and legislation across SEE, information transfer, and creation of an Aggregates Intelligence System. The project builds the foundation for a Regional Centre on sustainable aggregates management and supply. Main outputs will include capacity building materials: printed materials (manuals) on (1) local level aggregate operation improvements, (2) regional, national and transnational policy, legislation, management and supply mix, (3) construction and demolition (C & D) waste management, tools, methods (e.g. life cycle analysis).

These objectives must be based on European law. In a first step, a review of the "Legal Basis of European law according to relevant issues concerning aggregates" has been done.[1] Based on this review, the present synthesis report was developed and a framework recommendation. It is a thematic review of the acquis with regard to both primary and secondary aggregates *management*. SARMa project aims at developing a methodology for managing a sustainable mix of primary and secondary aggregates both on local, regional, national and transnational level, in order to prolong the availability of natural resources, to help the development of material-efficient societies and to reduce landfilling of industrial wastes. This is highly relevant in the emerging South East European countries where infrastructure developments, financed partly by the 2007-2013 EU financial scheme, require huge volumes of raw materials in the next decade. Based on the analytical approach this study applies, the review also highlights on the existing inconsistencies and niche in the acquis, which require correction or new legislative measures in order to reach better aggregates resources management, and necessarily a higher level of integration of the Community.

[1] See report, WP4 Activity 4.1

1.2 The term "Aggregates, SSM and SARM"

Facts on aggregates

The demand for Aggregates in Europe in 2008 was 3.5 billion tonnes per year, produced mainly by SMEs (Small and Medium-sized Enterprises) on 22,000 sites across Europe. The EU average use of Aggregates in 2008 was 6.2 tonnes per capita. The Aggregates Industry is by far the largest in the minerals sector by tonnages produced and accounts for the largest numbers of production sites and numbers of people employed. Taking an EU average price of 7-8 €/tonne, the aggregates sector represent a turnover of around €20-25 billion, though it has suffered heavily under the current economic crisis, reporting an average decline of about 20% in 2009 compared to 2008. The big issue for the European aggregates industry is access to land which presently is affected in many EU-countries by different other utilization claims because mostly not sufficient addressed in land use planning and management, less appropriate SARM and SSM concepts (Department of Mineral Resources and Petroleum Engineering, 2010).

So far there exist no legal term defining "aggregates" in the European Community Law. Recently in accordance with EU nature legislation the following term was created: "Constructional minerals are usually considered to included aggregates in a range of particle sizes such as sand, gravel and various types of crushed rocks (eg chalk, limestone, sandstone, chalk, slate..), natural rock materials (such as marble and granite) plus a range of clays, gypsum and shale."[2]

Regarding the literature, SARM-and SSM- term was defined as follows:

- **SARM definition**: *SARM provides a* ***framework for developing resource management policies*** in order to (balance and) maximize benefits and minimize costs of aggregates supply (Solar et al., 2004).
- **SSM-definition**: SSM is achieved by **selecting that mix** of sources that taken **together** (well balanced) maximizes benefits and minimise costs of minerals supply for present and future generations; intra- and inter-generationally equitable (Shields et al, 2009).

1.3 A framework recommendation

Extraction of construction minerals has an impact on land use, even if, following land rehabilitation, this is temporary. The visual impact may be significant by the so-called landscape wounds and interim waste rock heaps or tailings. The quarries may cover several tens of hectares together with associated plant (e.g. crushers and conveyor belts), buildings and access roads. However, the environmental impact is limited, because of the typically inert character of the extracted material. The quantitative water management maybe the major

[2] Cp.: European Commission DG Environment (2010): EC Guidance on undertaking new non-energy extractive activities in accordance with EU nature legislation, page 9; these are guidelines with no binding character.

concern, lots of sand and gravel pits operate from below the groundwater table leaving new lakes behind increasing evaporation surfaces. River bed and coastal marine dredging may disturb pristine depositional conditions and shipping navigation. Other impacts are the loss of biodiversity, and increased dust and noise.

Following the objectives of the SARMa-project and the SARMA and SSM-definitions, the requirement arises to balance the different issues, particularly in terms of supply and waste management. In that regard, an appropriate European legal framework is needed. Amongst others, the following issues are relevant (Langer et al, 2009):

- *Maximize availability of and access to aggregate*
  - by forward planning that protects important resources from sterilization (supply issue);
  - by extracting as much aggregate as possible from an area (resource efficiency/technical issue) and using it for the most valuable application appropriate for the aggregate quality; by finding uses and markets for all of the extracted material; and by encouraging use of substitutes and recycling aggregate.
- *Minimize societal impacts and maximize societal benefits*
  - by forward planning that separates incompatible land uses; by creating community benefits for areas impacted by aggregate development; and by involving the local community in planning activities, expanding community awareness, and outreach.
- *Minimize environmental impacts*
  - by following best management practices and employing management system to identify and control potential impacts from aggregate extraction and processing; and by providing for conservation of natural surrounding by management of buffer areas that maintain or enhance vegetation.
- *Maximize waste management*
- *Maximize rehabilitation of disturbed areas*
  - by reclaiming abandoned sites; by allowing for reclamation as an integral part of the quarry/pit design process; by following progressive, segmental, or interim reclamation process where possible; and by being flexible enough to allow for advances in technology and changing local needs.
- *Identify and resolve legitimate concerns*
  - by constructively contributing to a decision-making process that addresses not only the interests of individual stakeholders, but a wide range of objectives and interests of others.

Methodological approach of the study review

The question arises, "whether and how" are these SARM/SSM – issues included in the EU-legal framework? It is necessary to check and analyse the European law in terms of the above mentioned requirements, regarding

- primary legislation,
- secondary legislation,
- case law, and
- Communications.

Based on this, the different interrelations and missing gaps shall be pointed out and at least a framework recommendation (at EU-level) shall be made. The case of aggregates can be the first practical example *how diverse policy fields* can be *harmonized* through the prudent preparation of crossover legislation, which is a potential way to regulate sustainable solutions for a raw material - efficient society.

2 Review of the European Law relevant to aggregates

Community law is an independent legal system which takes precedence over national legal provisions. Primary legislation includes the Treaties and other international agreements having similar status. The Treaties define the responsibilities of decision-making bodies and the legislative, executive and jurisdictional procedures which characterise Community law and its implementation. Secondary legislation take the following forms: (a) regulations which are directly applicable and binding in all Member States; (b) directives which bind as to the objectives to be achieved within a certain time-limit while leaving the national authorities the choice of form and means to be used; (c) decisions which are binding in all their aspects for those to whom they are addressed. Recommendations and opinions are not binding. Case-law includes judgements of the European Court of Justice and of the European Court of First Instance which provide the judicial safeguards.

Case-law plays an increasingly important role in legal systems – as well as at European Community level. The major authority body in this field is the European Court of Justice. Its duty is to identify infringements with the European law. If the Court of Justice is of the opinion that the member state concerned has not complied with its judgment it may impose a lump sum or penalty payment on it. He is also responsible for giving preliminary rulings on the validity and interpretation of the provisions of the European Union. Jurisdiction of the European Court of Justice is also important concerning aggregates.[3] Community law is directly applicable in the courts of Member States. Besides that there exist documents which are relevant for aggregates but having no binding character (e.g. Communications; Communications are representing in many cases the starting point to develop related directives).

2.1 Primary Legislation

Historically, the mineral extractive industry received a privileged treatment in the Community and its legal framework ("acquis communautaire"). The European Coal and Steel Community (ECSC), established by the Paris Treaty, which entered into force in 1952, was the original predecessor of the European Union. The Treaty of Rome, establishing the European Economic Community (EEC, 1958) declared among its objectives "to promote a policy of using natural resources rationally and avoiding their unconsidered exhaustion." This objective was already a significant element of the concept of sustainability. Similarly, the Treaty establishing the European Atomic Energy Community (Euratom) says that

[3] The parties involved are individuals, mining companies, member states, and their authorities, and the European Commission itself. The subjects of the suits are: economic (supply of financial state-aid, deferred terms of tax and royalty payments, anti-dumping of mining products, minerals supply contracts); personal affairs (occupational diseases, early retirement schemes, employees´ rights); environmental protection management; extraction rights, exploration tenders.

"supply of ores, source materials and special fissile materials shall be ensured … by means of a common supply policy on the principle of equal access" to sources.

The Treaty of Amsterdam (1999) amended and renumbered the EU and EC Treaties. This treaty implemented a coherent Community policy concerning the environment by adopting the concept of sustainable development. It makes a contribution to pursue the objective of "prudent and rational utilization of natural resources".[4] In terms of that requirement the question arises, which regulations/provisions are included in the secondary European legislation relevant to aggregates.

2.2 Secondary Legislation

General remark

First of all it has to be noted that there is no legal framework on second European legislation level which is dealing with mineral resources (like the water directive) according to the requirement "prudent and rational utilization of natural resources".[5] That means there are no legal definitions related to the term mineral resources or respectively "aggregates", no provisions related to access to land, and also no explicit regulation in terms of "aggregates resource efficiency" (referring to the state of the art level; aggregates are also not included in the BAT documents); different provisions of the latter are included in the IPPC and Mining Waste Directive. Moreover, in restrictive sense environmental directives provides provisions which are rather excluding aggregates extraction. Recently, NATURA 2000 guidelines in terms of nature protection law have been published, including also provisions related to land access (in restrictive sense).

In the following relevant SARM and SSM planning issues will be checked in terms of sustainability, i.e. economical, social and environmental point of view.

2.2.1 Economical issues

2.2.1.1 The aggregate product-specific legislation

Directive 89/106/EEC on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products (amended by Directive 93/68/EEC) applies to any product which is produced for

[4] The recent Treaty of Lisbon (2009) declared that "In a constantly changing, ever more interconnected world, Europe is grappling with new issues: globalisation, demographic shifts, climate change, the need for sustainable energy sources and new security threats. These are the challenges facing Europe in the 21st century."

[5] There is no explicit provision according to minerals management in secondary legislation, with the only exception of Directive 94/22/EEC on the conditions for granting and using authorizations for the prospection, exploration and production of hydrocarbons.

incorporation in a permanent manner in construction works, including both buildings and civil engineering works. The purpose of the Directive is to ensure the free movement of all construction products within the European Union by harmonising national laws with respect to the essential requirements applicable to these products in terms of health and safety.

Construction products may only be placed on the market if they are fit for their intended use. In this regard, they must be such that works in which they are incorporated satisfy, for an economically reasonable working life, the essential requirements with regard to mechanical strength and stability, safety in the event of fire, hygiene, health and the environment, safety in use, protection against noise and energy economy and heat retention.

The requirements are defined in documents by technical committees and are then elaborated in technical specifications which may consist of harmonised European standards adopted by the European standardisation bodies (CEN and/or CENELEC); a system of European technical approvals in case there is no standard. In order to facilitate this task, the European Organisation of Technical Approvals (EOTA), would be in a position to draw up technical approvals guidelines.

Where neither a European standard nor guidelines for European technical approval yet exist, construction products may continue to be assessed and marketed in accordance with existing national provisions conforming to the essential requirements. Construction products that comply with the national standards transposing the harmonised standards into a European technical approval or, in the absence of such approvals, into national technical specifications complying with the essential standards are eligible to bear the "CE" marking. The Annexes to the Directive contain detailed information on: essential requirements; European technical approval; attestation of conformity with technical specifications: methods of control, systems of attestation, competent bodies, marking, certificate and EC declaration of conformity; the certification and inspection bodies and the testing laboratories. Commission Communication in the framework of the implementation of Directive 89/106/EEC (2010/C 167/01) lists 11 different CEN standards with regard to aggregates.

The European Committee for Standardization (CEN) is a business facilitator in Europe, removing trade barriers for European industry and consumers. Its mission is to foster the European economy in global trading, the welfare of European citizens and the environment. Through its services it provides a platform for the development of European Standards and other technical specifications. More than 60.000 technical experts from industry, associations, public administrations, academia, and societal organizations are involved in the CEN network. The European Commission and the EFTA (European Free Trade Association) Secretariat act as CEN's Counsellors in terms of regulatory or public interest. Its members – the National Standardization Bodies (NSBs) of the EU and EFTA countries – operate the technical groups that draw up the standards; the

CEN-CENELEC Management Centre (CCMC) in Brussels manages and coordinates this system. These standards also are national standards in each of its 31 Member countries. With one common standard in all these countries and every conflicting national standard withdrawn, a product can reach a far wider market with much lower development and testing costs. The most extended and detailed review of existing national and international standards with regard to aggregates are provided by the excellent work of Lorenz & Gwosdz (2003) "Manual on the Geological-technical Assessment of Mineral Construction Materials".

The European ecolabel

The European ecolabel is a voluntary scheme, established in 1992 to encourage businesses to market products and services that are friendly to the environment. Products and services awarded the ecolabel carry the flower logo, allowing consumers - including public and private purchasers - to identify them easily (Commission Decision 2002/18/EC establishing Community eco-label working plan). Today EU ecolabel covers a wide range of products and services, with further groups being continuously added. While the logo may be simple, the environmental criteria behind it are tough, and only the very best products are entitled to carry the EU ecolabel.

Ecolabel criteria are not based on one single factor, but on studies which analyse the impact of the product or service on the environment throughout its life-cycle, starting from raw material extraction in the pre-production stage, through to production, distribution and disposal. The EU ecolabel is part of a broader action plan on Sustainable Consumption and Production and Sustainable Industrial Policy adopted by the Commission in 2008.

Two examples are cited hereby, which are directly applicable to aggregates: Commission Decision 2006/799/EC establishing revised ecological criteria and the related assessment and verification requirements for the award of the Community eco-label to soil improvers; Commission Decision 2002/272/EC establishing the ecological criteria for the award of the Community eco-label to hard floor-coverings.

Especially the latter one is a very up-to-date example of how an extractive and production activity can be characterized and regulated with practical indicators in order to achieve the best ecological performance. This, on the other hand, may also lead an efficient and sustainable economic activity.

2.2.2 Environmental issues

The Treaties declare the promotion of a policy of using natural resources prudently and rationally to avoid their unconsidered exhaustion. However, mining was excluded from the scope of major environmental directives, including the waste acquis for a long time (Hámor, 2003). The catastrophic

environmental impacts of the Aznalcollár (Spain, 1998) and Baia Mare (Romania, 2000) accidents caught the attention of the public, and policy makers. The European Community responded in two communications (COM(2000)265, COM(2000)664), and a series of legislative measures which cover the management of primary aggregates, such as the European Waste Catalogue, Court of Justice ruling (C-114 Avesta case), Seveso II Directive amended, Environmental Liability Directive (2004/35/EC), Mining Waste BAT Reference Document under IPPC Directive (BREF), EU Pollution Register, Mining Waste Directive and its implementing Commission Decisions.

2.2.2.1 EMAS-Regulation

The EU Eco-Management and Audit Scheme (EMAS) is a management tool for companies and other organizations to evaluate, report and improve their environmental performance. It is used by many of the European aggregates companies. The scheme has been available for participation by companies since 1995 and was originally restricted to companies in industrial sectors. Since 2001 EMAS has been open to all economic sectors including public and private services. In 2009 the EMAS Regulation has been revised and modified for the second time. Regulation No 1221/2009 on the voluntary participation by organizations in a Community eco-management and audit scheme is to promote continuous improvements in the environmental performance of organizations by the establishment and implementation of environmental management systems by organizations.

2.2.2.2 The water acquis

Water Framework Directive

The aim of Directive 2000/60/EC establishing a framework for Community action in the field of water policy (Water Framework Directive (WFD)) is the establishment of a holistic regulation framework for the protection of water as a whole. Briefly, water resources should be preserved as well as its quality should be improved. This policy has a qualitative and a quantitative approach. This means that the implementation of the directive should prevent more pollution and improve the qualitative status of waters, as well as protect the existing resources in this sector from a quantitative point of view. The aim is a long-term sustainable water protection. The provision compasses the protection of inland, surface waters, transitional waters, coastal waters and groundwater. The WFD itself determines guidelines for the quality and preservation of water, and Member States have to take the necessary measures for the realization of these. The major concept of WFD is the river basin approach, meaning, Member States have to define river basins, river basin districts, groundwater bodies, etc. and elaborate due management plans and programs of measures, in order to achieve a good ecological status of waters and to manage also sustainable supply of water resources.

The relevance of the EU water policy, the WFD and its daughter directives with regard to aggregates industry is multiple. Primary aggregates extraction is often carried out below the groundwater table. Although direct pollution risk is relatively low (i.e. mainly from the machinery), the evaporization of the remaining open water-table may lead to local groundwater depressions, a conflict with agriculture. The open water is more vulnerable to other pollutions. On the contrary, if the post-mining remediation is carried out wisely, these lakes can host new flora and fauna ecosystems, potential Natura 2000 sites in the future. Many of these lakes are prepared for recreational purposes as well, boating, fishing, bathing.

However, regarding the situation in many Member States (e.g. Austria and Germany), extracting of sand and gravel from below the water table becomes more and more restricted. This is limiting the access to land and is also affecting the issue of resource efficiency (i.e. the deposit cannot be extracted as much as possible). The utilization conflict between the competing demands with reference to ensuring and extraction of sand and gravel below the water table on the one hand (raw material supply) and ground water deposits on the other hand (drinking water supply) is determined. The reason for the conflict is that the sand and gravel terrace deposits of large rivers show naturally potential mineral deposits. These terrace deposits also are very good groundwater aquifers. However, wet extracted raw material has higher quality, is already washed (which means it is cleaner), and is generally more suitable because of its better granulometric grading. These pits need less space, and the extraction is usually more economic than dry quarrying. The decision whether to go for dry or wet extraction can only be taken in context of the region's priorities.

The other issue is primary aggregates dredging in rivers and coastal marine waters. It is possible, according to the legislation, but the river basin, or sub-basin management plans have to include references on these activities.

Marine Strategy Framework Directive

The Marine Strategy Framework Directive (2008/56/EC) seeks to achieve good environmental status of the EU's marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend. The Marine Strategy Directive establishes European Marine Regions on the basis of geographical and environmental criteria. Member States are required to develop strategies for its marine waters. The regulatory methodology solutions are very similar to the WFD tools. This Directive establishes a framework within which Member States shall take the necessary measures to achieve or maintain good environmental status in the marine environment by the year 2020 at the latest.

"Marine waters" is legally defined and means: waters, seabed, subsoil on seaward side of the baseline from which the extent of territorial waters is measured extending to the outmost reach of the area where a Member State has

and/or exercises jurisdictional rights, coastal waters, seabed, subsoil, in so far as particular aspects of the environmental status of the marine environment are not already addressed by legislation.

In 2008, about 81 million tonnes marine aggregates have been extracted in Europe (Department of Mineral Resources and Petroleum Engineering, 2010). In preparation for the assessment of the environmental status and pressures and likely impacts of a marine region, aggregate dredging is an obvious activity for concern, such as physical damage by dredging and disposal of dredge spoil (Table 2 of the Directive). Commission Decision 2010/477/EU on criteria and methodological standards on good environmental status of marine waters is a recent daughter decision to the MSFD.[6]

2.2.2.3 The nature conservation acquis

Birds Directive

Directive 79/409/EEC on the conservation of wild birds (amended by 2009/147/EC) is the oldest piece of European nature legislation and one of the most important by creating a comprehensive scheme of protection for all wild bird species naturally occurring in the Union. It applies to birds, their eggs, nests and habitats, and places great emphasis on the protection of habitats for endangered as well as migratory species, especially through the establishment of a coherent network of Special Protection Areas (SPAs). Since 1994 the NATURA 2000 ecological network comprises all SPAs.

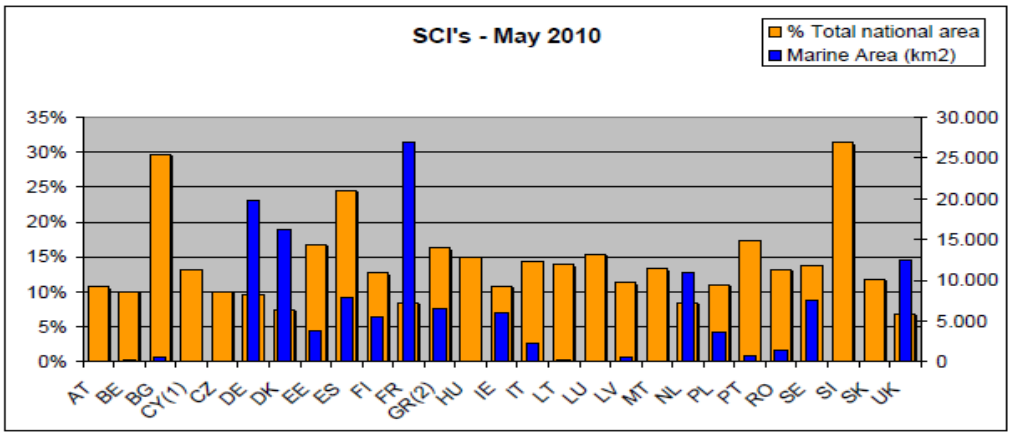
The Birds Directive bans activities that directly threaten birds, such as the deliberate killing or capture of birds, the destruction of their nests and taking of their eggs, and associated activities such as trading in live or dead birds, with a few exceptions. It recognizes hunting as a legitimate activity and provides a comprehensive system for the management of hunting to ensure that this practice is sustainable. As regards marine bird species, important breeding colonies of seabirds and coastal, wintering or resting areas for waterbirds on migration are already Special Protection Areas (SPAs) or will be designated as such in the near future. A list of species that occur in European marine waters for which SPAs need to be considered is presented in the Guidelines for the establishment of the Natura 2000 network in the marine environment (EC 2007). Regarding aggregates, access to land can be affected if there is no appropriate aggregates resources management.

[6] With regard to water-borne aggregate extraction it is noteworthy that coastal marine and river dreding was a subject of European Parliament debates, Court of Justice cases and of specific legislation addressing certain Member States on state aid and structural funds support eligibility (e.g. Comm. Dec. 2009/380/EC, Case C-164/2, EP Question E-3600/01).

Directive on the conservation of natural habitats and of wild fauna and flora

Directive 92/43/EEC aims at the creation of a coherent European ecological network for the restoration or maintenance of a favourable conservation status of natural habitats and species. For that purpose, special protection areas have been nominated by the member states for designation. As reason three of the FFH-Directive, the Council of the European Union defines the support of the "preservation of bio-diversity" while simultaneously taking into account „economic, social, cultural and regional needs", as the main objective of the Directive. Directive 92/43/EEC commits the countries to declare 10-30% of their territory FFH-areas:

Fig. 1: Illustration of the proportion of land of the FFH-areas in the EU-27. (http://ec.europa.eu/environment/nature/natura2000/barometer/docs)



Considerable parts of FFH-areas contain potential mineral deposits.[7] According to Article 6 of Directive 92/43/EEC, any plan or project likely to have a significant effect thereon shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

Whilst the EU Directive does not create an absolute exclusion to activities such as mineral extraction, the implementation of the Directive by local authorities has lead in numerous cases to the sterilization of viable ore bodies and mines extensions. The Commission has produced a number of guidance documents on the application of Article 6 and also a few Member States (e.g. Finland) are

[7] European Commission (2005): Evaluation of the ‚Communication on Promoting sustainable development in the EU non-energy extractive industry', Interim Report , p. 34f

producing guidance for their minerals industries on how to approach the problem. However, these do not seem to be applied by the local authorities. [8]

In view of the member states'obligation to designate protection areas on a national level as a part of the "coherent European ecological network of special protection areas with the title Natura 2000" according to Article 3 (1) Directive 92/43 the Directive at least has an indirect impact on the future availability of raw materials. [9]

Natura 2000 protection areas strongly compete with the raw material industry in the field of land utilization, because deposits that can be used for mining are often found in combination with undeveloped, mostly natural areas. Extractive activities depend on geology and the particular location of mineral deposits. As a result, access to suitable deposits is of crucial importance for the future and competitiveness of the EU extractive industry. The designation of areas of land as Natura 2000 sites will usually prevent the extractive industry from exploiting any mineral resources on that land.[10] The comparison of protection areas with country size (see Fig. 1) indicates that between about 10% and 20% of the total national area in each Member State will ultimately be designated as a Natura 2000 site.

In terms of the access to land, the Habitats Directive is a regulation that serves to conserve species and natural habitats by spatial protection. Thus it obviously impacts on *national spatial planning*[11], i.e. on *national minerals planning policies*.

Additional costs can result as a consequence of an impact assessment, which is obligatory for mining projects in (or in immediate vicinity of) Natura 2000 areas. Such costs could be a problem especially for smaller businesses. Thus a crucial aspect is to carry out an appropriate assessment (according to Article 6 Directive 92/43) in an *efficient way.* The Habitats Directive provisions apply both to sites designated in terrestrial and marine areas but the Natura 2000 network is still not completely established in the marine environment.

Extractive activities in marine areas, especially aggregates' extraction, are becoming important. Plans and project dealing with extractive activities in the marine environment may also be the subject of an appropriate assessment if they were likely to have significant effects on Natura 2000 sites. Marine spatial planning is considered a key instrument to optimise the use of marine space to benefit economic development and the marine environment. Adopting a zoned

[8] To improve the problematic situation, the following suggestion was made: The Commission and member states have undertaken the commitment to put up guidelines for industry and authorities. These shall indicate how mining can be balanced in or near to Natura 2000 areas regarding environmental protection. These were completed and published in 2010.

[9] Cf. Christner, T. und Pieper, T. (1997): Bedeutung und Stellenwert 'nachhaltiger Entwicklung' bei der Gewinnung oberflächennaher Rohstoffe: ein Beitrag zur Wirkungsweise des umweltpolitischen Leitbildes eines 'sustainable development' auf planerische Abwägungsvorgänge und Genehmigungsentscheidungen im Rahmen der Rohstoffgewinnung [Meaning and significance of 'sustainable development' at the exploitation of near-surface materials: a contribution to the effect of the environmental concept of a 'sustainable development' on planning assessment and approval decisions in the context of mineral extraction] , Berlin, pp. 26, 27.

[10] The Habitats Directive does, however, allow for reasons of national importance development to impact on the integrity of notified sites.

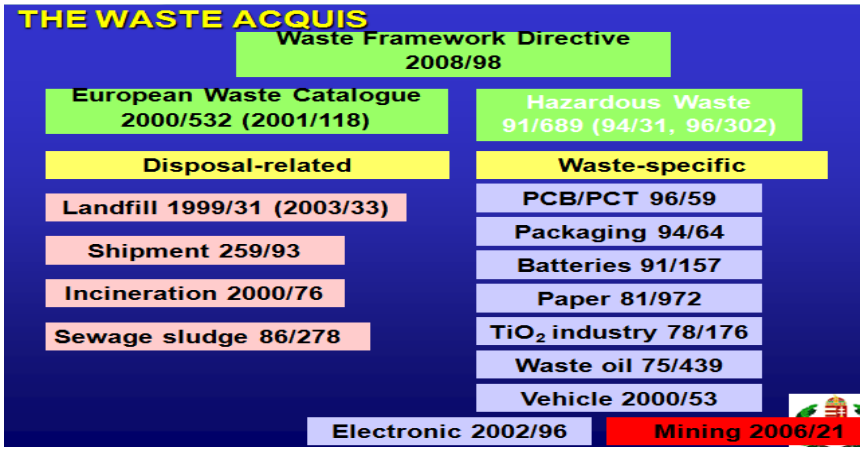
[11] Christner / Pieper, 1997, p 27.

approach may provide the option of introducing marine aggregate extraction to an existing multi-use environment in a strategic manner. Only 7 marine habitat types and 22 marine species of Community interest are listed in the Directive. Two habitats "sandbanks slightly covered by seawater all the time" and "reef" have shown in the past to overlap spatially with areas of interest for marine sand and gravel extraction. It should be remembered that the selection of Natura 2000 sites has to follow scientific criteria.[12] Marine mammals have also the potential to be affected by underwater extraction, in terms for instance of habitat loss, disturbance, distancing, breeding failures. Marine Natura 2000 sites that are proposed by the Member States but for which the designation are not completely achieved have also the potential to be affected by the activities of the marine aggregates industry (Bellew and Drables 2004).

2.2.2.4 Waste acquis

The waste regulatory field is an essential issue of the concerned SARMa-project. Objectives of SARM and SSM planning are to reduce waste, to increase the recycling rates. Waste from mineral extractive operations is one of the largest waste streams in the EU (more than 30 percent).

The waste related legislation has been among the traditional subjects of the acquis communautaire since 1975 when the first directive was published on it. Figure 2 is illustrating the waste acquis (Figure 2**: The waste acquis)**



Waste Framework Directive (2008/98/EC)

The new Waste Framework Directive (2008/98/EC) lays down measures to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste and by reducing overall impacts of resource use and improving the efficiency of such use. According to Article 2 waste resulting from prospecting, extraction, treatment and storage of mineral resources and the working of quarries covered by Directive 2006/21/EC are excluded from the scope of the directive to the extent that they are covered by this directive. This means that those aspects which are

[12] see Case C-371/98.

not regulated in the Mining Waste Directive are directed by the Waste Framework Directive provisions, such as, inter alia, the waste management hierarchy: prevention → preparing for re-use → recycling → other recovery (e.g. energy recovery) → disposal.

In line with international standards, 'waste' means any substance or object which the holder discards or intends or is required to discard, according to Article 3 (1). A highly relevant and novel chapter is on by-product (Article 5). It is a substance or object, resulting from a production process, the primary aim of which is not the production of that item, may be regarded as not being waste but as being a by-product only if following conditions are met: (a) further use of the substance or object is certain; (b) the substance or object can be used directly without any further processing other than normal industrial practice; (c) the substance or object is produced as an integral part of a production process; and (d) further use is lawful, i.e. the substance or object fulfils all relevant product, environmental and health protection requirements and will not lead to adverse environmental or human health impacts.

Another important new chapter is on the end-of-waste status (Article 6), certain specified waste cease to be waste when it has undergone a recovery, including recycling, operation and complies with criteria in accordance with the following conditions: (a) the substance or object is commonly used for specific purposes; (b) a market or demand exists for it; (c) it fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products; and (d) its use will not lead to overall adverse environmental or human health impacts. The criteria include limit values for pollutants where necessary and take into account possible adverse environmental effects. End-of-waste specific criteria should be considered at least for aggregates, paper, glass, metal, tyres and textiles.

According to Article 11 of the Directive Member States shall take measures to promote the re-use of products, high quality recycling and set up separate collections of waste where technically, environmentally and economically practicable. In order to move towards a European recycling society with a high level of resource efficiency, Member States shall take the necessary measures to achieve the following targets: … (b) by 2020, the preparing for re-use, recycling and material recovery, including backfilling operations using waste to substitute other materials, of non-hazardous construction and demolition waste (excl. soil and stone) shall be increased to a minimum of 70 % by weight.

When interpreting the waste (and secondary aggregates) characterization and classification EU scheme, the chemicals acquis has to be also considered. In our judgement, the oldest piece of environmental legislation is the Dangerous Substances Framework Directive 67/548/EEC which was amended several times during the last forty four years. For qualifying hazardous waste, its system of risk phrases (68 single and 57 combination risk categories) is to be used together with the European Waste Catalogue (EWC) (Commission Decision 2001/118) Article 2: "Wastes classified as hazardous display one or more of the properties

listed in Annex III of Directive 91/689/EEC and, as regards H3 to H8, H10, H11, one or more of the characteristics...". Aggregates can be ex-lege and exclusively non-hazardous materials but there is no direct methodology for determining this quality class. The first practical solution for the producer is to prove that its aggregate is inert (see legislation later), and no further measures needed if it complies. If the material does not meet the inert criteria, the generator has to perform the hazardous waste tests which are cost and time consuming, and in case the outcome is below the thresholds, it is classified as non-hazardous.

The EWC classifies waste according to what they are and how they were generated. The first chapter of the EWC lists twenty three types of 'waste resulting from exploration, mining, quarrying and physical and chemical treatment of minerals'. The other chapter on C&D waste is also directly applicable for our subject.

Table 1: European Waste Catalogue – relevant to secondary aggregates

01 WASTE RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS
0101 wastes from mineral excavation
010101 wastes from mineral metalliferous excavation
010102 wastes from mineral non-metalliferous excavation
0103 wastes from physical and chemical processing of metalliferous minerals
010306 tailings other than those mentioned in 010304 and 010305
010308 dusty and powdery wastes other than those in 010307
010309 red mud from alumina production other than the wastes in 010307
010399 wastes not otherwise specified
0104 wastes from physical and chemical processing of non-metalliferous minerals
010408 waste gravel and crushed rocks other than those in 010407
010409 waste sand and clays
010410 dusty and powdery wastes other than those in 010407
010411 wastes from potash and rock salt processing other than those in 010407
010412 tailings and other wastes from washing and cleaning of minerals other than those in 010407 and 010411
010413 waste from stone cutting and sawing other than those in 010407
010499 waste not otherwise specified
0105 drilling muds and other drilling wastes
010504 freshwater drilling muds and wastes

010507 barite-containing drilling muds and wastes other than those in 010505, 010506
010508 chloride-containing drilling muds and wastes other than those in 010505, 010506
010599 wastes not otherwise specified
17 CONSTRUCTION AND DEMOLITION WASTES (INCL. ROAD CONSTRUCTION)
1701 Concrete, bricks, tiles, ceramics, and gypsum-based materials
170101 Concrete
170102 Bricks
170103 Tiles and ceramics
170104 Gypsum-based construction materials
170202 Glass
1705 Soil and dredging spoil
170504 Soil and stones other than those in 170503
170506 Dredging spoil other than those in 170505
170602 Other insulation materials
1707 Mixed construction and demolition waste
170703 Mixed construction and demolition waste other than those in 170702

Other waste classes and entries relevant to aggregates can be found in Regulation 1013/2006/EC on shipments of waste and in Regulation 2150/2002/EC on waste statistics, which overlap with the above EWC listed materials but use different terminology.

Directive 99/31/EC on the landfill of waste

The objective of Directive 99/31/EC on the landfill of waste is to prevent or reduce as far as possible negative effects on the environment from the landfilling of waste, by introducing stringent technical requirements for waste acceptance and landfills. Waste disposal is the very last avoidable option according to the EU waste policy. The following is excluded from the scope of this Directive:

- spreading of sewage sludges, sludges from dredging, and fertilizers,
- use of inert waste which is suitable, in redevelopment/restoration and filling-in work, or for construction, in landfills,
- deposit of non-hazardous dredging sludges alongside small waterways from where they have been dredged out and of non-hazardous sludges in surface water including bed and subsoil,
- deposit of unpolluted soil or of non-hazardous mining waste.

Member States may declare an exemption for non-hazardous non-inert mining waste from the provisions of Annex I 2., 3.1-3 (leachate management, geological and engineered barriers).

The Directive sets three landfill classes (hazardous, non-hazardous, inert), forbids the disposal of liquid waste, explosive, corrosive, oxidising, highly flammable waste, hospital waste and tyres in landfill, and prescribes a target value for the reduction of biodegradable municipal. The dilution of mixture of waste solely in order to meet the waste acceptance criteria is also prohibited. The three annexes are on the general requirements for all landfill classes, on waste acceptance criteria and procedure, and on control and monitoring in operation and during after-care, respectively. With special regard to secondary aggregates, one can conclude that the Landfill Directive applies exclusively for hazardous mining waste disposal, which is, by definition, not aggregate. Other aggregate types, such as dredging sludge is also out of scope, but the waste and facility classification scheme of the Directive was adopted at large by the extractive industry, as shown later.

Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills, a "daughter" decision to the Landfill Directive, sets further detailed criteria. According to its Annex, certain single stream waste types, such as construction and demolition waste (EWC 170101-03, 170107, 170504, 200202) can be admitted without testing at a landfill for inert waste. Different wastes contained in the list may be accepted together, provided they are from the same source.

Mining Waste Directive 2006

Directive 2006/21/EC on the management of waste from extractive industries and amending Directive 2004/35/EC provides for measures, procedures and guidance to prevent or reduce adverse effects on the environment, and risks to human health resulting from the waste of the extractive industries. The non-hazardous mining wastes are potential secondary aggregates for the construction industry. The following are excluded from the scope of this Directive: (a) ordinary waste generated during mining operations; (b) waste resulting from the offshore prospecting, extraction and treatment of minerals; (c) injection of water and re-injection of pumped groundwater. There are numerous waivers for inert waste, unpolluted soil, peat-extraction waste in the Directive, moreover, Member States and the competent authorities may further reduce the requirements for non-hazardous non-inert waste unless deposited in a Category A waste facility. The Directive adopts the waste classification system of the Landfill Directive (hazardous – non-hazardous non-inert – inert), but establishes a different waste management facility system by setting time deadlines for the above qualities:
no time-period for Category A waste facilities and facilities for hazardous waste;
≤ 6 months for facilities for hazardous waste generated unexpectedly;
≤ 1 year for facilities for non-hazardous non-inert waste;

≤ 3 years for facilities for unpolluted soil, non-hazardous prospecting waste, waste resulting from the extraction, treatment and storage of peat and inert waste.

Category A waste management facility is defined by its physical risk (e.g. potential for tailings dam failure), and the chemical risk that hazardous waste and dangerous substances may pose above a threshold level, 5 %, and national limit values, respectively. The major regulatory tools are rather standard: waste management plan, major-accident prevention and information, application and permit, public participation, construction and management of waste facilities, closure and after-closure procedures, financial guarantee, transboundary effects, inspections, penalties, inventory of closed waste facilities, etc.. Due the earlier Court of Justice rulings the Directive acknowledges and supports the backfilling of the extractive waste back into the excavation voids for rehabilitation and construction purposes. In a strict sense this unsold, backfilled rock volume does not qualify as mining waste, especially not, if it had not been disposed off at a licensed mine waste management facility before re-use.

In 2009 five “daughter” decisions were published by the Commission on the waste characterization, facility classification, financial guarantee, reporting (2009/335/EC, 2009/337/EC, 2009/358/EC, 2009/359/EC, 2009/360/EC). Concerning the interpretation of the Mining Waste Directive with regard to aggregates it is important to note that it provides generous waivers for the aggregates industry, e.g. for operators generating inert or non-hazardous waste. It is also remarkable that there is no restriction against the material recovery from existing mining waste management facilities.

Relevant judgements to aggregates deal with waste management

The most relevant judgements to aggregates deal with waste management, paving the way for the Mining Waste Directive.

The first ruling in mining waste management "sensu stricto" was the criminal proceedings against Euro and Adino Tombesi (C-304/94) who were accused of discharging marble rubble and debris produced by a third party without obtaining authorization from the competent authority. The Court affirmed that this material fell within the remit of the EU waste legislation. It was irrelevant for the Court that the substance might have an economic value for its reutilization or that it might be classified as a reusable residue. The concept of "waste" in Council Directive 75/442/EEC on waste is not to be understood as excluding substances and objects which are capable of economic reutilization, even if the materials in question may be the subject of a transaction or quoted on public or private commercial lists. In particular, a deactivation process intended merely to render waste harmless, landfill tipping in hollows or embankments constitute disposal or recovery operations falling within the scope of Community rules. The fact that a substance is classified as a re-usable residue without its characteristics or purpose being defined is irrelevant in that regard. The same applies to the grinding of a waste substance.

In Case C-6/00 the Court gave a judgement with the following tenor. The deposit of waste in a closed mine does not necessarily constitute a disposal operation for the purposes of D 12 of Annex II A to Directive 75/442/EEC on waste, as amended by Directive 91/156/EEC Decision 96/350/EC. The deposit shall be assessed on a case-by-case basis to determine whether the operation is a disposal or a recovery operation within the meaning of that Directive. A single operation may not be classified simultaneously as a disposal and a recovery operation. A deposit constitutes a recovery if its main objective is that the waste has a useful purpose in replacing other materials.

In Case C-9/00 the Court ruled as follows. The holder of leftover stone resulting from stone quarrying which is stored for an indefinite length of time to await possible use discards or intends to discard that leftover stone, which is accordingly to be classified as waste within the meaning of Directive 75/442/EEC on waste. The place of storage of leftover stone, its composition and the fact, even if proven, that the stone does not pose any real risk to human health or the environment are not relevant criteria for determining whether the stone is to be regarded as waste.

In Case C-114/01 the Court gave the following judgement. If the holder of leftover rock and residual sand from ore-dressing operations from the operation of a mine discards or intends to discard those substances, which must consequently be classified as waste within the meaning of D 75/442/EEC on waste, as amended by D 91/156/EEC, unless he uses them lawfully for the necessary filling in of the galleries of that mine and provides sufficient guarantees; that the substances used for that purpose, have the identification, are actually used for that purpose. Thus so far as it does not constitute a measure of application of Directive 75/442, and in particular Article 11 of that directive, national legislation must be regarded as `other legislation' within the meaning of Article 2(1)(b) of that directive covering a category of waste mentioned in that provision, if it relates to the management of that waste as such within the meaning of Article 1(d) of Directive 75/442, and if it results in a level of protection of the environment at least equivalent to that aimed at by that directive, whatever the date of its entry into force.

2.2.2.5 Other relevant environmental directives

Directive 2004/35/EC

The aim of Directive 2004/35/EC on environmental liability with regard to the prevention and remedying of environmental damage is to implement the polluter-pay principle by making it liable for the environmental damages caused. Environmental damage is defined in Article 2 as damage to protected species and habitats, water and land. Damage, in turn is defined as a measurable change in a natural resource or a measurable impairment of a natural resource service. The operator has to bear all costs for the preventive and remedial actions. According to Article 8 this principle is inapplicable if the operator is able to prove that he was not at fault or negligent. Preventive and remedial

measures have not to be compensated in the cases of approved normal operational procedures. This directive was amended by the Mining Waste Directive (2006/21/EC), bringing aggregate extractive industry into its scope.

IPPC-Directive

Directive 1996/61/EC concerning integrated pollution prevention and control (IPPC) (amended by Directive 2008/1/EC) wants to avoid the shifting of pollution between the different environmental media as a result of separated control of emissions into the air, water and soil, by establishing a general framework for integrated prevention and control. IPPC is about minimising pollution from various industrial sources throughout the European Union. Operators of industrial installations (ca. 52.000 installations) covered by Annex I are required to obtain an authorisation (environmental permit) from the authorities.

IPPC is based on several principles, such as the integrated approach (whole environmental performance), best available techniques (BAT), flexibility and public participation. The permit conditions including emission limit values (ELVs) must be based on BAT. European Commission organises an exchange of information co-ordinated by the European IPPC Bureau of the Institute for Prospective Technology Studies at EU Joint Research Centre in Seville (Spain). This results in the adoption and publication of the BAT Reference Documents (BREFs). One of the BATs concerns the extraction of minerals (BATNEEC Guidance Note - Extraction of Minerals (1997)). The BREF for the Management of Tailings and Waste-Rock in Mining Activities was elaborated in 2004, two years in advance of the Mining Waste Directive, therefore few inconsistencies occur in the terminology and scope. It is focusing on ores and a few industrial minerals extraction types but its basics are applicable for aggregates too. This BREF was legally adopted by the European Commission in 2009 (2009/C 81/06). When considering secondary aggregates generation other BREFs are also worth mentioning on “Cement and Lime Production”, Large Combustion Plants”, and “Waste Treatments”.

As a daughter legislation of IPPC, Regulation 166/2006/EC on European Pollutant Release and Transfer Register (EPRTR) established a pan-European public inventory of emitters. In its Annex I on activities to be reported „Opencast mining and quarrying, where the surface of the area effectively under extractive operation equals 25 hectares” appears as entry 3. (b), relevant to primary aggregate extraction sites. Numerous other industrial facilities are indicated which may generate significant volume of secondary aggregates.

Environmental-Impact-Assessment – (EIA) -Directive

Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment (EIA) (amended by Directives 97/11/EC, 2003/35/EC, 2009/31/EC). The main objective of this Directive is to ensure that projects or proposals that are likely to cause significant effects on the

environment are carefully considered in a publicly transparent manner before the competent authority issues a permit. An environmental impact assessment (EIA) is compulsory for extensive projects in the extractive industry (Annex I) [13] All other projects, which fall under Annex II, are not obliged to undergo such assessment. Art. 4 Directive 97/11/EEC stipulates verification of individual cases and threshold values and criteria defined by the member states which decide on the necessity of an EIA.

The time it takes to receive permission for an EIA can vary considerably. Main reasons for delay are the involvement of several public authorities and the involvement of the public.

A key element of the authorization process is whether or not a project application requires an *Environmental Impact Assessment* (EIA). *Directive 97/11/EC*, which lays down criteria for environmental impact assessments, is ambiguous as far as the extractive industry is concerned. Annex I, (19) specifies for quarries and surface mines a threshold value of 25 hectares and for peat production a value of 150 hectares. In Annex II, (2), which covers other quarries and surface mines, specific threshold values are not given, leaving it to member states to set threshold values and criteria in order to decide on the need for an environmental impact assessment. Directive 97/11/EEC can lead to a distortion of competition. A survey of member states has shown that there exists no common pattern as far as environmental assessments are concerned. The span of threshold values ranges from 5 hectares in Ireland and Portugal up to 500 hectares in the case of state owned minerals in the Netherlands. With regard to marine aggregates, Ireland and the Netherlands make an EIA compulsory for all project applications. Irrespective of defined threshold values it has become practice in some member states to subject all applications for extraction licenses to an EIA. Examples are Greece, Norway, Portugal and quarrying operations in France.[14]

The member states' attitude is therefore crucial and determines whether there is a competitive environment for mineral producers from different member states. Although Directive 85/337 is similar in all Member States, significant divergences in the field of threshold values and criteria can be observed. Different threshold values, set by the member states, can cause unfavourable competitive market conditions between and within member states in case of such minerals which are traded on international markets (e.g. in terms of time and money needed to carry out an Environmental Impact Assessment).[15]

[13] See Directive RL 97/11/EG, appendix I, item 19.
[14] Department of Mining and Tunnelling (2004): Minerals Policies and Supply Practices in Europe, Final Report, University of Leoben.
[15] Department of Environment: Mineral Planning Policy and Supply Practices in Europe – Main Report. HMSO, London, 1994, pp 61-64: Member States that link the requirement to carry out an environmental assessment to specific threshold values and criteria do again differ as far as transposition is concerned.-Compare also: De Lespinay, Y., Toward a European policy for the access to mineral access, in : Mineral Planning in a European Context, 1997, pp.13 -14.

INSPIRE - Directive

Directive 2007/2/EC establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) and Regulation 1205/2008/EC on its implementation set the frame for the public access to data of environmental concern. Among the spatial data themes listed some are relevant to aggregate resources management. „Annex II : 4. Geology (Geology characterised according to composition and structure. Includes bedrock, aquifers and geomorphology.) Annex III:

3. Soil (Soils and subsoil characterised according to depth, texture, structure and content of particles and organic material, stoniness, erosion, where appropriate mean slope and anticipated water storage capacity.)

4. Land use (Territory characterised according to its current and future planned functional dimension or socio-economic purpose (e.g. residential, industrial, commercial, agricultural, forestry, recreational)).

21. Mineral resources (Mineral resources including metal ores, industrial minerals, etc., where relevant including depth/height information on the extent of the resource.)"

Seveso II Directive

Directive 96/82/EC on the control of major accident hazards (Seveso II) (amended by Directive 2003/105/EC) was primarily designed to regulate chemical industry catastrophes. In 1982 the first Seveso Directive (82/501/EEC) was adopted. It applies to some thousands of industrial establishments where dangerous substances are present in quantities exceeding the thresholds in the directive, however, the extractive industry was out of its scope.In the year 2003, as a follow-up of the related Commission Communication on recent mining accidents the Seveso II was extended by the Directive 2003/105/EC. The most important extensions of the scope of the Directive were to cover risks arising from storage and processing activities in mining, from pyrotechnic and explosive substances and from the storage of ammonium nitrate and ammonium nitrate based fertilizers. It is noteworthy that Seveso II covers a minor part of mining sites which involve the management of dangerous substances above a regulated limit volume, and this is to the reason why it does not cover aggregates by definition.

However, it is important to mention Seveso II in this review because many of its regulatory instruments were adopted by the Mining Waste Directive (internal and external safety management plans, incorporation into local land use planning, accident reporting). In spite of aggregates are being non-hazardous by definition, in a very few cases non-hazardous mining waste facilities might classify as category A, by the physical instability of a facility. In this case emergency plans and other requirements are to be complied with, similar to the Seveso II legal tools.

2.2.2.6 Air & noise legislation

Directive 1999/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matters and lead in ambient air contains limit values for concentrations of the above compounds and alert thresholds for sulphur dioxide and nitrogen dioxide in ambient air. Member States have to ensure that concentrations of the above pollutants in ambient air do not exceed the limit values provided. Directive 2008/50/EC repeals and replaces Directive 1999/30/EC, and extends the scope to benzene and carbon monoxide as well.

Directive 2002/49/EC on the assessment and management of environmental noise was adopted to provide a common basis for tackling the noise problem across the EU. Environmental noise is defined as unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic, and from sites of industrial activity such as those defined in the IPPC Directive. The Directive's principles are similar to those for other environment policy directives: monitoring, strategic noise maps for major roads, railways, airports and agglomerations, harmonized noise indicators, informing and consulting the public about noise exposure, its effects, and the measures considered to address noise, action plans, developing a long-term EU strategy.

Noteworthy are also Directives 2000/69/EC on limit for benzene and carbon monoxide in ambient air and Directive 2000/14/EC of the approximation of the member states` law to the noise emission by equipment for use outdoors. Moreover Directive 2003/10/EC on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (noise) lays down minimum requirements for the protection of workers from risks to their health and safety arising from exposure to noise and the risk to hearing. The Directive sets exposure limit values and exposure action values in respect of the daily noise exposure levels and peak sound pressure. It contains provisions on the obligations of employers, methodology on the determination and assessment of risks, limitation of exposure, personal protection means, and health surveillance.

2.2.3 Social issues

2.2.3.1 Health and safety law related to aggregates

The main objective of Communication from the Commission on Safe Operation of Mining Activities: a follow-up to recent Mining Accidents (COM/2000/265) is to set the broad policy lines for promoting sustainable development of non-energy extractive industry by reconciling the need for more secure and less polluting extractive activities while maintaining the competitiveness of the industry. It stresses the need for an improvement in the environmental performance of this

industry in general and to prevent accidents such as the ones in Romania (Baia Mare) and Spain (Aznalcollár).

In this Communication the Commission has identified a number of complex issues that need to be addressed through balanced consideration of economic, environmental and social aspects to ensure the sustainable development of the industry. It calls for a coherent Community policy in this field. Regarding the main lines for this policy approach, stakeholder dialogue has an essential part. Also included are the safety management and the prevention of industrial risks, cover best available techniques for the industry and focus on the specific requirements for sound management of mining waste as well as environmental liability.

With regard to existing structures for dialogue, the Safety and Health Commission for the Mining and Other Extractive Industries, set up by a Council Decision, is funded and managed by the European Commission and composed of national representatives of governments, employers and workers. Concerning informal arrangements, Commission officials consult regularly with experts of Member States and industry representatives through the Raw Materials Supply Group on the main issues arising, notably in relation to competitiveness. Recently the first steps have been taken to involve other stakeholders in the group, including NGOs and trade unions. Other existing fora include EUROTHEN and EuroGeoSurveys. The main follow-up actions of the Communication are: the amendment of the Seveso II Directive, an initiative on a directive on the management of mining waste and a BAT reference document (according to the IPPC Directive).

Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work is to introduce measures to encourage improvements in the safety and health of workers at work. It contains general principles concerning the prevention of occupational risks, the protection of safety and health, the elimination of risk and accident factors, the informing, consultation, balanced participation in accordance with national laws and/or practices and training of workers and their representatives, as well as general guidelines for the implementation of the said principles. It applies to all sectors of activity, both public and private. It shall not be applicable in the case of certain specific public service activities, such as the armed forces or the police, or of certain specific activities in the civil protection services inevitably conflict with it.

According to Directive 92/104/EEC on the minimum requirements for improving the safety and health protection of workers in surface and underground mineral-extracting industries surface and underground mineral-extracting industries means all industries practising surface or underground extraction, in the strict sense of the word, of minerals, and/or prospecting with a view to such extraction, and/or preparation of extracted materials for sale, excluding the activities of processing the materials extracted. However, the definition by the Mining Waste Directive extends to the mineral processing activities.

Directive 92/91/EEC concerning the minimum requirements to improve the safety and health protection of workers in the mineral-extracting industries through drilling lays down minimum requirements in the given subject. According to Article 2 (a) mineral-extracting industries through drilling means all the industries practising: - extraction, in the strict sense of the word, of minerals through drilling by boreholes, and/or; prospection with a view to such extraction, and/or preparation of extracted materials for sale, excluding the processing of materials extracted. Workplace means the whole area intended to house workstations, relating to the immediate and ancillary activities and installations of the mineral-extracting industries through drilling, including accommodation, where provided, to which workers have access in the context of their work (Article (b)).

The employer also has to ensure that a document concerning safety and health, covering the relevant requirements is drawn up and kept up to date. The employer shall, without delay, report any serious and/or fatal occupational accidents and situations of serious danger to the competent authorities. The employer has to provide and maintain appropriate means of escape and rescue in order to ensure that workers have adequate opportunities for leaving the workplaces promptly and safely in the event of danger. The employer also has to take the necessary measures to provide the necessary warning and other communication systems to enable assistance, escape and rescue operations to be launched immediately if the need arises.

Directive 93/15/EEC on the harmonization of the provisions relating to the placing on the market and supervision of explosives for civil uses is an important piece of legislation in regulating explosives handling and safety requirements in aggregate exploitation as well. It is primarily on product quality (CE marking), handling rules, blasting control, transfer conditions, etc.

There is a series of directives on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (optical radiation, electromagnetic fields, vibration, etc.) which are relevant to workers employed at the aggregates industry, but the detailed presentation is out of the scope of this study.

Directive 2006/42/EC on machinery and amending Directive 95/16/EC is aiming at controlling the quality assurance of machinery products, market surveillance, harmonised standards, essential health and safety requirements relating to the design and construction of machinery. Most of the machinery used by primary and secondary aggregate industry are under the scope of this Directive.

2.3 Documents with a political relevance

Mineral Policy framework

There are different Communications considering minerals and minerals related policies, i.e. Communication 2000/265 and Communication 2008/699.

Communication 2000/265

Communication from the Commission on "Promoting Sustainable Development in the EU Non-Energy Extractive Industry" (2000) was the first European document, which dealt with the problem of sustainable mining. It sets out broad policy lines for promoting sustainable development in the EU non-energy extractive industry while reconciling the competitiveness of the industry with environmental protection. The Communication compasses the extraction of all solid minerals; coal, uranium, lignite, peat, brown coal and oil shale are excluded from its scope.

From the point of view of the environment, extractive operations raise two types of concern: the use of non-renewable sources may mean that these resources will not be available for future generations and extractive operations may harm the environment. The communication stresses that the development of environmental performance indicators would make it possible to establish a detailed assessment of the industry's environmental performance. Resource use, discharges to air and water and land use are proposed as indicators. It also stresses the importance of finding an approach for the extractive industry which takes greater account of the environment and land use planning.

Extractive operations may help to arrest depopulation in certain areas. As those operations have a finite life, however, it is necessary to consider how lasting economic effects can be created in those areas. The Commission points to the very rapid technological progress in the sector. It encourages the extractive industry to develop a common European platform to take advantage of the potential which the European research area will offer.[16] The Commission facilitates a framework to intensify the dialogue between the Member States, both sides of industry, NGOs, the Commission and other stakeholders. The competent authorities of all Member States are invited to ensure access to sites for the extractive industry and guarantee a high level of environmental protection, e.g. by implementing environmental protection rules in their mining laws. They should adequately balance the need for land access for industry with the need for a high level of environmental protection.

Communication 2008/699

The European Commission adopted the "Raw Materials Initiative: Meeting our critical needs for growth and jobs in Europe" in 2008, 'which sets out targeted measures to secure and improve access to raw materials both within the EU and globally.' Three policy areas are identified: access to raw materials on world markets at undistorted conditions, sustainable supply of raw materials from European sources and increase of resource efficiency and promotion of recycling. The latter two are relevant for aggregates (less international trade

[16] In the year 2006 the European Technology Platform on Sustainable Mineral Resources (ETPSMR) was founded and officially accepted in 2009.

with aggregates because of the transport costs). Although some Member States were and are pursuing specific policies; there had so far been no integrated policy response at EU to secure sufficient access to raw materials at competitive prices. The Commission therefore proposes that the EU should agree on an integrated raw materials strategy. The Communication has three main chapters: 1. Analysis of supply and demand of non-energy raw materials; 2. The policy response: An integrated strategy, and 3. The way forward. The integrated raw materials strategy is based on the following 3 pillars (Tiess, 2010):
ensure access to raw materials from international markets under the same conditions as other industrial competitors;
set the right framework conditions within the EU in order to foster sustainable supply of raw materials from European sources;
boost overall resource efficiency and promote recycling to reduce the EU's consumption of primary raw materials and decrease the relative import dependence.

Access to land is a key requirement for the (aggregates) extractive industry, but the area available for extraction in the EU is being reduced by other land uses. It is usual that it lasts 8-10 years between the discovery of deposits and actual production. There is a need to speed up the permit process for exploration and extraction activities. Also of utmost importance is that the knowledge base of mineral deposits within the EU can be improved. Therefore the long term access to these deposits should be taken into account in land use planning. The Commission recommends that national geological surveys become more actively involved in land use planning.

Public awareness of the importance of domestic raw materials for the European economy is poor. As a safe working environment is essential to attract skilled personnel, the Commission will also support actions to improve worker protection.

Resource efficiency, recycling, substitution and the increased use of renewable raw materials should be promoted in view of easing the critical dependence of the EU on primary raw materials, reduce import dependency, and improve the environmental balance, as well as meeting industrial needs for raw materials. The Commission promotes research projects that focus on resource-efficient products and production. Today, a lot of end-of-life products do not enter into sound recycling channels, which results in an irremediable loss of valuable secondary raw materials. Member States have to raise awareness and ensure the sound and harmonised enforcement of the Waste Shipment Regulation, e.g. by better specifying the criteria for denying export authorisation of end-of-life products. In cooperation with the Member States, it proposes more effective control mechanisms on waste shipments and release information on illegal shipment flows.

The recycling of secondary raw materials will be facilitated by the full implementation and enforcement of relevant recycling legislation as well as by the new provisions in the Waste Framework Directive on when waste ceases to

be waste. To boost the reuse or recycling of products and materials at within the EU, a fair and transparent market is essential, based on agreed minimum standards, certification schemes where appropriate, within proportionate legal framework conditions.

Mineral Planning policy issues

Access to land is of utmost importance for the aggregates industry. Access to land particularly is a matter of land use planning and management policy/legislation.

There is no European Union Community law on the spatial development or land use planning principles or methodology at all. This may be surprising when considering that a significant portion of the Regional Development Fund and of The Cohesion Fund, the two majors of the so-called EU Structural Funds, is spent on infrastructure and spatial development projects. The only quasi-legal pan-European activity in this respect is CEMAT.

The Council of Europe Conference of Ministers responsible for Spatial/Regional Planning (CEMAT) brings together representatives of the 47 member states of the Council of Europe, united in their pursuit of a common objective: sustainable spatial development of the European continent. This activity began in 1970 in Bonn with the first European Conference of Ministers responsible for Regional Planning (CEMAT). An important text is the Guiding Principles for Sustainable Spatial Development of the European Continent, adopted in 2000 and incorporated into Recommendation (2002) by the Committee of Ministers to Member States on the Guiding Principles for Sustainable Spatial Development of the European Continent.

Accordingly, regional/spatial planning gives geographical expression to the economic, social, cultural and ecological policies of society. It is at the same time a scientific discipline, an administrative technique and a policy developed as an interdisciplinary and comprehensive approach directed towards a balanced regional development and the physical organisation of space according to an overall strategy. Regional/spatial planning should be democratic, comprehensive, functional and long-term oriented.

Regional/spatial planning must take into consideration the existence of a multitude of individual and institutional decision-makers, which influence the organisation of space, the uncertainty of all forecasting studies, the market pressures, the special features of administrative systems and the different socio-economic and environmental conditions. It must however strive to reconcile these influences in the most harmonious way possible.

The fundamental objectives are: balanced socio-economic development of the regions; improvement of the quality of life; responsible management of natural resources and protection of the environment; and rational use of land. The achievement of regional/spatial planning objectives is essentially a political matter. Many private and public agencies contribute through their actions

towards developing and changing the organisation of space. Regional/spatial planning reflects the desire for interdisciplinary integration and co-ordination and for co-operation between the authorities involved. It must be based on active citizen participation.

Recommendation (2002) by the Committee of Ministers to Member States on the Guiding Principles for Sustainable Spatial Development of the European Continent stresses the importance of enhancing and protecting natural resources. Concerning the protection of natural resources it stresses the following. Natural resources contribute not only to properly balanced ecosystems but also to the attractiveness of regions, their recreational value and the general quality of life. The establishment of a coherent network of special protection areas within the European Union and the applicant countries, called Natura 2000, is one of the measures contributing to this goal. In conjunction with the European Conference of Ministers "Environment for Europe", the development of these networks should be developed on a Europe-wide scale.

The European Spatial Development Perspective (ESDP) is a document approved by the Informal Council of Ministers of Spatial Planning of European Union in 1999. According to it, the characteristic territorial feature of EU is its cultural variety, concentrated in a small area. This variety – potentially one of the most significant development factors for EU – must be retained in the face of European integration. Spatial development policies, therefore, must not standardize local and regional identities in the EU, which help enrich the quality of life of its citizens. Development projects in different Member States complement each other best, if they are directed towards common objectives for spatial development. Therefore, national spatial development policies of the Member States and sectoral policies of the EU require clear spatially transcendent development guidelines. These are presented in the ESDP.

The conservation and development of natural resources calls for appropriate integrated development strategies and planning concepts as well as suitable forms of management. This ensures that nature conservation and the improvement of living conditions for people are taken into consideration equally. Spatial and environmental impact assessment can provide the necessary information basis for this. In the search for balanced solutions, the population affected should be intensively involved. ESDP stresses the following policy options:

- Continued development of ecological networks (Natura 2000), including the necessary links between nature sites and protected areas of regional, national, transnational and EU-wide importance.
- Integration of biodiversity considerations into sectoral policies (agriculture, regional policies, transport, fisheries, etc) as included in the Biodiversity Strategy.
- Preparation of integrated spatial development strategies for protected areas, environmentally sensitive areas and areas of high biodiversity such

as coastal areas, mountain areas and wetlands balancing protection and development on the basis of territorial and environmental impact assessments and involving partners concerned.

- Greater use of economic instruments to recognise the ecological significance of protected and environmentally sensitive areas.
- Promotion of energy-saving and traffic-reducing settlement structures, integrated resource planning and increased use of renewable energies in order to reduce CO2 emissions.

It also provides for a more balanced development framework because it enables wider societal and environmental concerns to be taken into account very early on in the planning process. In addition, it encourages different economic sectors, interest groups and the general public to become engaged through public consultation, thereby ensuring greater transparency in the decision making process.

Marine spatial planning

Existing planning frameworks have a largely terrestrial focus. Challenges that emerge from the growing competing uses of the sea, ranging from maritime transport, fishing, aquaculture, leisure activities, off-shore energy production and other forms of sea bed exploitation must be addressed. Therefore, maritime spatial planning can be a fundamental tool for the sustainable development of marine areas and coastal regions, and for the restoration of Europe's seas to environmental health. In 2008 the European Commission launched a Communication on Maritime Spatial Planning (MSP), with focus on achieving common principles in the EU (COM(2008) 791 final). Maritime Spatial Planning is considered a key instrument for the Integrated Maritime Policy in the EU. It helps public authorities and stakeholders to coordinate their action and optimises the use of marine space to benefit economic development and the marine environment. This Communication aims to facilitate the development of MSP by Member States and encourage its implementation at national and EU level. It sets out key principles for MSP and seeks, by way of debate, to encourage the development of a common approach among Member States.

Sixth Community Environmental Action Program

Although the Sixth Community Environmental Action Program has no binding character, it sets out the framework for the European environmental policy for the period 2002-2012 and outlines actions that need to be taken to achieve them. The current program of 2002 focuses mainly on four priority areas: Climate change, Nature and biodiversity, Environment and health, Natural resources and waste. The 6th EAP calls for the development of seven Thematic Strategies in the field of soil and the marine environment, air, pesticides and urban environment and natural resources and waste recycling. The Thematic

Strategies constitute the framework for action at EU level in each of the concerned priorities.

3 Analyses and Discussion of the European Law relevant to aggregates

Mining is increasingly influenced by other competing land uses, such as urban development, agriculture, and nature conservation. A balanced consideration of economic, environmental, and social aspects to ensure the sustainable development of this industry is needed in the frame of a coherent Community mineral policy. Aggregates are essential for the sustainable functioning of modern societies.

3.1 Primary legislation

The history of the European Union is a reflection of the voluntary submission of pillars of national sovereignty by Member States under the Community interest by establishing a supranational legislation. Only few people might be informed about the fact that the European Union has its origin n the European Coal and Steel Community. In the last two decades little importance was attached to the European raw materials policy or, in other words, it was not in its whole complexity noted by the policy/decision-makers in the last decades.

The EU Treaties declare the prudent and rational use of natural resources to avoid their unconsidered exhaustion. However, the term "mineral raw materials" cannot be found in the primary legislation of the EU; neither does an EU comprehensive body of legislation for raw materials exist. [17]

3.2 Secondary legislation

The present review is a crossover screening of the acquis communautaire with regard to a complex raw material stream, namely aggregates.

No legal framework (i.e. Directive) related to mineral resources exists. Therefore, no legal legal terminology is existing for mineral resources and thus, aggregates; there are no provisions related to access to land, and also no explicit regulation in terms of "aggregates resource efficiency" (referring to the state of the art level). Different provisions of the latter are included in *minerals related directives*, for instance the IPPC and Mining Waste Directive. Moreover, in restrictive sense environmental directives provides provisions which are rather excluding aggregates extraction (e.g. NATURA 2000).

The higher the thematic cover of the acquis, the higher is the degree of political, economical, and social integration. However, the extractive industry received specific treatment in the acquis with a low control on its environmental impacts by being excluded from the scope of major environmental directives. Occupational health and safety, and ensuring supply were covered by the legislation from the beginning but the Directive on the conditions for granting… of hydrocarbons is the only piece showing elements of a mineral policy.

[17] Cp. on the contrary for instance the Water Framework Directive.

Historically, most of the aggregate field was out of the scope of Community legislation until the end of XXth century. At the turn of the century this scenario changed dramatically. The environmental impacts by the Aznarcollar and Baia Mare accidents and the rapidly developing waste policy induced a series of converging actions. The European Waste Catalogue was issued, numerous Court of Justice rulings dealt with inert mining waste was published, Seveso II Directive was amended, Environmental Liability Directive, Mining Waste BREF, EU Pollution Register, Mining Waste Directive and its implementing Commission Decisions, and the New Waste Framework Directive were adopted. Moreover, this new wave of legislation was prepared carefully.

However, on an international scale Europe has developed very strict environmental standards. Compared to international standards, the environmental legislation of the European Union is particularly strict. This has increasingly affected the European raw material industry since the 1990s (Otto, 1999). The complex EU environmental legislation causes lengthy and inefficiently coordinated approval procedures, while their uncertain outcome is an obstacle to investment security for the mining operator. The duration of the procedures can be regarded as an indicator of how strongly competitiveness of the raw materials industry is reduced (Wagner *et al.*, 2005).

Regarding the situation in many Member States, extracting of sand and gravel from below the water table becomes more and more restricted and thus, is limiting the access to land. The *Water Framework Directive* itself does not exclude aggregates extraction from below the water table, it depends on the Member States how to regulate this conflict. For in instance, in Austria presently new guidelines (based on the water legislation) are developed to improve this situation.

With special regard to the major barriers against the primary aggregate extractive industry, the *Natura 2000 framework* is to be mentioned. The inhomogenous implementation of this policy in the different Member States may lead the distortion of market conditions, and transboundary exportation of environmental impacts. The Commission stresses that there is no absolute exclusion of extractive operations within the Natura 2000 legal framework. The related guideline issued by the European Commission in 2010 might not significantly improve the above unfavourable situation.

On the other side, the *waste acquis* is close to perfect and it is progressive by (a) being coherent for all waste streams; (b) providing incentive waivers for non-hazardous wastes; and (c) inventing and defining end-of-waste and by-product categories thus reinforcing the re-use, recycling and recovery. However, financial regulatory instruments are left over to the Member States' authority. Further amendment of Community legislation might be needed on certain industrial waste streams which may generate non-hazardous aggregates, because the present focus is limited to the construction and demolition waste. As well, efforts should be speeded up to elaborate the specific end-of-waste criteria as required by the Waste Framework Directive. Concerning the minerals

extractive industries' waste management and secondary aggregates production the Mining Waste Directive brought a breakthrough for this unregulated field in 2006. For economic reasons companies are motivated to backfill their waste, and to sell their non-hazardous aggregate by-products and processed end-of-minewastes.

In the sphere of secondary aggregates the historical development shows similarities. Relatively few legislative measures happened between the first Waste Framework Directive (75/442/EEC) and year 2000. The requirement for re-use, re-cycling and recovery was well-known but without further details or incentives. In 1991 the Landfill Directive made it more pronounced that landfilling is the very last avoidable management option, but with a focus on the reduction of organic matter content in waste, exclusively.

Complex permitting procedures

The complex and partially inconsistent EU environment law leads to complex approval procedures. These procedures often tend to be inefficiently coordinated, which also affects their duration, which can be seen as an indicator for the *competitiveness* of the raw materials industry. [18] The time required for extraction permission varies *considerably*. It ranges from a few months to several years and usually exceeds the time specified. Reports from Member States indicate that the time required for obtaining extraction permission is significantly shorter if the application concerns a mineral deposit that is situated in a designated mineral extraction area. The main reasons for time delays are the involvement of many (not well coordinated) different authorities in the licensing procedure and the involvement of the public in certain elements of the approval process.

Regarding Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment (*EIA*) (amended by Directives 97/11/EC), *experience* shows that *especially* the preparation of Environmental Impact Assessments (EIA's) is a complex issue and tends to take up much time and also much of management's attention. It can lead to long approval periods and costs for mineral projects. The main reasons for time delays are the involvement of many different authorities in the licensing procedure, inefficient procedures, and minerals not being considered in land use plans, involvement of the public in certain elements of the approval process. Moreover, there are two cost aspects. The first concerns the cost of the preparation of the project proposal and the cost of the environmental impact assessment and associated investments. The second aspect is the capital cost. A feature of minerals projects is that considerable costs are incurred prior to the production phase. These include the cost of prospecting and exploration as well as the cost of acquiring property rights and site preparation and establishment. Any delays in production result in a higher cost of interest on the capital already spent. For

[18] High costs, expenditure and, in addition, an doubtful procedure outcome are a fact meanwhile.

small operators in particular, this can be a serious issue. In some instances long observation periods may be necessary to determine seasonal aspects of the environment.[19] The time taken to complete EIAs *can* result in regional shortages of mineral reserves, thus necessitating the transport of minerals over greater distances with the associated higher costs to the user and impacts on the environment.

3.3 Documents with a political relevance

In EU policy there is no sector for raw materials policy[20] and no basis relevant for raw materials planning policy can be found in the natural resources documents. In the last ten years numerous Community policies were worked out on natural resources management, life-cycle-approach, raw materials supply. However, most of these policies were published as guidelines or communications, and have not reached the secondary legislation level. The only remarkable piece of legislation which adopts the principle of sustainability and is directly relevant to aggregates is Commission Decision 2002/272/EC establishing the ecological criteria for the award of the Community eco-label to hard floor-coverings.

Hence, the publishing of the Communication "The Raw Materials Initiative – Meeting our critical needs for growth and jobs in Europe" in November 2008 which is based on the preceding consultation process (from January to March 2008), was a welcome improvement. However, it has to be said that, against the background of recent international developments, this happened considerably late.[21]

Access to land – the most import issue for the aggregates industry

According to UEPG aggregate supply calculations, even a 100 % recycling ration of non-hazardous wastes would cover only the 15 % of the total demand for aggregates (Department of Mineral Resources and Petroleum Engineering, 2010). Therefore, the access to primary aggregate resources – based on land use planning - should be made feasible.

The lack of a Community minerals policy regulation, and legislation on spatial planning (and land-use planning) are major legislative gaps that could overarchingly rule the whole primary aggregate legislation conflict field. Aggregate extraction is among the low-priority competing land-using activities in most Member States, which leads to the „sterilization" of known resources, eliminating the chances of future generations. Once the Raw Materials Initiative develops into a full legal format primary aggregates should receive the same

[19] STEMPKOWSKI R.: Beitrag zur Weiterentwicklung der UVP (Contribution to the development of EIA) [online]. ÖIAV-Arbeitskreis. 2002, Available from: http://www.oiav.at/pdf/uvp-2002.pdf [Accessed 27.05.2004]

[20] Cp. on the contrary for instance the agricultural policy and water policy at EU-level.

[21] European Commission, DG Enterprise (2008): The Raw Materials Initiative – Meeting our critical needs for growth and jobs in Europe. Communication from the Commission to the European Parliament and the Council, COM(2008)699. This is discussed briefly in the preface.

attention as the so-called „critical minerals" enjoy at present. Such legislation would ideally cover the issue of „quasi-legal" forms of aggregate extraction, namely activities performed under declared purposes and licenses other than mineral extraction, such as „landscape management", „water works", etc.

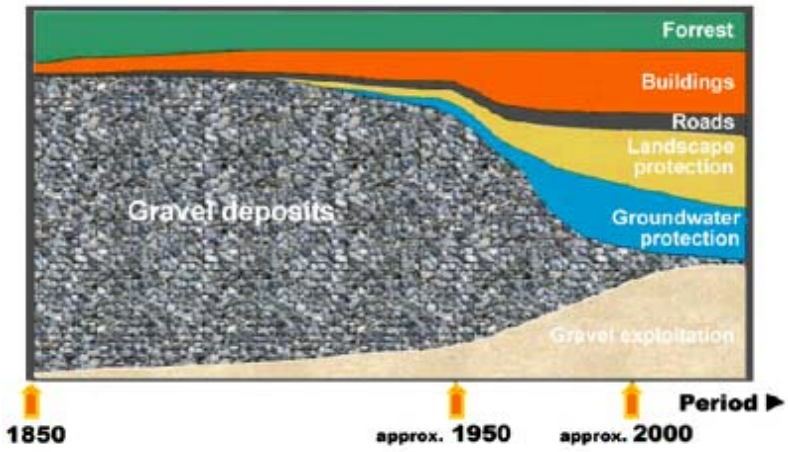
At EU-level so far no clear definition of raw materials planning policy has been found.[22] In terms of the Communication COM 2000/265 concerning the promotion of sustainable development in the extractive industry, the Commission considers "the need for land access to be an essential prerequisite for the further development of the industry and its relationship with regional and spatial planning that impact on this need". [23] Furthermore an EU-coordinated prioritization of the access to strategic raw materials with influences on land use planning is not available. [24] This development has to be questioned: on one hand there is a great demand for mineral raw materials, whereas on the other hand the industry's options for access to raw materials have been reduced significantly. In this sense, criticism has been expressed within the consultation process of the Raw Materials Initiative 2008. [25]

In the past years deposits availability has continuously decreased. This phenomenon particularly occurs in densely populated countries in Western Europe (e.g. Belgium, France, Germany, Netherlands, and Austria).[26] Little awareness of mineral raw materials, especially poor raw materials planning policy,[27] and an increasing number of prohibitions and requirements of the EU environmental protection law as well as complex licensing procedures are responsible for this development. The availability of deposits is an essential indicator for minerals planning policy. In general a continuous increase in land use density and land use rules and regulations in the EU countries can be observed. [28] Many of these regulations include prohibitions, restrictive rules for the access to raw materials. This reduces the availability of deposits; particularly if no comprehensive raw materials planning policy is involved. [29] Information about deposits and their categorization usually exists on part of the member states; however, often it is not taken into account by land use regulation. Consequences are excessive planning and building as well as an increase of imports (giant quarries in Scotland and Norway). From a global geological perspective, there is no indication of imminent physical shortage of the majority of aggregates in Europe. However, geological availability does not necessarily mean access to these raw materials for the mining companies.

[22] At least until 2010: A suggested definition for national minerals planning policy was provided in the "Abridged report of the ad-hoc Working Group on "Exchanging Best Practice on Land Use Planning, Permitting and Geological Knowledge Sharing", presented at the European Minerals Conference in Madrid (June, 2010).
[23] Cf. EC (2000): "Promoting sustainable development in EU non-energy extractive industry", COM/2000/265 Brussels.
[24] EC, DG Enterprise and Industry (2008): Public Consultation on Commission Raw Materials Initiative (2008).
[25] The criticism focuses on the complex EU raw materials legislation and inefficient licensing procedures.
[26] Cf. Kündig et al, (1997), Die mineralischen Rohstoffe der Schweiz [The mineral resources of Switzerland] , Zürich.
[27] Raw materials supply security by land use planning: This means no comprehensive, according to spatial planning, coordination of mining areas with interests of human settlement, nature conservation, water economy as well as agriculture and forestry.
[28] E.g. Water Framework Directive as well as other spatial law-relevant EU directives.
[29] Cf. Department of Mining and Tunnelling, University of Leoben (2004), Minerals Policies and Supply Practices in Europe, Final Report

See figure 2: Access to land (i.e. deposits) is increasingly influenced by policy issues, for instance, lack of mineral planning policies or obstacles like taxes and charges. Reduced availability of deposits is phenomenon existing in whole Europe (and is impacting the competitiveness of the aggregates industry).

Figure 3: Reduction of gravel reserves due to other land use utilizations (Source: BGR, 2009)



Madrid Raw Materials Declaration 2010

The 'Madrid Raw Materials Declaration 2010' is the final document of the European Minerals Conference Madrid 2010. The Industry's collective viewpoints are described in detail in its Madrid Declaration, the key points of which may be summarised are:[30]

"At European level, a Raw Materials Policy needs to be promoted, defining the strategy to ensure that Europe in future will have sufficient supplies of imported raw materials and sufficient access to indigenous raw materials.

There is a need to develop corresponding Raw Materials Policies at national, regional and local levels to ensure good present and future access to the raw materials geologically present.

There is a need to develop associated Land-Use Planning Policies, to ensure that land use development for minerals extraction around these geologically-present resources is preferentially treaded.

There is a need to adopt best practices in Permitting Procedures following good examples from other Member States, to ensure permits are granted in a timely and efficient manner and for duration that justify the significant capital investments involved."

[30] Madrid Raw Materials Declaration 2010, press release, June 2010.

The Minerals Industry recommends the Raw Materials Initiative to adopt these proposals and to incorporate them in the final communication on the Initiative expected by end-2010. Because of the ongoing importance of the issue of access to raw material resources, the Industry also suggests that the Initiative be followed up by regular reviews over the next 5 years and also be part of the Commission's 2020 Agenda and Strategy.[31]

[31] Note: Meanwhile the EU Raw Material Initiative has gathered extra momentum with adoption of the Europe 2020 Strategy that includes as one flagship "An industrial policy for the globalisation era" and that foresees the setting up of a framework for a modern industrial policy that will "address all elements of the increasingly international value chain from access to raw materials to after-sales service" (see: http://ec.europa.eu/enterprise/policies/raw-materials/files/docs/questionnaire-raw-mat-pc_en.pdf).

4 Conclusions and Framework Recommendation

Aggregate resources are a vital input and are recognised as being strategically important in the provision of buildings and infrastructure, supporting economic expansion and the needs of growing national populations.

In 2004 over 5% of the aggregates used in the EU were recycled, although this ratio varied greatly between Member States. Some countries use no secondary aggregates, while others utilize over 20%. However, according to UEPG aggregate supply calculations, even a 100 % recycling ration of non-hazardous wastes would cover only the 15 % of the total demand for aggregates. Therefore, the access to primary aggregate resources – based on land use planning - should be made feasible.

The legal development of the European Union is paved by the voluntary submission of pillars of national sovereignty of Member States under the Community interest by establishing a supranational legislation. The higher the thematic cover of the acquis, the higher is the level of the political, economical, and social integration. The extractive industry received specific treatment in the acquis with a low control on its environmental impacts by being excluded from the scope of major environmental directives. Occupational health and safety, and ensuring supply were covered by the legislation from the beginning but the Directive on the conditions for granting and using authorizations for the prospection, exploration and production of hydrocarbons is the only piece showing elements of a mineral policy.

In case of secondary aggregates the historical development shows similarities. There were relatively few legislative actions between the first Waste Framework Directive (75/442/EEC) and the turn of the century. The principles of re-use, re-cycling and recovery were published without further detailed provisions. In 1991 the Landfill Directive made it pronounced that landfilling is the ultimate avoidable waste management option, but it had a focus on the reduction of biodegradables, and the geotechnical sealing almost exclusively.

At the turn of the century, in year 2000 this scenario changed dramatically. The environmental impacts by the Aznarcollar and Baia Mare accidents, and the developing new waste policy induced a series of converging actions. The European Waste Catalogue was issued, numerous Court of Justice rulings dealt with legal interpretation of inert mining waste, Seveso II Directive was amended, Environmental Liability Directive, Mining Waste BREF, EU Pollution Register, Mining Waste Directive with implementing Commission Decisions, and the New Waste Framework Directive were adopted. This new wave of legislation was prepared carefully. Even a scrupulous crossover study like the present one could not discover legal discrepancies or significant gaps with regard to primary and secondary aggregates. However, the concise definition

of aggregates is still lacking in the acquis communautaire, which fact may lead to legal suits in the future. »»»

An up-to-date legal terminology is needed for aggregates. It is proposed that „primary" aggregates shall be used for mineral commodities as sand, gravel, crushed stone extracted for the primary purpose of being used as aggregate. All the rest of aggregates shall be defined as „secondary aggregates", by being by-products, end-of-waste, recycled waste in the meaning of the new Waste Framework Directive. This is a legal approach, it is understood and accepted that the aggregate industry has been using terms like „natural", „recycled", „artificial" aggregates for a long time without a sign of misunderstanding. The transposition of the above terms into Member State legislation should be speeded up.

The EU Treaties declare the prudent and rational use of natural resources to avoid their unconsidered exhaustion. In the last ten years Community policies were published on sustainable natural resources management, the life-cycle-approach, raw materials supply. However, most of these policies were published as thematic strategies or communications, and have not reached the level of secondary legislation. The practical elements of the sustainability principle (i.e. life-cycle assessment, indicator approach, product-specific thresholds, fit-for-use applications, material- and energy-efficient solutions) seldom appear even in the recent legislation. »»»

The only remarkable piece of legislation which adopts the principle of sustainability and directly relevant to aggregates is the Commission Decision 2002/272/EC establishing the ecological criteria for the award of the Community eco-label to hard floor-coverings. It provides an example how a product-specific regulation applies a detailed and sophisticated methodology in order to comply with the holistic and integrated approach of sustainability. This can be a potential legal methodology governing the sustainable management of both primary and secondary aggregates extraction. It is recommended, that product-specific eco-label and eco-award legislation shall be extended to both primary and secondary aggregates productions schemes.

The waste acquis is close to perfect and it is progressive by (a) being coherent for all waste streams; (b) providing incentive waivers for non-hazardous wastes; and (c) inventing and defining end-of-waste and by-product categories thus reinforcing the re-use, recycling and recovery. However, financial regulatory instruments are left over to the Member States' authority, thus potentially leading to cross-border market turbulences and distorted competition among suppliers of different aggregate material suppliers. »»»

Further amendment and progress of Community legislation might be needed on certain industrial and other waste streams which generate non-hazardous aggregates, because the present focus is limited to the construction and demolition waste. As well, efforts should be speeded up to elaborate the specific end-of-waste and by-product criteria as required by the Waste Framework Directive.

The aggregate sector is not a polluting industry and it is out of the scope of the IPPC Directive (Integrated Pollution Prevention and Control). **»»»**

However, it can be the interest of all stakeholders to elaborate a voluntary sectorial best available technique reference document on the best practices and acceptable quantitative emission thresholds of this primary and secondary raw material stream, not necessarily under the scope of the IPPC Directive.

Concerning the minerals extractive industries' waste management and related secondary aggregates production the Mining Waste Directive (MWD) brought a breakthrough for this unregulated field in 2006. The deadline for the implementation and compliance with the rules of MWD is coming in May 2012. The different interpretation of the scope (e.g. the recent red mud case in October 2010 in Hungary), and the delay in the elaboration of implementing technical guidelines on the Community level may cause turbulences in this sector. **»»»**

For economic reasons, extractive companies are motivated to backfill their waste, and to sell their non-hazardous aggregate by-products and processed end-of-mine wastes. However, further awareness raising among mining companies and authorities is recommended on the national level for the complete understanding of the mine waste management options provided by the directive. The technical guidelines to be elaborated in the course of MWD may include provisions on how mine waste management corresponds to aggregate reserves accounting at least in terms of volumes extracted/back-filled, etc..

Mining is increasingly influenced by other competing land uses, such as urban development, agriculture, and nature conservation. Raw materials are essential for the sustainable functioning of modern societies. Access to and affordability of mineral raw materials are crucial for the sound functioning of the EU's economy. The lack of a Community minerals policy regulation, and a legislation on spatial planning (and land-use planning) are the other major legislative gaps that overarchingly rule the whole primary aggregate legislation conflict field. Aggregate extraction is among the low-priority competing land-using activities in most Member States, which leads to the

„sterilization" of known resources, eliminating the chances of future generations. »»»

A balanced consideration of economic, environmental, and social aspects to ensure the sustainable development of aggregates industry is needed in the frame of a coherent Community mineral policy. Such a policy might be inspiring for the SEE region where aggregates issues are crucial. Forward planning is important for the whole industry and, due to this awareness, a few European countries have adopted strategic mineral plans. By developing the Raw Materials Initiative into a full legal format primary aggregates should receive the same attention as the so-called „critical minerals" enjoy at present. Such legislation should also cover the problem issue of „non-mining" forms of aggregate extraction, namely, activities performed under declared purposes and permits other than mineral extraction, such as „landscape management", „water works", extraction for environmental remediation, etc. A new specific reference on national mineral plans in the Strategic Impact Assessment Directive may also reinforce the weight and valuation of the primary aggregate commodity and its occurrences of resources and reserves.

With special regard to the major barriers against the primary aggregate extractive industry, the Natura 2000 framework is to be mentioned. The inhomogeneous implementation of this policy in the different Member States may lead to the distortion of market conditions, and to transboundary exportation of environmental impacts. The related guideline issued by the European Commission in 2010 might not significantly improve the above unfavourable situation. »»»

According to aggregate supply calculations (UEPG, 2010), even a 100 % recycling ratio of non-hazardous wastes would cover only the 15 % of the total demand for aggregates. Therefore, the access to primary aggregate resources should be made feasible by closely monitoring the due implementation of NATURA 2000 by the competent Community bodies without endangering the achieved level of biodiversity conservation.

The complete harmonization of the Environmental Liability Directive may pose an additional financial burden on aggregate companies. Concerning intentional offences against the environment, a relevant piece of legislation is in place (Decision 2003/80/JHA on the protection of the environment through criminal law) according to which unlawful discharges, emissions, disposals of hazardous substances, waste, ionising radiation which causes substantial damage to quality of soil are qualify as intentional offences. »»»

Legal sanctions could be established against illegal mining in the Community law, similar to environmental offences, on basis of criminal action against

sustainable natural resource management. It would also direct member states to establish their aggregates inventories and policies.

5 Literature

BGR (Bundesanstalt für Geowissenschaften und Rohstoffe; Federal Institute for Geosciences and Natural Resources), 2009. Hannover, Germany, /http://www.bgr.bund.deS.

Böhmer, S., Moser, G., Neubauer, C., Peltoniemi, M., Schachermayer, E., Tesar, M., Walter, B. and Winter, B. 2008. Aggregates case study. Final Report, Umweltbundesamt, 281. p.

Christner, T. und Pieper, T. (1998): „Bedeutung und Stellenwert ‚nachhaltiger Entwicklung' bei der Gewinnung oberflächennaher Rohstoffe: ein Beitrag zur Wirkungsweise des umweltpolitischen Leitbildes eines ‚sustainable development' auf planerische Abwägungsvorgänge und Genehmigungsentscheidungen im Rahmen der Rohstoffgewinnung." Meaning and significance of 'sustainable development' at the exploitation of near-surface materials: a contribution to the effect of the environmental concept of a 'sustainable development' on planning assessment and approval decisions in the context of mineral extraction] Erich Schmidt Verlag, Berlin.

Department of Environment (1995): Mineral Planning Policy and Supply Practices in Europe – Main Report. HMSO, London,

De Lespinay, Y. (1997): Toward a European policy for the access to mineral access, in : Mineral Planning in a European Context.

Department of Mining and Tunnelling, University of Leoben (2004): Minerals policies and supply practices in Europe. Final Report, commissioned by the European Commission, DG Enterprise. Extended summary, Leoben, Brussels, http://ec.europa.eu/enterprise/non_energy_extractive_industries/docs.

Department of Mineral Resources and Petroleum Engineering (2010): Planning Policies and Permitting Procedures to Ensure the Sustainable Supply of Aggregates in Europe, Leoben.

Down, C.G., and J. Stocks. 1977. Environmental impact of mining. Applied Science Publishers, London, 371 p.

European Environment Agency 2008. Effectiveness of environmental taxes and charges for managing sand, gravel and rock extraction in selected EU countries. EEA Report No.2/2008., Copenhagen, 59 p. (ISSN 1725-9177)

European Commission (DG Enterprise) (2000): "Promoting sustainable development in EU non-energy extractive industry", COM/2000/265 Brussels.

European Commission (2005): Evaluation of the ‚Communication on Promoting sustainable development in the EU non-energy extractive industry', Interim Report

European Commission (DG Enterprise), 2008a. Public Consultation on Commission Raw Materials Initiative, Brussels.

European Commission (DG Enterprise), 2008b. The raw materials initiative—-meeting our critical needs for growth and jobs in Europe. Communication of the Commission (COM 699), Brussels.

European Commission, 2008c. Commission Staff Working Document SEC (2008) 2741 accompanying COM (2008) 699, Brussels.

European Commission DG Environment (2010): EC Guidance on undertaking new non-energy extractive activities in accordance with Natura 2000 areas.

Hámor, T. 2002. Legislation of mining waste management in Central and Eastern European Candidate Countries. Joint Research Centre of the European Commission, Ispra, EUR 20545 EN, 188 pp.

Hámor T. 2004: Sustainable mining in the European Union: The legislative aspect – Environmental Management, Vol. 33., pp. 252-261.

Hebestreit, C., and D. Kerschbaumer. 2001. The effects of EU legislation on the European mining industry in the field of environment and health & safety, and the tasks of Euromines. IMIL Euromin 2001 Conference, Budapest, 9 pp.

Kullmann, U. 2002. Requirements for a modern mining law. Chronique de la Recherche Miniére No. hors serie, 2002, pp. 33-40.

Kündig et. al. 1997, Die mineralischen Rohstoffe der Schweiz; BGR, 2008

Langer, W.H. 2009. Sustainability of aggregates in construction. Pg: 1-30 IN: Khatib, J.M. (ed) Sustainability of Construction Materials. Boca Raton, FL: Woodhead Publishing Limited and CRC Press LLC.

Land Use Consultant, Report of the Ad-hoc Working Group on Exchanging Best Practices on Land Use Planning and Geological Knowledge Sharing (2010)

Lammers, J.G. 2001. International responsibility and liability for damage caused by environmental interferences. Environmental Policy and Law, 31: 94-105.

Lorenz, Walter & Gwosdz, Werner 2003. Manual on the Geological-technical Assessment of Mineral Construction Materials: Hrsg. von der Bundesanstalt für Geowissenschaften und Rohstoffe und den Staatlichen Geologischen Diensten in der Bundesrepublik Deutschland. – Stuttgart: Schweizerbart 2003 (Geologisches Jahrbuch : Sonderhefte : Reihe H, Wirtschaftsgeologie, Berichte zur Rohstoffwirtschaft: SH 15)).

Lucas, C. 2001. The Baia Mare and Baia Borsa accidents: Cases of severe transboundary water pollution. Environmental Policy and Law, 31: 106-111.

Otto, J.M., 1999. Mining, environment and development. United Nations Conference on Trade and Development (UNCTAD). A series of papers for UNCTAD, New York.

Solar, S. V., Shields, D.J., and W.H. Langer. 2004. Important features of sustainable aggregates resource management. Geologia 47(1): 99-108.

Solar, S. V., Shields, D. J., and Miller, M. D. 2009. Mineral policy in the ear of sustainable development: historical context and future content. Materials and Geoenvironment, Vol. 56., No. 3., pp. 304-321.

Shields, D.j., & S. V. Solar. 2006. The nature and evolution of mineral supply choices. Pp. 902-907 In: Cardu, M., Ciccu, R., Lovera, E. & E. Michelotti. Proceedings of the 15th International Symposium on Mine Planning and Equipment Selection. September 20-22, 2006, Torino, IT. Galliate, IT: FIORDO.

STEMPKOWSKI R.: Beitrag zur Weiterentwicklung der UVP (Contribution to the development of EIA) [online]. ÖIAV-Arbeitskreis. 2002, Available from: http://www.oiav.at/pdf/uvp-2002.pdf

Tiess, G. 2010. Minerals policy in Europe: Some recent developments. Resources Policy, Vol. 35, pp. 190-198.

Vallefuoco, Legal framework of the EU with regard to the extraction of non-energetic minerals (2004)

Warhurst, A., and L. Noronha (eds.). 2000. Environmental policy in mining, Corporate strategy and planning for closure. Lewis Publishers, Boca Raton, 513 pp.

Wagner, H., Tiess, G., Solar, S., et al., 2005. Minerals planning policies in Europe. Aachen International Mining Symposia AIMS 4, 523–538.

Wagner, H. et al. 2006: Minerals planning policies and supply practices in Europe – European Commission Directorate General Enterprise, University of Leoben, http://ec.europa.eu/enterprise/steel/index_en.htm

UEPG (Union Europe´enne des Producteurs de Granulats; European Aggregates Association), 2009. /http://www.uepg.euS.