Minerals Planning Policies and Supply Practices in Europe

Commissioned by the European Commission Enterprise Directorate General under Contract n° ETD/FIF 2003 0781

Department of Mining and Tunnelling
University of Leoben, Austria
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Explanation to Table Symbols

_: A positive answer was received from the reference country as to whether the item exists, or a simple yes was given.

x: A negative answer was received from the reference country, where the item does not exist or a no/none answer was provided.

n/a: Not available (answer provided by the country in reference)
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACs</td>
<td>Autonomous Communities</td>
</tr>
<tr>
<td>ANEFA</td>
<td>Asociación Nacional Española de Fabricantes de Áridos (Spanish National Association of Aggregates Manufacturers)</td>
</tr>
<tr>
<td>BAT</td>
<td>best available techniques</td>
</tr>
<tr>
<td>BGS</td>
<td>British Geological Survey</td>
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<tr>
<td>BRGM</td>
<td>‘Bureau de Recherches Géologiques et Minières’</td>
</tr>
<tr>
<td>CHARTE</td>
<td>Charte Environnement des Industries de Carrières (environmental charter for the quarry industry)</td>
</tr>
<tr>
<td>CP</td>
<td>Cleaner Production</td>
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<tr>
<td>DG</td>
<td>Directorate General</td>
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<tr>
<td>DGGE</td>
<td>Direcção Geral de Geologia e Energia (General Directorate of Geology and Energy)</td>
</tr>
<tr>
<td>DRE</td>
<td>Direcção Regionais da Economia (Economy Regional Direction)</td>
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<tr>
<td>DRIRE</td>
<td>Direction Régionale de l’Industrie, de la Recherche et de l’Environnement</td>
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<tr>
<td>EA</td>
<td>environmental assessment</td>
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<tr>
<td>EIA</td>
<td>environmental impact assessment</td>
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<td>EIP</td>
<td>examination-in-public</td>
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<tr>
<td>EMAS</td>
<td>Community Eco-Management and Audit Scheme</td>
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<td>EMD</td>
<td>Exploration and Mining Division</td>
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<td>EMS</td>
<td>Environmental Management Systems</td>
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<tr>
<td>ES</td>
<td>Environment Study</td>
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<tr>
<td>ESDP</td>
<td>European Spatial Development Perspective</td>
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<td>EU</td>
<td>European Union</td>
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<tr>
<td>EWC</td>
<td>European Waste Catalogue</td>
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<tr>
<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>FDP</td>
<td>Federation of Stone</td>
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<td>FFH</td>
<td>flora-fauna-habitat</td>
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<td>GDP</td>
<td>gross domestic product</td>
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<tr>
<td>GEODERIS</td>
<td>public interest group formed by the BRGM and INERIS (in France)</td>
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<td>GEUS</td>
<td>Geological Survey of Denmark and Greenland</td>
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<td>GRI</td>
<td>Global Reporting Initiative</td>
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<td>HBU</td>
<td>State Mining Administration</td>
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<tr>
<td>ICN</td>
<td>Institute for Nature Conservation</td>
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<td>ICPE</td>
<td>Installations Classées pour la Protection de l’Environnement</td>
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<tr>
<td>Ifen</td>
<td>‘L’Institut français de l’environnement’</td>
</tr>
<tr>
<td>IGME</td>
<td>Geological Service of Spain</td>
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<tr>
<td>IGME</td>
<td>Greek Institute of Geology and Mineral Exploration</td>
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<tr>
<td>IMA-Europe</td>
<td>Industrial Minerals Association - Europe</td>
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<tr>
<td>INERIS</td>
<td>public institution with industrial and commercial dimensions, under the supervision of the Ministry for National and Regional Development and the Environment</td>
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<tr>
<td>IPCL</td>
<td>Integrated Pollution Control Licence</td>
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<td>IPPC</td>
<td>Integrated Pollution Prevention and Control</td>
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<tr>
<td>IVL</td>
<td>Integratives Verkehrs-und Landesentwicklungskonzept für Luxembourg</td>
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<tr>
<td>km</td>
<td>kilometers</td>
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<tr>
<td>M/TAN</td>
<td>Minerals Technical Advice Note</td>
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<tr>
<td>ME</td>
<td>Minister of Economics</td>
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<td>MEPRD</td>
<td>Ministry of Environmental Protection and Regional Development</td>
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<td>MMG</td>
<td>Marine Mineral Guidance</td>
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<td>MPAs</td>
<td>minerals planning authorities</td>
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<td>MPG</td>
<td>Mineral Planning Guidance</td>
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<td>MPP</td>
<td>Mineral Planning Policy</td>
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<tr>
<td>MPWs</td>
<td>Mineral Policy Wales</td>
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<td>Acronym</td>
<td>Description</td>
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<tr>
<td>Mt/a</td>
<td>million tonnes per annum</td>
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<tr>
<td>NFEPWM</td>
<td>National Fund of Environmental Protection and Water Management</td>
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<tr>
<td>NGOs</td>
<td>non-governmental organizations</td>
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<tr>
<td>NPPGs</td>
<td>National Planning Guidance Policy Notes</td>
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<tr>
<td>NSS</td>
<td>National Spatial Strategy</td>
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<tr>
<td>ODPM</td>
<td>Office of the Deputy Prime Minister</td>
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<tr>
<td>OMR</td>
<td>Outokumpu Metals and Resources</td>
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<tr>
<td>PAE</td>
<td>Mineral Extraction Regional Plan</td>
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<td>PAEC</td>
<td>Municipal Extraction Activities Plans</td>
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<td>PANs</td>
<td>Planning Advice Notes</td>
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<tr>
<td>PDM</td>
<td>municipal development plan</td>
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<tr>
<td>POS</td>
<td>Plan d’Occupation des Sols</td>
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<td>PPG1</td>
<td>General Policies and Principles</td>
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<tr>
<td>PPRM</td>
<td>Plans de Prévention des Risques Miniers (prevention plans of mine risks)</td>
</tr>
<tr>
<td>PPWs</td>
<td>Planning Policy Wales</td>
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<tr>
<td>PRAAMA</td>
<td>Portugal: Industrial order and environment performance improvement of the extractive industry program (2000 – 2006) – First program</td>
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<tr>
<td>PTR</td>
<td>piano regolatore generale</td>
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<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
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<tr>
<td>RAWP</td>
<td>Regional Aggregate Working Parties</td>
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<td>REMAS</td>
<td>Regional Environmental Management Systems</td>
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<tr>
<td>SDAU</td>
<td>Schema Directeur</td>
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<td>SDC</td>
<td>Schémas Départementaux des Carrières</td>
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<tr>
<td>SGSL</td>
<td>State Geological Survey of Latvia</td>
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<tr>
<td>SHE</td>
<td>Safety, Health and Environmental</td>
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<td>SR</td>
<td>Slovakia Republic</td>
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<td>TOP</td>
<td>technical operation plans</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>UEPG</td>
<td>European Aggregates Association</td>
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<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>UNPG</td>
<td>Union Nationale des Producteurs de Granulats (national union of gravel producers)</td>
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Chapter 1  Introduction

This study was commissioned by the European Commission Enterprise Directorate General under Contract n° ETD/FIF 2003 0781 in response to a request by the Industry Council and the Commission “to continue to develop measures aiming at the sustainable development of the extractive industries and to promote the exchange of best practices with the candidate countries, which have to rely on these sectors for their economic development”. The Commission also took into account the background of industry views across Europe considering mineral planning policies and practices, which continue to be an increasingly critical issue. Further reasons were the review of minerals planning policies, which has taken place in many Member States in recent years, and which has resulted in adaptations to related permitting procedures. Besides the traditional considerations of the various components of national land use planning priorities, there was also the effect of recent EU legislation that supersedes some of the national priorities.

This study builds partially on an earlier study entitled “Minerals Planning Policies and Supply Practices in Europe” which was commissioned by the Department of the Environment in London and undertaken by Land Use Consultants during 1994 and published in 1995.

Scope and Objective

The main objective of this study was to provide information on the different approaches to mineral planning policies and practices of the Member States. It identifies the differences between the various planning policies and procedures and describes existing links between national systems and European policies and legislation. Best practices (European and international) are highlighted and recommendations are made to address possible deficiencies. It also evaluates the impact of different systems on the competitiveness of the extractive industry.

The study builds as far as possible upon the results of the studies carried out previously, by Member States. It focuses on the non-energy extractive sector, but where beneficial to the understanding of the national systems, it also considers possible links and overlaps with land-planning policies and practices relating to the energy minerals sector.

Tasks

The study included the following tasks:

1. A description of:
   - The relevant EU legislation which impacts on national minerals planning policies and practices.
   - The national systems for ownership of mineral resources in Member States.
• The components of existing national legislation, policies and administrative procedures for securing supplies of minerals in Member States.

• Key features that characterise the current national or regional land use planning systems, and the effect they have on the extractive industry. Non-legislative considerations at state, regional or local level are also considered.

2. An evaluation of:

• The impact on sustainability of minerals planning policies and related procedures including the impact on the competitiveness of European mining and quarrying industries. In addition, a description is given of the possible results achieved by each system in terms of environmental protection and societal benefits.

3. Consideration of:

• Best practices for cost effective administrative legislative procedures currently used in the Member States; and where relevant, industry practices in countries outside Europe that have comparable concerns.

• Best practices with regard to policy orientations, legal and administrative systems as well as mechanisms for policy integration. Particular attention is given to innovative, successful elements in the various systems described and studied, as well as to the costs involved in comparison with traditional approaches.

The study was awarded to the Department of Mining and Tunnelling of the University of Leoben in Austria. The University of Leoben assembled a team of mining and minerals experts from different parts of Europe to assist with the study. The approach adopted was to divide Europe into a number of regions based on geographical and language considerations. For each of the regions, a specialist was appointed who had the task to assess the situation in the countries within the region allocated to him. Country reports were prepared using a standard format. These formed the basis of the final report. A three day workshop was held to discuss minerals planning policies in the various Member States\(^1\) and Norway. The group in Leoben used the individual country reports to prepare the final report. Individual discussions with representatives of government agencies, minerals associations and mining enterprises were held to clarify specific issues. The draft of the final report was made available for comment to members of the Raw Materials Supply Group (RMSG) of DG Enterprise. Comments which were received have been incorporated into the final report. Throughout the study close contact with the DG Enterprise was maintained. The views expressed in this report are those of the authors and do not reflect the position of DG Enterprise. Details of the project team and the task undertaken by them are given in Annex I.

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\(^1\) Malta and Cyprus were not included.
Chapter 2  Importance of minerals for the development of Europe

2.1  European geological structure

Knowledge of the basic structural geology of Europe is necessary when analysing similarities and differences in mineral policies and supply practices between the Member States. The geology dictates the location, types and availability of certain minerals, but it also makes a fundamental contribution to the topography, water quality, soil type, vegetation, and land use.

Throughout geological history, Europe has experienced at least eight periods of mountain building (orogenesis). Although this process, which is described by the theory of plate tectonics, is highly complex, each cycle involved the upwelling of part of the continental crust to form mountain chains which subsequently eroded over many millions of years before the cycle repeated itself.

Mountainous areas contain rocks that have been heavily faulted and folded, and sometimes during the process metamorphosed together with intrusions of igneous and volcanic rocks that were forced into the crust by underlying magma. These rocks are often highly mineralised, containing a wide range of metalliferous and other commercially valuable minerals including: lead, zinc, copper, uranium, tin, tungsten, gold, silver, antimony, arsenic, and mercury. Following the natural processes of the orogenic cycle, debris eroded from mountain areas and accumulated in intervening land-locked or costal basins to form younger sedimentary ‘cover’ rocks. Large accumulations of sediment compress the underlying ‘basement’ rocks which comprise older deformed rock. Both cover rock and basement rock may constitute mineral resources in their own right, or may contain minerals which have been ejected or dispersed through seismic, volcanic or hydrothermal activity.

In Europe, the oldest rocks of Pre-Cambrian age are those found in the North and North-west (the Laurentian Shield in Scotland and Fennoscandianvian Shield in Sweden, Finland, and Estonia). These rocks formed between 2900 and 900 million years ago. The youngest rocks in Europe are still being formed in the Tyrrhenian and Aegean seas south of the continental mainland.

The majority of Western Europe consists of Carboniferous, Permian, Triassic, Jurassic and Cretaceous age rocks (ranging from 346-65 million years old), while the majority of Eastern Europe consists of Palaeozoic, Mesozoic, and Cenozoic age rocks (ranging from 544 million years ago to the present). These include limestone, sandstones and clays laid down in a series of sedimentary basins. Marine incursions and climate change due to latitudinal movements in the Carboniferous era gave rise to large deposits of oil, gas, coal and lignite found within this region, while similar processes in the Permian produced extensive deposits of salt and potash.
The basic geological structure of Europe prescribes the distribution of most commercial minerals, but glaciation during the quaternary also had a significant influence on superficial deposits, including sand and gravel, which makes up one of the primary sources of aggregates for the construction industry. Glacial activity was most pronounced in Northern Europe, North-western Europe and in the major mountain areas, with very large quantities of rock being eroded, crushed and transported by ice with subsequent dispersal by water and wind action. In areas close to the moraine, or on the terraces of river valley, while at greater distance, considerable depths of wind-blown sand or ‘loess’ may have accumulated.

2.2 Distribution of commercial minerals

Minerals can be classified according to their source of origin, into two main groups:

- Endogenic: created during the crystallisation of magma;
- Exogenic: created through the dynamics of sedimentation.

2.2.1 Endogenic minerals

Endogenic minerals are commonly found in the rocks of Precambrian and Palaeozoic age and in the mountains of the Alpine orogeny. Sulphides of lead, zinc and copper are associated with acidic volcanic rocks and are principally found in Norway, Finland, Sweden, Central France, Germany, and the Southern Iberian Peninsula. Iron ore deposits are particularly important in the Kiruna region of Sweden.

A second group of endogenic minerals is formed in conjunction with granitic intrusions and includes uranium, tin, tungsten, gold, antimony, arsenic, and mercury. These minerals are found in South West England, Central France, and Northern Portugal.

A third endogenic mineral group is found in association with basics rocks, including copper sulphides in Cyprus and Norway, and chromite, asbestos, and talc found in Cyprus and Greece.

2.2.2 Exogenic minerals

Exogenic minerals include a wide range of naturally occurring sedimentary rocks. They include sand and gravel used in concrete, clays used in brick and tile making and in the ceramic industries, limestone and chalk for cement, lime sulphates such as gypsum and anhydrite, used in plaster manufacture, ornamental stones such as marble and silica sands for glass and refractory products.

Exogenic minerals can also be broken down into a second group which are those that have been deposited in association with sedimentary rocks, such as oolitic ironstone, found in central England, Brittany, Germany, Lorraine, Luxembourg, and Portugal. Copper deposits have also been formed in this way in Germany. Displacement deposits of lead and zinc are common in sedimentary rocks of Permian, Triassic and Jurassic age; thus Europe is one of the most important parts of the world for these minerals.
Commercial deposits of lead and zinc have been mined in Austria, Finland, France, Germany, Greece, Italy, Poland, Sweden, Spain, and Ireland. Other parts of Europe contain substantial deposits of bauxite (aluminium). The mineral occurs and is produced in Greece, Hungary, Italy, the Netherlands, and Spain. Salt and potash are also associated with rocks of Permian and Triassic age; these deposits are found in a number of countries.

A third group of exogenic minerals consists of solid fuels and hydrocarbons. Hard coal is found in Carboniferous and early Permian rocks in Belgium, Czech Republic, United Kingdom, France, Germany, Hungary, Ireland, Poland, Portugal, and Spain. There remain large reserves of brown coal or lignite, which are principally found in Austria, Czech Republic, France, Germany, Greece, Hungary, Poland, Slovak Republic, and Spain. Hydrocarbons were not the contained in the scope of this research study and thus will not be further discussed.

### 2.3 Importance of minerals for development in Europe

Mineral commodities—metals, fuels, industrial and construction materials—are required for a vast range of uses including, agriculture, water supply, power, housing transport, and communications.

The non-energy extractive industry is often considered to be made up of three broad sub-sectors:

- Construction minerals
- Industrial (non-construction) minerals
- Metalliferous minerals.

Within the context of this study construction minerals are aggregates (i.e. sand and gravel and crushed rock (limestone, sandstone, igneous rock etc.), common clay and shale, gypsum, limestone and dolomite, and building stone (dimension stone). This is by far the largest of the three sub-sectors in terms of the tonnage of minerals extracted.²

The industrial minerals sector provides minerals such as calcium carbonates, dolomite, magnesite, baryte, borates, diatomite, feldspar, fluorspar, graphite, kaolin, mica, plastic clays, bentonite, silica and talc, and salt. It also includes metallic minerals used for non-metallic purposes, such as ilmenite. These are important raw materials for the chemicals, fertiliser and steel industries, as well as for ceramics, glass, paper, paints and plastics industries.³ In some circumstances, minerals, such as limestone can be considered both as construction materials and industrial minerals.

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The EU is a major user of metals, for some, accounting for 25 and 30% of global consumption. Some EU countries, for example Finland, Ireland, Greece, Poland, and Sweden are major producers of particular metals. A number of Member States currently do not have a metalliferous mining industry. In complete contrast to construction minerals, there is therefore very heavy reliance on imports.

European annual mineral production excluding energy minerals and hydrocarbons is summarised in Table 27 (metal ores) and, Table 28 (industrial minerals). According to this data, between 20 and 22 million tonnes of metals, about 100 million tonnes of industrial minerals and more than 3 billion tonnes of construction minerals are produced annually in Europe. Detailed figures of mineral consumption are difficult to obtain. This is particularly so in the case of metal consumption and to a lesser extent industrial minerals. In the case of construction minerals the consumption of construction minerals is more or less equal to the production.

In Table 1 the European minerals production is shown as a proportion of total world production. It can be seen that metals production in Europe is insignificant by world standards. As indicated above, the EU is a globally important producer of some industrial minerals. Not shown in this table are construction minerals, which account on a tonnage basis, for more than 90% of minerals produced in Europe. Most of these minerals are produced in Europe and are usually used within a relatively short distance from their point of production.

The European producers of industrial minerals - Members of IMA-Europe - operate more than 650 mines and quarries and 600 plants throughout Europe. The European industrial minerals sector is present in nearly all of the EU Member States, from the very north of Scandinavia to the Mediterranean Coast. They offer direct employment to some 40,000 people and process an annual volume of some 100 million tonnes, contributing a value of around € 10 billion to the EU's gross domestic product (GDP). If downstream industries such as glass, foundries, ceramics, paper, paint, plastic, etc. are included, these figures are several orders of magnitude greater. With regards to the new Member States and Acceding Countries, the non-energy extractive industry as a whole directly provides 1 million jobs and approximately 4 millions jobs in downstream industries.

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5 See Annex
6 Very clearly, the industrial minerals sector has increased in importance over the years. European companies such as OMYA or Talc de Luzenac are market leaders in the field of high quality filler materials required by the paper, pulp and plastics industries. But others such as Imerys, Sibelco and S&B Industrial Minerals are also market leaders in their fields of expertise. Next to these world leading companies, one must remember that the industrial minerals industry is mainly composed of small and medium-sized enterprises (SMEs).
7 Information provided by IMA, November 2004.
The heavy import dependence of Europe in the area of metal ores is illustrated in Figure 2.
Figure 2: Import dependence of the European Union (Noesttaller, 2000)

The importance of minerals to the European society can be judged from typical mineral consumption figures of a German citizen over a 70 year life span (Table 2).

Table 2: Typical mineral consumption of a German citizen over a life span of 70 years

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Tonnes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand and gravel</td>
<td>460,0</td>
</tr>
<tr>
<td>aggregates</td>
<td>146,0</td>
</tr>
<tr>
<td>clays</td>
<td>29,0</td>
</tr>
<tr>
<td>industrial sands</td>
<td>23,0</td>
</tr>
<tr>
<td>rock salt</td>
<td>13,0</td>
</tr>
<tr>
<td>gypsum</td>
<td>6,0</td>
</tr>
<tr>
<td>dolomite</td>
<td>3,5</td>
</tr>
<tr>
<td>phosphate rock</td>
<td>3,4</td>
</tr>
<tr>
<td>dimension stones</td>
<td>1,8</td>
</tr>
<tr>
<td>potash</td>
<td>1,6</td>
</tr>
<tr>
<td>kaolin</td>
<td>1,2</td>
</tr>
<tr>
<td>steel</td>
<td>39,0</td>
</tr>
<tr>
<td>aluminium</td>
<td>1,4</td>
</tr>
<tr>
<td>Steel alloy metals</td>
<td>1,0</td>
</tr>
<tr>
<td>copper</td>
<td>1,0</td>
</tr>
<tr>
<td>cement</td>
<td>36,0</td>
</tr>
<tr>
<td>oil</td>
<td>166,0</td>
</tr>
<tr>
<td>lignite</td>
<td>145,0</td>
</tr>
<tr>
<td>hard coal</td>
<td>50,0</td>
</tr>
</tbody>
</table>
Of particular importance are the construction minerals (Table 3) which are the basis of infrastructure development. More than 3 billion tonnes of sand, gravel and crushed stone are produced annually to meet the demands of the European building industry.

Table 3: Production of sand & gravel and crushed rock in 2001 (except where indicated)\(^8\)

<table>
<thead>
<tr>
<th>Country</th>
<th>Production (thousand tonnes)</th>
<th>Exports (thousand tonnes)</th>
<th>Imports (thousand tonnes)</th>
<th>Exports minus imports (thousand tonnes)</th>
<th>Net exports as a % of production (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>45,568</td>
<td>2,428(^1)</td>
<td>2,293</td>
<td>135</td>
<td>0.3</td>
</tr>
<tr>
<td>Belgium</td>
<td>49,605</td>
<td>15,785</td>
<td>23,173</td>
<td>-7,388</td>
<td>-14.9</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>3,300</td>
<td>122(^4)</td>
<td>10(^4)</td>
<td>112</td>
<td>3.2</td>
</tr>
<tr>
<td>Cyprus</td>
<td>9,300</td>
<td>3</td>
<td>-3</td>
<td>-3</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>32,217</td>
<td>555</td>
<td>261</td>
<td>294</td>
<td>0.9</td>
</tr>
<tr>
<td>Denmark</td>
<td>52,976</td>
<td>1,113</td>
<td>2,124</td>
<td>-1,011</td>
<td>-1.9</td>
</tr>
<tr>
<td>Estonia</td>
<td>4,100</td>
<td>282</td>
<td>380</td>
<td>-98</td>
<td>-2.4</td>
</tr>
<tr>
<td>Finland</td>
<td>80,000(^3)</td>
<td>581</td>
<td>137(^2)</td>
<td>444</td>
<td>0.6</td>
</tr>
<tr>
<td>France</td>
<td>391,368</td>
<td>12,547</td>
<td>9,296</td>
<td>3,251</td>
<td>0.8</td>
</tr>
<tr>
<td>Germany</td>
<td>460,806</td>
<td>21,152</td>
<td>15,007</td>
<td>6,145</td>
<td>1.3</td>
</tr>
<tr>
<td>Greece</td>
<td>41,000(^2)</td>
<td>34</td>
<td>29</td>
<td>5</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Hungary</td>
<td>38,071</td>
<td>590</td>
<td>57</td>
<td>533</td>
<td>1.4</td>
</tr>
<tr>
<td>Ireland</td>
<td>100,000(^3)</td>
<td>380</td>
<td>990</td>
<td>-610</td>
<td>-0.6</td>
</tr>
<tr>
<td>Italy</td>
<td>303,525(^1)</td>
<td>1,268(^1)</td>
<td>4,015</td>
<td>-2,747</td>
<td>-0.9</td>
</tr>
<tr>
<td>Latvia</td>
<td>688</td>
<td>173</td>
<td>543</td>
<td>-370</td>
<td>-53.8</td>
</tr>
<tr>
<td>Lithuania</td>
<td>7,600</td>
<td>259</td>
<td>964</td>
<td>-705</td>
<td>-9.3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>30,000(^3)</td>
<td>8,328</td>
<td>19,192</td>
<td>-10,864</td>
<td>-36.2</td>
</tr>
<tr>
<td>Poland</td>
<td>88,127</td>
<td>868</td>
<td>91</td>
<td>777</td>
<td>0.9</td>
</tr>
<tr>
<td>Portugal</td>
<td>70,486(^3)</td>
<td>54</td>
<td>750</td>
<td>-696</td>
<td>-1.0</td>
</tr>
<tr>
<td>Romania</td>
<td>733</td>
<td>2</td>
<td>124</td>
<td>-122</td>
<td>-16.6</td>
</tr>
<tr>
<td>Slovakia</td>
<td>9,700(^1)</td>
<td>570</td>
<td>195</td>
<td>375</td>
<td>3.9</td>
</tr>
<tr>
<td>Slovenia</td>
<td>11,510</td>
<td>78</td>
<td>491</td>
<td>-413</td>
<td>-3.6</td>
</tr>
<tr>
<td>Spain</td>
<td>383,688(^4)</td>
<td>1,642</td>
<td>1,088</td>
<td>554</td>
<td>0.1</td>
</tr>
<tr>
<td>Sweden</td>
<td>71,223(^4)</td>
<td>2,207</td>
<td>417</td>
<td>1,790</td>
<td>2.5</td>
</tr>
<tr>
<td>UK</td>
<td>234,704</td>
<td>13,238</td>
<td>771</td>
<td>12,467</td>
<td>5.3</td>
</tr>
</tbody>
</table>

\(^1\)1997 data; \(^2\) 1998 data; \(^3\) 1999 data; \(^4\) 2000 data

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The per capita consumption of construction minerals varies greatly in Europe and is indicative of the developmental stage of the countries (Table 4). Considering the per capita consumption figures of construction minerals in some of the New Member countries it is reasonable to assume that the consumption of construction minerals in Europe will increase during the next few years to facilitate infrastructure development in these countries.

Table 4: Annual per capita consumption of construction minerals of a number selected European countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Inhabitants (Million)</th>
<th>Production (Mt)</th>
<th>Consumption (t/inhabitant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic</td>
<td>10.3</td>
<td>25.7</td>
<td>2.5</td>
</tr>
<tr>
<td>Slovakia</td>
<td>5.4</td>
<td>11.8</td>
<td>2.2</td>
</tr>
<tr>
<td>Hungary</td>
<td>10.2</td>
<td>32.2</td>
<td>3.2</td>
</tr>
<tr>
<td>Germany</td>
<td>82.3</td>
<td>700</td>
<td>8.5</td>
</tr>
<tr>
<td>Austria</td>
<td>8.1</td>
<td>100</td>
<td>12.3</td>
</tr>
<tr>
<td>Slovenia</td>
<td>2</td>
<td>13.4</td>
<td>6.7</td>
</tr>
<tr>
<td>Switzerland</td>
<td>7.3</td>
<td>50</td>
<td>6.8</td>
</tr>
</tbody>
</table>

Taking into consideration the large quantities of minerals required by the European society and industry, sustainable development in Europe will depend on actions at the central European level, at national level and at regional level. While there are many common elements and linkages at all levels, requirements will vary from country to country. In the important area of construction minerals solutions for an ongoing and
uninterrupted local supply will have to be found, whereas in the case of metal ores, Europe will have to rely on imports with all associated risks as the latest development in the area of ferrous metals have shown.\textsuperscript{9}

Considering that economic growth in the highly populated countries of China and India over the past two decades has been double that of the world average, it is foreseeable that the demand for minerals in these two countries will grow significantly and could put pressure on the supply of Europe with metal ores. Indeed there are signs that this is already happening. Appropriate policy measures will have to be taken to secure ongoing supply of Europe’s industry with metal ores.

In this context it should be noted that in a recent analysis Skinner (2000) forecast that, over the next 50 years, mineral commodity requirements could amount to as much as five times the total global production to date. Skinner makes the point that demand will continue to be driven by a burgeoning population and the growing aspirations of developing nations, which are being fuelled by globalisation\textsuperscript{10}.

\textsuperscript{9} The supply shortage of iron ore was caused primarily by limitations of the harbour capacities in the major producing countries and shortages shipping capacity.

Chapter 3  Securing supply of minerals - Strategic planning for minerals

3.1 Sustainable development

In Chapter 2 it was shown that mineral resources are fundamental to human well being and the development of the European society. It was shown further that in some areas the demand for minerals, particularly construction minerals is likely to grow in absolute and in relative terms. If mining is to be used as a developmental tool, the implementation of new policies and practices will be essential. An appropriate starting point in this direction is the concept of sustainability which has been accepted by most as the basis for decision making concerning long term development.

3.1.1 Background

The late 1960s and early 1970s are often cited as the date of birth of the current ecological era, largely determined by the acceleration of economic reconstruction and industrial growth in the wake of the Second World War. This development brought an extraordinary increase in the pressure on renewable and non-renewable natural resources like water, the air, flora, fauna and mineral resources which, science showed, were heading for exhaustion or occasionally irreversible degradation.

As the state of the environment gradually deteriorated, the late 1960s saw previous one-off, sporadic and geographically limited environmental initiatives replaced by systematic international efforts to build up a body of rules, principles and concepts which could frame these concerns at a more global level.

Important developments on the road to the establishment and acceptance of the concept of sustainable development were:

The Rome Treaty of 1951 declared amongst its objectives “to promote a policy of using natural resources rationally and avoiding their unconsidered exhaustion”. This statement was ahead of its time, by establishing a major element of the sustainability concept.

The adoption by the Council of Europe of the “Declaration on the Control of Air Pollution and the European Water Charter” was in 1968.

The Stockholm Conference in 1972 which proclaimed that not just hydrocarbons and minerals, but the air, water, land, flora, fauna and natural ecosystems are natural resources of the earth which should be safeguarded for the benefit of present and future generations.

The “Brundtland Report “of 1987 entitled “Our Common Future”, first defined the concept of sustainable development as: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”
This report identified or developed the critical objectives of sustainable development:

- reviving economic growth but changing its quality;
- meeting humanity's essential needs;
- ensuring a sustainable level of population growth;
- conserving and enhancing the resource base;
- reorienting technology and managing risk;
- taking account of environmental and economic concerns in decision making.

The Earth Summit was held in Rio de Janeiro in 1992 (UNDP 1992) where the need for transition to a sustainable development path was agreed by the world's nations. The Rio Conference produced the Declaration on the Environment and Development, an action programme known as Agenda 21, the Statement of Principles for the Protection of Forests, the Convention Framework on Climate Change, and the Convention on Biological Diversity, which enshrined the concept of sustainable development and promoted its implementation across the planet. The Rio texts called for the integration of environmental protection and economic and social development policies\(^{11}\) and defended widespread participation of citizens in decision making processes. This general objective guiding international and national action is, thus, summarised in the concept of sustainable development, as one of the basic concepts of international environmental law which can be extended to the "common concern of mankind".

The World Summit on Sustainable Development held in Johannesburg in 2002 reaffirmed the commitment to sustainable development.

Relevant developments at the Community level were:

The Treaty at Maastricht (1992) which represented a further qualitative leap by putting environmental questions on a par with economic questions and enshrining sustainable development and the "raising of the standard of living and quality of life" as Community objectives (Article 2). At the same time, Maastricht laid down the need for a Community policy on the environment (Article 3) and reinforced the imperative nature of the principle of integration by linking it to the Community objective of sustainable development and "a high level of protection" in terms of environmental policy.

The Amsterdam Treaty (1997) implemented a coherent Community policy on the environment by adopting the concept of sustainable development. Accordingly, this policy contributed to a pursuit of the objective of "prudent and rational utilisation of natural resources". Mineral resources are subject to this policy, by being important non-renewable natural resources for the developed industrial societies. However, the implementation of this policy in Community legislation is delayed.

\(^{11}\) Kiss & Shelton, op. cit. 2000. Opposing this understanding and maintaining that the concept of sustainable development does not include the objective of economic development although it does not deny it, either, see Epiney & Scheyli, op. cit. 1997, p.259.
The developments referred to here have found their way into Community actions in the form of Directives, Conventions, Communications and Programmes as well as into national law and have had an important impact on the non-energy extractive industry in Europe.

3.1.1.1 What is sustainable development?

Sustainability is about choices regarding what to sustain, how, when, where, and for whom. Debates about sustainability reflect people’s opinions about the appropriate answers to these questions and conclusions vary among countries because of differences in culture, values and circumstances. There is no one, correct view of what sustainability means or how its principles should be implemented.

Sustainable development has four overarching goals: economic prosperity, environmental health, social equity for the present generation and equal opportunities for future generations.

The question of the relationship between economic development and environmental protection is one of the most complex and difficult to resolve in describing the content and scope of the concept of sustainable development. The difficulty arises from the fact that economic development and the impacts on the environment are interlinked. The positions found range between one which insists on a close, balanced relationship between economic development and environmental concerns to one which is limited to strictly environmental aspects.

The question was critical at the Rio Conference, in that the countries of the North defended a view which laid more emphasis on environmental protection while those of the South tended to see environmental concerns solely as one more factor to be considered in the development process. The Conference did not define the concept, and the texts it produced provided no clear idea of its content; they made for interpretations in either direction, which sometimes favoured economic development and sometimes the environment.

The difficulty arises from the fact that sustainability embodies values about the kind of world we want to live in and leave for future generations. Human values are not fixed and independent of social, economic, and ecological context, and as a result, there are multiple perspectives on what sustainability means, and how it should be achieved. This will be particularly true for the enlarged Europe where significant differences in standards of living and in economic activity exist. From this follows that within the general framework of sustainability different European countries may adopt different approaches to suit their specific requirements and needs.

3.1.1.2 Weak versus strong sustainability

The core principle of sustainable development is to improve human well-being and to sustain those improvements over time. This requires passing the means of survival on to future generations unimpaired and building, or at least not diminishing, the total stock of capital. It also requires the integration of social, economic, environmental and governance goals in decision-making. The idea of “capital” lies at the heart of
sustainable development. This goes beyond the common idea of financial capital and has five main forms:

- **Natural capital**, which provides a continuing income of ecosystem benefits, such as biological diversity, mineral resources, and clean air and water;
- **Manufactured capital**, such as machinery, buildings, and infrastructure;
- **Human capital**, in the form of knowledge, skills, health, and cultural developments;
- **Social capital**, the institutions and structures that allow individuals and groups to develop collaboratively, and
- **Financial capital**, the value of which is simply representative of other forms of capital.

There are two schools of thought. Some theorists of sustainable development see all forms of capital completely substitutable, it does not matter which form the stock of capital takes, as long as the total, in some agreed unit of account does not decline. While this is consistent with the notion of sustainable development that equal or increased amounts of capital are passed to future generations, it allows the form of this capital to change. To a proponent of “weak” sustainability natural resources do not occupy a privileged position, and the environment is merely another form of capital.

Others, however, argue that the different types of capital are not substitutable since the loss of some critical form of natural capital, such as the ozone layer or biodiversity, could threaten the survival of the human race. While manufactured or human capital can be replaced, the destruction of natural capital is often irreversible. This approach narrows the range of options by forbidding certain trade-offs.12

There is an emerging consensus that there are in fact some non-negotiable or trade-off types of capital. An example of this is the ozone layer.

### 3.2 The Community view on sustainable development and the extractive industry

The Fifth Community Policy and Action Programme on the environment, at point 5 of the introduction, states that, as used in the document, the word “sustainable” aims to reflect “a policy and a strategy of continued economic and social development without detriment to the environment and natural resources, on which the quality of continued human activity and further development depend”, and then, immediately after, reproduces the classical definition given by the Brundtland Report.

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The European Community has adopted the sustainable development concept as detailed in the Brundtland Report. The Brundtland definition has been incorporated in the EU Strategy for sustainable development, adopted at the Gothenburg Council in 2001. This strategy requires that all policies should be judged by how they contribute to sustainable development.\(^\text{13}\)

This development, the text of the Fifth Programme continues, implies maintaining the overall balance and the value of reserves of natural capital (…), and then lists the practical measures and objectives of Community policy for achieving that objective and a high level of protection. In this field of objectives and “given that reserves of raw materials are finite … it will be necessary to avoid waste and the exhaustion of reserves of natural resources, by managing the various phases of the flow of production and consumption and encouraging reuse and recycling (point 6).”

The Communication from the Commission on “Promoting sustainable development in the EU non-energy extractive industry” (COM (2000) 265) was the first document to discuss the problem of sustainable mining. In spite of its limited scope it gave a complex review of the mining industry and made valuable statements such as:

- mining is increasingly influenced by other competing land uses, such as urban development, agriculture, nature conservation;
- the balanced consideration of economic, environmental and social aspects to ensure the sustainable development of the industry is needed;
- a coherent Community policy is necessary.

The Communication raises two kinds of concern from the point of view of sustainable development. These concerns are "the use of non-renewable resources, themselves, which may mean that these resources will not be available for future generations" and the quality of the environment, pointing to general and specific risks since mining may affect the quality of the environment. These risks are "air pollution (mainly dust), noise, soil and water pollution and effects on ground water levels, destruction or disturbance of natural habitats, and the visual impact on the surrounding landscape", the scope and intensity of the operation which "depends on the nature of the ore and specific characteristics of the site.” The environmental impact "is likely to be greater in metal mining" (paragraph 2.3).

Therefore, the “priority issues for sustainable development of the industry” are: “preventing accidents”, “improving the environmental performance of the industry in general” (which also requires action by the Member States aimed at an “inventory” and “restoring abandoned mine sites”).

Among its follow-up actions, the Communication envisaged to issue an action plan which was the Communication from the Commission on “Safe operation of mining activities: a follow-up of recent mining accidents”, COM (2000) 664. This Communication describes the Aznalcollár and the Baia Mare accidents and gives an

\(^{13}\) Communication of the Commission (2001) 264 "A sustainable Europe for a better world: a European Union strategy for sustainable development".
overview of the Community environmental legislation with a special emphasis on tailings pond safety. The three key follow-up actions identified were, the amendment of the Seveso II Directive, an initiative on the management of mining waste, and a BAT reference document under the IPPC Directive. 

In spite of the difficulties of reconciling the objectives of competitiveness and sustainable development, the Commission also expressed its clearly affirmative vision of the need to have the extractive industry meet the objectives of the concept and the measures to be taken with a view to improving environmental performance.

The recently approved 6th EU Environment Action Programme reaffirms sustainable development and sets out some lines of action, some of which are of clear interest to, and applicable in, the extractive industry. It sets the objectives of “ensuring the consumption of renewable and non-renewable resources does not exceed the carrying capacity of the environment” and “de-coupling resource use from economic growth through significantly improved resource efficiency, dematerialisation of the economy, and waste prevention.”

The Community view on sustainable development in the extractive industries is focussed on improving the environmental performance of the industry, on safe mine operations and preventing accidents and on sound management of mine wastes including recycling. The text of the 5th EU Environment Action Programme recognizes that reserves of raw materials are finite and that it will be necessary to avoid waste and the exhaustion of reserves of natural resources, by managing the various phases of the flow of production and consumption and encouraging reuse and recycling (point 6). What is missing from the measures is the protection of mineral reserves from sterilisation through other forms of land use. The Communication on “Promoting sustainable development in the EU non-energy extractive industry” (COM 2000/265 final), refers to land use planning as one of the key factors impacting on the competitiveness of the non-energy extractive industries.

### 3.3 Specific aspects of sustainability within the context of minerals resources

Some universal considerations for sustainable development are: maintaining environmental capital; preventing degradation of land, air and water quality; efficient production and use of natural resources; decreased rate of emissions of greenhouse gases; increased recycling; and prevention, minimisation and safe disposal of wastes.

Compared to other natural resources minerals are different in many ways. First and foremost minerals are non-renewable and fixed to certain specific localities. This has certain consequences in terms of the concept of sustainability of minerals supply. The concept of sustainability of non renewable resources will be discussed under the following headings:

- Responsible and careful management of the resource
- Development of improved technology
3.3.1 Protection of the resource

Mineral deposits are anomalies in the earth crust, geographically fixed and not renewable. Furthermore, mineral deposits have a finite size. In the case of some minerals and in particular metal ores the size of the exploitable deposit is often determined by economic factors such as metal prices and cost of production. Deposits which are not economic to work under current circumstances may become economic in future.

Access to mineral deposits should, therefore, be protected to ensure that they can be extracted when the need arises. The most appropriate means to achieve this objective is to include information on mineral deposits in land use data bases and to consider minerals on equal terms with other land uses. Protection of mineral deposits is a long-term investment within the context of sustainability.

3.3.2 Responsible and careful management of the resource

Mineral deposits are finite in extent and, within realistic timeframes, not renewable. One notable exception is gypsum which in the form of REA-Gypsum is a by-product of the combustion of coal and is recovered from the flue gases.

The non-renewable nature of most mineral deposits demands that:

- These deposits are extracted as completely as possible.
- The search for new deposits is an ongoing activity.
- Mineral deposits are extracted in such a manner that presently uneconomic portions of such deposits are not sterilised for future extraction.

3.3.3 Development of improved technology

The objectives of new technology developments are\(^\text{14}\):

- To develop better exploration technologies to assist in the search for new mineral deposits;
- To develop extraction methods which allow for the more complete extraction of mineral bodies:

\(^{14}\) The Austrian Minerals Plan which is being prepared at present has technology development as one of its declared objectives.
• To develop cheaper and more efficient methods of extraction and mineral processing to allow for the economic extraction of lower quality mineral deposits;

• To develop extraction and mineral processing methods which minimise the environmental impact and damage caused by mining;

• To develop processes which minimise mining waste production;

• To develop technologies which are less mineral resource intensive;

• To develop and use substitute materials and

• To investigate upgrading minerals and finding new uses for minerals.

Technological development is an ongoing process and requires long term vision and faith in the future of the sector.

3.3.4 Recycling and substitution

The importance of recycling and substitution has been recognised and is a part of Community Programmes. Through the development of new technologies and processes and logistics systems on the users side the need for minerals can be reduced substantially. While recycling of metals is a well established and accepted technology\(^\text{15}\), the extent to which other mineral products are recycled is still rather limited. In the field of construction minerals the contribution of recycled material to total supply is generally less than 10%. The reason for this low recycling rate is usually logistics and to some extent economics. In some Member States determined efforts are being made to increase this proportion substantially.\(^\text{16}\) Substitution of minerals with other materials is receiving much attention and offers considerable potential. An area which deserves closer looking into is the substitution of relatively rare minerals with more common minerals. This is already being implemented in the field of filler materials for the paper and plastics industries.

Extremely high environmental standards and other standards controlling the use of recycled material can act against their use. Experiences in some Member States have shown that the desired recycling rates are not being achieved because of the very stringent environmental standards which have been adopted in Europe. In many instances the recycled material does not meet these standards and for that reason can not be used.\(^\text{17}\)

\(^{15}\) Although Austria no longer has copper mining activities it is a net exporter of copper metal. H. Wagner and R. Noetstaller: Zur Frage der Bedeutung der Versorgung Österreichs mit mineralischen Rohstoffen aus heimischen Vorkommen. BHM, v. 142 (1997) pp. 339-349.


\(^\text{17}\) The German Sand and Gravel Association and the Manager of the Bavarian Minerals Association reported the same experiences at a meeting held with representatives in Berlin on 22 September 2004. In Bavaria recycling rates are only 4% which is well below those planned.
Recycling and the use of secondary materials are considered important routes to follow to ensure the sustainability of minerals supply. Numerous Member States encourage the use of recycling materials. In Germany for example, the production of recycled construction materials has risen from 30 million tonnes per annum (Mt/a) (early 1990’s) to 50-60 (Mt/a) (late 1990’s). A recycling ratio of over 70% has already been reached. In terms of the contribution of recycled material to construction minerals supply, the proportion is still low, typically 5% to 10%. Long term forecasts suggest that substitution of construction minerals with recycled material will increase to about 20%.\(^\text{18}\)

In Sweden the policy decision has been taken to decrease the extraction of sand and gravel and to increase the use of recycled aggregates and alternative materials. In a similar way, the Netherlands have taken the decision to encourage increased use of secondary raw material in the building and construction industry. The following advantages are seen: it reduces the amount of waste that needs to be landfilled and it reduces the amount of raw materials that need to be extracted. This double-edged reduction of land use is welcome in densely populated countries, like the Netherlands. Research, and the development of policies, has enabled the Netherlands to extend the uses of secondary raw materials.

### 3.3.5 Mining waste

The extractive industry has been identified as producing one of the largest waste streams in the Community, although a recent ECJ case (Avesta Polarit) has clarified that many of the materials previously considered as waste are according to EU waste law, production residues and not waste. Mining waste is generated in the process of the exploration and opening up of mineral deposits for extraction and in the comminution and processing of minerals. The process of reducing the size of rock material to gain access to the mineral resource, or as a result of processing, can result in a greater risk of environmental pollution. The most prominent in this regard are sulphuric ores which result in acid mine drainage, and ores containing heavy metals which can be toxic to flora and fauna. However, many other rock materials are inert even in a disintegrated state. The following issues are considered important for the sustainable management of mining waste:

- The reduction in quantity of mining waste
- The safe storage or disposal of mining waste
- The beneficial use of mining waste
- The treatment of mining waste to reduce its hazardousness.

There is a growing trend to use mining waste (and related residues) to fill the voids created by the process of mineral extraction. The advantages are obvious. The requirement for storage space is reduced, the potential for mining subsidence is greatly

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\(^{18}\) This is in fact the current substitution rate in the Netherlands, where almost all suitable waste materials are reused, even though there are strict environmental standards.
reduced and through the use of backfill the exploitation of mineral deposits can be improved resulting in reduced mineral losses. For example, when using backfill the size of support pillars in underground mines can be reduced due to the beneficial effects of the confinement provided by backfill on the strength of pillars. This results in a higher percentage mineral extraction. Other advantages of backfilling are improved mine safety.

### 3.3.6 The finite size of mineral deposits

Minerals are non-renewable and as such the mineral deposits are finite. Minerals extraction falls therefore within the scope of weak sustainability. The theory of weak sustainability suggests that it is necessary to invest some of the income derived from the exploitation of minerals in order to generate capital which will be available when mineral deposits have been exhausted and mines or mining districts close. In the history of mining, there are many examples of the impact of mine closure on the local and regional economy, the social fabric and the environment. To minimise this impact capital has to be available to deal with the situation in an acceptable and responsible manner.

The problem arises at two levels, namely the local level, that is, the area directly affected by mine closure, and at the national level. The impact at local level can be managed best, when infrastructure has been developed which is attractive enough to attract new investment to the area and to create new employment opportunities. At the national level income received by the state from minerals exploitation can for example be used to improve the competitiveness of the economy by investing in human development, infrastructure development, etc. Alternatively funds can be collected to finance bridging programmes when mines are closed because of resource exhaustion.20

Policy instruments to assist governments with the specific issue of sustainability in the case of non renewable resources have been developed.21

### 3.4 Critical Issues

Critical issues for the sustainability of the industry are:

- The geographic location of mineral deposits
- The environmental impact of mineral extraction

\( \mathbb{B} \) Landscape

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20 In connection with the closure of the Lavanttal coal mine (LAKOG) in 1968/69 a law was passed by the Austrian government (SUG-Sonderunterstützungsgesetz) to minimise economic hardship to the workers effected by mine closure. This law was then applied to all mines in Austria which were forced to close as a result of resource depletion or for economic reasons. On the basis of this law it was made possible to downsize the Austrian nationalized mining industry without undue economic hardship for the workforce.

21 Sustainability and the use of non renewable resources-SAUNER. Research report commissioned by the EU-DG XII. 1998-2000.
The challenge for sustainability is to find a balance between securing minerals supply, protecting the environment and achieving social progress. The point of balance depends very much on the range of policies adopted by governments. The social component of sustainability in the minerals industry has become less important in recent years; as a result of the high level of mechanisation achieved in most fields of mineral extraction and associated with this, a decreased number of persons are engaged in the industry. Exceptions to this are some of the more remote regions of the EU where the mining industry is one of the main employers, and in some of the New Member States, in particular Poland, where large numbers of persons are still engaged in minerals extraction.

3.5 The situation in some Member States

Different views

Various government officials highlighted individual initiatives on the supply side as evidence of sustainable development. The phasing out of surface extraction in Limburg and Flanders were cited as examples.

At the same time, however, it is acknowledged that such policies could place additional strain on other countries, and encourage long distance transportation of minerals, something which in general terms appears contrary to the objectives of sustainable development. One manifestation of this environmental strain is the emergence of coastal super-quarries in Scotland and Norway as alternative sources of supply for aggregates.

The full impact of super-quarries on the supply of construction minerals in countries that are geographically close to these quarries can at this stage not be assessed. There is, however, little doubt that this development will influence minerals policies and supply practices.

It seems that an increased proportion of Europe’s (and other countries) requirement for aggregates could be met from these sources as resources diminish and environmental policy is strengthened in the more traditional mining countries. Obviously the impact will
be greatest for those areas which have a good access to the sea or are situated along waterways. In all other cases overland transport remains a significant limiting issue.\textsuperscript{22}

\textit{Policies to reduce the demand for minerals}

Generally, the sustainable development policy initiatives that have been introduced tend to focus on constraining supply and the environmental capacity of areas to yield minerals rather than managing demand.

Demand management is the generic term given to policies aimed at reducing the demand for minerals, principally in relation to aggregates. Planning and building design policies could reduce demand by encouraging forms of development and technical specifications that are less resource intensive.

Little empirical evidence was found of policies to reduce the demand for minerals, albeit the issue was raised in the discussion carried out with government officials and others involved in mineral extraction. Examples of these policies can be found in Scandinavia, Belgium (Limburg Flemish Region) and the Netherlands (Dutch Province of Limburg).

This leads to the conclusion that demand management remains at the theoretical stage in its evolution, although the view expressed by many people who contributed to the research is that it will come more to the forefront in the near future.

\textit{Mechanism used by Member States to ensure continuity of production}

A further dimension of the supply of minerals is the mechanism used by Member States to ensure continuity of production.

In some Member States the land use planning system is used to regulate mineral production.

The UK uses a policy of ‘landbanks’ to ensure there are sufficient permitted reserves of construction aggregates to meet demand. This system is unique as it places a requirement on mineral planning authorities (mainly County-level authorities) to maintain a stock of mineral planning permissions to meet a specified level of demand. Some other countries also seek to achieve a similar end, albeit they rely on development allocations rather than a stock of planning permissions. These same countries are working towards a joint industry and local authority procedure for monitoring the supply and demand for minerals. Such a system already operates through Regional Aggregate Working Parties (RAWP’s) in England and Wales.

The challenge is to achieve a \textit{balance} between securing minerals and protecting the environment, which is consistent with the principles of sustainable development. A number of countries have incorporated references to sustainable development in legislation relevant to mineral extraction, and some have introduced specific initiatives to achieve a more sustainable pattern of supply and consumption.

\textsuperscript{22} It has been reported that the Scottish Parliament is reviewing its position concerning coastal super-quarrying. The test of “national need” against which coastal super-quarries are measured now means “Scottish need” and there seems little prospect of any additional coastal super-quarries, either to supply the rest of UK or mainland Europe, unless there is a change of heart (report by UEPG-17. 11. 2004).
In some new Member States (e.g. in Hungary), minerals supply is left to the market and mineral planning is out of the scope of government control.

3.6 Minerals Policy (MP)

Government decisions concerning matters of national importance are usually taken on the basis of established policies. Examples are economic issues, labour issues, environmental issues, foreign matters etc. Policies change over time and with changes of government. Policies define objectives and goals and constitute the framework within which decisions are made.

The survey of Member States undertaken for this study has shown that only a few of them have a clearly defined and published mineral policy. This is a marked change from the situation some years ago when minerals played a focal role in Europe as reflected by the European Coal and Steel Community, the original predecessor of the European Community. Most Member states had mineral policies. Characteristically, these tended to be reviewed following supply crises.

With the emerging sea bound minerals trade in the 1970s and 1980s there was an abundant supply of Europe with traditional minerals such iron ore, copper, lead and zinc. Recently a shortage of important minerals on the world market has drawn the attention of policy makers back to minerals.

The Amsterdam Treaty (1997) implemented a coherent Community policy on the environment by adopting the concept of sustainable development. Accordingly, this policy shall contribute to a pursuit of the objective of “prudent and rational utilisation of natural resources”. Mineral resources are subjects to this policy, by being important non-renewable natural resources for the developed industrial societies.

Questions are now being asked concerning the long term supply of important minerals. What are important elements of a minerals policy?

General

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23 Hámor T.: Sustainable mining in the European Union: The legislative aspect, Environmental Management Vol. 33, No. 2: Mining affairs have been of interest in the history of the European Community from the very beginning. The term "coal", an important fossil fuel, appears in the name of the European Coal and Steel Community, the original predecessor of the European Union. The Rome Treaty (1951) declared among its objectives "to promote a policy of using natural resources rationally and avoiding their unconsidered exhaustion". This statement was ahead of its time, by presenting a major element of the sustainability concept. The Euratom Treaty (1957) established specific provisions concerning raw material supplies providing that "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 of supply. It prohibited "all practices designed to secure a privileged position for certain users" and established a supply Agency with a "right of option on ores, source materials and special fissile materials produced in the territories of Member States and an exclusive right to conclude contracts relating to the supply of ores, source materials and special fissile materials coming from inside the Community or from outside". - Fettweis, Günter B.L., Zur Geschichte und Bedeutung von Bergbau und Bergbauwissenschaften, Texte eines Professors für Bergbaukunde zur Entwicklung des Montanwesens in Europa und speziell in Österreich, Wien 2004
24 The Austrian Government published in 1981 a concept for the supply of Austria with minerals and raw materials this was in the wake of the two energy crises in the 1970’s.
25 Harmor, 2004: However, the implementation of this policy in the Community legislation is delayed.
Reducing the demand for minerals

Use of alternative materials

Recycling

Changed construction methods employing renewable materials

*Minerals specific*

Demand situation

Local demand for minerals

Supply situation

How can the demand be met?

From local sources

Through imports

How secure is the supply?

National resource situation

Knowledge of mineral resources

Protection of mineral resources

Legislation of minerals industry

Administration of minerals industry

Mineral rights

Access to minerals

Health and safety of work force

Environment protection

An example of a minerals policy is presented from the Netherlands. Since April 2004 the national policy on surface raw materials has been integrated into the National Spatial Plan in Part 3: Final governmental decision. In the National Spatial Plan it is stated that the governmental role in steering demand and supply will be reduced. The extraction of surface raw materials will be left to the market. If necessary and possible, the cabinet will take measures to remove obstructions in policy and in regulations and legislation. For this purpose the Ministry of Economic Affairs and the Ministry of Transport, Public

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26 Ministeries van VROM, LNV, VenW en EZ, 2004
Works and Water Management will develop a plan with conditions for an optimal market economy.

The aim of the policy with respect to raw building materials is to stimulate the extraction of these materials in a socially responsible way. The first basic principle is that raw materials should be used economically and for high-grade applications as much as possible. The maximum use of secondary raw materials or renewable raw materials such as timber is also a basic principle. The national and local authorities should set a good example to others. As far as possible the extraction of raw materials should be multifunctional in order to improve spatial quality. This means that a socially desirable function should be developed associated with the extraction such as recreation facilities, housing on a waterfront, water management, nature conservation, etc. The approach adopted by the Netherlands is a good example of a well structured approach to sustainable development defining policy goals at the top. Currently it is unknown how to achieve the objectives in a market oriented way. What may be lacking is a method for monitoring the achievements.27

The Minerals Policy together with the existing legal framework forms the basis for the minerals planning policy and is an essential factor in land use planning decisions.

3.7 Minerals Planning Policy (MPP)

No clear definition exists in the EU as far as Mineral Planning Policies are concerned. 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”. The question therefore is how national land use and spatial planning policies can best be framed to achieve the right balance between economic, social and environmental objectives. From the published literature on minerals planning in Europe follows that minerals planning is commonly seen within the context of land use planning.28 In this study a broader view has been taken and in addition to the issue of access to land other aspects impacting on minerals development has been considered as well. These are mineral rights,

27 It has been reported by the Chairman of the Rhineland –Westphalia Minerals Association that export of construction minerals from Rhineland –Westphalia to the Netherlands have increased significantly in recent years suggesting that the measures to reduce minerals consumption may not have been as successful as planned. Compare also the following statement (Dutch comments on draft report Leoben): “Substitution by secondary raw materials has been successful. The principle of reduction of minerals consumption addresses the construction sector and is integrated into the sustainable building policy. The current increase of the import from Germany is a result of the previous policy. In 1997 it was decided to reduce the production of concrete and mortar sand by 20% to create market space for alternatives such as secondary materials. In practice, this market space was filled by import. Since new extraction sites which fulfil the requirements of the new policy still need to be developed, the effect of the new approach which was started in 2003 will only be visible in a few years. The Netherlands have a quite detailed monitoring system for production/use/import/export of construction raw materials, including secondary raw materials. Though this system is currently under review because of the policy change, it is likely that it will remain possible to provide key indicators”.

authorisation of mineral extraction, environmental assessment, restoration and aftercare and mine closure.

The Minerals Planning Policy is seen as the means of implementing the National Minerals Policy.

3.7.1 Elements of a Minerals Planning Policy

Based on the review of practices in different Member States, the key elements of a minerals planning policy appear to be:

- A clearly defined and understood legal and administrative framework which regulates access to mineral deposits defines mineral ownership rights and provides conflict resolution mechanisms.
- Supply of minerals
- Access to mineral deposits
- Acceptable mining and environmental performance
- Safe and healthy mining conditions
- Appropriate restoration and aftercare after completion of mining operations
- Monitoring
- Health, safety and environmental performance

A successful Minerals Planning Policy should create the political, legal and administrative environment, which is necessary to ensure the supply of minerals to society within the framework of sustainable development. All three components are considered to be equally important.

Minerals Planning Policies which create an environment of conflict, result in the sterilisation of strategic mineral reserves, lead to an unsustainable minerals industry and result in a shortage in minerals supply are unlikely to achieve their aim.

Elements for the evaluation of mineral planning policies

For the purposes of this study, existing Mineral Planning Policies in Europe have been evaluated based on the following criteria:

- Existence of a national Minerals Policy
- Existence of a clearly defined legislation governing
  - Mineral rights
  - Access to minerals
Minerals Planning Policies and Supply Practices in Europe

- Health and Safety
- Environment
- Mine closure

- Legal and administrative structures governing mineral extraction
- Adherence to the concept of sustainability

The effectiveness of mineral planning policies can be evaluated on the basis of the sustainability concept. Table 5 gives an overview of the individual components. This is unavoidably a subjective approach, and the outcome reflects the views of the authors.
Table 5: Minerals Planning Policies - Overview of the individual components

<table>
<thead>
<tr>
<th>Basics</th>
<th>Sub basics</th>
<th>Method</th>
<th>LAW existing</th>
<th>Administrative Procedures– time required for approval - central/not central</th>
<th>Monitoring and Enforcement</th>
<th>Sustainability of MPP – Results: Low, middle, high</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposits</td>
<td>Deposits existing? Searching for deposits</td>
<td>Prospect ing and exploration</td>
<td>Deposits Law, (equivalent)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Protecting deposits – access to mining land</td>
<td>Land use planning: construction minerals - conflict resolution mechanism Land use planning: Protecting Metallic ores, Industrial minerals</td>
<td>Land Use Planning Law, (equivalent)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mining</td>
<td>Correct Mining</td>
<td>Setting regulatory conditions</td>
<td>Mining Law, (equivalent)</td>
<td>-</td>
<td>Legal, voluntary Human resources for controlling.</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Safety and Health</td>
<td>-</td>
<td>Mining Law, (equivalent)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Environmental Performance</td>
<td>EA, conflict resolution mechanism</td>
<td>Environmental Law</td>
<td>-</td>
<td>Legal, Voluntary codes for controlling mining</td>
<td>-</td>
</tr>
<tr>
<td>Processing</td>
<td>-</td>
<td>-</td>
<td>Mining Law, (equivalent)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Restoration</td>
<td>Restoration, aftercare, long-term management</td>
<td>-</td>
<td>Mining Law, (equivalent)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Societal benefit</td>
<td>-</td>
<td>Contribution to GDP, people employed by industry.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Chapter 4  General legal and policy framework

4.1 Administration governing mineral extraction

The administrative structures for supervising the ownership and exploitation of minerals in the Member States display many similar features.

All Member States have some form of hierarchical government structure, with the national government at the apex and legal and administrative structures following the “cascade” principle, i.e. regional, county and local law and practices, which are consistent with European and national laws and practices.

The following layers of government are found:

- European: Authority exercised by the Council, the European Parliament and the Commission.
- National: Authority exercised by the Government and/or national assembly (Parliament) within individual Member States.
- Regional: Authority exercised over an area of a country made up of a number of lower tier authorities. The regional authority may be either an autonomous region (i.e. have devolved powers which enable it to formulate and implement its own legislation) or a regional office of central government.
- County/Province: Authority exercised by an elected council over an area smaller than a region.
- District
- Communes, town councils, municipalities

The tier of Government responsible for land use planning differs between Member States, and in some countries between tiers, depending on the nature of the proposed development. In the UK, for example, control over mineral extraction is the responsibility of the County Council (where they exist), while planning control over developments such as housing and industrial development is a matter for District authorities. This has the potential to cause conflict where the two tiers have different views on the future use of a particular area of land.

4.2 EU-Level: Relevant EU-legislation and policy – Impact on national Minerals Planning Policies and Practices

The European Union (EU) has an increasing influence over Member States’ national legal structures. There exists already a considerable body of legislation in place, extending through, but not limited to, the Treaty on the European Union signed in 1992,
ratified in 1993. Legislation and policy implemented by the EU is having an ever increasing influence on policy and practice in Member States, especially, regarding environmental matters. Table 6 gives a summary of EU-legislation (“acquis communautaire”) and policy decisions that impact on the non-energy extractive industry.

A number of EU Regulations and Directives have a direct impact on the extractive industry. Some of the most important Directives are briefly summarised below. It should be noted that it was beyond the scope of the study to undertake a detailed assessment.

### 4.2.1 Directive 92/43/EC - Conservation of Natural Habitats and wild Flora and Fauna (FFH-Directive)

The aim of Directive 92/43/EEC is to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies. The Habitats Directive is a space-oriented instrument, which serves as a way to protect species. The Directive does not only aim at the protection of certain species, but at the preservation of natural habitats and the European natural heritage as a whole.

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. In consideration (reason three of the FFH-Directive), the Council of the European Union defines the support of the “preservation of bio-diversity” while simultaneously taking the “economic, social, cultural and regional needs” into consideration, as the directive’s main objective.

**Impacting on minerals planning policies and practices**

In view of the Member State’s obligation to designate protection areas on a national level as a part of the “coherent European ecological network of special protection area with the title Natura 2000” according to Article 3 (1) Directive 92/43 the Directive at least has an indirect influential effect on the future availability of raw materials.

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.

29 A directive passes an aim, which is binding to all Member States, but national authorities have freedom over the means of transposition (choice of form and means to be used)

30 Compare: Directive 79/409 seeks the protection of all wild bird species living in the wild within the European territory of the Member States. This extensive protection is interesting in so far as the bird species that have to be protected are not registered on a (final) list, but the only decisive criteria for their protection is being at home within the Union’s territory.

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.\textsuperscript{32} The comparison of protection areas with country size (see Table 8) 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.

\textit{In terms of the access to land}, the Habitats Directive is a space-oriented regulation that serves as a way to protect species and natural habitats. Thus it automatically impacts on \textit{national spatial planning}\textsuperscript{33}, i.e. on \textit{national minerals planning policies}.

According to Article 6 of Directive 92/43/EEC, any plan or project likely to have a significant effect thereon shall be subject to \textit{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.

Additional costs can result as a consequence of an impact assessment, which is obligatory for mining projects in (or the 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 \textit{efficient} way. The approach to appropriate assessment adopted in the Baden-Württemberg Nature Conservation law is considered to be a good example.

\textbf{4.2.2 Directive 2000/60/EC - Water Framework Directive}

A characteristic of the European system of legislation regarding water protection is the fact that up to now there has been no systematic legal framework; water protection has been regulated by a number of single directives which resulted from different actions of European water policy.\textsuperscript{34} This situation, which was considered unsatisfactory for mining, is now to be harmonised by the Water Framework Directive.\textsuperscript{35}

The aim of the Water Framework Directive (D 2000/60/EEC) is to establish a Community framework for the protection of inland, surface waters, transitional waters, coastal waters and groundwater, in order to prevent and reduce pollution, promote

\begin{thebibliography}{9}

\bibitem{32} The Habitats Directive does, however, allow for reasons of national importance development to impact on the integrity of notified sites.

\bibitem{33} Christner / Pieper, 1997, p 27.


\end{thebibliography}
sustainable water use, protect aquatic environment, improve the status of aquatic ecosystems and mitigate the effects of floods and droughts.\footnote{Compare the relationship between mining and water management in Greece: The existing management of water resources is neither integrated nor adequate. The Law on “Management of Water Resources” (Law 1739/87) divides the national territory into 14 water districts and foresees the establishment of regional authorities for the management of water resources within the boundaries of each district. Still, this Law was never fully implemented, as the various Ministerial decisions and Decrees required for its activation were never issued. The main weakness of this Law was the division of responsibilities for water management resources into a number of different authorities and Ministries. It is therefore of utmost importance that the law for the transposition of the EU Water Framework Directive, which is expected to come into force by the end of 2003, overcomes this problem and establishes an efficient structure for the wise management of water resources.}

**Water Framework Directive - Impacting on minerals planning policies and practices**

The extraction of raw materials usually influences water balance and quality in an extraction site.

Article 4 (environmental objectives) requires that appropriate measures are taken to prevent a deterioration of all bodies of surface water. The input of pollutants into groundwater shall be prevented or limited and the deterioration of the condition of all bodies of groundwater shall be prevented. The environmental objectives require that no deterioration of bodies of surface water or groundwater shall take place.\footnote{Keite B.: Anforderungen an die Umsetzung der EU – Wasserrahmenrichtlinie in Deutschland aus Sicht des Naturschutzes. In: GDMB Gesellschaft für Bergbau, Metallurgie, Rohstoff- und Umwelttechnik e. V. (Publisher): 4. Kolloquium zu Bergbau und Umweltschutz in Aachen – Bergbau und Gewässerschutz . Heft 99, GDMB Medienverlag, Clausthal-Zellerfeld, 2004} This no-deterioration clause may have an influence on mining activities, as extensive pumping could lead to a significant deterioration, by which new measures for the draining of mines shall no longer be approved, new opencast mining shall not be approved in hydrological sensible areas.\footnote{Keite, 2004.}

A direct confrontation (mining/water) can arise because of the re-injection of water into the ground as part of the mining operations. However, Article 11 (3) j) makes certain exemptions for mining activities.\footnote{According to Article 11 (3) j) it can be allowed the following: “Injection of water containing substances resulting from the operations for exploration and extraction of hydrocarbons or from mining activities, and injection of water for technical reasons, into geological formations from which hydrocarbons or other substances have been extracted or into geological formations, which for natural reasons are permanently unsuitable for other purposes”.} The extractive industry is able to reinject water, provided that it does not increase the level of pollution of surface water bodies. This is important for the extractive industry.\footnote{Schlotman, 2004; Brockhoff A.: Kritische Bewertung der neuen Entwicklungen im Wasserrecht aus Sicht des Bergbaus. In: GDMB Gesellschaft für Bergbau, Metallurgie, Rohstoff- und Umwelttechnik e. V. (Publisher): 4. Kolloquium zu Bergbau und Umweltschutz in Aachen – Bergbau und Gewässerschutz . Heft 99, GDMB Medienverlag, Clausthal-Zellerfeld, 2004. – There may also be the question, whether Article 11 can face the provisions of Article 4: The influences of the Water Framework Directive on the mining industry strongly depend on the transposition in national law (order of priorities between Article 4 and Article 11 (3) j).}

Furthermore the application and interpretation of the provisions of the Water Framework Directive also apply the proportion principle. This means that a proved...
disproportion of certain measures, for which there are no useful alternatives, with less strict environmental objectives can be established.\textsuperscript{41}

Directive 2000/60/EEC represents a comprehensive framework of provisions for water protection: Impact on the extractive industry could be given by the water protection sites listed in Annex IV (Protected Areas). The register of protected areas (required under Article 6) includes the following types of protected areas:

a) areas designated for the abstraction of water intended for human consumption under Article 7;

b) areas designated for the protection of economically significant aquatic species;
   bodies of water designated as recreational waters, including areas designated as bathing waters under Directive 76/160/EEC;

c) nutrient-sensitive areas, including areas designated as vulnerable zones under Directive 91/676/EEC and areas designated as sensitive areas under Directive 91/271/EEC; and

d) areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites designated under Directive 92/43/EEC(1) and Directive 79/409/EEC(2).

As a result of this Directive the access to mineral resources could become significantly more difficult for the extractive industry because of the declaration of water protection sites and the protective character these sites. The restriction regarding the protection of mineral resources and water resources (Article 6)\textsuperscript{42} could lead to substantial restrictions, which impact in particular on wet extraction (for example, of sand and gravel).

4.2.3 Directive 85/337 - Effects of certain public and private projects on the environment


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.

Impact on minerals planning policies and practices

\textsuperscript{41} Schlotmann, 2004.
\textsuperscript{42} Art 6 Directive 2000/60 (register of protection areas): The Member States see to create a register or more registers with all sites inside the individual river basin districts, for which a special protection regime has been determined according to the specific Community laws for the protection of surface water and groundwater or for the conservation of habitats and species that depend on water. They ensure to create a register within four years at most after the directive enters into force.
Time required for extraction permission: The time required to obtain permission for extraction varies considerably. The main reasons for time delays are the involvement of many different authorities in the licensing procedure and the involvement of the public in certain elements of the approval process.

While involvement of the public is in itself a positive feature it can open the door for abuse and significant delays particularly if politically motivated pressure groups become involved. An example of this is the project by Diabas Saalfelden in the Province of Salzburg in Austria. In 1996 planning for a new quarry some 3 km from the existing operation commenced. After numerous discussions with the authorities and the population the project was submitted in early 2001. By the end of 2004 approval has still not been obtained, despite the fact that a comprehensive EIA has been completed and all parties directly involved or affected by the project support it. This includes the owners of the adjacent properties. A small politically motivated pressure group has successfully managed to delay project approval by continually raising objections and requesting additional studies. As a result of these delays the company was forced to cut back production by 30% in its existing quarry to ensure continuity of operation. As there are only two producers of diabas in western Austria the shortfall in production has to be made up through import of material from the southern part of Austria and Germany. The dolomite quarries Rhomberg in Vorarlberg and Webersberger in Fuschl near Salzburg are representative of long drawn out application processes in Austria. The size of the quarries is less than 10 hectares, the process duration is 5 years and authorization has still not been granted. The costs incurred to date are € 1 million and € 1.5 million, respectively.

Another example is the case of the planned TVX gold mining operation in northern Greece. Government reaction to the proposal was very favourable. A large number of appeals by various groups ultimately resulted in the project being cancelled. TVX sold their concessions and left.

Experience shows that especially the preparation of Environmental Impact Assessments (EIAs) 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. 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 results in a higher cost of interest on the capital already expended. For 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. 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

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43 It ranges from a few months to several years and usually exceeds the time specified (see Chapter 6).
44 Information received from the Chamber of Industry in Vienna.
45 In the case of the diabas quarry referred to on the text this cost amounts to 10 % of the project cost.
A crucial aspect is to carry out an environmental impact assessment in an **efficient way**: The procedure adopted in Denmark is highly commendable. Here potential extraction areas are identified on geological grounds. As a part of land use planning, these areas are then subjected to a general environmental assessment to determine whether minerals extraction has adverse effects on the environment. Areas where no adverse effects have been found are then declared potential extraction areas on the land use plans. Extraction projects which fall in such areas have already undergone a pre-screening procedure. Individual projects are normally only assessed in a supplement to the regional plan. The supplement is subject to an eight week period of public consultation, during which time the Minister of the Environment has the right to veto.

**Threshold values and criteria:**

A key element of the authorisation process is whether or not a project application requires an **environmental assessment (EA)**. Directive 85/337 (amended by Directive 97/11/EC) grants the Member States a great freedom regarding the transposition in national legislation, which may lead to different approaches in the various Member States, although this applies only to projects not listed in Annex I of the Directive.

**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. Annex II, (2), which covers mining also lists quarries and surface mines, does not lay down specific threshold values but leaves it at the discretion of Member States to set threshold values and criteria in order to decide on the need for an environmental impact assessment.

The survey of Member States (see Table 7) 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 makes an EA compulsory for all project applications. Irrespective of defined threshold values it has become practice in some Member States to subject all applications for extraction licences to an EA. Examples are Greece, Norway, and all quarrying operations in France.

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, there can be significant divergences in the field of threshold values and criteria. Different threshold values, set by Member States (Table 7), 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).47

Thus in reference to the transposition of the Environmental Impact Assessment Directive into national legislation, there can be a negative attitude of potential investors, who fear long duration, high cost Environmental Impact Assessment procedures of uncertain outcome. This can distract from investment in minerals projects.

4.2.4 Directive 96/61/EC – IPPC: Integrated Pollution Prevention and Control

The objective is to prevent emissions into air, water or soil wherever this is practicable, taking waste management into account, and, where it is not, to minimize them in order to achieve a high level of protection for the environment as a whole.

The IPPC Directive provides a framework for the licensing of industrial installations. The focus of the Directive is on prevention rather than “end-of-pipe” abatement.48 Section 2.5 (a), Annex I of Directive 1996/61/EC covers: “Installations for the production of non-ferrous crude metals from ore, concentrates or secondary raw materials by metallurgical, chemical or electrolytic processes”, which might apply for a minor segment of the extractive industry.49 The application of this category to mining is very limited; it depends on the definition of “extractive industry”. Secondary processing of ores, especially if the ore is transported away from the mining site, is generally not considered as part of the mining process.

4.2.5 Directive 96/82/EC: On the control of major-accident hazards involving dangerous substances amended by Directive 2003/105/EC (Seveso II)

Various major accidents including at tailings management facilities within the control of the extractive industry (e.g. Baia Mare and Aznalcóllar) were the major cause for an amendment of the SEVESO II.50

Directive 96/82/EC is aimed at the prevention of major accidents which involve dangerous substances, and, where this is not possible, the limitation of consequences for man and the environment, with a view to ensuring high levels of protection throughout the Community. The SEVESO II Directive obliges industrial operators to put into effect

50 Communication 2000/664 describes the Aznalcollár and the Baia Mare accidents and gives an overview of the Community environmental legislation with a special emphasis on tailings pond safety: The identified key follow-up actions are the amendment of the Seveso II Directive, a BAT reference document under the IPPC Directive (and an initiative on the management of mining waste).
safety management systems, including a detailed risk assessment on the basis of possible accident scenarios.

According to Article 4e Directive 2003/105/EEC applies not to the exploitation (exploration, extraction and processing) of minerals in mines, quarries, or by means of boreholes, with the exception of chemical and thermal processing operations and storage related to those operations which involve dangerous substances, as defined in Annex I.

According to Article 4g Directive 2003/105/EEC applies to waste land-fill sites, with the exception of operational tailings disposal facilities, including tailing ponds or dams, containing dangerous substances as defined in Annex I, in particular when used in connection with the chemical and thermal processing of minerals. This sub-article refers to exemptions from the Directive. Therefore certain major tailings facilities are now within the scope of this Directive. A development of potentially far reaching consequences for the extractive industries is the REACH-Programme which lays down criteria for the eco-toxicity of chemical reagents. Some of the reagents used in minerals processing have now been added to the list of eco-toxic chemicals (R50/R53, R51/R53). The potential impact of this development for the extractive industries can not be assessed at this stage but it could mean that tailings dams from mining operations involving sulphide ores could fall under SEVESO II. Since many of these mines have been closed, the question of the responsibility for old tailings dams has to be addressed.

According to Article 12 (control of settlement) the Member States shall ensure that their policies of land-use and designation and/or other relevant policies and the procedures for implementing those policies take account of the need, in the long term, to maintain appropriate distances between establishments covered by this Directive and residential areas, buildings and areas of public use, major transport routes (as far as possible) recreational areas and areas of particular natural sensitivity or interest. The impact of threshold distances from installations depends greatly on local circumstances. A similar rule in Austria which lays down the minimum distance of 300 m between an extraction site and dwellings has been found to have had a considerable impact on the exploitation of sand and gravel deposits. The reason for this is the unstructured land use planning policy which allows the establishment of dwellings right across the countryside.

4.2.6 Mining and Quarrying Waste – Impact on National Minerals Policies

Mining and quarrying waste can be a significant source of pollution and general environmental degradation, in particular of freshwater ecosystems, both in terms of volume and ability to cause damage.  

European Waste Catalogue (EWC)

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51 Article 12 to Directive 2003/105/EC could represent under certain circumstances a limitation for the extractive industry. By imposing safety distances between planned operational sites and certain public areas, the area usable for extraction could be limited.

52 Compare Case C-114/01: Judgment of the Court (Sixth Chamber) of 11 September 2003: The ECJ has clarified what is waste in the so called Avesta Polarit judgment.
In 1993, based on Directive 75/442/EEC, amended by Directive 91/156/EEC, a list of wastes was introduced for the first time, the *European Waste Catalogue* (EWC). It represents a standardized basis for the definition of wastes in the European Union. In addition, it shall represent the basic method for a Community programme regarding the statistics of waste.\(^{53}\) The list of hazardous wastes is to be considered an essential and indispensable element for a harmonized and more effective application of the Community Waste Law in the Member States.\(^{54}\) The European Waste Catalogue (EWC) lists 23 types of mining waste ("Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals"), covering the potential waste spectrum rather well.

**Landfill Directive (1999/31/EC)**

The aim of Directive (1999/31/EC) is, by way of stringent operational and technical requirements on the waste and landfills, to provide for measures, procedures and guidance to prevent or reduce as far as possible negative effects on the environment, in particular the pollution of surface water, groundwater, soil and air, and on the global environment, including the greenhouse effect, as well as any resulting risk to human health.

The *Council Directive 1999/31/EC on the landfill of waste* is the most relevant daughter Directive of the Waste Framework Directive. However, "the deposit of unpolluted soil or of non-hazardous inert waste resulting from prospecting and extraction, treatment, and storage of mineral resources as well as from operation of quarries" is excluded from the scope, which implies that the Directive applies to the management of hazardous, non-inert mining waste. The definition of "inert" provided in the Directive is applicable in a common sense way but it will most likely be the cornerstone of many legal procedures.

**Follow-up action of Com 2000/265: Initiative on the management of mining waste**

A “Proposal for a Directive of the European Parliament and the Council on the Management of Waste from the Extractive Industries” (so called “Mining Waste Directive”) is before the European Parliament and Council. Its aim (according to Article 1 of the proposal) is to set measures, procedures and guidance, which will avoid and reduce negative effects on the environment and resulting risks for human health that may arise from the disposal of waste from the extractive industry. It will exclude mine and quarry waste from the provisions of the Landfill Directive.

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\(^{54}\) Compare: http://www.lua.nrw.de
4.2.7 Directive 1999/30/EC – Limit values for sulphur dioxide, nitrogen dioxides and oxides of nitrogen, particulate matters

The EU-Commission’s objective is to create systems and sets of rules for the European Union, which advances a uniform set of limit values for certain pollutants, in order to reduce emissions. They aim at reducing emissions which pollute ambient air.

Directive 1999/30/EC obliges the Member States to define limit values and alert thresholds for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead. Nitrogen oxides are undesired by-products which are mainly derived from processes of combustion. Thus also the extractive industry as a source of air polluting substances can be affected: Sulphur dioxide can result from smelting operation.

The limit values defined by Directive 1999/30/EC for dust particles may also influence the extracting industry on several levels, e.g. extraction and processing. Dust particles from rock and mineral dust particles are a result of all grinding processes as well as of processing of naturally occurring minerals and rock. A potential source of dust is further traffic inside and outside extraction sites.

In order not to exceed the guideline values the industry is obliged to take appropriate measures to reduce emissions.

4.2.8 Directive 1999/62/EC – The charging of heavy goods vehicles for the use of certain infrastructures

Directive 1999/62/EC regulates the charging of heavy goods vehicles for the use of certain infrastructure within the EU. It seeks to harmonise levy systems (i.e. vehicle taxes, tolls and charges relating to the use of road infrastructure) and introduces fair mechanisms for charging infrastructure costs to haulers. Article 7 states that “Tolls and User Charges shall be imposed only on users of motorways or other multi-lane roads with characteristics similar to motorways (in countries without motorway networks the highest category of roads), or users of bridges, tunnels and mountain passes.” Article 2 (definition) requires that the amount to be charged shall be based on the distance travelled and the type of the vehicle.

According to Article 6 (vehicle taxes) Member States shall set tax rates so as to ensure that the tax rate for each vehicle category or subcategory referred to in Annex I is not

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55 Since all fossil fuels also contain sulphur compounds in different doses, sulphur dioxide evolves as a result of combustion. N.N.: no title. Available from: http://www.stadt-zuerich.ch/ugz/bereiche/luftqualitaet/schadstoffe.

56 “Mineral dust” is dust which results from dealing with naturally occurring minerals and rock. In practice it occurs mostly in the form of a dust mixture. The effect depends on the specific mixture qualities. Fine quartz particles (less than 5 micrometer) belong to the particles which have a chronic harmful effect and can cause silicosis. (comp. http://www.stbg.de) Particularly dangerous for humans are particles with a diameter of less than 10 micrometer. This part of suspended matter is called PM10 (“particulate matter < 10 µm”). While bigger particles cannot be breathed in or are filtered by the upper part of the respiratory tract, PM10 particles can pass the larynx and reach the lungs, where the particles are particularly harmful. (comp. http://stadt-zuerich.ch)
lower than the minimum laid down in that Annex. The Member States are given minimum vehicle tax rates; but the Member States can decide how much higher the tax rates are above the minimum rates.

Since many goods transported on roads are products of the extractive industry, Directive 1999/62/EC is of great relevance for this industry: The relatively low prices received for most non-metallic minerals (especially construction minerals) make transport and logistical issues important factors for the sustainability of the business. Often the cost of transport exceeds the material and production costs.\(^\text{57}\)

This implies that the transport-distance (producing/consuming) of construction minerals should remain short, i.e. less than 50 km. Studies have shown that transport distances for construction minerals can be kept low only if free access to mineral deposits is assured. Prerequisites for the maintenance of the role as a local supplier, though, are framework conditions which keep the access to mineral deposits open.\(^\text{58}\) Furthermore the ecological as well as economic burdens that result from long transportation distances cause a rise in raw material prices and are against the principle of sustainable use.\(^\text{59}\)

4.2.9 Directive 2004/35/CE: Environmental liability with regard to the prevention and remedying of environmental damage

The purpose of this Directive is to establish a framework of environmental liability based on the "polluter-pays" principle, to prevent and remedy environmental damage.\(^\text{60}\)

Directive (Article 3) shall apply to environmental damage caused by any of the occupational activities listed in Annex III,\(^\text{61}\) and to any imminent threat of such damage occurring by reason of any of those activities; damage to protected species and natural habitats caused by any occupational activities other than those listed in Annex III, and to any imminent threat of such damage occurring by reason of any of those activities, whenever the operator has been at fault or negligent.

In addition to the costs for the necessary preventive and remediate measures, the operator shall also bear the costs for the assessment of damages to the environment and

\(^{57}\) Compare: BRODKOM F.: Good Environmental Practice in the European Extractive Industry : a Reference Guide [online]. IMA Europe. Tournai, 2000, Available from: http://www ima eu.org/en/guide.pdf [Accessed 18.05.2004]: Aggregates double their cost, when they are transported over distances of more than 50 km. Standard quality sand and also cement can rarely be transported more than 150 km to remain profitable. Some aggregates double their cost, when they are transported more than 50 km


\(^{59}\) A study of the environmental impact of transporting construction minerals by road, which was sponsored by the Quarry Association of Switzerland, has quantified the environmental impact of mineral transport by trucks and has come to the conclusion that compared with other means of transport short distance transport by truck is still the environmentally most effective form of transport. This implies however access to mineral deposits in the vicinity of economically active areas. Kurze Transportdistanzen begrenzen schädliche Umweltauswirkungen . Sand und Kies. Januar/Februar 2002. S 4-7.

\(^{60}\) The Directive shall be brought into force by April 30 2007.

\(^{61}\) It also may apply to the extractive industries to the extent the Waste Framework Directive and the Landfill Directive apply.
the threat of environmental damages. There are no exemptions for small and medium sized businesses. 62

According to Article 14 (financial security) measures to encourage the development of financial security instruments and markets shall be taken. By this the operator shall be given the possibility of financial security in order to be able to cover the liability responsibilities in the framework of this Directive.

4.3 National level

The emergence of environmental protection (EU) legislation/policy has added a number of additional factors which have to be taken into account when considering an application for mineral extraction. EU legislation in addition is having growing influence on national legislation and practice. Many laws – at the national or county level (e.g. in Austria: the Water Law, and Nature Conservation laws of the provinces) – were or have to be amended to implement EU legislation. This has had significant impacts on the extractive industry which have been both favourable and unfavourable:

- Harmonising effect with regard to environmental matters
- Increasing restrictions to mineral extraction
- Increasing time and costs required for approval.

4.3.1 Principal Legislation governing mineral extraction

4.3.1.1 Nature of the principal legislation

With regard to mineral extraction, three main strands of legislation are relevant: mining (including health and safety), land use planning, and environmental protection. The principal legislation to control mineral extraction in Member States can be summarized under:

- A Mining Law - Other excavation laws
- A General Land Use Planning Law
- Other laws (especially environmental laws)

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62 The exception for the “approved normal operational procedure” (demanded by the European Chambers for Economy) is met by Article 8 (4 a): Approved normal operational procedure and development risk if these are taken into account by Member States and deliberate action and negligence can be ruled out. Thus, companies can rely on the scope the permit gives them, legal conformity pays off. This also applies to companies which have to carry out a FFH – Assessment in compliance with Article 6 (3) and (4) or Article 16 of Directive 92/43/EC or Article 9 of Directive 79/409/EEC (Conservation of Wild Birds Directive). Biodiversity is also made subject to liability and remedying obligations as a result of occupational activities not described in Annex III (Article 3 (1 b) Directive 2004/35/EC). Thus all raw material extracting businesses which could cause damages to protected Flora/Fauna - habitats are (potentially) affected by the “Environmental Liability Directive”. 
**Mining Law**

*Mined* substances are usually defined as minerals of high value or of national importance (metallic ores, industrial minerals) and fall under national mining legislation (minerals belonging to the state). Construction minerals on the other hand usually belong to the landowner. The key determinant of whether a particular extraction activity falls under the mining law or another law is the pattern of ownership of mineral rights (see Chapter 5).

The following text summarises the key mining legislation operating in the different Member States.

- **Austria**

  The principal legislative control of minerals is the Mineral Resources Law (“Mineralrohstoffgesetz No. 38 of 1999, amended by Act No. 21 of 2002). This Law applies to the exploration, extraction, storage and processing of “free for mining”, state owned and landowner minerals.

- **Belgium**

  With regard to exploitation permits for minerals, the *Federal authority* only has responsibility for the marine environment.\(^{63}\) *Law of 22 April 1999* is the basic legislative tool governing exploration and exploitation of *sand and gravel* on the continental shelf.

- **Czech Republic**

  The basic legislative tool governing mineral extraction in the Czech Republic is the *Mining Act, Law No. 44/1988* which deals with the protection and utilisation of minerals. The law defines the conditions and types of mining activity. The appropriate regional mining office approves activities such as securing and recovery of mines and quarries.

- **Denmark**


- **Estonia**

  The principal legislative control of minerals is the Earth’s Crust Act (1994). The Earth’s Crust Act describes the following activities:

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\(^{63}\) The Belgian part of the North Sea is in fact the only part of the Belgian territory, which has not been ascribed to one of the three Regions.
• exploration for useful minerals and geological investigations;

• the right to mine minerals and earth material; and

• the mining operations (mining).

In Estonia there exists another act called the “Mining Act”, which regulates underground mining activities, and the secondary utilisation of underground works.

These two acts are closely connected and together are equivalent to the mining laws in other countries.

 ý Finland

The Mining Act No. 503 of 1965 and the Mining Ordinance No. 663 of 1965 regulate mining activities in Finland. The Mining Act defines four categories of minerals that belong to the State, regardless of who owns the land where they occur. The four categories are: metalliferous ores industrial minerals gemstones and marble and soapstone.

 ý France

National Government plays an overall regulatory role in the extraction of minerals. Responsibility for ‘mined’ substances lies with the Ministry of Industry (according to the Mining Code), whilst the Ministry of Environment controls the exploitation of ‘quarry’ substances. Marine aggregates fall under the responsibility of the Ministry of Industry.

 ý Germany


 ý Greece

The principal legislative control of minerals is Legislative Decree 210/1973 commonly referred to as ‘The Mining Code’ as amended by Law 274/1976. This comprises almost the entire mining law. Minerals are divided into three categories, for the purpose of controlling exploration and exploitation:

- mining ores (including chiefly metallic ores)
- industrial minerals and marbles
- aggregates.

 ý Hungary
The principal legislative control of minerals extraction in Hungary is Act XLVIII of 1993 on mining. It has been amended several times but the major amendment was by the Act XII of 1997, which came into force on 24th June 1997. The Mining act is supplemented by the Government Decree No. 203/1998 (XII. 19.), which provides detailed provisions to the articles of the Mining Act.

**Ireland**

The principal legislative control of minerals is the Minerals Development Act No. 31 of 1940, amended by Act No. 21 of 1999. There are two basic categories of earth resources in Ireland: “minerals” as defined in the Minerals Development Acts, and other materials. The former are defined as: all substances but excluding stone, gravel and sand, clay. The Minerals Development Act contains an indicative schedule of minerals but this is not exhaustive. Materials used in the production of aggregates and cement, such as common clay and limestone are not normally regarded as minerals under this Act, but this is subject to interpretation by the courts in specific circumstances and there is a considerable body of case law on the meaning of terms such as stone and clay.

**Italy**

The ownership of minerals resources (first category minerals: such as metallic ores etc.) is regulated by the RD (Regio Decreto) 29 July 1927, n. 1443: “Statutory regulations governing the prospecting and extraction of minerals in the Kingdom”, amended by Legislative Decree 4 August 1999, n. 213.

**Latvia**

The principal law controlling the extraction of minerals is the law “On the Subsoil” (1996). It determines the procedures for the comprehensive, rational and environmentally safe use of the subsoil as well as the requirements for its use and protection. The law formulates the principles and purposes of the use of subsoil, determines the ownership of minerals, the institutions to supervise the use of subsoil as well as the types and terms of the use of subsoil. It describes the rights and obligations of the subsoil users, defines conditions for the use of geological information, and determines the procedures for the use and protection of the subsoil and compensation for damage to subsoil.

**Lithuania**

The principal legislation to control mineral extraction is the Underground Law issued on 15 July 1995 by the Parliament (Seimas) of the Republic of Lithuania. The Underground Law defines general rules of exploration, exploitation, control and protection of natural resources, storing and collecting geological data.

**Luxembourg**

The basics of the legislation on mineral extraction go back to Mining Laws from the 19th century (e.g. Law of 21 April 1810, of 14 October of 1842 and of 30
April 1890). More recently, the Law of May 1990 related to the control of
dangerous, dirty and noxious installations has become the key legislation for
new mineral projects.

**Norway**

Mining on the Norwegian mainland is regulated by the Mining Act No.70 of 30
June 1972. The Act is administered by the Directorate of Mining (Bergvesenet).
The Mining Act regulates the acquisition and the initial permits for production
of (mainly) metalliferous mineral resources.

**Poland**

The principal legislations controlling mineral extraction are the Economical
Activity Law (J.L. of 17th December 1999, No. 101, item 1788) and the
Geological and Mining Law (No. 27, item 96, amended in J.L. of 5th October
2001). Processes and procedures to obtain the concession for prospecting,
exploration and extraction of mineral deposits are in general regulated by the
Economical Activity Law, and more specifically by the Geological and Mining
Law. The Geological and Mining Law divides minerals into two groups: basic
and common.

**Portugal**

The principal legislation to control minerals such as metallic ores and industrial
minerals is Act nº 90/90 of 16th March (“Legal
framework of Geological
Resources”).

**Slovakia**

The principal legislative control of extraction activities in Slovakia is the Mining
Act (No. 44 of 1 July 1988) and the Act about Mining Activities, Explosives
and the State Mining Authorities (No. 51 of 1 July 1988). Mineral extraction
from reserved mineral deposits\(^{64}\) can be performed only on the basis of a permit
issued by the appropriate Local Mining Office. Non-reserved minerals (i.e.
construction minerals) are regulated by Government Decree No. 520/1991
which details the utilisation of non-reserved mineral deposits.

**Spain**

The principal legislative control of extraction activities is the Law of Mines (24
of July 1973).

**Sweden**

The Minerals Act No. 45 of 1 January 1991 regulates the exploration and
exploitation of the so-called concession minerals. The concession minerals are
divided into three groups: metalliferous ores, industrial minerals and rocks, and

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\(^{64}\) See Chapter 5.1

Š Slovenia

The Mining Act (No. 56/99 from July 1999) regulates the exploration, exploitation and management of mineral resources as natural resources, whether underground or on the surface, in running or standing waters or in the coastal sea. This Act also defines measures and conditions for the performing of mining operations, for environmental protection, and health and safety at the workplace during the execution of mining operations for mineral resources exploration and/or exploitation as well as other mining operations not related to mineral resources exploration or exploitation, for the restoration of the affected areas after the termination of mining operations and their rehabilitation for renewed land use.

*Other excavation laws*

In some countries there is an Excavation Law as well as a Mining (and/or Planning) Law. The legislation (i.e. excavation law) usually complements other legislation in that it governs the issuing of permits covering detailed technical matters rather than general planning issues.

Š Belgium


Š Germany

In Germany the extraction of construction minerals is governed in some of the Federal States (e.g. Bavaria and Nordrhein-Westfalen) by so called excavation laws (‘Abgrabungsgesetz’).

Š Netherlands

In 1996 – after 16 years of preparation – an amendment to the Mineral Excavation Act came into force. The aim of this amendment was to simultaneously attune the sectoral and spatial trail. Another important issue was to improve the coordination between the state and the provinces, and the coordination for the required permits. After the revision, the Mineral Excavation Act partly functions as Mineral Planning Act.

Š Norway

The Limestone and Quartz Acts govern the acquisition of deposits and the rights for exploitation of these minerals, even if the deposits in principle belong to the landowner. The Limestone Act includes marble, dolomitic limestone and
dolomite, whereas the Quartz Act encompasses quartz crystals, crystal quartz and quartzite.

**Portugal**

The principal legislation to control minerals such as construction minerals is Act nº 270/2001 of 6th October (Quarrying Law) whereas the extraction of sand and gravel under coastal marine waters and inland waters is covered by Act nº 468/71 of 5 November and Act nº 46/94 of 22 February.

*General Land Use Planning Law*

Land use planning legislation in a number of Member States incorporates provisions for minerals (see Chapter 5). The control of mineral workings in some Member States is exercised through land use planning legislation rather than mining legislation (e.g. UK).

However, there are exceptional cases, for example, in Hungary where no provisions with regard to mineral resources exist in the land use planning and regional development legislation.

In general the planning and mining administrative systems are distinct and require operators to secure two separate permits, i.e. a mining permit and a land use planning permit. Looking at the relationship between mining and land use planning, the key determinant is the pattern of ownership of mineral rights. The procedures tend to differ for different minerals depending on whether or not the mineral rights are owned by the State or privately (see Chapter 5.1).

There is currently no Community-level legislation on land use planning. The following section summarises the use of planning law to control aspects of mineral extraction in different Member States.

**Germany**

The principal legislative control of *construction minerals* in the Federal Republic of Germany is the National Planning Law.

**Denmark**

The overall framework for the control of minerals as mentioned is the Raw Materials Act 1997. There exists also the Planning Act (Spatial Planning Act No. 518 of 2000) which impacts on mineral extraction.

**Italy**

The principal legislative controls over the extraction of construction minerals are (various) extraction laws and land use planning laws which operate at the regional level.

**Norway**
The principal legislative control for construction minerals is provided by the Planning and Building Act (No. 77 of 14 June 1985).

United Kingdom

Mining and quarrying in the UK is controlled through land use planning and health and safety legislation, including the Town and Country Planning Act 1990 (as amended) and the Quarries Act (1999).

England

The English National Government exercises influence through the Mineral Planning Statements (MPSs) and Marine Mineral Guidance Notes (MMGs). These include:

- MPS1 Planning and minerals (core guidance with annexes on specific minerals)
- MPS2 Controlling and mitigating the environmental effects of mineral extraction in England
- MPS3 Restoration and aftercare of mineral workings in England

Wales

The Welsh Assembly Government exercises influence through a series of Planning Policy Wales, Guidance Notes (PPWs) and more specifically Mineral Policy Wales (MPWs) (2000). The latter guidance note has been supplemented by a Minerals Technical Advice Note (M/TAN) on Aggregates published in 2003.

Scotland

The Scottish Parliament exercises influence through National Planning Guidance Policy Notes (NPPGs) of which the key ones are NPPG4 "Land for Mineral Working" (1994) & NPPG 6 “Opencast Coal & Related Minerals”. There is also a network of Planning Advice Notes (PANs). NPPG4 is currently under review.

Other relevant laws

Each Member State has in addition to the principal legislation a number of laws, which affect mineral extraction, e.g. health and safety, environmental protection. Environmental assessment (e.g. noise, emissions, nature conservation, water, traffic, landscape) legislation also often applies to mineral extraction. The laws focus on the limitation of possible harmful effects resulting from extraction by attaching conditions to mineral extraction licences; the purpose of the principal legislation being to determine whether extraction should or should not go ahead (see also Chapter 5).

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65 For detailed information see country report.
France

The Law of 4 January 1993 defines quarries as classified installations for the environmental protection (ICPE, ‘Installations Classées pour la Protection de l’Environnement’) and, hence, are in the first instance supervised by the Ministry of the Environment.

Luxembourg

The Law of May 1990, related to the control of dangerous, dirty and noxious installations, has become the key legislation for new projects, including quarry operations. It sets out a discrete authorisation procedure, based on the concept of Best Available Technology (BAT). The legislation also makes provisions for greater public involvement in the decision-making process and increases owner liability.

Sweden

Non-concession minerals (i.e. construction minerals) are mainly regulated by environmental acts. This situation for first category minerals is slightly complicated by ‘Special Status’ Regions. Here first category minerals are authorised only at the regional level since these regions have special autonomy both in the management of mining resources located on their territories, and in the power to issue mining laws.

The extent to which the legislation is integrated – both horizontally and vertically – affects both policy and supply practices in the Member State. Horizontal integration refers to procedures at the same level of control, whereas vertical integration refers to the co-ordination of procedures between different levels of control (e.g. central government and local authorities (e.g. Slovenia)).

4.3.1.2 Control Over Mining – Centralised versus decentralised

The mechanism for controlling mineral extraction in part reflects the historical evolution of the ownership of mineral rights (see also Chapter 5). Frequently centralised control is exercised over selected minerals, usually minerals of a high intrinsic value such as metal ores whereas control over construction minerals tends to be more decentralised.

Centralised

A number of Member States have a strong tradition of centralised control over mining. Usually this control is through a national mining authority, which is often part of the Department of Trade, Industry or Economic Affairs (e.g. Austria). In the UK, central Government produces national policy guidance, but decisions of permit applications and day to day control of extraction activities is the responsibility of the Mineral Planning Authority (in most cases the County or Metropolitan District Council).

Decentralised

Decentralised control over mineral extraction is often found in connection with the extraction of minerals which are within the ownership of the landowner (see table 10).
4.4 Regional Level

In some Member States, the regional administration often plays an important role in mineral extraction. This is particularly the case with construction minerals. These are autonomous regions which are able to formulate their own legislation and policy and as a result can exert influence over mineral extraction. Planning control in some countries has been devolved to the autonomous regions (e.g. Belgium, Italy and Spain).

Italy

The situation for first category minerals (i.e. metal ores) is slightly complicated by 'Special Status' Regions. First category minerals are authorised only at the regional level since these regions have special autonomy both in the management of mining resources located on their territories, and in the power to issue mining laws.

4.5 County/Provincial Level

There also exist legal and administrative structures at the county (provincial) level in various Member States (e.g. UK), which exert considerable influence over mineral extraction. In many of these cases the authority over mineral extraction is exercised by an elected council (over an area smaller than a region).

4.6 Local Level

At the local level there are the authorities (municipal) that are responsible for authorising mineral extraction, usually operating under the auspices of national government (e.g. Latvia).

Latvia

The authorisation of the production of common minerals is carried out by local authorities, which issue permits for the production.
Table 6: Some EU tools with great influence on the extraction industry

<table>
<thead>
<tr>
<th>General Environmental</th>
<th>Waste</th>
<th>Noise</th>
<th>Air</th>
<th>Water</th>
<th>Flora &amp; Fauna</th>
<th>Others</th>
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<td>D 1999/30 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matters and lead in ambient air</td>
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<td>D 92/43 on conservation of natural habitats and wild flora and fauna</td>
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**Footnotes**

R Regulation  
D Directive  
Dec Decision  
C Communication
Table 7: Environmental Assessment (EA)

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<tr>
<td></td>
<td></td>
<td></td>
<td>Area</td>
<td>Volume of Production</td>
</tr>
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<td>Portugal</td>
<td>State</td>
<td>7</td>
<td>5 ha$^{69}$</td>
<td>150,000 t/year$^9$</td>
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<td>5 ha$^9$</td>
<td>150,000 t/year$^9$</td>
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<td>Landowner</td>
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</tbody>
</table>

Footnotes

(1) Lowering of surface level by more than 3 metres for underground workings
(2) In preparation
(3) Through joint ministerial decisions
(4) Quarries at the regional level. Industrial minerals on areas < 200000 sq.m. are regional. Larger are under ministry of Environment.
(5) Regional environmental inspectorate
(6) Production of minerals is bigger than 100,000 m3 per year; production of oil 18,000 tons per year and natural gas exceed 70 mln m3.
(7) If and when located in protected natural areas (i.e., nature 2000, natural parks, etc.)
(8) Except for dredging operations where the thresholds is 1 ha
(9) Each mine / quarry alone or in total with others located in a distance of 1 km
(10) Open Pit: 25 ha
(11) Open Pit: > 200,000m³/y
(12) Pit: Below phreatic level. Coastal, fluvial op. Visible operations In Natural Spaces Mineral alterations…
(14) As consulting to several Government Agencies, as Geological Survey…
(15) Environmental Ministry. And Autonomic Environmental Consejerias
(16) According to table values in Country Report
(17) Act No.127/1994
(18) Ministry of Environment
(19) The Danish Planning Act stipulates that projects that are likely to have significant effects on the environment are assessed before the projects are adopted, even if they are smaller or more short term than the threshold limits.
(20) In Finland must any extraction and processing of asbestos mineral be assessed by EA.
(21) Even if EA is not mandatory in Norway for smaller projects below the thresholds of 200 hectares or 2 M cubicm, notification is needed for projects involving more than 75 hectares or a total production of more than 750 000 cubicm.

<table>
<thead>
<tr>
<th>Member State</th>
<th>Number of Sites Classified</th>
<th>Total Classified Area (km²)</th>
<th>% of National Territory</th>
<th>SPA Classification</th>
<th>Natura 2000 Forms</th>
<th>Site Maps</th>
<th>Number of Sites Proposed</th>
<th>Total Area Proposed (km²)</th>
<th>% of National Territory</th>
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**SPA Classification**
- Notably Insufficient: Incomplete and/or not computerised
- Incomplete: Complete and computerised
- Largely Complete: Complete, computerised and validated
Figure 4: Comparison FFH-Directive and bird protection sites, with the country size in %
Table 9: The Principle Legislative Control of Mineral Extraction Activity

<table>
<thead>
<tr>
<th></th>
<th>Mineral Ownership Classifications</th>
<th>Mining Law</th>
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<th>General Land Use Planning Law</th>
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</table>

Footnotes

(1) Law applies to the exploration, extraction, storage, and processing of “free for mining”, state owned, and landowner’s raw materials.
(2) Nothing in operation or planned.
(3) Federal Authority is only responsible for marine environment exploitation permits for sand and aggregate extracts.
(4) Decree on Surface Mineral Resources
(5) Free reserved or non-reserved mineral deposit utilisation, or “freedom to mine” do not exist.
(6) Regional land use plans (undesignated mining land is a matter of
(7) A number of other laws come into play (see country report).
(8) Divided into deposits of State importance and local importance
(9) Earth's Crust Act

(10) "Mining Act", which provides requirements for mining of underground works, plans for mining and secondary utilisation of underground works.

(11) Mining Act and Mining Ordinance

(12) Law of 4 January 1993 where quarries are classed as classified installations for environmental protection.

(13) Ores, graphite, salt, coal, oil and gas, etc.

(14) Sand, gravel, natural stone, gypsum, anhydrite, dolomite, marl, clay, etc.

(15) For "free minerals"

(16) "Abgrabungsgesetz" in Bavaria and North Rhine-Westphalia


(18) Metallic ores (including some non-metallic minerals such as feldspar).

(19) Legislative control of industrial minerals and aggregates is covered equally by mining law and other excavation laws.

(20) No specific planning for minerals.

(21) Estimated 35-40% are privately owned.

(22) At the regional level

(23) Article 3 of the Law on Subsoil states that the mineral resources belong to the landowner. The landowner may be the State, local authorities, physical person, and legal entities.

(24) "The underground shall be the exclusive ownership of the State," according to Article 2 of the Underground Law.

(25) Based on the Law of 21 May 1999, a national plan of land use has been developed.

(26) Law of May 1990 related to the control of dangerous dirty and noxious installations, which includes quarry operations.

(27) Regulates acquisition and initial permits for production of (mainly) metalliferous mineral resources.

(28) Limestone and quarry acts

(29) Quarry Law

(30) There are provisions about mineral extraction in the General Land Use Planning Law and other statute laws such as the EA, nature conservation, etc.
Chapter 5  Existing Mineral Planning Policies / Systems in Europe

5.1 Ownership of Mineral Rights

The ownership of mineral rights systems in Member States usually date back many years. Acts such as the Napoleon Code have left a legacy of two-tier ownership in most Member States. In general, the ownership of mineral rights belongs either to the State or the owner of the land.

5.1.1 State Owned Minerals

The concept behind state owned minerals is that certain minerals (high value minerals) should be readily available to industry to protect national interests. State owned minerals are usually minerals that are of national interest and importance (in particular, metallic ores and energy minerals). More recently certain industrial minerals have been added to the list of state owned minerals in some countries.

A key aspect of state owned minerals is that the owner of the land on which the mineral deposits exist, is not the owner of these minerals. Extraction of these minerals may take place even against the will of the landowner. In such cases the landowner may be compensated for the value of the land.

In some Member States the state receives a mineral rent (royalty) from the extraction company for the extraction of state owned minerals. In others, some minerals are known as “free minerals”. In such cases the ownership of the minerals rests with the state, but the operator is free to exploit them without having to pay the state a royalty.

5.1.2 Minerals owned by the landowner

These tend to be the more common construction minerals, i.e. sand, gravel and aggregates, and some industrial minerals. Construction minerals have become more important in recent years and constitute the bulk of non-energy minerals extracted in Europe. The mineral rights of these minerals belong to the owner of the land on which they occur. The right to extract them is granted by civil contracts between the landowner and the extraction company.

In some countries more complex systems of ownership of mineral rights exist.

5.1.3 Minerals ownership in different Member States

- *Austria*

  *Ownership of minerals*
The ownership of the mineral rights is regulated by the Minerals Resources Law of 1999 amended in 2001. The mining law distinguishes different categories of minerals, namely:

Free minerals: These include metallic ores and a number of other rare or high value or pure minerals. The right to mine these minerals is obtained from the mining authority. The owner of the land on which these minerals are found does not own them. Consequently he does not receive a rent. He is however, compensated for the use of the land. If it is considered to be in the national interest, the owner of the land may be expropriated if he is not prepared to permit mining activities on his property.

A second category of minerals are the state owned minerals, including rock salt, hydrocarbons as well as minerals which contain uranium or thorium. The state can enter into a contract with a minerals company to extract these minerals.

All other minerals belong to the landowner and include dolomite, quartzite, bentonite, diatomite, asbestos, mica, feldspar, marl and granite.

Processes and procedures required to obtain mineral rights

The Mining Law distinguishes between the exploration phase and the exploitation phase concerning the acquirement of proprietary rights of raw materials. The exploration phase is divided into:

- the search for minerals (preliminary exploration, and prospecting); and
- detailed examination of the occurrence of mineral deposits in order to determine the feasibility of extraction (exploration).

Exploitation phase

Anyone planning to exploit mineral deposits in Austria has to acquire a mining title. This mining title gives the right to explore and/or exploit mineral resources for the purposes of industry and trade. The mineral title holder is a legal or natural person who has obtained the mining title by concession in accordance with the provisions hereto.

According to Article1 Paragraph 14 of the Mining Law, mining titles can cover:

Exploration rights:

- exploration licence
- right of the state to explore for state owned raw materials

Exploitation right:

- For free minerals: a mining licence
• For state owned minerals: the right of the state to extract state owned raw materials. An approved exploitation plan is required.

• For landowner minerals: an exploitation plan (equivalent to a mining title)

Regulations and administrative procedures controlling access to mining land

The access to “free for mining” and State owned raw materials is regulated by the Mining Law, but is also subject to land use planning considerations. In the case of landowner minerals, access to the mineral deposits is regulated by the regional land use planning laws of the provinces.

ý Belgium

Ownership of minerals

Belgium law (see country report) distinguishes between metal ores and coal which are owned by the State, and industrial minerals and construction minerals. As there are no metal or coal mines either in operation or planned, this group of minerals is not relevant at the moment. Hence, the discussion below concentrates on the second group, which are owned by the landowners.

Processes and procedures to obtain mineral rights

As industrial minerals and construction minerals are owned by the landowner, it is necessary for the extraction company to come to an agreement with the landowner.

Regulations in force controlling mineral exploration activities

In Belgium no regulations that are specific to mineral exploration activities exist.

Regulations and administrative procedures controlling access to mining land

If the area of interest is included in the local land use plan and if the exploitation company has a permit for exploitation, the company can ask for expropriation of the landowner, if he is not willing to permit mining on this land. The permit for exploitation is issued by the Regional Government (e.g. Flemish Government).

ý Czech Republic

Ownership of minerals

Mining legislation in the Czech Republic distinguishes between ‘reserved’ deposits, which are state owned, and ‘non-reserved’ deposits which are owned by the landowner. All minerals with the exception of building stone, gravel and clays are reserved deposits.

The State possession of industrially important mineral resources enables the government to influence and enforce the extraction of minerals in the public
interest. The Mining Act, Law No. 44/1988, defines the principles for protection of reserved deposits as well as conditions for their utilisation.

A permit from the local mining office is required for mineral exploitation. This is only issued if conflicts of interest e.g. roads, telecommunication, electrical wires, monument zones, private lands, etc. have been resolved.

Mining Act, Law No. 44/1988 defines the principles of protection of reserved deposits owned by the state as well as conditions of their utilisation.

Free reserved, non-reserved mineral deposit utilisation or "freedom to mine" concept do not exist in the Czech Republic. A permit from the local mining office is required for mineral exploitation. A permit is not issued if conflicts of interest have not been resolved, e.g. roads, telecommunication, electrical wires, monument zones, private lands, etc.

**Processes and procedures to obtain mineral rights**

The process for acquiring rights to exploit minerals and the authorisation of mining activities corresponds to the principles of a decentralised democratic society where people decide on matters themselves through community and regional representatives. Geological prospecting and exploration is authorised by the Ministry of Environment. The authorisation specifies the area, mineral and conditions for prospecting. The authorisation secures for the holder the exclusive right to conduct work under the specified conditions and secures priority for receiving approval of a mining claim. It does not automatically grant the exploitation right for the discovered and verified mineral deposit. Such approval is issued through a separate administrative step.

The proposed mining area must be subjected to an environmental impact assessment (EIA), in accordance with the Czech National Council Act No. 244/1992, governing assessment of impacts on the environment. If this is not done, then the impacts on the environment will be assessed in the next phase which is the authorisation of mining activity. The applicant must pay the costs of the assessment. The fee for the exploration works during the first year is 2,000 Kč per km² for each new km² of defined exploration area. This fee is increased by 1,000 Kč each year. The exploration area (prieskumné územie) is generally a polygon that is not limited in area.

The Permit for Reserved Mineral Deposit Exploitation (povolenie na dobývanie ložiska vyhradeného nerastu), is issued for an unlimited period; but within three years after issuing the permit, the company must start to exploit the deposit. The Local Mining Office can cancel the mining permits if exploitation has not started within this period, and following a tender process, assign it to another company.

**Regulations in force controlling mineral exploration activities**

The Geological Works Act and the Mining Act regulate the exploration of reserved deposits. The exploration of mineral deposits is divided into non-destructive prospecting and geological exploration involving activities which
impact on the land. In the latter case, more stringent administration procedures for authorisation apply. Recent amendments to the Mining Act relate to the amendments of the appropriate definitions in the Civil Code, Trade Act, Civil Engineering Act and others.

In the permit area, the mine operator is authorised to perform additional geological exploration. The Acts list all the requirements that have to be met by the operator. The Geological Works Act requires the operator to resolve all conflicts of interest with the owners of the land on which geological works are performed. The Mining Act controls geological exploration for mineral deposits, and requires that all conflicts of interests are resolved.

**Regulations and administrative procedures controlling access to mining land**

The mine operator has to enter into a private contract arrangement with the landowner for access to the land. In the case of reserved mineral exploitation the mining company has the right to obtain all rights to the land by expropriation if no agreement with the landowner can be reached. The land expropriation is performed under provisions of the Building Act which also specifies the level of compensation to be paid.

**Denmark**

**Ownership of minerals**

The Raw Material Act covers the following non-energy minerals which can be exploited from the land surface or the bottom of the sea: bentonite, lignite, diatomaceous earth, flint, masses for fill, gneiss, granite, gravel, limestone, kaolin, chalk, clay, marlstone, methane, diatomaceous earth, topsoil, bog iron, sand, sandstone, sea shells, slate, and rock.

The landowner owns onshore minerals, whereas off-shore resources are owned by the state. The Danish Subsurface Act No. 552 of 1995 regulates deep-seated mineral resources such as salt, oil and gas, as well as geothermal energy. The minerals falling under the Subsurface Act belong to the state.

**Processes and procedures to obtain mineral rights**

Land-based minerals belong to the landowner, and mineral rights must be acquired through a private contract between the landowner and the mineral operator. The County authority can expropriate private land in order to secure the future supply of minerals, in cases where private initiatives are not sufficient to secure sufficient supply. In such cases, the landowner is paid full compensation. Marine resources are owned by the state, and exploitation rights are acquired through a licence system under the Raw Materials Act. A licence permits the operator to extract minerals from a designated area. However, more than one operator may be given extraction rights in the same designated area.

**Regulations and administrative procedures controlling access to mining land**
Access to mining land is an integral part of the land use (regional) planning system with plans designating areas for future mineral extraction. Access to land not included in the regional plan is a matter for negotiation between the landowner(s) and the mining company.

**Estonia**

*Ownership of minerals*

Selected minerals belong to the state. These are bedrock clay, dolomite, phosphorite, crystalline building stone, limestone, oil shale, gyttja and sea mud with therapeutic effect (curative mud) and sand used in technological processes (technological sand). Other minerals may also belong to state if they are on state owned land. All other minerals belong to the landowner excluding bedrock defined as a pre-glacial part of the earth's crust.

The mineral deposits are divided (according to their value) into the deposits of state importance and local importance. The list of the deposits of state importance is issued by the Government of the Republic at the initiative of Minister of the Environment. All deposits situated in transboundary watercourses, territorial and coastal water and in the exclusive economic zone are deposits of state importance.

*Processes and procedures to obtain mineral rights*

Mineral rights are granted exclusively as part of the permit for exploitation.

*Regulations in force controlling mineral exploration activities*

An application for an exploration permit has to be published. The public has the right to comment on the proposal (two weeks). The Earth’s Crust Act defines exploration and geological investigation as two different activities. Explorations activities cover the search for minerals for the purpose of future exploitation, while geological investigations are undertaken to improve the knowledge of the earth crust.

The general requirements for exploration are:

- The exploration must be carried out in a way that minimises damage to the environment or other people.
- All minerals occurring in the exploration area should be recorded, even if their extraction is at the time considered to be uneconomical.

The holder of the exploration permit is obliged to rehabilitate the land used for exploration and to close mining working (The Earth’s Crust Act, paragraph 16).

*Regulations and administrative procedures controlling access to mining land*

All mining and exploration activity requires a licence. Details of the licence granting process are specified in the Earth Crust Act. There are no regulations
which define areas for mineral extraction or protect these areas against other development.

Finland

Ownership of minerals

The Mining Act defines four categories of minerals that belong to the state, regardless of who owns the land on which they occur. The four categories are: metalliferous ores, industrial minerals, gemstones, and marble and soapstone. The two first categories encompass the following mineral substances:

1) Lithium, rubidium, caesium, beryllium, magnesium, strontium, radium, boron, aluminium, scandium, yttrium, lanthanides, actinium, thorium, uranium, germanium, tin, lead, arsenic, antimony, bismuth, sulphur, selenium, tellurium, copper, silver, gold, zinc, cadmium, mercury, gallium, indium, thallium, titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum, tungsten, manganese, rhenium, iron, cobalt, nickel and platinum group metals.

2) Graphite, diamond, corundum, quartz, bauxite, olivine, kyanite, andalusite, sillimanite, garnet, wollastonite, asbestos, talc, pyrophyllite, muscovite, vermiculite, kaolin, feldspar, nepheline syenite, leucite, scapolite, apatite, barite, calcite, dolomite, magnesite, fluor spar and kryolite.

Iron, aluminium, quartz and feldspar must occur in bedrock if they are to be exploited. This means that, for instance, bog iron and silica sand are not considered as mining minerals in the legal sense.

All other mineral substances belong to the landowner.

Processes and procedures existing in place to obtain mineral rights

There is a general right for anyone to prospect for mining minerals, regardless of who owns the land. There is no legal requirement to have a permit to undertake surface mapping or similar work that does not entail excavation work, road building, or drilling etc. However, some limitations do exist, mainly in connection with proximity to built-up areas, infrastructures, military areas etc. The prospector must inform the landowner or, in the case of public land, the local registrar’s office before the work starts.

There are four steps necessary to obtain the rights to mine minerals. These are:

1. Application for a pre-claim licence (inmutningsområde) for a single area up to a maximum of 9 km² (This step is not compulsory).

2. Application to the Ministry for a pre-claim licence, for an area of up to 1 km², which is issued for a period of up to five years, and which can be extended by a further three years.
3. Application for a claim patent (utmål) for successful discoveries that are considered technically and economically recoverable with a reasonable probability. It is possible to apply for both a pre-claim licence and a claim patent at the same time, provided that the presence of a suitable deposit is likely. If the project is of a size and type to warrant an environmental impact assessment according to the Environmental Assessment Act No. 468 of 1994, this assessment has to be made and documented, and the report has to be submitted together with the application for a claim patent.

4. Issue of a mining right, which is secured by a claim patent. The claim patent is issued for 10 years and can be extended. In order to explore and exploit minerals other than the mining minerals, agreements or contracts must be made with the landowner(s).

**Regulations in force controlling mineral exploration activities**

Exploration for mining minerals is regulated through the Mining Act and Mining Ordinance. The main purpose is to secure mineral rights as discussed above, but the regulations also describe obligations that the exploration party must observe with regard to nature conservation, degradation of property, landowner compensation, safety during and after the exploration work, and the submission of a report to the Ministry of Trade and Industry of the findings of the exploration work.

**Regulations and administrative procedures controlling access to mining land**

The Mining Act states that a holder of a pre-claim licence or a claim patent has the right to be assigned the land needed for access and operation. Access to non-claimable minerals has to be negotiated with the landowner(s) and/or the land users.

**France**

**Ownership of minerals**

Minerals of high value or national importance such as gold, silver, copper, zinc are defined as “mined substances” in Article 2 of the French Mining Code (Code Minier). Both exploration and extraction rights to these are state owned. Minerals not specified in Article 2 are classified as “quarried substances”, and include aggregates such as limestone, igneous rock, sand and gravel. Rights to extract quarried minerals belong to the owner of the land.

**Processes and procedures existing in place to obtain mineral rights**

Concessions to mine Article 2 minerals (“mined substances”) are granted by an order from the Council of State (Conseil d’Etat), following consultation with the General Mines Council (Conseil General des Mines). This order specifies the extent and limits of the concession, the time span of the right, and the rights of the owners of the surface over the products of the mine. Since 1977,
concessions have been granted for a maximum period of 50 years. Many concessions of unlimited life, mainly established during the 19th century, still persist in France. However, all old concessions will be terminated by 2018, including those with an indefinite permit.

The concessions for quarries have become permits for temporary occupation of a zone. As industrial minerals and construction minerals are owned by the landowner, agreement has to be reached with the landowner before exploitation can commence. The State, through the departmental schemes of quarries (SDC, ‘Schémas Départementaux des Carrières’), has the power to issue exploration and exploitation permits without the consent of the owner of the land, when there is a critical shortage of a specific mineral resource.

_regulations in force controlling mineral exploration activities_

The regulations distinguish between “mined” material and “quarried” material.

‘Mined’ material: The District Prefect has to be informed by the owner of the land of all exploration activities.

In all other cases, it is up to the Ministry of Industry, in consultation with the General Mines Council and the State Council, to issue an exploration permit for mined materials. These permits are issued for a period limited up to a maximum of five years. They can be renewed twice for a period equal to the initial period of validity. Exploration permits provide their holders with an exclusive right to explore within their perimeter.

If a substance is discovered within the scope of an exclusive exploration permit, the holder of it receives the exclusive right to work the deposit, subject to obtaining an extraction permit. Within a distance of 50 m around dwellings, no drilling or excavation of shafts or galleries may take place without authorisation by the habitants. Applicants for exploration permits must provide a work programme and adequate financial and technical guarantees. A note on the likely environmental impact of the exploration must also be submitted. Article 133 of the Mining Code requires the operator of any geophysical or geochemical exploration, or of a study of heavy minerals to inform the Mine Inspectorate and to communicate the results.

‘Quarried’ material: Exploration for quarried materials is judged on an individual basis, but as the trial excavations are seldom very deep, a permit is often not necessary.

There are no fees to be paid to the authorities and/or landowner during exploration.

_regulations and administrative procedures controlling access to mining land_

The Town Planning Law of 1967 (‘L’Aménagement du Territoire’) also requires a land use planning permit to be issued.
Germany

Ownership of minerals

The legal basis for mineral extraction in the Federal Republic of Germany is the National Planning Law (“Raumordnungsgesetz”), the planning laws of the federal states (“Bundesländer”), the Federal Mining Act (“Bundesberggesetz”) and the Mineral Deposit Law (Lagerstättenverordnung).

Mineral resources are divided into three categories:

- Free minerals (“bergfreie Rohstoffe”)
- Minerals owned by the landowner and covered by the Federal Mining Act
- Minerals owned by the landowner and not covered by the Federal Mining Act

The German legislation concerning “free minerals” distinguishes between the old Federal and the New Federal States.

Free minerals

Old Federal States: The ownership of land, contrary to the ownership regulations according to Civil Law (“Bürgerliches Gesetzbuch”), does not apply to the free for mining minerals that are listed in a catalogue. As these minerals are not owned by anybody, the rights to extract them remains separate from the ownership of land. To acquire these rights, a mining licence must be obtained.

New Federal States: Until 1996 almost all minerals were free minerals. With the entering into force of the Law for the Unification of the Legal Relationships concerning Minerals (“Gesetz zur Vereinheitlichung der Rechtsverhältnisse bei Bodenschätzen”) on 15 April 1996, the basis of mining laws in Germany is now the Federal Mining Act. However, Article 2 Paragraph 1 Sentence 1 of the Unification Law (“Einigungsgesetz”) contains comprehensive transition regulations; implicating that existing mining licences in the New Federal States may remain valid.

Minerals owned by the landowner and covered by the Federal Mining Act

The legal title of all minerals not listed in Article 3 Paragraph 3 of the Federal Mining Act belongs to the landowner.

As far as exploration and extraction are concerned, the so called catalogued minerals, free minerals as well as minerals owned by the landowner but extracted from underground and thus covered by the Federal Mining Act, are

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66 Free minerals are ores, graphite, salt, coal, oil and natural gas, etc.
67 Sand, gravel, natural stone, gypsum, anhydrite, dolomite, marl, clay etc.
treated equally (requiring an operations plan as well as mining inspection). The
difference between the two categories of minerals lies in the fact that the
extraction permit for free minerals is granted by the State, whereas the
permission to extract minerals owned by the landowner and covered by the
Federal Mining Act is a matter of negotiation between the landowner(s) and the
mining company.

Minerals owned by the landowner and not covered by the Federal Mining Act

These un-catalogued minerals are not controlled by the mining law, but are
subject to regulations under Civil Law ("Bürgerliches Gesetzbuch"). The
landowner is entitled to explore for and extract these minerals. For a
considerable number of them there are no uniform permit requirements, but
various national and federal state regulations. In the case of underground
exploration and extraction, mineral resources are treated equally as catalogued
minerals owned by the landowner and covered by the Federal Mining Act.

Processes and procedures existing to obtain mineral rights

Free minerals: Under the Federal Mining Act, exploration and extraction of free
minerals require a mining licence, which represents merely a right granted by
the State for the economic utilisation of free minerals. In order to carry out
mineral extraction operations it is necessary to obtain an approval of the
operations plan from the competent authority.

Minerals owned by the landowner and covered by the Federal Mining Act:
Exploration and extraction of the catalogued minerals must be approved in an
identical way to that for free minerals.

Minerals owned by the landowner and not covered by the Federal Mining Act:
The landowner is entitled to the exploration and extraction of the minerals.
Regarding a substantial part of these minerals there are no uniform permit
requirements, but various national and federal state regulations.

Greece

Ownership of minerals

The ownership rights and the rights of exploration and exploitation for the
following minerals belong to, and are taken up exclusively by, the State (Mining
Code, Articles 3 & 6)

- Liquid and gaseous hydrocarbons;
- Solid fuels (including lignite);
- Minerals containing radioactive elements of exploitable quantity;
- Geothermic resources;
- Natural gases;
- Emery;
- Mineral sodium chlorite;
- Natural organic fertilizers.

In addition, the State owns the rights to metallic ores (including some non-metallic strategically important minerals such as feldspar), but the rights of exploration and exploitation can be granted by the State to private operators. Marine sand and gravel rights belong to the local prefecture and the Ministry of Development. Other rights of exploration and exploitation rest with the landowner.

**Processes and procedures to obtain mineral rights**

Obtaining mineral rights is governed by the Mining Code (Articles 3-14).

**Regulations in force controlling mineral exploration activities**

There are two different procedures to obtain permission for exploration activities. One pertains to metallic ores and the other to industrial minerals and aggregates. For metallic ores, a *Preliminary Exploration Permit* (Articles 20-43 of the Mining Code) or *exploration concession*, which is valid for two years, has to be obtained. If successful, it is followed by an exploitation concession (Articles 44 – 64 Mining Code), which is valid for 50 years and is renewable. Government grants the concession. In the case of industrial minerals and aggregates, an exploration permit (either for private or public lands) has to be obtained. Law 669 (as amended by Laws 1428 and 2115), the environmental restrictions in Law 1650 and as well as other laws, govern the latter.

**Regulations and administrative procedures controlling access to mining land**

Regulations and administrative procedures are governed by different laws, depending on the category of minerals mined. The Mining Code details procedures for metallic ores, while Laws 669, 1428 and 2115 govern exploitation of industrial minerals and aggregates. Environmental protections Laws (1650, 3010) and their respective ministerial decisions have to be taken into consideration.

**Hungary**

**Ownership of minerals**

In Hungary the original owner of mineral resources is the central state as given in the Civil Code (Act IV of 1959) under §96, "The ownership of land shall not extend to the ‘treasures of the earth’, nor does it extend to natural resources;" and under §177: "Unless otherwise provided by law, the following shall remain under exclusive state ownership: a) the treasures of the earth, b) underground waters …"
This is repeated in §3 of the Mining Act, which states that mineral raw materials and geothermal energy in their natural occurrence are the property of the state. As minerals are exploited they are transferred to become the property of the mining operator. In Hungary, this holds true for all mineral commodities. The owner is the central state. It practices this right by delegating licensing to local mining authorities (in the first instance) or to the Minister of Economy (in case of a concession contract). Municipalities and local governments are involved in the licensing process as co-authorities. The mining company has to pay the state a fee for the extraction of the minerals. Details of the fees are given in § 20 of the Mining Act.

*Regulations in force controlling mineral exploration activities*

The most important government regulations are the following:

- The Concession Act (Act XVI/1991);
- The Company Act (Act VI/1988);
- The Foreign Investment Act (Act XXIV/1988);
- The Mining Act (Act XLVIII/1993).

The Mining Act covers environmental issues related to mining. These include protection of air quality, natural waters and fertile lands. Practically every mining operator is required to carry out environmental impact studies as described in the 86/1993 Governmental Decree.

*Regulations and administrative procedures controlling*

The Hungarian Mining Office and the Hungarian Geological Survey maintain a register of mining operation data. As prescribed by §33 of the Mining Act the mining companies are required to supply technical data on mining operations. These have to be updated periodically. The relevant regulation is Degree No. 69/1995 (XII.26) of the Ministry of Economy which gives details of the content and scale of mining maps. Data provided by concession holders to the Geological Survey are confidential for the whole duration of the concession licence. A summary of all data is, however, published.

*Regulations and administrative procedures controlling access to mining land*

Access to mining land is a matter of negotiation between the landowner(s) and the mining company.

*Ireland*

*Ownership of minerals*
Minerals are divided into two categories: scheduled minerals and non-scheduled minerals.68

The exclusive right to work scheduled minerals is vested in the Minister for Transport, Energy and Communications. This regulation does not apply to minerals that were already being privately worked on 15th December 1978. Not all scheduled minerals are state owned. An estimated 35-40% of the scheduled minerals are privately owned. For exploration activities for all scheduled minerals, it is necessary to obtain a prospecting licence from the state. In addition to a prospecting licence a separate mining licence is also required to extract state owned scheduled minerals, including an agreement on royalties payable to the state.

Processes and procedures to obtain mineral rights

In Ireland, Prospecting Licence Competitions are held every three months. During these competitions all surrendered, terminated or offered but declined licences are listed. Parties who are interested have two months to apply for these competition areas. The list with prospecting licences is published on the first of: February, May, August and November.

Publications made on the first of May and November also includes updated current licence details, industry news, and a revised map of State Mining and Prospecting Areas etc. The publications made on the first of February and August are not that extensive. They provide a competition list of prospecting licences issued or offered and advertised since the previous publication. (Department of Communications, Marine and Natural resources 2004a)

Regulations in force controlling mineral exploration activities

Under the Mineral Development Act it is necessary to obtain a prospecting licence prior to carrying out exploration activities in relation to any scheduled minerals. No licence is required for the exploration of non-scheduled minerals. Having a licence for exploration does not mean that these minerals can also be extracted, as this requires a separate licence.

Italy

Ownership of minerals

The right of ownership and exploitation of a mineral resource depends on the category under which it is listed.

68 There are two basic categories of earth resources in Ireland: “minerals” as defined in the Minerals Development Acts, and other materials. The former are defined as: all substances (other than the agricultural surface of the ground and other than turf or peat) in, on, or under land but excluding stone gravel, sand and clay. The Minerals Development Act contains an indicative schedule of minerals but this is not exhaustive. Some of the more important minerals comprehended by the Minerals Development Acts are: Dolomite and dolomitic limestone, china and ball clay, silica sand, gypsum and anhydrite, salt and potash, barites, fluorspar, tin, lead zinc and copper, mines of silver and gold.
The State owns the rights to first category minerals and, through the Ministry of Industry, issues permits for prospecting, exploration, and exploitation. Rights to marine sand and gravel belong to the state. First category minerals include metal-bearing minerals (i.e. tin, lead, zinc, copper), and non metal-bearing minerals of significant industrial importance (i.e. salt and potash, barites, fluorspar).

Second category minerals are the property of the landowner, and are subject to regional administrative regulations. These comprise all other minerals, mainly quarried (i.e. limestone, sandstone, sand and gravel).

However, by a presidential decree, the substances comprised in the second category can be included in the first category.

Processes and procedures to obtain mineral rights

Under Italian law, mining rights cover both exploration and exploitation of a mineral, and similar procedures address both activities. However, separate permits are required.

The mining legislation attempts to reconcile mining with protection of the environment, by obliging holders of exploration and working permits to restore worked land and to set up the principle of restoration guarantees. Some regional authorities have established laws on Environmental Impact Assessment (EIA). For example, some regions have passed laws which approximate the EU criteria while other regions have gone beyond that requiring compulsory EIA for all mining ventures.

In most cases, different regional and provincial regulations have provided dimensional thresholds for mineral extraction activities above which an application must be accompanied by an ES (Environment Study). For example, Trento (an autonomous province) requires EIAs, including public inquiries, for all projects over 500,000 m³. For Valle D’Aosta, this threshold is set at 50,000 m³. Furthermore, some regions have passed laws that require EIAs for all applications in environmentally sensitive areas.

The responsibility for preparing EIAs lies with the developer, where legislation exists. No formal guidance has been issued although the subject is regularly commented upon.

Latvia

Ownership of minerals

Article 3 of the Law “On the Subsoil”, states that mineral resources belong to the landowner. The landowner may be the state, local authorities, physical persons, and legal entities. According to the Article 5 the Cabinet of Ministers, in the interest of the State, has the right to limit the rights of legal and physical entities regarding the land and the subsoil belonging to them by imposing limitations on the right to use the property. The same article states that “… in
the interest of the national security, protection of the environment and the subsoil, the use of mineral resources and deposits of State importance (...) may be alienated from the landowners in compliance with the Law On the compulsory Alienation of Real Estate for State and society needs”. The minerals of state importance are hydrocarbons and groundwater.

In the areas where objects of state importance are located some limitations on land use and economic activities may be imposed according to the Regulations of the Cabinet of Ministers “The provisions of use of minerals, deposits and subsoil areas of state importance”.

Processes and procedures to obtain mineral rights

According to Latvian law, the landowner is also the owner of the subsoil. However, any mining activity (exploration or production) requires appropriate permits (licences).

The processes and procedures to obtain the exploration and extraction permits for minerals other than hydrocarbons are described in detail in the Regulations of the Cabinet of Ministers No. 238 and 239 (1997). Permits for the use of subsoil are issued for a fee. The procedures of payment and the size of fees are determined by the Cabinet of Ministers. Permits for the use of subsoil belonging to the State or the local authorities are issued following a competitions or sale. Any legal or physical entity (including foreign entities) may participate in competition or sales. The procedures for competition or sales concerning the issuance of permits are determined by the Cabinet of Ministers.

Regulations in force controlling mineral exploration activities

According to Latvian law, exploration activity is considered as the use of subsoil. The main legal act for controlling mineral exploration activities is the Law on the Subsoil. According to Article 18 of that Act, “the control of the use of the subsoil and its protection (...) is carried out by the authority issuing permits for the use of subsoil, Ministry of Environmental Protection and Regional Development (MEPRD), State Environmental Inspectorate and regional environmental boards.” Point 2 of this Article states that “the local authorities of regions, towns and townships, after obtaining an endorsement from MEPRD can, in compliance with the procedures prescribed by MEPRD, carry out measures of local importance aimed at the protection and the control of the use of the subsoil (...).”

Regulations and administrative procedures controlling access to mining land

The main regulations and procedures controlling access to mining land are connected with the basic mineral law – the Law On the subsoil. The most important document concerning the production of minerals other than hydrocarbons is the Regulations of the Cabinet of Ministers No 239, “Regulations on the use of subsoil” (1997), which describes the licensing requirements.
Lithuania

Ownership of minerals

Article 2 of the Underground Law says: “The underground shall be the exclusive ownership of the State.” The underground means everything that is below the surface of the land. The owner of the land that contains minerals can extract them without any permissions only for their own use (not for sale). The limit of such an activity is an area of land up to 0.5 hectare and a depth of excavation of up to 2 metres.

Processes and procedures to obtain mineral rights

Mineral rights are issued to economic enterprises under the terms of the Underground Law. The necessary permission is the licence.

Regulations in force controlling mineral exploration activities

All exploration activities have to be accepted by the Geological Survey of Lithuania. The rights and conditions of mineral exploration are described in the Underground Law. Additional conditions can be given in the licence.

Regulations and administrative procedures controlling access to mining land

The mining land (i.e. an area of land which contains a minerals resource) is protected against other development or use by the Law on Environmental Protection, the Law on Land, the Law on Territorial Planning, and the Underground Law. Allocation of land for extractive activities is described in the Law on Land.

Luxembourg

Ownership of minerals

Mineral resources deeper than 6 m belong to the State and are subject to payment of royalties. The owner of the land owns mineral resources near the surface.69

Processes and procedures existing in place to obtain mineral rights

The landowner owns industrial minerals and construction materials. The operator has to reach agreement with the landowner to extract minerals. The National Government, however, issues a permit for extraction.

Regulations in force controlling mineral exploration activities

Prior authorisation is not required for borehole investigation, but may be required for trial excavations or other forms of exploration (e.g. trenching). Permission for exploration can be refused on environmental grounds.

69 Only minerals near the surface are extracted at present.
Regulations and administrative procedures controlling access to mining land

Access to mining land is a matter of negotiation between the landowner(s) and the mining company.

The Netherlands

Ownership of minerals

The Dutch State is the owner of the shells, gravel, sand and clay at or near the surface of the Continental Shelf (art 4b Excavation Act, revised in 1996). The Dutch State is also the owner of the seabed within its borders and the large inland waters (rivers). All other minerals belong to the owner of the land. For land based extraction the extraction company needs an extraction permit, and the company must have permission from the landowner.

Processes and procedures to obtain mineral rights

Extraction companies do not have to own the land as long as they have permission from the landowner.

Regulations in force controlling mineral exploration activities

According to the new Mining Act 2002 it is not necessary to have a permit for the exploration of surface minerals. No payments have to be made to either the government or the landowner.

Regulations and administrative procedures controlling access to mining land

The landowner can be compelled by the Minister of Transport, Public Works and Water Management or the provincial executive to allow research on potential mineral exploration (art 21g and 21h of the Excavation Act revised 1996). There are no special regulations for the exploitation of minerals. For exploration standard private and public laws apply.

Norway

Ownership of minerals

All minerals in Norway fall into two categories, “claimable” and “non-claimable”. Claimable minerals belong to the state whereas the non-claimable minerals belong to the landowner. Off-shore minerals, including oil and gas, belong to the state. According to the Mining Act, claimable minerals encompass metals with a density of five and higher and ores with such metals, the metals titanium and arsenic and ores with these metals, and pyrite and pyrrhotite. Bog iron ore and alluvial gold are not claimable minerals.

The Mining Act of 1972 upholds the principle of the “freedom to mine” which means that every citizen of the European Economic Agreement zone and enterprises residing there is entitled to explore for deposits of claimable minerals, regardless of who owns the land. However, some limits do exist to this
freedom, mainly in connection with proximity to built up areas, exploration on farmed land, near roads, power lines and other infrastructure, military areas etc.

Processes and procedures to obtain mineral rights

As discussed above, the freedom to mine, with certain restrictions, is applicable for claimable minerals. In order to explore for non-claimable minerals, a permit from the land owner must first be obtained.

Deposits of quartz and limestone present a special case with regard to the acquisition of mineral rights for exploitation, even if the two mineral categories still belong to the landowner.

Regulations in force controlling mineral exploration activities

Mineral exploration activities for claimable minerals are regulated through the Mining Act. The main purpose is to secure mineral rights as discussed above, but the Act also describes obligations that the exploration party must observe with regard to nature conservation, degradation of property, and safety during and after the exploration work.

Regulations and administrative procedures controlling access to mining land

In the case of claimable minerals, a possessor of a pre-claim licence or a patent claim can require that the area necessary for access and investigations shall be made available by the land owner, or placed at the possessor’s disposal for the time needed if it is not possible to reach an agreement between the two parties.

The same right also applies in the case that the holder of a patent claim wants to start a mining and processing operation and needs land for buildings, infrastructure, access etc. Access to non-claimable minerals has to be negotiated between the relevant parties.

All commercial mineral operations must be incorporated in the land use plan developed by the local municipality.

Poland

Ownership of minerals

According to the Article 7 of The Geological and Mining Law (J.L. of 2001 No. 110, item 1190), mineral deposits, which are not part of the “real estate”\(^7\) is owned by the State. The landowner owns only those mineral deposits belonging to the real estate.

\(^{7}\) The method of extraction is a criterion for establishing which deposit is a part of the real estate. Mineral deposits extracted in surface mines are owned by landowner, whereas those extracted by methods of underground and bore hole mining belong to the State. This interpretation results from definition of “real estate” presented in the Civil Code (art. 143). For further information see country report.
Mineral deposits, which are part of the real estate, can be subject to trade. Mineral deposits owned by the State are not negotiable, and are not subject to transformation of property. The State can extract mineral deposits belonging to it or dispose of them by granting mineral rights to mining companies. Owners of mineral rights have to pay royalties to the State.

The mining company which first explored and documented a mineral deposit belonging to the state will have priority for receiving the mineral rights.

Mineral deposits belonging to the State Treasury should be used according to the sustainable development principles because they constitute strategic natural resource of the State (Act on Preservation of National Character of the State Strategic Natural Resources, 2001). Legal mechanisms exist to expropriate the owner of the land on which state owned minerals are situated should this become necessary. This results from the fact, that “exploration, prospecting and extraction of minerals of the State Treasury are so called public aims (Article 6, Paragraph 8, Act on the Real Estate Economy).” The land which is necessary for extraction needs to be bought from the owner, but the price should include also the value of the mineral deposit.

Processes and procedures to obtain mineral rights

Prospecting, exploration and extraction of mineral deposits require a concession. Processes and procedures to obtain the concession are regulated by the Economical Activity Law and the Geological and Mining Law.

Regulations in force controlling mineral exploration activities

Under the terms of the Geological and Mining Law (4th section, 1st chapter) the prospecting for and exploration of mineral deposits are the responsibility of the geological public administration and State Geological Service.

Regulations and administrative procedures controlling access to mining land

Proved mineral deposits and underground waters within the boundaries of designed protection zones for water supply, as well as within protection areas for underground water reservoir have to be taken into consideration in the local land use plan (Article 48 of The Geological and Mining Law).

Ownership of minerals

In accordance with the Act nº 90/90 of 16th March 1990 and as a result of constitutional requirements, the following geological resources are State owned:

- Ore deposits (including all metallic and radioactive ores, coal, graphite, pyrites, phosphates, asbestos, talcum, kaolin, diatomite, quartz, feldspar, precious and semi-precious stones, potassium salts and rock-salt);
- **Hydro-mineral resources** (natural mineral waters and mineral-industrial waters);

- **Geothermal resources**

The remaining geological resources belong to the owner of the land. These are the so-called mineral masses, e.g. clays, limestone, marbles, gypsum, granites, sand and gravel and in general all ornamental rocks and those used in building not included under the mineral deposits category, and spring waters.

Sand and gravel under public waters (interior surface waters and coastal waters) are state owned. They are not treated as minerals or subjected to the above-mentioned mineral laws, but fall under the specific rules and regulations governing the utilization of the water domain. In certain well-defined situations it may be possible to extract such sand and gravel deposits under a permit issued by the relevant authority.

**Processes and procedures to obtain mineral rights**

The Decree n.º 90/90 of 16 March 1990 establishes the basic legal framework for mineral development, the granting of mineral rights for prospecting and exploration and for exploitation of the different categories of geologic resources. The Minister of Economics grants the mineral rights for *State owned* geological resources by issuing permits, one for prospecting and exploration, and another for exploitation (mining).

The Economy Regional Direction (Direcção Regionais da Economia (DRE)) or the Municipal Council, depending on the scale of operations or its location, issues a licence for quarrying a specific *construction mineral* in a delimited area. However, only the DRE may issue a licence for exploration of construction minerals.

There are general guidelines for the preparation of an EIS. The Ministry of Environment, at a central or regional level, produces the EIA and then gives a final notice to the relevant Mineral Administration to proceed (or not proceed) with the granting procedure for the mineral rights.

**Regulations and administrative procedures controlling access to mining land**

There are four different types of mineral licence which depend on the activity to be undertaken, the type of resource, and whether or not the mineral is state owned:

- An administrative prospecting and exploration contract;

- An administrative mining contract; in both cases covering certain state owned resources (ore deposits, and hydro-mineral or geothermal resources);

- A quarry operating licence in respect of construction minerals; and
• A spring-water operating licence.

Applications for prospecting and exploration contracts and mining contracts are decided by the Minister of Economics (ME), which submits them to the DGGE\textsuperscript{71} for processing. The DGGE also monitors the operations covered by the contracts.

The approval procedure for exploration or for mining state owned minerals is only required within classified environmentally sensitive areas. In other locations, a consultation process involving the land use planning and environment authorities is required, coordinated either by the applicant or the Mineral Administration, before or during the granting procedure for mining rights.

\[\text{Slovakia}\]

\emph{Ownership of minerals}

The Slovak minerals legislation distinguishes between reserved\textsuperscript{72} and non-reserved minerals.

Reserved minerals are in State ownership whereas the non-reserved minerals belong to the landowner. The concept of “freedom to mine” does not exist in the Slovak Republic. A permit of the local mining office is required to extract deposits. A permit can not be issued if conflicts of interest have not been resolved e.g. roads, telecommunication, electrical wires, monuments, private lands etc.

\emph{Processes and procedures to obtain mineral rights}

The first step to obtain the mineral rights is to get a permit to conduct geological investigations. The geological department within the Ministry of the Environment issues this permit. The exploratory work also requires a Geological Licence (geologické oprávnenie). These enable the prospective mine operator to specify the exploration area (prieskumné územie). The shape of the area is a polygon with a maximum area of 250 km\textsuperscript{2}.

The exploration area is specified for a period of four years. Extensions for another four years and then for a further two years can be granted. With each extension the area decreases by 25 \%.

The exploration area is specified by the geological department of the Ministry of the Environment. Investigations can cover:

1. The geological exploration of reserved minerals;

2. The hydro-geological exploration of thermal water;

\textsuperscript{71}Ministry of Economics: responsible for processing the licensing of State owned minerals; national level

\textsuperscript{72}All reserved minerals (vyhradené nerasty) are listed in the Mining Act paragraph 3 part 1.
3. The geological exploration of mineral water;

4. The geological exploration for special purposes such as underground storage etc.

A permit for a particular exploration area is issued to one exploration company only. Only after four years can a permit be granted to another exploration company. This period can be shortened in special cases when the original permit holder does not see any reason to continue exploration. If the geological exploration is successful, the company requests the Ministry of the Environment to issue a Decree for the Reserved Mineral Deposit (osvedčenie o výhradnom ložisku). Based on this decree the Local Mining Office can declare the whole exploration area or only the part of it as a “Protected Territory” (chránené ložiskové územie).

The Decree for the Reserved Mineral Deposit is the first pre-requisite in the process of extracting reserved or non-reserved minerals. The next step is the issue of a Permit for Reserved Mineral Deposit Exploitation (povolenie na dobývanie ložiska vyhradeného nerastu). This is issued for an unlimited period, but the company must start exploitation within 3 years. If it does not start within that period, the local mining office can cancel the permit or, based on a tender exercise, assign it to another company.

Regulations in force controlling mineral exploration activities

The Geological Act and the Mining Act regulate activities connected with the exploration of the reserved deposit. The Geological Act is the primary act and the exploration area is specified in accordance with it. The Mining Act is the secondary act and is applied in the specified mining area of the reserved mineral deposit. In this mining area, the producer of the mineral (entrepreneur or company) can carry out additional geological exploration.

The Geological Act requires the operator to come to an agreement with the owners of the land on which geological work is performed. If an agreement cannot be reached the matter is referred to the courts, where a verdict is established based on an independent expert's report.

Regulations and administrative procedures controlling access to mining land

The exploration company is permitted to enter estates, establish workplaces, build roads, eventually modify soil and remove minerals. The operator must always make an arrangement with the landowner for the extent of the access to the land which he requires. If the landowner does not agree with the proposals, the exploration company can appeal to the Department of Geology at the Ministry of the Environment to decide the matter.

For reserved mineral deposits, the law provides for expropriation if agreement cannot be reached with the landowner. Details of the compensation payment are specified in the Building Act.
Slovenia

Ownership of minerals

Mineral resources are the property of the State (Article 11 Mining Act).

Processes and procedures to obtain mineral rights

Mining Right and Preliminary Exploration Permit

A mining right is obtainable by concession unless the Mining Act provides otherwise. A concession may be obtained by a legal or natural person (hereinafter referred to as the Mining Right Holder). It is granted by the Government on behalf of the state, either separately for exploration and exploitation or jointly.

An exploration concession is granted for a period of not more than five years, but it can be extended for a maximum of a further three years, if the scope of exploration works defined by the concession contract has not been completed, despite regular and well performed exploration, or if the exploration performed proves that it is reasonable to continue. Spatial plans produced by the state and local communities are the basis for initiating the concession procedure. The government adopts a decree, through which mining rights are awarded. This is followed by a public tender exercise, carried out by the competent ministry, to select the holders of the mining rights. These are obliged to sign a concession contract.

An exploitation concession is also granted for a defined time period, which is not more than fifty years, except in cases where, despite substantial investment, the reserves in the exploitation area cannot be extracted in full within that timescale.

The government may provide by a regulation that the exploration or exploitation of a mineral resource in a particular area is performed by a public commercial institution or a public enterprise founded by the state, under provisions of the Public Utilities Act. Such a mining right is subject to the requirements of Article 15 of the Mining Act. The State grants a mining right on the basis of a public tender in accordance with Article 15. The ministry responsible for mining carries out the public tender.

Act for Granting a Mining Right

A mining right gives the right to explore and/or exploit mineral resources for the purposes of industry and trade. The mineral right holder is a legal or natural person who has obtained the mining right by concession in accordance with the legislative provisions. The procedures for marking boundaries, keeping a register of mining right holders, and the methods of keeping a land register of the exploration and working areas are prescribed by the minister responsible for mining.
A preliminary exploration permit may be obtained from the administrative unit for the area where the exploration takes place. This permit is for the period of the preliminary exploration programme, but for not more than one year.

Regulations and administrative procedures controlling access to mining land

The Mining Right and the permit for preliminary exploration are subject to conditions which are set out in the Mining Act and related Regulations.

Concession Contract

The state and the mining right holder shall regulate their relationship concerning a mining right in a concession contract. The relationship between the state and the mining right holder shall be terminated:

- by termination of the concession contract,
- by revocation of the mining right,
- by expiry of the mining right.

Proprietary Relations

If the holder of a mining right, is not the owner of the land covered by the concessionary act (i.e. exploration, extraction and access areas), he is required to acquire the land through a legal transaction entered into with the owner of the land.

Spain

Ownership of minerals

Mineral resources are regulated by the Mining Law. The law establishes that the mineral resources belong to the state. The state then can grant concessions (sections B, C, and D) or administrative licences to extract (section A), this last to the land owner or anyone renting the land.

Processes and procedures to obtain mineral rights

The Mining Law further classifies mineral resources into four sections, named (A), (B), (C) and (D), although the Government can transfer, in certain circumstances, the resources of a particular section into another. Details of each section are given in the detailed country report.

Minerals of low technical and economic importance whatever their classifications, which are occasionally extracted by the owner of the land for their own use, fall outside the law.

Mining of minerals of low technical and economic importance whatever their classification, which are occasionally extracted by the owner of the land, for their own use, falls outside the law.
All mineral deposits and other geologic resources that exist in the national territory, territorial waters and continental shelf, are public goods. The State is able to carry out investigations and exploit these resources or issue permits to others for their exploitation:

- An administrative authorisation of extraction, if the mineral deposits or resources are listed in section (A), e.g. stone, sand and gravel etc.

- An authorisation or a concession, when the mineral deposits or resources are listed in section (B), e.g. maritime or terrestrial mineral waters.

- An authorisation, a permission of investigation or a concession of exploitation, if the mineral deposits or resources are of section (C) and (D). An authorization, a permission or a concession for the exploration, investigation, use or exploitation, of mineral deposits and geologic resources, is granted on the understanding that there will be no harm to a third party.

The Mining Law regulates the issuing of mineral rights.

Regulations in force controlling mineral exploration activities

Authorisation for conducting exploration work is required if the activities exceed a depth of 25 m. The following information has to be provided with the application for the granting of an Authorisation:

- Planned starting date
- Details of the planned activity
- Purpose of the activity and work programme
- Existing obtained Authorisations, and
- The locality of the planned activity

Regulations and administrative procedures controlling access to mining land

The legal holder of exploration permission has the right to expropriate land required for the necessary works, facilities and services (under provisions of the Law of Unavoidable Expropriation). The holder of an exploitation concession has the right to declare a “zone of definitive reserve”.

The holder of the authorization or concession must compensate the owner or users of the land affected.

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73 Section C Mineral Resources: all mineral deposits and other geological resources not classified under the above sections or in section D.

74 For example coal, radioactive materials and other energy minerals.
Sweden

Ownership of minerals

The Mineral Act covers a number of minerals called concession minerals, which belong to the State, regardless of who owns the land on which they occur. The concession minerals are divided into three groups: metalliferous ores; industrial minerals and rocks; and oil, gas and diamonds. The Mining Act does not cover aggregates. The three groups encompass the following mineral substances:

1) Antimony, arsenic, beryllium, bismuth, caesium, chromium, cobalt, copper, gold, iridium, iron (in the bedrock), lanthanum and lanthanides, lead, lithium, manganese, mercury, molybdenum, nickel, niobium, osmium, palladium, platinum, rhodium, rubidium, ruthenium, silver, scandium, strontium, tantalum, tin, titanium, tungsten, uranium, vanadium, yttrium, zinc and zirconium.

2) Alum shale, andalusite, apatite, baryte, brucite, coal, fluor spar, graphite, kyanite, magnesite, nepheline syenite, pyrite, pyrrhotite, refractory clay or clinker clay, rock salt, sillimanite, wollastonite.

3) Oil, gaseous hydrocarbons and diamonds.

Processes and procedures to obtain mineral rights

For concession minerals, the acquisition process starts with the person or company wanting to undertake exploration applying to the Mining Inspectorate for an exploration permit (undersökningstilstånd). This is granted for a specific area where a successful discovery is likely to be made. The area should be of suitable shape and size and no larger than the permit holder can be expected to explore in an appropriate manner. Normally, permits for private individuals are not larger than a total of 100 hectares.

A permit is granted if there is reason to assume that the exploration activity will lead to the discovery of a concession mineral. An exploration permit is initially valid for a period of three years, after which it can be extended stepwise up to a period of 15 years if special conditions are met.

The Minerals Act is based on the principle that the first applicant for a permit is given priority. If exploration is successful, the permit holder can apply to the Mining Inspectorate for an exploitation concession (bearbetningskoncession). This covers a distinct area, which is designated on the basis of the location and extent of a proven mineral deposit, and is normally valid for 25 years. The concession can be automatically extended for further ten years periods if production is able to continue beyond the concession period.

An Environmental Code requires that an application for an exploitation concession must be accompanied by an environmental impact assessment. Applications are considered in consultation with the County Administration Board, taking into account whether the site is acceptable from an environmental...
point of view. The right to exploit non-concession minerals is regulated by contract with the landowner(s).

*Regulations in force controlling mineral exploration activities*

Mineral exploration activities for concession minerals are regulated through the Minerals Act and Minerals Ordinance. The main purpose is to secure mineral rights as discussed above, but the regulations also describe obligations that the exploration party must observe with regards to nature conservation, degradation of property, and safety during and after the exploration works.

The exploration party must also pay compensation to the landowner and/or land user if the exploration activity causes any damage of land, buildings or other structures in the prospecting or access area. Decisions on all exploration licences that are granted must be advertised locally and the landowner(s) must be notified. The prospecting party must notify the Mining Inspectorate and the landowner at least two weeks ahead of starting exploration work.

*Regulations and administrative procedures controlling access to mining land*

The Minerals Act states that any person or party issued with either an exploration permit or an extraction concession has the right to purchase or lease the land area needed from the landowner at its open market value, with no additional compensation for disturbance or the potential value of the minerals. Access to non-concession minerals has to be negotiated between the relevant parties.

中华人民共和国

The only mineral rights owned by the state are oil & gas, coal, most seabed minerals, silver and gold. All other minerals are owned by landowners but not necessarily the surface landowner.

5.2 Exploration

Exploration for mineral deposits is an essential element of a planned and co-ordinated system for ensuring an adequate supply of minerals to industry. It serves to pinpoint the location of mineral deposits and provides data on the quantity and quality of the mineral resource. It provides important information for long-term land use planning. Exploration is done at two levels, namely at the national level and the project level. This review of exploration activity in the EU concentrates on national level activities and comprises two elements:

- the role of government in exploration, and
- procedures for obtaining permission for exploration activities (see below).
5.2.1 The Role of national government in exploration

Table 11 identifies the principal roles of national governments in the exploration for mineral deposits. These are:

- co-ordinating or undertaking geological or geophysical surveys to provide general data on the location and nature of mineral reserves;
- contributing to the funding of a national geological institute or survey;
- providing financial assistance to private companies involved in exploration;
- providing information for land use planning; and
- issuing licences/permits to allow exploration.

5.2.1.1 National Geological Survey – Tasks

All Member States have a National Geological Institution whose remit is to provide information on geological conditions. The geological survey information is made available to interested parties, usually on a commercial basis. The principal function of the national institutes is to provide general information about resources (e.g. in connection with land use planning) rather than undertaking exploration for specific minerals, although the dividing line between the two activities can be a fine one.

It appears unusual for government departments to have direct involvement in exploration work, although the Austrian Government collaborated with the provincial authorities and the minerals industry to prepare 1:200,000 and 1:50,000 scale maps of the whole country, based on an aero-magnetic survey.

By far the most common situation is, however, the geological survey work being undertaken by a National Geological Institution.

National Geological Surveys are typically government agencies with their own budget and institutional structure and belong to the Ministry of Economy (e.g. in Hungary), the Ministry of Environment, or the Ministry of Science and Research.

In some countries, such as Greece, the institution is in effect a division within the Department of the Environment or Industry.

In others, the institution has a semi-autonomous status by being incorporated into a national R&D body (e.g. in the TNO in the Netherlands). The Geological Survey of Denmark is another example of a semi-autonomous body.

The specific role of national geological surveys differs in the different Member States:

Austria

The State itself plays an important role in prospecting and exploring for minerals. The State body responsible for co-ordinating Government exploration activities is the Federal Geological Survey Department (“Geologische
The Geological Survey Department is required by law to search for mineral deposits in Austrian territory (Mineral Deposits Law (“Lagerstättengesetz”), Federal Law Gazette No. 246/1947). In order to assist with regional land use planning, the federal authority (i.e. the government) also makes use of the Federal Geological Survey Department.

A Governmental Committee has been established with members drawn from the relevant ministries, the Geological Survey, and the Supreme Mining Authority to discuss and decide which projects should be carried out. The work is funded by the Ministry of Science and Research. The Committee holds meetings twice a year. The results of the surveys are available to the public.

As part of the “Federal Co-operation Programme” the representatives of the provincial geological departments, the National Geological Survey and the National Mining Authority meet twice a year to discuss and initiate joint programmes. As a general rule, 50% of funding comes from the Federal Government and 50% from the provinces.

The National Geological Survey and representatives of the provincial geological departments participate in the National Raw Materials Plan which is directed and managed by the National Mining Authority which is part of the Ministry of Economy and Labour.

An important role of the National Geological Survey is the production of high quality geological maps at a scale of 1: 200,000 and 1:50,000, based on an aero magnetic survey.

The Geological Survey receives about 95% of its funding from the Government (federal government and provinces) and earns about 5% from consultancy work. The Geological Survey’s attitude about carrying out consultancy work for mining companies tends to be cautious and restrictive.

**Belgium**

The role of the Federal and Regional Governments in exploration is limited. No specific licence or permit is required for the exploration of minerals. Specifically for industrial minerals and building materials, the reserves are well known and further exploration work is entirely the responsibility of the companies interested. However, there is an obligation for these companies to send a copy of the exploration information to the National Geological Survey of Belgium.

**Czech Republic**

The role of the State Geological Survey is to expand the knowledge of the geological composition of the territory of the Czech Republic and to identify occurrences of mineral resources. The development of the raw material base and prospecting for new sources of mineral raw materials is supported as is their protection and responsible utilisation.

**Denmark**
The Ministry (GEUS) is responsible for exploration work on marine mineral resources. The primary function of the Geological Survey of Denmark and Greenland (GEUS) is to provide essential geological services for the utilisation and protection of mineral resources of Denmark, Greenland and the Faroe Islands. This involves geological mapping, geophysical surveys, data collection and basic research. The services of GEUS are available to the authorities, the general public as well as the scientific community.

The Ministry of the Environment and the county councils can initiate prospecting and exploration regardless of who owns the land. The landowner and/or land users must be informed about the planned activities at least two weeks before the work starts. Any damage to private property caused by such exploration activities must be fully compensated.

GEUS can also undertake contract assignments from private parties. Private parties can do exploration work on private land, provided they have an agreement with the landowner. However, a permit is needed from the county council if the investigation encompasses trial extraction or sampling of more than 200 m$^3$ of material. The results and findings made in connection with private exploration activities must be reported to the county council within three months after the work has been completed. The council passes the information on to the Ministry and GEUS.

England, Wales and Scotland

The Government sponsors exploration activities. These activities are carried out by the British Geological Survey (BGS). The BGS is divided into 4 programme sections:

- Groundwater and Geotechnical Surveys Division
- Minerals and Geochemical Surveys Division
- Petroleum Geology, Geophysics and Offshore Surveys Division
- Thematic maps and Onshore Surveys Division

Currently a programme is running to geologically map the whole of Great Britain. The aim is to be ready with this programme by the year 2005. The total budget of the BGS is approximately £30 million (€ 43 million). About 40% of this budget is derived from the Science Budget via the Office of Science and Technology and the Natural Environment Research Council. Commissions and contracts from the public and private sectors make up the remaining 60%.

France

The role of the federal and regional governments in exploration is rather limited. Specifically for industrial minerals and building materials, the reserves are well known and further exploration is entirely the responsibility of interested companies. Geological data can be obtained from the National Geological
Service or the BRGM, which has mapped the whole of France to a depth of 100 m.

**Finland**

The Finnish government through the Ministry of Trade and Industry funds and undertakes geological and geophysical surveys in order to provide geological maps and other geological information. Such information is of considerable interest and provides valuable support to parties planning to prospect for mineral deposits of any kind. This work is mainly done by the Geological Survey of Finland. The Survey has its focus on two strategic activities: 1) bedrock and raw materials and 2) land use and the environment. The overall goal is to create conditions to support sustainable raw materials supply and land use, and to facilitate economic growth and increased welfare for society at large. The government does not as a rule provide financial assistance to private enterprises or persons engaged in exploration.

**Germany**

The National Geological Survey in Hanover (“Bundesanstalt für Geowissenschaften und Rohstoffe”) and the Geological Surveys of the Federal States (“geologische Landesämter”) are involved in questions concerning the exploration of raw materials, raw material evaluation as well as raw material protection and new raw material supply. Financial assistance to companies searching for minerals is unusual.

An *ad hoc* working party of the geological departments of the German federal states has identified mineral resource protection as a responsibility of the state and sees as one of the most urgent and important steps in the integration of information on minerals into land use data bases.  

**Greece**

The Greek Institute of Geology and Mineral Exploration (IGME) was founded in 1976, and by legislation is the State's technical adviser on geoscientific matters. Its fundamental aim is the geological study of the country, and the exploration for and evaluation of the mineral raw materials (except hydrocarbons) and groundwater resources. Its main activities include: basic geological research, and the exploration and evaluation of ore deposits; industrial minerals, marble, solid fuels, geothermal fields, and radioactive ores.

**Latvia**

The main governmental institution responsible for mineral exploration is the State Geological Survey of Latvia (SGSL). The main SGSL activities include studies of the properties and resources of the subsoil, preparation of basic geological information, evaluation of geological processes and the quality of the subsurface, ensuring the storage and use of geological information, and

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providing geological services. SGSL issues permits for exploration and the production of minerals (with the exception of hydrocarbons) and is the holder of geological data. The accounting of mineral deposits and reserves is carried out also by SGSL. It compiles, adds and maintains the geological data of mineral reserves and prepares the balance of mineral reserves for each calendar year. The Law On the Subsoil, requires that “information obtained during geological exploration, scientific research, as a result of subsoil monitoring and other types of the use of subsoil belongs to the State if such a work was carried out using the funds of the state budget or the budgets of the local authorities.”

The user of the subsoil is obliged to produce geological data during geological exploration and to safeguard its storage. The user of the subsoil is also obliged “to transfer to SGSL geological information and data in compliance with the terms and deadlines contained in the permit as well as data about the reserve of mineral resources and their components”. The State Geological Survey of Latvia (SGSL) is funded by the state budget and by payments for its services. The state budget funding is allocated in accordance with the approved tasks and working programmes.

 España

Lithuania

The national institution responsible for exploration is the Geological Survey of Lithuania. The Geological Survey of Lithuania is responsible for the organization, supervision and provision of exploration activities, and the collection and publication of geological data. It is necessary to obtain a licence for remote and direct geological survey, which is issued by the Geological Survey.

All underground investigations must be registered with the Geological Survey (except for indirect investigations, which are performed with non-State resources). All direct underground investigations must be reported to the board of the municipality of the territory where the investigations are planned, and to the land survey of the administration of the governor of the county. The investigations must be co-ordinated with the owners and users of the land in accordance with the procedure established by the laws and the government. The annual budget of the Survey is a subject to approval by the government.

The Geological Survey may ask a licencee to undertake additional survey work. In such cases, the cost of the additional work is refunded.

Luxembourg

The role of the Federal Government in exploration is rather limited. For industrial minerals and building materials, the reserves are well known and further exploration is the responsibility of the companies interested. Geological data can be obtained from the National Geological Service.

The Netherlands
The Netherlands Institute of Applied Geosciences is the Central Geoscientific Information and Research Institute for The Netherlands (since 1997). The institute manages the data and information on the Dutch subsurface. The national government, provincial governments and extraction companies commission research.

**Norway**

The Norwegian government through the Ministry of Trade and Industry funds and undertakes geological and geophysical surveys in order to provide geological data and geological maps of the country. This work is mainly done by the Geological Survey of Norway. The Survey has spent considerable efforts during the last 10-15 years identifying and describing mineral deposits, with the focus mainly on metalliferous deposits, industrial minerals and aggregates. Such information is of considerable interest and provides valuable support to parties planning to prospect for mineral deposits of any kind. Central government does not provide financial assistance to private enterprises or persons involved in exploration, but regional governments, especially in some of the less densely populated counties, may offer some financial support to assist prospecting and the development of mineral resources.

**Poland**

The Minister of Environment is responsible for policy concerning the prospecting and exploration of mineral deposits. In particular, the main tasks of the Minister are the following:

- Analysing and assessing the geological structure of Poland; the assessment of the occurrence of mineral deposits and underground waters; and the laying down of directions for geological survey work;
- Collecting and processing geological data on the occurrence of mineral deposits and underground waters;
- Laying down the directions for the concession policy, analysing the concession applications and preparing the concession decisions;
- Conducting administrative proceedings and participating in proceedings before the Supreme Administrative Court on matters related to geology and mining;
- Promoting and financing prospecting and cartographic activities;
- Annual publication of the state balance of mineral resources.

The exploration activities of the geological structure of Poland are financed by the state budget and by the National Fund for Environmental Protection and Water Management.

**Slovenia**
The Geological Survey of Slovenia performs fundamental applied research which embraces all branches of geology and related fields. In its 50 year history, during which the Geological Survey went through several organizational reforms, it systematically collected and studied geological information about the Slovenian territory. The collected data are presented in numerous geological maps, research studies, reports and papers, as well as in databases.

The main tasks carried out are:

- scientific (fundamental) and applied research in the field of geology,
- production of geological maps,
- research of mineral and energy raw materials, drinking, mineral, thermal and industrial waters,
- laboratory testing in the field of geology,
- management and co-ordination of a geological information system,
- environmental protection,
- consulting and expertise in the above mentioned subjects,
- publishing of scientific and other literature, and
- education in the all above mentioned activities.

The Geological Survey of Slovenia carries out mineral resource exploration activities, provides expert advice and maintains a mineral resources information system for the Mining Administration.

Spain

The Geological Survey of Spain (IGME) is the national body in charge of geological mapping. The IGME collects information on mineral resources. All companies that prospect in Spanish territory are required to supply to the Mining Authorities, which in turn might (it is not compulsory) provide the IGME with details, data, cores, analysis, etc. The only reference in the Mining Law to the IGME indicates that the Mining Authority might send to IGME mining permits (exploration or investigations permits or concessions) and IGME should carry out a non binding report about them. Not all mining authorities do so.

The IGME has national databases which are accessible to the public. All information is stored in an accessible way (more than 20,000 documents) including two geological and mining databases for the Pyritic Belt and the Ossa Morena. IGME also carries out its own research programs and mineral mapping (Industrial Minerals & Rocks Maps 1:200,000 and Metalogenetic Map 1:200,000 as infrastructural prospection) at many scales and covering small or large areas of the country.
The Swedish government through the Ministry of Industry, Employment and Communications funds geological, geophysical and environmental surveys in order to provide geological data and maps of the country. Such information is of considerable interest and provides valuable support to parties planning to prospect for mineral deposits of any kind.

The Geological Survey of Sweden does the work. The survey is also the central government agency regarding geological information and mineral management. Amongst the terms of reference for the Survey are: to develop and maintain geological information especially relevant for environment and health, physical planning, management and supply of natural resources, agriculture and forestry, and national defence. The Geological Survey has a special responsibility to promote an environmentally and economically balanced exploitation of the country’s mineral resources.

5.3 Land use planning

In every society and state there exist competing interests in the use of land. These interests range from community related issues, industrial and commercial issues to ecological issues. As far as the extractive industries are concerned the key issue is to find a balance between the sustainable supply of society with minerals and the social and natural environment. The challenge is to find this balance taking into consideration the finite size of mineral deposits and their fixed geographical location.

An objective of land use planning is to find sustainable solutions taking into consideration medium to long-term views and local, regional and national interests. Mineral extraction companies require access to the mineral deposits, which unlike most other resources are geographically fixed. The flexibility of the mineral industry is therefore limited. Access to mineral deposits is of critical importance if the industry is to the supply society with all the necessary minerals required by it. As a result, access to resources should be a central element of any Minerals Planning Policy.

5.3.1 Role of land use planning for extractive industry

Problems of land access and linked to this, the time taken to obtain permits have been identified on a number of occasions by some stakeholders (DG Enterprise working paper, preparatory work on the assessment of the competitiveness in the non-energy extractive industries) as the most crucial issue facing the extractive industries. A general lack of data on, for example, the area of land which is already being used for mineral extraction, the rate at which land is exhausted and returned to other beneficial uses, and the rate at which new land is made available to the industry makes it difficult to address this problem on a national or international level.

Role of land use planning in general
Land use planning is the basis for a systematic development of human space. In most Member States land use planning is based on the principles of regional planning. An example is given by describing the tasks and principles of the Germany Federal Regional Planning Act (Section 1,2).

Germany Federal Regional Planning Act

Task and Overall Concept of Regional Planning (Section 1)

The entire territory of the Federal Republic of Germany and the regions of which it is made up shall be developed, organized and protected by integrative general regional plans and the harmonizing of regionally significant plans and measures (section 1 subsection 1). In so doing:

- differing requirements to be met by the area shall be harmonized and conflicts arising at the respective planning level shall be resolved;
- provision shall be made for individual functions of an area and individual land uses.

The overall concept of the task laid down in subsection 1 is that of sustainable regional development which will bring the social and economic demands made on an area into line with its ecological functions and result in a stable order, which will be well-balanced on a large scale (section 1 subsection 2). In so doing:

1. the right to self-fulfilment within the community and with responsibility to future generations shall be ensured,
2. the natural resources shall be protected and developed,
3. the location prerequisites for economic developments shall be created,
4. land use possibilities shall be kept open in the long term,
5. the characteristic diversity of individual regions shall be enhanced,
6. similar standards of living shall be established in all regions,
7. the regional and structural imbalances between the territories which had been separated prior to German unification shall be eliminated, and
8. the regional prerequisites for achieving cohesion within the European Community and on a wider European scale shall be established.

The development, organization and protection of the individual regions shall match the conditions and requirements of the territory as a whole; the development, organization and protection of the territory as a whole shall allow for the conditions and requirements of its individual regions (section 1 subsection 3).

Principles of Regional Planning (Section 2)
The principles of regional planning shall be applied in the sense of the overall concept of sustainable regional development in accordance with section 1, subsection 2. Regional planning shall be governed by the following principles:

**Well-balanced system:** A well-balanced system of settlements and open spaces shall be developed in the entire territory of the Federal Republic of Germany. Provision shall be made to maintain a functioning ecosystem in built-up and non-built-up areas. Efforts shall be made to establish balanced economic, infrastructural, social, ecological and cultural conditions in the respective regions.

**Ecological matters:** Provision shall be made for the protection, conservation and development of the natural surroundings and landscape including water bodies and forests, taking into account the requirements of the biotope network. Natural resources, particularly water and soil, shall be used sparingly and carefully; groundwater resources shall be protected. Any impairment of the ecosystem shall be compensated for. If land is no longer used on a permanent basis, the productivity of the soil shall be maintained or restored. In the protection and development of the ecological functions and uses relating to the countryside, the respective interactions shall also be taken into account. Provision shall be made for preventive flood protection on the coasts and in the interior of the country, in the interior mainly by protecting or restoring meadows, retention areas and areas which are in danger of being flooded. Provision shall be made for the protection of the public against noise and for air pollution control.

**Economic matters:** Efforts shall be made to establish a well-balanced economic structure which will be competitive in the long term and to offer a variety of adequate job and training opportunities. As far as necessary, sufficiently large areas shall be reserved for improving the local conditions for economic development, infrastructure facilities closely concerned with industry shall be expanded and the attractiveness of the locations enhanced. _Areas shall also be reserved for the precautionary protection and systematic prospecting and extraction of site-specific raw materials._


**Regarding Construction minerals**

In recent years important changes regarding the economic significance of the minerals used in the construction industry have occurred. The steady growth of the construction industry, coupled with a diminishing supply of bulk aggregates caused by past exploitation and more stringent environment legislation preventing the extraction of new mineral reserves, have considerably enhanced the economic importance of bulk construction minerals.

Construction minerals are required in large quantities in the economically more active regions and in growth centres. Their relatively low value places constraints on the
distance over which they are transported. Construction mineral supply areas compete therefore with other interests. For these reasons construction minerals feature prominently in many development plans. However, as will be discussed in detail the problem has not been resolved satisfactorily, despite a number of different approaches taken by the Member States (table 15: Preparation and Status of Development Plans).

**Metallic ores and Industrial minerals**

For metallic ores and industrial minerals (particularly those defined as being of national importance) the development plan may take priority over perceived national need. In such situations, the provisions of development plans such as protected (e.g. environmental) areas and location of settlements will be taken into account in the decision-making process.

The following sections provide useful information on the extent to which different nations make provision for the industry’s future operations and the regulatory framework within which the industry operates.

### 5.3.2 Key determinants for land use planning

Key determinants are

- Policy and legislation taken at EU-level
- Structure of national government
- Role of the national government in the planning process for minerals
- Planning framework

Policy and legislation taken at the EU-level are key determinants for national land use planning (e.g. European Spatial Development Perspective (ESDP), NATURA 2000 etc.).

The Communication from the Commission “Promoting sustainable development in the EU non-energy extractive industry” (COM 2000/265) refers to land use planning as one of the key factors for the competitiveness of the extractive industry. It also identifies other competing land uses, such as urban development, agriculture and nature conservation. The question is how national land use and spatial planning policies can best be framed to achieve the right balance between economic, social and environmental objectives. Uniform regulations for the extractive industry within the European Union could be a step towards achieving the right balance according the extractive industry.

In this context, the European Spatial Development Perspective (ESDP) can be seen as an opportunity for the extractive industry. The ESDP document sets out policy aims and options for the territory of the EU. A spatially balanced and sustainable development of the European Union shall be achieved by strategies of spatial development. The document emphasises the importance of management which takes the use of resources and sustainable action into account.
Structure of national Government

The structure of government in each Member State (compare: Germany versus France in the country reports) is one of the key determinants of the approach to planning for mineral extraction (hierarchical planning). Each system is based on a tiered system of control, usually combining two or more of the following levels: National, Regional, County/province, and District/municipality. Table 13 provides a summary of arrangements (Planning Framework for Minerals) for each country.

The Role of national Government in the planning process for minerals

The key determinants for exercising responsibility for planning for minerals extraction by national Governments varies. Key determinants of the approach to planning for mineral extraction of the UK Government policy are for instance:

- Sustainable development
- Safeguarding deposits and existing sites
- Ensuring supply
- Use of landbanks (for aggregates only) to secure continuity of production

National governments exercise their responsibility for planning for minerals extraction through a variety of different mechanisms:

- A national minerals Policy
- Specific references in national legislation
- National mining plans
- Policy guidance
- Delegation to lower tiers of government

How individual national governments exercise their responsibility for minerals planning depends to a considerable degree on the nature of the state, i.e. unitary state or federal state. In the case of the latter the role of the National Governments tends to be confined to national legislation and delegation to lower tiers of government. Formulation of specific mineral policies is often the responsibility of the governments of the Federal States. A good example of this is the minerals policy formulated by the State of Bavaria in Germany (described in Chapter 6).

The survey of Member States undertaken for this study has shown that there are significant differences between the Member States. Depending on the individual countries different aspects of planning for mineral extraction take place at different levels of government (e.g. hierarchical levels of development plans, see below). The precise way in which this is carried out varies between Member States. In general terms, the lower the level at which planning takes place, the more detailed it tends to be; lower level plans are normally expected to comply with higher-level plans.
5.3.3 Land use planning - Overview of systems

When discussing different land use planning systems, two aspects have to be considered, namely

- The level at which the planning process is being carried out, and
- The priority given to different forms of land use, and the means by which they are evaluated and measured against each other.

5.3.3.1 Principal distinction: Prescriptive regulations versus less prescriptive ones in terms of location for mineral extraction

The principal distinction between Member States is the degree to which land use plans provide detailed prescriptive information on where mineral extraction might be acceptable.

Some Member States provide national policy guidance which has to be taken into account by lower tiers of government which have responsibility for planning for, and permitting mineral extraction in their area. In the UK, for example, there is extensive national policy guidance, but many of the local plans tend to be less prescriptive in terms of identifying suitable locations for future workings (compared with, for example, Scandinavia, Denmark, Germany, and Austria). The system of England and Wales relies more on interpretation of national advice to develop local minerals plans and to decide the merits of an individual planning application.

A possible explanation for the difference is the more general use of strategic environmental assessment in plan preparation in, for example, Scandinavian countries, leading to the allocation of sites following an assessment of environmental impacts.

5.3.3.2 Hierarchical levels of planning

5.3.3.2.1 Mineral planning at national level

Table 12 shows how different national governments’ influence (concerning minerals issues) is exerted through:

- National minerals policy (e.g. Czech Republic, Austria)
- National mining plans (Austria, Portugal),
- Policy guidance (e.g. Denmark, Norway, England, Portugal, Slovenia),
- Through specific requirements in legislation (France, Germany, Netherlands, Poland, Sweden), and

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76 Policy Guidance from government's resolution "The Raw Material Policy of the Czech Republic... (1999)". See Chapter 6.
77 See Chapter 6.
79 Sector Plans for mineral resources: in preparation.
Indirectly through other legislation, which precludes mining in certain areas (Finland, Poland and in most other countries).

Austria

A National mineral plan is in preparation. The Mining Law Amendment of 2001, obliges the Federal Minister for Labour and Economy to establish a national mining plan. The reason for this project is the fact that Austria produces a considerable amount of minerals. The growing urban areas as well as the expressed wishes of the population regarding the environment often lead to conflicts between securing mineral deposits for extraction and land use planning. The National Mining Plan (based on the Concept for the supply of Austria with minerals (1981) documents the deposits of minerals at a national level and provides the basis for a “National Extraction Plan”.

As the responsibility for the National Minerals Plan rests with the Federal Authority, while land use planning is primarily a provincial matter, there may be considerable difficulties with the implementation of the National Minerals Plan. Completion of the planning process is scheduled for 2007. Discussions with provincial authorities concerning mineral priority areas are to commence in 2005.

In addition to the identification for priority areas the Austrian Minerals Plan is concerned also with mineral supply, environmental and technology issues.

Czech Republic

The Czech Government approved a raw material policy for mineral resources by Resolution No. 1311 in December 1999 (“The Raw Material Policy of the Czech Republic in the Field of Mineral raw materials and Their Resources”, see also Chapter 6).

The Resolution identifies the need for a land development plan covering a large area as a tool for securing the long term needs of the region in terms of mineral resources. The management of mineral resources is at two levels:

- A State raw material policy, enforced and applied through legislative and economic tools, and

- A Regional raw material policy, employing land development planning, to be governed by the civil engineering act.

The raw materials policy should specify area limits as well as time limitations for the exploitation of mineral raw materials in land development plans for large areas taking account of the capacity of the area.

The plans shall determine for specified periods of time the mineral deposits to be opened, to what extent and in which order exploitation shall commence and proceed, termination of exploitation, recovery and landscaping activities in the vicinity of exploitation. Hence the total immediate load on the territory shall decrease and pressure to open up a
number of deposits at the same time in areas with concentrated occurrence of mineral raw materials shall be prevented.

**DENMARK**

There is no forward planning for minerals at the national level, with the possible exception that the Ministry of the Environment designates areas for marine mining after comprehensive analyses of the environmental issues and the mapping of resources.

**ESTONIA**

There is no forward planning policy or plan considering non-energy mineral extraction in Estonia. Some targets and priorities have been set up in plans and strategies which refer to the energy sector.

**FINLAND**

The Mining Act is an expression of a national raw material policy, but Finland does not appear to have a national policy or a system for forward planning for minerals supply.

**FRANCE**

The French national government does not prepare a national minerals plan and there are no national policies designed to monitor or regulate specific levels of supply. However, under the existing legislation, departments are obliged to produce plans for quarried minerals. At the level of the departments, the Law of 4 January 1993 (N° 93-3) stipulates that an analysis has to be conducted of the need for natural materials (i.e. industrial minerals, construction minerals) the geological possibilities and the production capacity. By 2002, about 80% of these analyses had been completed.

These departmental schemes of quarries (SDC, ‘Schémas Départementaux des Carrières’) are realised under the authority of the Prefect (‘Préfet’) by the departmental commission for quarries (CDC, ‘Commission Départementale de Carrière’). These plans must include information on the supply of, and demand for, quarried minerals, and in particular for sand and gravel. This aids identification of possible new sources of aggregates, in order to meet existing shortages. In these commissions, environmental organisations are also represented. Art.1 of this Law specifies that these schemes must include the following:

- an inventory of known resources,
- an analysis of the Department’s likely demand for minerals,
- the impact of existing quarries on the environment,
- an evaluation of future local needs, in order to eventually take into account the particular national needs,
- the setting of objectives to ensure the wise use of resources and to minimise impacts on the environment,

- an examination of transport networks and preferential routes and transport types (e.g. road, rail and waterways) for transporting minerals,

- environmentally protected areas,

- preferred after-use of mineral extraction sites (such as forest, leisure, agriculture, re-development, wetland, etc.).

For gravel and crushed rock, inter-regional evaluations have also to be conducted, as there are some areas with large consumption. A typical example is the Paris basin.

A specific issue is the supply of building stones for the restoration of old monuments or historical buildings. Since 1996, a databank has been established with all relevant information. At the end of 2002, data had been collected for 2,516 monuments in 83 Departments, with 5,216 different building stones, coming from 927 quarries in 28 Departments.

For industrial minerals, such an analysis has to be done at the national level, as the transport cost is less relevant and the deposits are more dispersed.

**Germany**

A national mining plan does not exist in Germany.

**Greece**

The Ministry of the Environment, Planning and Public Works takes overall responsibility for minerals planning issues at the national and regional level.

**Hungary**

In Hungary a clearly defined national minerals policy does not exist. Nevertheless, some elements of a minerals policy appear in the Mining Act and in the National Environmental Management Programme.

**Ireland**

Ireland has a unitary authority system and, as a result, policy/plans are only prepared at one level. The Exploration and Mining Division (EMD) of the Department of Communications, Marine and Natural Resources has responsibility for government policy in relation to minerals exploration and development. The core policy goal of the EMD is to stimulate discovery of economic mineral deposits and to maximise the contribution of the mining sector to the national economy, with due regard to its environmental and social impact. The EMD uses four strategic objectives:
Strategic Objective 1: Maximise the level of exploration for minerals

Strategic Objective 2: Equitable permitting regime for prospecting (Prospecting Licences) and mining (State Mining Facilities - Leases and Licences)

Strategic Objective 3: To require and facilitate sustainable development in the minerals sector

Strategic Objective 4: Well informed policy and decision-making processes.

ý Luxembourg

Luxembourg restricts planning to one comprehensive national land use plan. Based on the Law of 21 May 1999 (published on 3 June 1999), a national plan of land use has been developed.80

ý Norway

Norway does not have an active national policy with regard to mineral raw materials, and there are virtually no guidelines for forward planning of mineral supply. The Planning and Building Act does not give any specific guidelines with regard to mineral resources at the national level. In connection with county planning it is stated that: “The county plan shall have guidelines for the use of areas and natural resources in cases where such issues involve several local municipalities or cannot be satisfactorily handled by a local municipality inside its own borders.”

ý The Netherlands

As a consequence of a new market-oriented approach adopted in the Netherlands in 2003, the government has to remove the National Structure Plan on Surface Raw Materials from the Excavation Act. The national policy on surface raw materials will now be integrated in the National Spatial Plan.81 This means that in the future there will be no more excavation tasks for surface raw materials. The effects of a market-oriented approach will certainly be the largest for the supply of concrete and masonry sand. In the future minerals planning will be provided by the provincial mineral extraction plans.

Since April 2004 the national policy on surface raw materials has been integrated in the National Spatial Plan in Part 3: final governmental decision. The text is only one and a half pages. The second National Structure Plan on Surface Raw Materials consisted of 277 pages.

80 See country report paragraph 3.3.1 for more details on this Law and the IVL-concept (’Ein Integratives Verkehrs- und Landesentwicklungskonzept für Luxemburg’) linked to this Law: There is no proper planning for mineral extraction. It is mainly the market that determines which and how much industrial minerals and building materials are excavated.

81 Ministeries van VROM, LNV, VenW en EZ, 2004
In the National Spatial Plan it is stated that the governmental role in steering demand and supply will be reduced. The extraction of surface raw materials will be left to the market. If necessary and possible, the cabinet will take measures to remove obstructions in policy and in regulations and legislation. For this purpose the Ministry of Economic Affairs and the Ministry of Transport, Public Works and Water Management will develop a plan with conditions for an optimal market economy.

### United Kingdom

The approach in the UK contrasts with that taken in some other Member States, where the approach adopted is very prescriptive.

### England

The National Government in England exercises influence through the publication of the Mineral Planning Guidance Notes (MPGs) and Marine Mineral Guidance Notes (MMGs).

The overall approach to spatial planning at the national level takes the form of general guidance rather than the preparation of spatial specific plans. The guidelines are used for:

- Preparation of lower-tier policy instruments
- Making of decisions on proposed development
- Situations where local policies or decisions are challenged

Government policy is also expressed through circulars or ministerial statements. One of the national policy priorities is managing the use of natural resources and minimising waste as well as the integration of policies for road building, traffic management and public transport. The comprehensive land use planning system in the UK has two key elements: development planning and development control.

### Wales

A Series of Minerals Technical Advice Notes to support “Minerals Planning Policy” is being developed. The Welsh Assembly Government exercises influence through the following documents:

- Planning Policy Wales (2002)

### Scotland

The Scottish Executive exercises influence through the National Planning Policy Guideline Note 4 (NPPG4): ‘Land for Mineral Working’ (1994). This document was reviewed in 2002 and is now called: The Review of NPPG4: Land for
Mineral Working. This document contains guidelines for primary aggregates, secondary aggregates and other minerals. Advice on minerals planning is given through Planning Advice Notes (PANs). NPPG sets out the policy. Since 2002 NPPGs are called Scottish Planning Policies (SPPs).

Ø Portugal

New laws (1999 as amended in 2003) on spatial planning in Portugal create at a national level the provision for a Sectorial Plan for minerals which has to be produced by the national government. The legal nature of this plan allows it to be considered as policy guidance to assist in the decision making process, both for the preparation and approval of the low level plans (e.g. municipal) and the whole administration. This plan is in preparation and is not yet available.

Ø Slovakia

There is no national mineral policy to secure the supply of minerals.

Ø Spain

At the present time a genuine National Mining Plan does not exist. However some mechanisms in terms of old plans are still in place, for example subsistence of the sector by means of the application of the Depletion Allowance and of the Free Amortisation for High-Priority Substances. There is an act in which the Government establishes priority mineral resources for mineral prospection. This enables private companies to obtain resources to carry out research.

Ø Slovenia

A National Mineral Resource Management Programme is to be developed under the provisions of Article 5 of the Mining Act. It will provide the goals, policies and conditions for the co-ordinated exploration and exploitation of mineral resources in Slovenia. It’s aim is to optimise exploitation. The National Programme will be drawn up as a common programme for all mineral resources in the country, taking account of the specific features of particular areas, specific features and occurrence of particular mineral resources and the requirements for their exploitation by trade and industry.

The National Programme will consist of a general plan and individual mineral resource management plans.

5.3.3.2.2 Planning on national, regional, county/provincial, local level – Planning framework

Most of the Member States have a hierarchical planning system (except e.g. Ireland and Luxembourg). Compared to planning at national level, more detailed planning takes place at the regional, provincial or county level. Land use plans usually address general provisions and principles of land use in the area covered by the plan, including identifying and allocating areas of land for specific activities, such as mineral extraction. Lower level plans, are usually prepared by district, municipality or community
authorities and provide more detail (see Table 9: Germany - Hierarchical Planning Levels). The most detailed planning is carried out by local authorities.

The level at which planning for minerals is done is crucial. At the national level regional demands for minerals can be considered and included in mineral development plans taking into consideration the distribution of mineral resources in the country. However, at the national level it is impossible to include all detailed site specific considerations. This is the responsibility of lower level planning. Lower level planning on the other hand lacks the broader background and a long-term vision. It appears therefore, that mineral planning has to be done at two levels, namely long-term strategic planning at the national or at least regional level and detailed planning at the lower level. Models for such an approach can be found, for instance, in England and France.
Table 10: Germany - Hierarchical planning levels

<table>
<thead>
<tr>
<th>Planner Kind of planning</th>
<th>Principle of law</th>
<th>Responsibility</th>
<th>Instruments</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Government</td>
<td>National Planning Law</td>
<td>Development of the whole of Germany and its parts, coordination of important spatial measures</td>
<td>Framework of regional planning</td>
<td></td>
</tr>
<tr>
<td>Federal State Regional planning</td>
<td>Provincial Land Use Planning</td>
<td>Subordinate planning for a regional development in concordance with environmental planning</td>
<td>development plans</td>
<td>1:200,000 – 1:300,000</td>
</tr>
<tr>
<td>District Regional planning</td>
<td>Law for regional development („Gesetz zur Landesentwicklung“)</td>
<td>Setting up of regional goals for regional plans and for the development of districts and all planning and measures in the planning area; examination of projects with regional effects If applicable: environmental impact assessment</td>
<td>Development plan Judgements based on land use planning</td>
<td>1:50,000 – 1:100,000</td>
</tr>
<tr>
<td>Local Authority Local authority management plan</td>
<td>The Federal Building Code („Baugesetzbuch“)</td>
<td>Regulation of building and any other use of property in the local authority’s area of responsibility (with the goal of) aiming at a structured urban development</td>
<td>Land use plans Building plans Development plans</td>
<td>1:1000 – 1:5000</td>
</tr>
</tbody>
</table>
The following information which has been provided by the Member States summarises the general planning framework in each country. Specific information concerning minerals planning is given in Section 5.3.3.2.3.

**Austria**

In Austria, the term “Raumordnung” (i.e. land use planning) refers to all State acts applied at a sovereign level (e.g. the designation of certain types of land use in certain areas). Under Austrian constitutional law, land use planning therefore is regarded as a “cross-sectional” issue, which means that both the State and the provinces can introduce measures which promote planning policies, according to their own areas of competence. The legal basis for regional planning (i.e. provincial) is provincial planning laws. These lay down the requirements for development plans. A national planning law does not exist.

**Belgium**

The responsibility for spatial planning is delegated to three regional governments and the 589 municipal authorities, and to a lesser extent to the 10 provincial Authorities. The Belgian planning systems are based on the 1962 Spatial Organisation and Town Planning Act (National Law of 29 March 1962). The Brussels Capital Region reviewed its planning system in 1991 and in 2001 (29 June 2001, Regional land use plan). The Walloon Region planning system is continuously evolving since its codification in 1984. In the Flemish Region, there is the Decree of 18 May 1999.

Spatial organisation is defined in so-called destination plans ('bestemmingsplannen'; 'plans de destination'). A destination plan is a land use plan, which can cover a Region, a sub-region, a municipality or part of a municipality. Regional and sub-regional land use plans are formulated by the regional government, while municipal and sub-municipal land use plans are formulated by the municipal authority. All municipal and sub-municipal land use plans have to be approved by the regional government. By extrapolating from expected activities and the existing land use, a land use plan determines the allowed use of its territory by precisely indicating which activities are allowed in each zone. Apart from the main transport provisions, six broad types of zones are used: residential, industrial, services, rural, recreational and special zones. The latter cover military domains, exploitation zones, or areas containing public use facilities. These broad zones are sub-divided into sub-zones, thus increasing the detail. A destination plan consists of graphic and written prescriptions, both having the same regulating and binding value. Before final adoption a land use plan has to be submitted for public inspection. This means that public involvement legally is ensured in the planning process at all planning levels.

A first important step in the strategic planning for sustainable development is defining the land use in the three regions. At that level, there is competition with agricultural use, nature, etc. Secondly, as the only natural resources extracted in Belgium are industrial and construction minerals, the focus is mainly on recycling building materials to replace, for example, gravel and sand. On the
other hand, various industry federations have conducted studies to demonstrate that there is always a need for sand, gravel and aggregate. This is an important point to recognise when there is competition for the use of land.

**Denmark**

The Spatial Planning Act is the principal national tool for land use planning in Denmark. The Act is administered by the Ministry of the Environment in cooperation with sector ministries. In addition to the Spatial Planning Act different instruments are used in national planning:

1. National planning reports presented by the Ministry of the Environment to the Parliament every four years.

2. Specific powers such as National planning directives, Orders from the Ministry and the possibility to veto regional and municipal plans.

3. Every four years an announcement is made of the framework that the Ministry will use in assessing regional plans. A veto from the Ministry must be declared during the period of public comment.

Regional planning concretises the national objectives for regional and rural development, and establishes guidelines for a framework for municipal planning and a basis for regulation of land use (local planning). The Danish EIA procedure is integrated in the planning process at this level. The regional plan also ensures “extraction of raw materials” is a specific topic in connection with rural land use administration.

**United Kingdom**

**England and Wales**

There are four tiers of government:

- National,
- Region,
- Local which in some areas consists of unitary authorities but in other areas has a two tier system of counties and, within them, districts, and
- Parish.

The Office of the Deputy Prime Minister (England) and the Welsh Assembly Government (Wales) set out the planning policy framework within which local authorities are required to operate. The county/unitary planning authorities are responsible for preparing countywide minerals local plans and waste local plans. The county/unitary authorities also control the development. District authorities and the New Forest authorities are responsible for the preparation of District-wide local plans.
There are no regional plans in the UK, just regional Planning Guidance. Regional Planning Guidance takes account of advice given to the Secretary of State by regional conferences of local authorities. The aim of this guidance is to provide a broad development framework for the next 20 years. This guidance is advisory, and not statutory. Concerns about the environment are reflected in the regional guidances.

Local authorities prepare land use plans, under development planning, to guide development and environmental change for all parts of the country. These plans operate at two levels: strategic level, detailed local level.

**Scotland**

The Scottish Government operates through a three-tier system

- National Government
- Regional and Island Councils
- District Councils

The Scottish Executive Environment and Rural Affairs Department is responsible for ensuring the implementation of the policies concerning agriculture, rural development, food, the environment, and fisheries.

District Councils and Island Councils administer all planning applications. Regional Councils are responsible for preparing Structure Plans, which indicate the scheme for future development within their administrative area.

**Estonia**

The main legislative act relating to land use planning is the Planning and Building Act. Article 1 of that Act define the purpose of that act as: “to ensure conditions which take into account the interests of the widest possible range of society’s members for the transformation of the environment, its long-term sustainable development, the use of land and the interrelation of socio-economic and physical planning.”

The main institution responsible for land use planning on the national level is the Ministry of the Environment.

**Finland**

The Land Use and Building Act is the principal national tool for land use planning. The Act is administered by the Ministry of the Environment. In addition, the national system governing land use planning has national guidelines that allow central government to co-ordinate and amend land use plans at both the county and local level.

One important aspect of national land use planning is decisions about areas to be set aside for protection. The Ministry of the Environment has designated
nationally important landscape areas such as the National Esker Protection Programme and the National Protection Programme for Deciduous Forests. Areas may also be designated as reserves, but the Mining Act allows prospecting in Nature Reservations as long as the work is carried out with care. National and regional goals are expressed in regional land use plans that must be submitted to the government for approval. These regional plans are prepared by regional councils, which consist of representatives of local authorities. Regional plans are presented on a map or maps with appended documentation that among other issues addresses water supply, nature conservation, traffic planning etc. Regional plans should as far as possible be harmonised with the regional planning of adjoining areas and with national planning.

**France**

The French concept of land use planning (‘Aménagement du territoire’) relates to **regional development policy rather than physical planning**. Priorities for land use planning are established by central government. They can be implemented within the national economy and social development plan. The central government determines the scope, the goals, the amount of money involved and the matters (in broad terms) for the plan conventions to be passed within the regions over five-year periods, as provided by the Planning Reform Act of 1982. The State (national government) can also pass plan conventions with other local governments (for example in the area of transport). Furthermore, several sectoral planning instruments of national scope are provided by the law. The Guidance Act of 4 February 1995 on planning and development of the territory has renewed the legal basis of sectoral planning, generalised its application to new sectors, and assigned measurable objectives to be planned by sectoral plans.

The town planning law of 1967 established a two tier system of master plans (Schema Directeur: SDAU) and local land use plans (Plan d’Occupation des Sols: POS). SDAUs define the general orientation of planning objectives and are prepared by inter-community organisations that usually represent at least half the communes within the plan boundary. They include a detailed report explaining and justifying the planning proposals, and a set of plans showing the future development pattern.

**Germany**

The National Planning Law provides a framework which is independently implemented and enacted in each federal state (table 9). There exist considerable differences between the federal states.

**Greece**

The Ministry of the Environment, Planning and Public Works takes overall responsibility for planning issues at the national and regional level. However, prefectures are responsible for drawing up their own land use plans. Whilst all are in the process of drawing up their plans, prefectures with particularly acute land use issues are considered to have priority status (e.g. Attica, in which
Athens is located). These plans will ultimately be approved by the Ministry of Environment, Planning and Public Works.

Italy

The legal basis of the Italian planning system is still Law No. 1150 of 1942. This was drawn up and has been put into effect by central and local government. At the centre of the system is the piano regolatore generale (PRG) the basic planning instrument for the whole country. It is based on the concept of zoning and allocates particular uses and characteristics to all areas of land that it covers. It is comprehensive in its proposals and prescriptions and once approved, is of no fixed duration.

National government involvement in planning comprises preparation of policy statements and planning guidelines, and the establishment of the legal basis necessary for the regions to pass their own planning laws. National planning is largely restricted to single topics having large-scale physical impacts, such as sectored programmes or in connection with regional development policies. Under their delegated powers, the regions are required to draw up Regional Plans which include consideration of minerals, and with which lower level plans have to accord. The following principal plans are produced:

- Regional Landscape Plans
- Regional Land Use Plans (PTR)
- Mineral Extraction Regional Plans (PAE)

Detailed planning takes place at the municipal level. However, the municipalities range considerably in size, from three million inhabitants to fewer than one hundred, which results in widely differing abilities to cope with planning issues. The Local Authority Act 1990 attempted to promote an extensive review of administrative boundaries at the provincial and local level, and gave the sub-regional authority the task of making a structure plan framework for development policies.

The devolved nature of policy making and planning functions has led to great differences in approaches at the various tiers of government. For example, there is a large gap in the progress made in producing “master plans” at the municipal level between the north and south of the country. Similarly some regions have adopted different approaches in their stance towards planning issues, with some regions taking a development-led approach whilst others place greater emphasis on environmental protection. The result is that, in Italy, there is no single planning system, but many different and often complex and contradictory models.

Latvia

The main legislative act concerning planning is the law “On Spatial Development Planning” issued by the Parliament in 1998. This act determines
general principles, objectives and tasks for spatial development planning and clarifies competencies and co-operation of the national, regional (district) and municipal authorities in the spatial development planning process. The new Regulations to this law were issued in 1998 (Regulations on Physical Plans, Regulations of the Cabinet of Ministers, No 62) since the previous Regulations of Physical Planning did not describe a considerable number of planning issues. In the new version many requirements such as competencies of state institutions, contents and preparation order of plans of all levels, and public discussion of plans have been clarified.

Lithuania

Spatial planning is regulated by three major laws: The Law on Territorial Planning, the Law on Construction and The Law on Environmental Impact Assessment. The Law on Territorial Planning sets the following objectives:

- achieving a balanced development of Lithuania’s territory;
- creating a healthy and harmonious environment to ensure better living conditions throughout the country;
- formulating a policy for the development of residential areas and their infrastructure;
- using natural resources rationally, protecting the natural and cultural heritage, developing recreational opportunities;
- maintaining ecological equilibrium or restoring it;
- harmonizing the interests of natural and legal entities or their groups with those of the population, the municipalities and the State in regard to land use and type of economic activity in a given area;
- promoting investments in social and economic development.

Luxembourg

The Law of 21 May 1999 (published on 3 June 1999) covers the various aspects of land use. Following this Law, an integrated concept of transport and spatial development was developed between April 2002 and October 2003. This concept is called IVL (‘Ein Integratives Verkehrs- und Landesentwicklungskonzept für Luxemburg’) and it mainly concentrates on problems of mobility. It was developed by six ministries, namely Interior Affairs, Public Works (including Administration of Roads and Infrastructure), Transport, Environment, Economic Affairs and Tourism.

The overall aim of IVL is to guarantee the attraction force of Luxembourg as an area for living and working in the long term. A competitive economical situation should assure a high level of quality of life in Luxembourg. The main question to be answered is: how can one integrate until 2020 the problems of the spatial development, of the cross-border structure and of transport infrastructure, with
the aim of (1) reducing traffic and increasing shared transport, (2) creating a spatial structure which supports a reduction in traffic, (3) linking a transport infrastructure with the ideas of a sustainable management of the land use, and (4) limiting the consumption of natural areas.

The Spatial Planning Act requires that a municipality must make a *Local Land Use Plan* for the territory of the municipality. The Excavation Act (revised in 1996) provided that the issue of permits for extraction, have to be consistent with the Local Land Use Plan.

**The Netherlands**

The Spatial Planning Act enables the provincial council to prepare a *Regional Plan* or to revise an existing Regional Plan. Most provinces have integrated their Regional Plan, the provincial Environmental Policy Plan and the provincial Water Management Plan in one comprehensive plan.

In the Spatial Planning Act it is required that a municipality must make a *Local Land Use Plan* for the territory of the municipality. In the Excavation Act (revised 1996) it is provided that an extraction location for which a permit is requested has to be consistent with the Local Land Use Plan.

**Norway**

The Planning and Building Act is the principal national tool for land use planning. The Act is administered jointly by the Ministry of the Environment, which is responsible for area planning, and the Ministry of Local Government and Regional Development being responsible for building regulations. In addition to the Planning and Building Act, the national system governing land use planning consists mainly of a set of national guidelines. These guidelines allow the central government to co-ordinate and amend land use plans at both the county and local level. Mineral issues have not been addressed in connection with the implementation of national guidelines at the county or local level. The national guidelines also describe the set of regional and local plans that must be developed and maintained. One important aspect of national land use planning is to identify areas to be set aside and protected according to the Nature Conservation Act. Such areas include national parks, protected landscape areas, nature reserves, and natural monuments, which are designated by the Ministry of the Environment. In some recent cases, areas have been protected even if it was known that potentially valuable mineral deposits exist in these areas.

Regional land use planning is carried out by the county municipality, and its main purpose is to set down guidelines for land use in the county and ensure compliance with the national objectives of land use policy. The plan also co-ordinates the physical (buildings etc.), economic, social and cultural activities of the state, the county and to a certain extent also the local municipalities in the county. The Ministry of Local Government and Regional Development can also issue decrees in order to co-ordinate planning in two or more counties.
However, both counties and local municipalities have a large degree of autonomy with regard to their planning activities.

**Poland**

The Act of 27 March 2003 on Land Use Planning (J.L. No.80, item 717) is the principal national tool for land use planning in Poland.

Policy on the land use planning (spatial development) of the country is co-ordinated by the Minister of Construction, Spatial and Housing Economy with the co-operation of the President of The Government Centre for Strategic Studies. They harmonise land use plans produced by the municipalities (known as voivodships\(^{82}\)) taking into account transboundary and border impacts of the plans.

**Regional Level**

The voivodship land use plans are drawn up by voivodship bodies (*sejmiki*). The plans take into account the strategies of the voivodship, and include:

- The distribution of public purpose investments of regional importance;
- Protection areas, including those of environmental, natural and cultural landscape value,
- Areas where significant mineral deposits occur.

**Slovakia**

The main legislation covering land use planning in Slovakia is the Building Act, which is administered by the Ministry of the Building and Regional Development. Co-ordination with the Ministry of the Environment is needed in certain cases.

Higher Territorial Units play an important role by processing the regional land use planning documentation. The main purpose is to ensure that the guidelines for regional planning are in accordance with the regulations at the national level.

**Slovenia**

Aiming to ensure sustainable spatial development, the objectives of the *Spatial Planning Act* are to:

- determine spatial planning and management responsibilities of the state and local communities, together with enforcing the regional planning level,

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\(^{82}\) In 1999 a new three-level territorial division came into force in Poland. The Land was divided into 16 regional units called **voivodships** (województwa). The voivodships are divided into administrative districts (**powiat**).
enable greater public participation in spatial planning and management, and ensure transparency during the preparation and adoption of spatial planning documents,

ensure increased flexibility in determining the contents of spatial documents, and in planning spatial development activities,

take into consideration the new status of private ownership in spatial planning, and the enforcement of private initiatives in operational spatial planning and management,

reduce risks in investment project preparation,

ensure accessibility and transparency of spatial planning documents, and spatial planning and management arrangements for each individual land plot,

regulate professional activities involved in spatial planning.

Sweden

The Planning and Building Act is the principal national tool for land use planning in Sweden. The Act is administered by the Swedish National Board of Housing, Building and Planning (Boverket) which has general responsibility for the supervision of planning and building activities throughout the country. The Board is an agency of the Ministry of the Environment.

In addition to the Planning and Building Act, the national systems’ governing land use planning consists mainly of a set of national guidelines that allows the central government or the county administration board to co-ordinate or amend land use plans at both the county and local municipality levels. Planning at county/regional level is done by the county administration boards, and they plan for activities as diverse as road construction and nature conservation.

5.3.3.2.3 Planning framework for minerals: preparing separate minerals plans

The higher level plans (e.g. national, regional or county) usually cover more general aspects of land use and define the context within which detailed local plans are drawn up. Thus local plans are drawn up within the provisions of higher-level plans.

Austria

Provincial and local authorities are responsible for drawing up separate minerals plans, but only some of them do so. In some provinces the concept of positive areas is used, i.e. areas have been defined as mineral extraction areas, whereas in others, provinces follow the concept of defining areas where mineral extraction is prohibited (negative areas). At present there is no uniform approach to the protection of mineral deposits in Austria.

Belgium
There is no specific planning for mineral extraction. It is mainly the market that determines the nature and quantity of industrial minerals and construction minerals that are to be extracted.

A first important step in the strategic planning for sustainable development is defining the land use in the three regions. At that level, there is competition with agricultural use, nature, etc. Second, as the natural resources extracted in Belgium are only industrial minerals and construction minerals, the focus is mainly on recycling building materials to replace e.g. gravel and sand. On the other hand, various federations conduct studies to demonstrate that there is always a need for sand, gravel and aggregate. This is important when the various land uses are put in competition.

Presently, the Flemish Region is establishing a framework for defining plans of surface mineral resources (‘Oppervlakteelstoffenplannen’). These plans transform the objectives of the Decree on Surface Mineral Resources (‘Oppervlakteelstoffen Decreet’) of 4 April 2003 into mining plans. The plans examine future development over a 25-year period and contain actions for a period of five years. These plans have to be evaluated every five years. One single plan covers the entire Flemish Region; while other plans look at separate but homogeneous extraction areas. The Decree addresses the specific needs of the extraction industry and includes its needs in several different areas, including for example:

- land use,
- supply and use of natural resources,
- restructuring and
- environmental and health aspects.

The overall aim of the Decree is to ensure the sustainable management of mineral resources, occurring near the surface. The Decree looks also at the use of secondary minerals or alternative materials, and at the rehabilitation of land after extraction has ceased. By the Order of the Flemish Government of 26 March 2004, the various aspects of this decree have been further specified.

**Czech Republic**

The plans determine for specified periods of time the mineral deposits to be opened, order and extent to which order exploitation shall commence and proceed, the termination of exploitation, recovery and landscaping activities in the vicinity of exploitation. The aim is to reduce the total load on the territory and decrease the pressure to open a number of deposits at the same time, particularly in areas with a concentration of mineral workings.

**Denmark**
In Denmark the regional plan addresses the extraction of raw materials as a specific topic. The counties have the responsibility for incorporating mineral resources and the future supply of raw materials in their regional plans. There are no guidelines other than that the regional plan should have a time perspective of 12 years with regard to the overall development goals for the region. The plan should be assessed and updated during each election period (4 years). However, some counties make specific spatial plans for raw material supply with a time perspective of up to 25 years, and in a few cases, tentative plans are being drawn up for a period of 50 years.

**Estonia**

There is no planning framework for the mineral industry in Estonia with the exception of oil shales extraction. Development plans which consider provisions for the mining industry do not exist.

**Finland**

Local municipalities may, in their local plans, allocate areas to secure the future supply of, for instance aggregates, but such plans are mostly made to satisfy local needs.

**France**

The Town Planning Law of 1967 established a two tier system of master plans (Schema Directeur: SDAU) and local land use plans (Plan d’Occupation des Sols: POS). The SDAU (Schema Directeur: SDAU) for the Ile-de-France region shows deposits of clay, limestone, silica, gypsum, sand and gravel.

The Municipalities are responsible for the local plan for land use (POS, ‘Plan d’Occupation des Sols’), imposed by the Town Planning Law of 1967. By law, communes must prepare a POS which must be in accordance with an approved master plan (SDAU) if one exists for the area. A plan for land use (POS) becomes legally binding as soon as published. It shows also potential mineral extraction zones and is updated or replaced every ten years.

As already mentioned, the Departments are involved through the departmental schemes of quarries (SDC, ‘Schémas Départementaux des Carrières’).

**Germany**

Detailed development plans are prepared at the regional level (Table 9). The planning authority has also to consider minerals issues (i.e. designation of areas of priority, proviso and suitability).

**North Rhine-Westphalia**

In North Rhine-Westphalia, neither the provincial land use plan nor the law for regional development contain area categories for the extraction of mineral resources. Only the development plan contains approaches to this issue. The development plan contains textual descriptions for raw material protection;
graphic depiction for the mapping of raw material supply areas are being designed at the level of regional development plans.

The raw material protection areas are divided into areas for the protection and exploitation of surface mineral resources, and areas of reserve. When mapping these areas, the matters of opposed uses have already been taken into consideration by the district planning authority. The extant land use plan for North Rhine-Westphalia reserves areas, identifies past experiences and forecasts likely future developments, which have been identified as essential for ensuring adequate supplies of minerals to meet the needs of industry and satisfy energy requirements. The protected areas are limited:

- In their time span:
  - For friable rocks: approximately 25 years;
  - For solid rock: approximately 25 years;
  - For lignite: approximately 40 years.

- To deposits where applications for extraction are likely to be expected within the next few years.

- In the case of underground mineral deposits, to those which are currently being exploited, and those where applications for extraction are likely to be proposed within the next few years.

The development plans for the five administration districts of North Rhine-Westphalia are divided into 14 parts, which BSAB shows on a scale of 1:50,000. The deposits are identified as a result of their quality or volume, and the ease with which they can be extracted and transported. The extent to which such areas may be used for mineral development is for the regional and local development planning process to establish; and final decisions on the approval and extent of areas actually released for exploitation must be made through the legally prescribed planning approval procedures.

The plan states that “the fact that these resources are finite, their importance in economic terms and the need to ensure that the impact on nature and landscape is kept to a minimum making careful management an imperative. Deposits should therefore be exploited as efficiently as possible, where appropriate by combining operations to extract all the minerals occurring at one extraction site or which have been identified in the immediate vicinity, so far as this is technically feasible, economically worthwhile and legally permissible.”

In the Regional Development Programme III, areas that play an important role for the extraction of raw materials are shown. In the regional development plans this is to be made clear by marking areas of priority for the extraction of raw materials. There are regional development plans for the five planning regions in Rhineland-Palatinate, which contain areas of raw material protection as areas of priority and proviso. The planning associations are highly influenced by local
authorities, whose planning and interests are often directed against the mapping of raw material protection areas.

_Brandenburg_

In 1992 a state development programme ("Landesentwicklungsprogramm") was developed. Brandenburg is divided into five planning regions; raw material protection is part of regional planning. Areas of priority (exclusion of uses that rule out exploitation) and areas of proviso (special importance of raw material use when considering competing land uses) are set up and depicted in maps (1:100,000). As the greater part of raw material uses is subject to the mining law, the geological survey of Brandenburg ("Landesamt für Geologie und Rohstoffe Brandenburg") and the mining authorities ("Bergämter") participate in decision-making. It is estimated that 0.4% of the federal state’s territory has been considered areas of priority and 0.6% as areas of proviso.

High quality gravel sands, which can primarily be found in the South of the country, are considered areas of priority and proviso in the regional plan. This has called into question the need to protect low quality gravel deposits in other parts of the country. The bedrock deposits ("Festgesteinslagerstätten") are marked as areas of priority. At the moment raw material protection shows a tendency to be limited to areas covered by “Berechtsamkeit” or in which excavation is already taking place. However the latter areas have only a small possibility of expansion.

_Bavaria_

The Bavarian regional development plan states that for the protection of raw material supply and for the regulation of raw material extractions in the local plans, priority and proviso areas for the extraction of mineral resources to satisfy the local and regional demand are to be set.

Raw material protection is a part of regional planning, whose main principles are defined in the regional development plan and according to which Bavarian regional planning laws are carried out. In Bavaria, there are 18 planning areas, in which different, old and quite new plans can be found. The most recent continuation contains corrections, which have taken the form of modification of areas because of selections and considerations based on the present state of affairs and on improved knowledge about raw material geology. At the moment it is preferred to exploit only actually needed areas, which results in a focussed protection. Since 1995 regional plans are often only in some fields demand oriented, which is also true for parts of the raw material sector.

_Hesse_

The State Development Plan 2000 says that the raw material resources available in the country have to be protected in the long term by regional planning. Through the designation of areas for the extraction of near-surface deposits (mining areas) and of near-surface deposit areas, the general conditions regarding the guarantee to supply the economy with domestic raw materials
have to be created. In the areas designated in the regional plans for the exploitation of near surface deposits, the extraction of mineral resources has a priority over other spatially important utilization claims or designations.

The areas of near-surface deposits are a long-term raw material provision. In these areas mineral resources have to be protected by making long term provisions into state spatial plan. The spatial plans (“Raumordnungspläne”), which have been valid for the three planning regions North Hesse, Central Hesse and South Hesse since 2000/2001, are being developed at the moment. Due to various general framework conditions, the updating of raw material protection areas marked according to the regional plans is becoming more and more difficult:

- Demands for alterations in terms of technical planning lead to new consideration and if necessary to a setting of new priorities;
- Demand-oriented factors play a role; and
- Bodies of regional planning in Hesse are the regional assembly, a local committee established on party political grounds.

Mecklenburg-Western Pomerania

Changes to area designations (“Flächenänderungen”) and reductions of areas or complete removal of areas (“Flächenrücknahme”) from land use plans has over the last few years resulted in a slow but continual reduction of the number of area designations for raw material extraction. Area enlargements or new sites are an exception. In the framework of an environmental alliance a concept for raw material protection is now being developed by the Hessian Federal Department for Environment and Geology in cooperation with the aggregate and industrial minerals industries. It is planned to identify all raw materials areas that have to be protected and to enter them onto maps as a basis for future designations.

From 1994 to 1998 regional spatial programmes (“Raumordnungsprogramme”) with the sections “raw material protection” for the four planning regions were enforced by a federal state decree (“Landesverordnung”). Here, areas of priority and areas of proviso for raw material protection were marked. In the framework of land utilization and local authority planning, areas of exploitation are only considered as long as there is approval under the mining law, or if there is a main exploitation plan approved by the responsible mining authority and which serves as a basis for exploitation. The areas of priority and proviso in the regional spatial programmes do not automatically become part of the land utilization and local land use plans (“Flächennutzungspläne und Bauleitpläne”).

The percentage of areas of priority and proviso for raw material protection is about 0.92% of the federal state’s territory.

Lower Saxony
Areas that have been identified for minerals extraction have to be marked as areas of priority for the extraction of raw materials according to the programmes of spatial planning. As a second category of mineral resource planning Lower Saxony has areas of proviso. These are areas that are of special importance for spatial and structural developments because of their respective suitability.

In Lower Saxony, raw material protection is in terms of the federal state’s spatial programme ("Landesraumordnungsprogramm") of 1994. Areas of priority for raw material exploitation marked in the federal state’s spatial programme are binding regulations for the regional planning bodies (32 districts, 2 unions, 6 district-free ("kreisfreie") cities). These binding regulations have to be put into the regional spatial plans and in the land utilization plans (for "kreisfreie" cities). The areas of proviso of the federal state’s spatial programme are fixed by the bodies responsible for planning.

_Saarland_

In Saarland, the protection of raw materials is part of the Federal State’s spatial planning, which sets up spatial planning goals for all of the Federal State’s territory in the state development plan ("Landesentwicklungsplan"). In the State development plan, however, areas of priority for the exploitation of raw materials are, in contrast to other land uses, not depicted. The marked areas of proviso for the extraction of raw materials correspond to areas of the raw material potential map ("Rohstoffpotentialkarte"), which often leads to overlapping with areas of priority for ground water protection, nature preservation and forestry. Therefore the extraction of raw materials loses in importance in relation to other uses.

_Greece_

Land use planning with respect to housing and industrial sites is governed by national legislation and is approved through a procedure involving urban planning studies (poledomikes meletes). Land use planning for aggregate production/consumption is done at the regional level. In this respect the region is represented through appropriate committees in the prefecture. Quarrying areas (latomikes periokes) are determined in collaboration with the Ministry of Development. Local municipalities may in their local plans also allocate areas to secure future supply of, for instance, aggregates, but such plans are mostly made in order to satisfy local needs.

_Italy_

Practice in Italy varies between regions. Under national law, each region is entirely responsible for preparing their own mineral and planning legislation. This has led to different systems of land use planning operating in different regions. For example:

Emilia-Romagna prepares a Mineral Extraction Regional Plan (PAE) for aggregates, which is then interpreted at a detailed level through Municipal Extraction Activities Plans (PAEC).
Calabria proposes to have plans at the regional, provincial and municipal levels whereas fourteen other regions have opted to prepare plans at the regional level only. The region of Molise has no provisions to prepare plans at any level.

**Hungary, Latvia, Lithuania**

There is no planning framework for minerals.

**The Netherlands**

In the future minerals planning will especially be provided for by the *provincial mineral extraction plans.*

In the Regional Spatial Plan, a province can designate two types of extraction locations: an *extraction zone* or an “*extraction site*”. An “extraction site” has the level of detail of a Local Land Use Plan (municipal level). The Excavation Act (which was revised in 1996), provides that an extraction location for which a permit is requested has to be consistent with the Local Land Use Plan. If a municipal council does not cooperate, then the provincial executive can give a direction to the municipality to amend its Local Land Use Plan. The Excavation Act is being revised. One of the proposed amendments will be that the identification of an “extraction site” by the provincial council will automatically affect the municipal Local Land Use Plan.

**Norway**

There are virtually no guidelines for forward planning of mineral supply. The only exception is the Planning and Building Act (§20-4) where the local municipality has “to a sufficient degree designate areas for extraction of raw materials”.

**Poland**

A duty of drawing up local land use plans for mining areas is specified in the Mining and Geological Law. These plans should ensure integration of all activities that are undertaken within the border of a mining area in order to:

1) execute rights which are established in the concession;

2) ensure a common security;

3) protect the environment including buildings.

The draft of the land use plan has to be agreed with the mining controlling body. The cost of drawing up a local land use plan for mining areas is met by the mining operator. If the effects of mining on the environment are predicted to be

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83 However, the national government’s goal should be noted: “The extraction companies will develop the sites together with parties involved such as the municipality and nature management organisations. Provincial plans should leave room for companies to develop such multifunctional projects” (Dutch comments on draft report Leoben).
negligible, the communal council can pass a resolution not to prepare a local land use plan for the mining terrain.

The mining operator has a duty to draw up a local land use plan for mining areas within three months of being granted a concession for mineral extraction (Article 10, Paragraph 3 of the Act on Land Use Planning). Since the local land use plans overlap with the plans for mining areas, a revision of the Geological and Mining Law is being prepared. That revision will remove the duty of drawing up a local land use plan for mining terrain.

**Portugal**

Recent Municipal plans include ‘areas of search’, areas of existing mines/quarries and areas for the enlargement or establishment of new ones. They also identify areas where restoration works should take place.

**Slovakia**

An important aspect of land use planning is reconciling the protection of mineral deposits and their utilisation (the protected territory deposit, the mining area, the land decrees), and with the protection of areas in accordance with the Nature and Country Protection Act (the Protected Areas, the National Parks, the National reserves etc.).

**Spain**

The regional administrations have programs of promoting mining, mainly with respect of defining sub sectors where the environmental conditions are such that mining and environmental plans are considered feasible. The Autonomous Communities (ACs) prepare plans both on a geographical basis (basic land planning schemes, rules and plans for local land planning) and on a subject basis. Many of the ACs have their own nature conservation laws and have already established their own network of nature areas. *Some ACs have a mining plan.*

**Sweden**

The County Administration Board is the authority responsible for issuing extraction permits for non-concession minerals e.g. quarries for crushed aggregates and sand and gravel pits. The Board also grants environmental extraction permits for concession and non-concession minerals. In addition, the Board compiles inventory maps of sand, gravel and stone resources in co-operation with the Geological Survey. The “Inventory Plans” detail mineral resources and indicate whether extraction would be allowed in principle. The Board is responsible for the supervision of planning and building activities in the county and must co-operate and assist local municipalities in their planning work.

The main purpose of a Inventory Plan is to identify sand, gravel and stone resources over a certain area (not conforming to administrative boundaries), also to consider issues of nature conservation and to promote the efficient use of
resources. The counties make assessments of the future needs of the county in relation to anticipated expansion, which is assessed in consultation with municipalities who plan on a 10-15 basis. They also examine issues of groundwater protection and nature conservation.

Each area of resource shown on the Plan is identified as being either:

- Class I, where environmental considerations outweigh the need of the resource and extraction is not allowed; or,
- Class II, where there are some significant environmental issues that would need to be addressed prior to extraction; or,
- Class III, where in principle, extraction would be allowed.

Municipalities prepare “Household Plans,” which aim to match the need for minerals with the exploitable resources identified in the Inventory Plans. The “Household Plans” relating to sand and gravel extraction are more detailed and are usually prepared by groups of municipalities, and in some instances the County Administrative Board. They do not conform to administrative boundaries. Instead they relate to assumed market boundaries for the materials, which tend to cover an area at least the size of a county.

The “Household Plans” are prepared once the Inventory Plan has been completed. “Household Plans” identify all the sites shown on the Inventory Plan but then look in closer detail at the anticipated expansion of each municipality (over the next 10-15 years) and the likely need for construction minerals. Taking account of the nature conservation issues highlighted in the Inventory Plan, the “Household Plans” concentrate their examinations on only Class 2 or Class 3 sites. Land Use Plans are referred to and issues such as infrastructure, transport, economic and the need for the material are considered in a sifting process.

“Household Plans” also identify specific areas for preferred extraction. The likely end use of the materials is an important consideration in this process so as to prevent “the trivial use of important gravel”.

**United Kingdom**

County Councils incorporate mineral policies in Structure Plans and prepare separate mineral Local Plans. In unitary authority areas, mineral policies are included in the Unitary Development Plans.

### 5.3.3.3 Supply

#### 5.3.3.3.1 Planning for minerals supply

In terms of land use planning the supply of mineral resources is addressed through defining
• Areas for search (areas for exploration)

• Areas for future working
  o Preferred areas
  o Specific sites

• Areas for protection
  o Safeguarding important mineral-resources from other development

Examples:

Areas of search

Å Greece, Italy, Portugal, Sweden, England and Wales

Generally the approach adopted in Greece, Italy, Portugal, Sweden, England
and Wales is based on the identification of areas of search (i.e. exploration
areas), whereby zoning on a plan is a broad indication of the likely presence of a
workable deposit which may be authorised for extraction, although
authorisation is by no means guaranteed. Any application for extraction would
be judged on its merit taking into consideration all relevant criteria. In England
& Wales, the approach is generally based on a system of site specific allocations
for future working and on which if applications are proposed there is a
presumption in favour of the grant of permission.

Areas for Future Working

It is common practice throughout Europe for development plans to indicate areas
where mineral working may take place in the future.

Å Austria

In regional land use plans, areas which are intended for mineral extraction have
to be clearly depicted and supported by a textual statement which designate
them as “areas of mineral extraction”. The selection of areas should be on the
basis of medium to long-term mineral resource demands and the availability of
mineral resource deposits. Methodically speaking, positive as well as negative
planning is used in Austria.

Negative planning means excluding certain usages. For minerals exploitation,
this approach has the disadvantage that prioritising areas to secure raw materials
is not possible. It is considered that from a sustainability point of view, negative
planning is questionable as it will result in a programmed loss of access to and
hence utilisation of mineral resources.

When using positive planning, deposits that are worth extracting are protected
from other land uses. The advantage of this approach is that the authorities can
follow a clearly defined raw material policy. A problem with positive planning is that it can lead to land speculation.

\[\text{Denmark}\]

The Regional Planning Act requires county councils to prepare regional plans for overall land use, i.e. to identify amongst others potential mineral extraction areas (broadly equivalent to “preferred areas”). Municipal authorities are required to prepare municipal and local plans. The former covers the whole municipal area and identifies land for the purposes of exploitation of stone, gravel and other natural resources (again, similar to preferred areas). The latter applies to specific areas within the municipal area and in effect amounts to a detailed plan for a mineral extraction site, including restoration considerations. As such, local plans serve a similar function to “specific sites”. It is a requirement that the municipal and county designations coincide.

\[\text{Germany}\]

Three categories of land are identified:

- **Areas of priority** are areas that are reserved for certain spatially important functions or uses and exclude other functions or uses in those areas.

- **Areas of proviso**, in which certain spatially important functions or uses are regarded as having a special importance when considered against other competing uses.

- **Areas of suitability** refer to spatially important measures in undeveloped areas outside built-up areas\(^{84}\) (Article 35 Federal Building Code). These areas are suitable for these spatial important measures and have to be concentrated inside this area with the consequence that they are ruled out in other parts of the planning area.

\[\text{United Kingdom}\]

\[\text{England and Wales}\]

Minerals Planning Guidance Note 1 (MPG1) for England and Wales advises that policies should recognise that the local, regional and national requirements for minerals need to be met. (A similar approach has also been adopted in Denmark and the Netherlands. In both of these cases the advice is intended only for construction minerals.)

\(^{84}\) The surrounding undeveloped area, meaning the undeveloped areas outside of built-up areas (also referred to as rural areas and other “white land”).
5.3.3.3.2 Safeguarding of resources - relevant issue

Some countries provide in their land use plans for the protection from other development of mineral reserves that could be needed in future years.

- **France**

  Securing sand and gravel from the Seine for construction works in Paris has been achieved by designating “Zones de Preserver” in the Master Plan for the area. These remain safeguarded for 30 years.

- **Portugal**

  Six Regulatory Decrees were enacted by the Council of Ministers to safeguard deposits of marl and marly limestone in the municipalities of Alhandra, Maceira, Vila Franca de Xira and Pataias; deposits of special clays in Barracão/Pombal/Redinha, and deposits of (State owned) feldspar in Catraia. All these reserves are worked or preserved for future mining in order to meet the present and future needs of the cement and ceramic industries. In the areas delimited by these Decrees no other development that may affect the present or future mining/quarrying works can be initiated without the written authorization of the Mineral Administration.

- **Scotland**

  National Planning Policy Guidance (NPPG4) notes that both Structure Plans and Local Plans should: “safeguard mineral deposits from development which would inhibit their subsequent extraction” and that “other development proposals should be phased wherever possible in order that sufficient opportunities are allowed for mineral extraction”.

5.3.3.4 Protection of important areas including forests, agriculture, and water

All Member States include in their development plans areas such as forests, agricultural land and water which merit protection. The impact on the extractive industries can be far reaching as minerals are often found in such areas and precluded from extraction without further considerations.

An example is the watershed Authorities in Italy which were created by statute in 1989. These authorities have responsibility for ensuring protection of water resources and conservation of soils within certain defined river catchments. The catchments have been defined as having national, inter-regional, or regional significance. The Watershed Authorities are required to prepare planning policies for the catchments consistent with their statutory responsibilities. Similarly sand and gravel extraction in water protection areas is severely restricted or even prohibited in Austria and Germany.
5.3.3.5 Protection of important environmental areas - Environmental capacity

All Member States include in their development plans areas that merit protection from damaging activities. Typical examples are Natura 2000 areas which have been established under the provisions of EU Directive 92/43/EEC. Criteria for the selection of such areas differ widely with the result that some of the Member States have very few Nature 2000 areas whereas in other Member States the total area may exceed 20% of the whole territory.

- **Denmark**

  Proposals to include specific areas of land in development plans are subject to an EIA during plan preparation, which the National Forest and Nature Agency believes goes some way to determining the environmental capacity of a plan area before specifying locations for mineral extraction.

- **The Netherlands**

  The former National Minerals Plan divides the entire land surface of the country into three zones, to show where extraction would or would not be acceptable (in principle), and where extraction may be acceptable subject to conditions. The Dutch Government has taken many factors into account in the zoning process. Principal among these is the protection of important environmental areas from extraction because of the threat of irreversible damage to critical habitats, landscapes, recreational areas, etc. However, this approach was abandoned in 2003.

- **Hungary**

  Mineral extraction is not acceptable in many nature conservation areas (national park, areas of pristine natural conditions, locally protected areas, natural monuments, etc.), on military land, where it will affect vulnerable water reserves, good quality agricultural land, etc.

5.3.3.6 Conflict Resolution Mechanism

A key issue in land use planning discussions and decisions is the mechanism of conflict resolution as these will invariably be conflicting issues.

- **Austria**

  *The sustainable management of intensively used areas in Styria provides a good example.*

  **Methodological procedure – raw-material extraction and land-use planning**

  On behalf of the Styrian government, Joanneum Research developed an effective methodology for assessing the conflicts that might occur over mineral extraction. The core of the procedure is the utilization of various thematic maps, so-called natural potential maps, where certain information has been
purposefully selected and overlapped, with respect to, and serving the interests of, raw-material extraction. The thematic overlap of different forms of utilization identifies certain conflicts that are ranked according to their priority and then resolved. Based on the findings of the evaluation scheme, the government came up with a regional development programme for the Northern part of the Leibnitzer Feld, which comprised the extraction, restoration and potential for after-mining activities.

The assessment procedure includes the following steps in evaluating:

- all relevant utilization structures
- the hydrological situation
- superficial mineral deposits

A set of thematic maps has thus been obtained containing significant information and parameters for planning. Based on these settings, so-called “positive and negative areas” for raw-material extraction have been identified and form the basis for decision makers. The concept and method used in the preparation of the maps was governed by two overall goals: first, to develop a system for planners which would be transparent and flexible enough to allow the input of new information and, therefore, to identify new products; secondly, to provide a basis for other planning uses in order to make the map system as versatile as possible.

Germany

Baden-Württemberg: Conflict resolution mechanism - The necessity for an impact assessment

The implementation of the EU directives such as the Habitats Directive poses additional requirements for the licensing process of raw material extraction projects, which results in additional costs and delays. In a detailed study of the implications of the Habitats Directive on mineral projects in the State of Baden-Württemberg in Germany a systematic approach to dealing with such situations was developed. This approach follows the steps identified in the flow-chart shown in Figure 5.

5.3.3.7 Restoration

Restoration and the rehabilitation of mining sites are key issues in most European countries and are covered in the respective legislation. It is also often reflected in development plans.

Greece
In Greece, development plans often include chapters that define the environmental criteria and conditions required for permission to extract Minerals. Amongst these are also the requirement relating to the closure of a mine site and the restoration of land.

**Italy**

In Italy, mineral extraction is regarded as a temporary activity and therefore the land used for this purpose should be returned to its original condition and classification.

**United Kingdom**

Detailed policy and technical guidance on the restoration of mineral workings is provided in Mineral Planning Guidance Note 7, and for Scotland, in NPPG4. This is an important policy issue which has to be included in local development plans; and where appropriate, local authorities are advised to identify suitable after-uses for specific sites or areas in their local plans.

### 5.3.3.8 Transport modes and routes

Despite large quantities of minerals being produced and moved from the production site to the place of use, the transport of minerals is not well covered in minerals planning in most European Countries and is not usually considered in development plans. The situation is however changing. Many authorities, when preparing their development plans, are considering minerals transport as an important issue. Some examples are:

**Austria**

The Minerals Law of Austria includes assessment of transport details as an important issue for mining licences.

**France**

Departments are obliged to produce plans for quarried minerals (‘Schémas Départementaux des Carrières’ (*SDC*)). These plans also specify the types of transport to be favoured such as road, rail or waterway, and these may then be imposed in the authorisations.

**The Netherlands**

The Limburg Minerals Plan states that applications must include transport details. The impetus for this is provided by broader sustainability considerations.

### 5.3.4 Development plans – Planning Administrative Procedures

Many Member States have provisions in their legal systems governing minerals extraction which require that development plans have to be prepared and submitted by the developer. One exception is the UK, where the development plans are produced by the local authorities. Aside from the various project related issues covered in
development plans, there are other aspects of development plans that ought to be considered:

- The extent to which the public and statutory consultations are able to provide an input to a development plan (i.e. consultation);
- the power of central government to amend a plan;
- the weight that is given to the development plan when applications to carry out minerals extraction are being considered (i.e. status of development plans).

5.3.4.1 Consultation

Preparation of development plans

In all Member States there exist opportunities for the public to comment on the development plan before it is adopted. The main differences that are exhibited between countries are:

- The number of opportunities for comments (e.g. whether amendments made from a first draft are themselves subject to consultation). In some countries only one draft of the plan is open to consultation.
- Whether the possibility to comment is open to the general public.
- Whether there is provision for a public hearing of the draft plan.

United Kingdom

The planning process in England, Wales and Scotland consists, essentially, of seven steps:

1. Preparation of a Consultation Draft followed by a six week public consultation exercise during which any person can object to proposals or make representations.

2. Considerations of objections and representations by the planning authority, plus a statement that the plan conforms to the Structure Plan.\(^\text{86}\)

3. The placing of the final draft on deposit. For public inspection copies have to be made available, and have to be sent to the Secretary of State. Placing on deposit of the plan has to be advertised in a local newspaper and in public places. This is the responsibility of the local planning authority.

4. An Inspector/Reporter hears a Public Inquiry for Local Plans. They are appointed by the Secretary of State if there are unresolved objections

\(^{86}\) For example Scotland: Structure plans set the strategic policy framework. Within this framework the local plans express the essential local development guidance as the basis for development control.
5. Their written report is sent to the planning authority. This authority will then consider whether or not to accept the recommendations. Their reports are binding for the planning authority.  

6. The planning authority must advertise its intention to adopt the Plan in a local newspaper. Notice has to be served to those whose objection has not been withdrawn. A certificate has to be sent to the Secretary of State giving 28 days notice of its intention to adopt. These steps have to be executed before formal adoption.

7. Adoption of the plan.

Italy

Each region creates arrangements for consultation, in addition to the formal consultations with the provinces and municipalities in order to safeguard the interests of institutions and individuals.

In the Emilia-Romagna region of Italy, before preferred areas are identified, the Provincial authorities will discuss their planned output for the plan period with mineral operators and reconcile this with proposed construction projects over the same period.

The Netherlands

In the Regional Spatial Plan, a province can designate two types of extraction locations: an extraction zone or a so-called “extraction site”. It is possible to appeal against an “extraction site” in a Regional Spatial Plan. Appeal can be made to the Council of State (Department of administrative jurisdiction). When the “extraction site” has been incorporated in the Local Land Use Plan (municipal level) it is not possible to appeal a second time. This is laid down in the Excavation Act (revised in 1996).

In the case of an extraction zone in a Regional Spatial Plan, objections can be made to the Provincial Council (no appeal). Appeal can be made to the Council of State when the extraction zone has been incorporated into the Local Land Use Plan (municipal level) A province can also indicate search areas with respect to mineral reserves. In this way a province can protect these areas against developments, which might obstruct mineral extraction in the future. The Local Land Use Plan is a compulsory plan for the municipal territory and is determined by the local government. Through this, citizens are bound. Some municipalities make a construction permit compulsory for the operators. This construction permit has to be applied for from the municipal executive. Regulations might be attached to this permit.

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87 The system for development plans in England & Wales has been radically changed by the Planning and Compulsory Purchase Act 2004 and set out in PPS 12.

88 An “extraction site” has the level of detail of a Local Land Use Plan (municipal level).
In the Netherlands, draft development plans are also passed to neighbouring countries for comment where material cross-border effects from the plan might occur (e.g. the Limburg Mineral Extraction Plan).

5.3.4.2 Opportunity for the mineral industry to provide an input to development plans

An important aspect of minerals planning is the opportunity given to the minerals industry to provide an input to the extent of land set aside as preferred areas for mineral extraction.

Germany

In Germany, regional mining organisations and mining federations advise on the requirements for raw materials. Due to the difficulties encountered in obtaining access to mineral deposits, there is a tendency to argue for more land to be set aside than planning authorities are willing to allow.

5.3.4.3 Status of development plans

A key issue in minerals planning is the status or importance of mineral development plans compared to other considerations such as environment, social considerations, and other forms of land use.

In general it can be stated that the declaration of mineral development areas does not mean that all mineral projects falling into such an area will automatically be approved. Normal approval criteria still apply and if these are not met approval will not be given. Experience in a number of Member States shows that the time required to obtain an extraction permit is usually much shorter in mineral development areas. The following give some indication of the approaches taken in different Member States:

France

Authorisation for a site within an extraction zone indicated on the departmental scheme of quarries (SDC, ‘Schémas Départementaux des Carrières’), is not necessarily guaranteed. For sites outside these zones, permits are never granted. Operators can appeal to have the departmental scheme changed, but this is generally a long and difficult process and is seldom undertaken. Exceptions to this are minerals that are considered to be of national importance, in which case the process of (re-)designating zones or granting an exemption may be easier.

The Netherlands

If the municipal council has not promised its co-operation at the same time that the provincial council has decided to allocate an “extraction site” in the Regional Plan, then the provincial executive issues a directive to the municipality that it must amend its Local Land Use Plan. A change in the Excavation Law is in preparation. According to one of the amendments the indication of an “extraction site” will automatically affect the municipal Local Land Use Plan.

Norway
If the area is regulated for another purpose, the prospective operator has to send an application to the municipality in order to change the use of the area. If approved, a revised local development plan for the area has to be prepared and submitted by the applicant.

5.3.4.4 Central Government Involvement

Central government involvement in development plans differs between Member States. In countries with a federal structure central governments usually do not become involved in the development plans whereas in unitary states it is quite frequent for the central government to become involved. The following examples give some indication of the nature and extent of involvement by central governments:

- **Greece**
  
The Ministry of the Environment, Planning and Public Works takes over all responsibility for planning issues at the national and regional level. However, prefectures are responsible for drawing up their own land use plans. Whilst all are in the process of drawing up their plans, prefectures with particularly acute land use issues are considered to have priority status (e.g. Attica, in which Athens is located). These plans will ultimately be approved by the Ministry of Environment, Planning and Public Works.

- **Norway**
  
  County Plans are sent to the Ministry of the Environment who can make changes if this is seen to be in the national interest. For municipal master plans, only those sections objected to by neighbouring municipalities, the county or national sector authorities are sent to the Ministry of the Environment to decide if the plan should be amended. Local plans are not submitted to the Ministry.

- **Portugal**
  
  Local municipal plans are approved by the elected Municipal Authorities. However, during the preparation of these plans most of the municipalities enter into a consultation process with Central Government Departments (including those responsible for mining) in order to obtain information about any existing and future developments to be undertaken in such municipalities and are asked for a nomination of its representative to participate with the municipality in the preparation of the plans. After the conclusion of a draft plan the municipal authority usually consults with the Central Government Departments who may make recommendations. However, Central Government may not direct (in principle) any modification of the municipal plan, except to the extent that such municipal plans violate an applicable rule of law, including a high-level plan.

- **United Kingdom**
  
  Minerals development plans are prepared by the minerals planning authorities (MPA’s). The Office for the Deputy Prime Minister and devolved administrations set out the planning policy framework within which local
authorities are required to operate. Regional Planning Bodies are responsible for preparing Regional Planning Guidance (shortly to be replaced by Regional Spatial Strategies). Unitary authorities are responsible for all planning matters in their areas and are the minerals planning authorities (MPAs).

In two tier areas of the county the MPAs are responsible for preparing area-wide minerals and waste local plans (shortly to be replaced by minerals and waste development frameworks). In National Parks, the Broads and New Forest Heritage Area the administration of those areas are responsible for all planning matters including minerals and waste. Counties were formerly charged with preparing structure plans that set out strategic planning aims. The new legislation has abolished these while strengthening the Regional planning tier.

5.3.4.5 Updating plans

The frequency of review varies markedly between Member States. For example, in Denmark, plans are reviewed every four years to coincide with the local elections, the review period for the National Surface Minerals Plan in the Netherlands used to be 5 years, whereas in Austria, Belgium, France and now also in the Netherlands the review takes place every ten years.

5.4 Process of Obtaining Permits

The issue of permits and authorisation depends to some extent on the ownership of the mineral rights. For minerals that are important to the state or belong to the state permits to explore and extract minerals are required in all Member States. For minerals which are within the ownership of the landowner, the situation can differ. There are also different types of permits including:

- Mining rights, mining licences (e.g. for exploration, mining)
- Permits for the use of land
- Other permits, for example issued under health and safety or environmental provisions

It should be noted that procedures for granting mining licences have been updated in most countries during the past few years to incorporate more fully consideration of potential environmental impacts. The basic objective appears to be to achieve an appropriate balance between promoting resource exploitation for economic reasons on the one hand, and minimising the environmental impact of extraction on the other.

5.4.1 Permissions for exploration activity

As discussed previously, the Geological Survey or equivalent organisations in the Member States are usually responsible for providing general geological information.

The operator usually is responsible for obtaining detailed local information. In some countries (e.g. Portugal, Sweden, Hungary), exploration activities are controlled by the
mining authority with the consent of the geological authority. The level of control exercised over exploration varies considerably from country to country, and for different minerals within a country.

The key determinant of control is the pattern of ownership of mineral rights (see section 5.1). Generally a distinction is drawn between minerals, which are considered to be of national strategic importance, and therefore the rights are owned by the State and other minerals where the rights are owned by a private interest (usually the landowner).

The concept of free minerals exists in the Mining Laws of Germany, Austria, Norway, Sweden and Finland.

At the same time as designating certain minerals to be of national importance, several countries introduced the principle of freedom to mine. For example, legislation in Norway entitles anyone to explore for deposits of claimable minerals. The purpose of granting such rights in legislation was to actively encourage the search for exploitable reserves in the interests of national economic growth.

**Hungary**

The mining act acknowledges three types of exploration. The first type is a preliminary surface survey (§4), which does not require a licence. The company has to have an agreement with the landowner of the area and to report the locality, duration, methodology, etc. to the mining and geological authorities 30 days in advance. If the mining authority does not reply in 15 days, the works can start. This type of survey does not provide any exclusive rights for the operator concerning mineral exploitation.

The second type of exploration is defined by §5-7 and §22-23. In areas, which are opened for the mining of certain minerals, the mining authority grants exploration licences with the involvement of other co-authorities (Geological Survey, Environmental Inspectorate, National Park Directorate, Directorates of Water Management, local municipality) in the licensing process. This licence gives an exclusive right to the entrepreneur to explore for the given mineral on the defined area and to initiate the establishment of a mining plot within a certain timeframe. In case of two or more applications for the same area and type of mineral, the order of submitting the documentation is decisive if the other requirements are fulfilled equally.

The third type is the concession (or leasing) as prescribed in §8-19. In areas which are closed, the only way to access minerals is with a concession contract. The Minister of Economy may designate concession areas for which he/she announces an open tender. After evaluation of the bids by a ministerial panel (Ministries of the Interior, Health, Agriculture and Country Development, Economy, Defence, Environment, Transportation, Telecommunications and Water, Finance, and Cultural Heritage, Hungarian Geological Survey, Hungarian Mining Office), the winner and the Minister conclude a concession contract in which they agree a work programme and the guarantees of good performance. This contract gives exclusive right to mineral exploitation for a longer term than a simple exploration licence but does not replace other
licences which are prescribed e.g. establishing the mining plot, submitting technical operation plans, etc.

Latvia

The law “On the Subsoil” defines the use of subsoil as “geological investigations, production of mineral resources and the use of the properties of the subsoil”. Therefore, the exploration of minerals may be initiated only after the permit has been issued. The procedures to obtain permits are different for hydrocarbons, groundwater and deposits of minerals of state importance and for other minerals. The competition is refereed by the Competition Commission. The Cabinet of the Ministers determines the composition of the Competition Commission. It includes representatives from the Ministry of Economics, the Ministry of Environmental Protection and Regional Development, the Ministry of Finance, the Ministry of Justice and other experts.

According to the Regulations of the Cabinet of Ministers “The Provisions of the Use of Minerals, Deposits and Subsoil Areas of State Importance (2000, No. 307)” permits for exploration for groundwater and deposits of minerals of state importance are issued by SGSL based on the competitions organised by the Ministry of Environmental Protection and Regional Development.

Permits for exploration of other minerals are issued by SGSL based on applications. The procedures for obtaining such permits are described by Regulations of the Cabinet of Ministers No. 239 (1997). According to Article 11 of the law “On the Subsoil” the landowners (physical entities) may use the subsoil within the limits of the land belonging to them without a permit in two cases:

- “the production of common mineral resources\(^{89}\) (…), excluding cases when such activities are commercial
- to drill and use cased, driven and drilled water wells to a maximum depth of 20 meters and different structures (cellars, reservoirs, etc) to a depth down of 5 meters for personal needs as well as water drains for land reclamation purposes to transport surface water”.

Slovenia

An applicant for a preliminary exploration permit\(^{90}\) shall attach to his application:

- A Preliminary exploration programme,

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\(^{89}\) Appendix to the law “On the Subsoil” states that the following minerals are considered “common”: clay, sand, gravel, loose freshwater limestone and peat deposits with an area up to 5 hectares within the limits of a property belonging to a single owner.

\(^{90}\) Preliminary exploration includes: the geological field survey, geological remote sensing and scanning, small excavations, shallow drilling to a depth of 30 m, geophysical research, geological mapping, soil analysis and other activities aimed at acquiring data on the properties of earth structures.
• A layout plan with marked boundaries of the area to be prospected,

• The approval of the communities in the area where Preliminary exploration will take place.

An application for an exploration permit\(^{91}\) filed by the holder of a mining right shall be accompanied by:

• Evidence that they have been granted a mining right for exploration,

• A revised mining project for the exploration,

• A permit for land development activities in the course of exploration;

• A layout plan with marked boundaries of the exploration area on a scale that makes it possible to determine in nature the boundaries of the exploration area, including the description of the exploration area location, and a reference to the community (communities) in which this area is located,

• Geological and geomechanical documentation in accordance with article 81 of the Mining Act.

The holder of a mining right for the exploration of mineral resources shall at least once a year submit to the Ministry responsible for mining a report on the results of mineral resources exploration unless otherwise provided in the concession contract. The holder of a mining right for exploration shall within six months of the conclusion of mineral resources exploration prepare a study on the reserves or sources of mineral resources in the exploration area and submit this study to the Ministry responsible for mining. The holder of the mining right for the exploration and/or exploitation of mineral resources shall classify and categorise the reserves and sources of mineral resources, keep records and maintain data on mineral resources reserves and sources. Once a year a report must be submitted to the responsible mining ministry on the current state of classified and categorised reserves. The Minister shall prescribe the manner of keeping records, preserving data, classifying and categorising reserves and sources, the contents of the study on the reserves and sources of the mineral resource, the manner of reporting, and the balance of these reserves.

**Ireland**

In Ireland the prospecting licence applications can be made on-line. Applicants for prospecting licences are required to provide:

• Evidence of technical capability and financial viability

\(^{91}\) Exploration includes works for direct or indirect searching for mineral resources, including all necessary activities associated with such searching as well as the development and examination of natural deposit of mineral resources, disused mine wastes dumps and smelting waste in order to establish and appraise the economic exploitability of mineral resources.
Reasons why particular minerals are being sought, and an appropriate exploration programme for all such minerals

Commitment to a minimum expenditure requirement

Evidence of suitable insurance against third party claims or environmental damage, with the Minister indemnified

Table 16 shows that all countries exercise some form of control over exploration activities.

5.4.2 Permission for mineral extraction

Authorising mineral extraction by a public authority is a central element of Minerals Planning Policy in all Member States, the broad aim being to regulate the use of land in the public interest.

The generic term “authorisation” is broadly equivalent to “planning permission” (e.g. concerning England and Wales).

A distinction needs to be drawn between minerals that are considered to be of national strategic importance and therefore the rights are owned by the State, and other minerals where the rights are owned by a private interest (usually the landowner).

This has an influence on the authorising process.

There is generally a requirement for more than one permit (mining, health and safety, environmental aspects etc.).

5.4.2.1 Responsibility for approval

Table 16 gives an overview of responsibility and an indication of the principal elements of the authorisation process (see below) in each country.

The table identifies the authority responsible for the initial decision on an application, rather than who adjudicates if an appeal is lodged.

The differences in procedures adopted in the various countries relate primarily to the government structure (centralised control/ not centralised), the organisation responsible for overseeing the authorisation procedures and the nature of the principal legislation governing mineral extraction. The following general observations may be made in the light of the detailed descriptions in the country reports:

- Depending on the administrative systems in place, the responsibility for authorisation of mineral extraction rests at national, regional or county level.

- At the national level, responsibility rests with either the Department of Industry (Industry/Energy in Portugal)), the Department of the Environment, or a combination of the two, and usually reflects whether or not a mineral is defined as a state owned mineral or not.
• At the regional level: e.g. Belgium, Italy, Spain

• At the county/provincial level: e.g. England

• At the local level there are the authorities (municipal) who are responsible for authorising mineral extraction, usually operating under the auspices of national government. National government departments, notably the Department of Industry but also others such as the Department of Agriculture, usually make an input to the process either via the national office or the relevant regional/county office.

5.4.2.2 Control over authorisation - Centralised control - decentralised control

Countries with a Mining Act tend to operate under a centralised system, although there can be differences between State owned and privately owned minerals.

5.4.2.2.1 Examples of Centralised Control

- Austria, Belgium, Luxembourg, Portugal, the Netherlands, Northern Ireland

  Central control over authorisation for example exists in Austria (only for free and certain other minerals), Belgium (marine also), Luxembourg, Portugal (all State owned minerals), the Netherlands (marine only) and Northern Ireland where the Department of the Environment for Northern Ireland is responsible for issuing permissions.

- Greece

  In Greece, Legislative Decree 210/1973 “The Mining Code” is administered by the Ministry of Development. The procedure is highly centralised.

- Latvia

  Central authorisation (at the national level) is required for the production of all minerals with the exception of common minerals. State Geological Survey of Latvia is the institution responsible for issuing the permits.

- Ireland

  For scheduled minerals, the Department of Transport, Energy and Communications and the Department of the Environment share the responsibility for ensuring that mineral resources are explored for and developed in an environmentally acceptable manner. This is achieved by a dual authorisation procedure, whereby an applicant must obtain a mining lease from the Department of Transport, Energy and Communications and planning permission from the relevant county council. To obtain a mining lease, the applicant must submit a detailed operations plan which has to address a range of issues (method of working, transport, landscape, restoration etc.). Similar
information must be submitted to the county council to obtain the planning permission.

5.4.2.2 Examples of decentralised control

In countries with decentralised control the regional tier of government has responsibility for authorising mineral extraction. As indicated in Table 17, this includes Belgium, Italy, Netherlands, Spain and Portugal (only for large and medium scale quarrying of non State owned minerals and rocks).

Hungary

In Hungary all minerals commodities are State-owned and no distinction is made between the different minerals concerning extraction permits. The competent authority is the regional mining authority which issues the grant after having obtained the consent from other authorities, such as the geological, environmental, water, soil protection authorities, forest management, local municipalities, etc. The decision can be challenged by the client. In such cases the second, central level of the mining authorities and the co-authorities decide.

Local tier

Portugal

Small scale quarry operations are licenced by the Municipalities, provided that the regional departments of the Ministry of Economics and the Ministry of Environment have given a favourable recommendation on the quarry plan and restoration plan, respectively, submitted by the applicant.

5.4.2.3 Authorisation procedure for mineral extraction

5.4.2.3.1 The Authorisation Process

A key element of the authorisation process in most Member States is that an environmental assessment is required in most or all cases. In some Member States the system is simplified by using standard application forms.

5.4.2.3.1.1 Application requirements

There are a number of general requirements which may have to be met before an application for mining permission can be processed. These are summarised in Table 17. The Authorisation Process in some Member States is summarised below:

5.4.2.3.1.2 Authorisation Process: Some examples

France

Quarries:
Authorisation for mineral extraction is given by the departmental Prefect (‘Préfet’), who is the central Government representative at local (departmental) level. The Regions do not have a significant role in the authorising process. However, the regional Directorates for industry, research and environment (DRIRE, ‘Direction Régionale de l’Industrie, de la Recherche et de l’Environnement’) play an important part in the authorisation process. The Directorates are the regional services of the Ministry of Industry, but they also carry out assignments for other Ministries, e.g. Environment, Research and Transport. In addition to guiding and supporting development projects for small and medium sized industries, they ensure that industrial plants apply safety and environmental protection measures, and they supervise mines, quarries, nuclear power stations and large dams.

The DRIRE examines the results of a public hearing and the advice of the Municipality and of other organisations involved (e.g. water, military, etc.). The public hearing has to be announced in the town hall and in two local newspapers. The basic length of a hearing is 1 month, but can be extended by 15 days. The DRIRE reports to the CDC, the departmental commission for quarries (‘Commission Départementale de Carrière’), which advises the departmental Prefect (‘Préfet’). The report by the DRIRE is also forwarded to the public hearing commission, the mayor and the applicant. It is the Prefect who takes the final decision and publishes this decision. In most cases, the Prefect follows the advice by the CDC.

The following information has to be submitted, when applying for an extraction permit: maps and plans, an environmental impact study, a risk assessment, a plan for rehabilitation, and technical and financial guarantees. Applicants for an extraction permit do not have to own or be renting the land before making an application. However, they must have the authorisation of the owner to apply for an extraction permit.

Mineral developers have to provide a public notice of their intentions, by both advertising the plans in a newspaper and displaying a notice on site or near the site.

The procedure for a quarry permit takes normally between 6 and 12 months. Reasons for refusing a permit include impacting significantly on the natural and/or human environment, high risks or uncertainty about these risks, and insufficient technical or financial guarantees. The applicant may appeal, first to the Administrative Court and second to the State Council (‘Conseil d’Etat’), against the decision to refuse permission. Third parties have also the right of appeal during the six month period, following authorisation. Third parties may be individuals or corporate bodies.

A one-off or an annual tax is payable when authorisation for a quarry is granted, renewed or extended, as part of the legislation on installations classified for environmental protection purposes (ICPE, ‘Installations Classées pour la Protection de l’Environnement’).

Mines
For the mining of mineral resources (e.g. coal, lignite, metallic ores, etc.), it is still the national government, which issues the extraction permit. As with quarries, it is the DRIRE, the regional Directorates for industry, research and environment, that evaluate an application, but they report to the general council for mining (‘Conseil Général des Mines’). Finally, it is the Ministry of Industry who decides on the permit. The procedure for issuing a mining permit can take several years. For mined materials of national importance, there is a procedure whereby the operator can apply for the temporary occupation of the land, in order to use the land required for mining, without obtaining the ownership of it.

Germany

Minerals covered by the Mining Act:

Approval procedures under the Federal Mining Act (“Bundesberggesetz”): The overall operations plan represents the basis for subsequent operation plans and is usually approved for a period of 10 to 20 years. However, as it does not permit the installation and operation of a plant, the operator is required to submit additional operations plans. The approval of the overall operations plan by the mining authority merely implies that the project meets the requirements necessary for approval. The main operations plan is drawn up for the installation and operation of a plant. The contents of the overall operation plans may vary, depending on, for example:

- Extent and type of plant
- Methods of exploration and extraction
- The phase of operation for which the main operations plan was drawn up

The main operations plan is approved for a fixed term of two years. The authority is entitled to extend or shorten this period of time according to the respective circumstances. In order to carry on with the operation of a plant, the main operations plan must be either drawn up again or extended. A main operations plan for the operation of a plant must comprise the following:

- Details on the installations and facilities of the plant, development of the plant,
- Methods of exploration and extraction used, and
- Working appliances used.

Minerals not covered by the Mining Act:

The minerals (i.e. construction minerals) are the property of the landowner and the operator is allowed to explore for and extract them without requiring a mining licence. Nevertheless, the operator must be granted the right to use the
land for the purpose of exploration and extraction of the minerals. There exists no uniform body of law on construction mineral extraction in Germany.

*Environmental permission for all minerals:*


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<tr>
<td>Dry extraction without blasts</td>
<td>Wet excavation, uncovering ground water</td>
<td>Free for mining minerals</td>
<td>Minerals owned by landowner and covered by mining law</td>
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Figure 6: Overview of approval procedures for excavation projects in Germany

*Greece*

The authorisation procedure is highly centralised. To apply for a permit for extraction, the applicant has to have gained the rights for extraction from the State, thereby establishing a concession from the State to extract. However, to implement the concession an operator requires a (further) permit which can only be granted once a technical report has been submitted to the Ministry of Industry detailing the type, quality and quantity of minerals to be extracted, and specifications for working including timing and phasing.

In addition to the technical report, the operator must also submit an environmental assessment (EA) to the Ministry of the Environment. If the site is in an area designated as a Protected Forest (as most are), a detailed EA also needs to be submitted to the Forest Service (part of the Ministry of Agriculture).
Hungary

Irrespective of whether the right of exploration was granted by a licensing process or through a concession, the first obligatory step for exploitation is the establishment of a mining plot, as defined by §26 of the mining act. The documentation to support the application is the final report of the geological exploration, which should prove the existence of economic mineral reserves and that the planned mining activity is viable. The licence is issued by the mining authority, with the involvement of professional co-authorities (Geological Survey, Environmental Inspectorate, National Park Directorate, Directorates of Water Management, local municipality), the representative of the local government and the owners of the surface land.

In addition, in order to start the mining activity, a technical operation plan (§27) and construction licences (§31) must be approved by the mining authority subject to the consent of other authorities. The mining act gives provisions for the duration of technical operation plans (TOP). In the case of underground mines an accepted TOP is valid for two years, and for five years in the case of open pits. However, TOPs must be revised annually and be submitted to the mining authority in case of modification (§27).

For the establishment of new mining facilities within the same site, construction, environmental (and other) licences are needed.

According to §30, a break in operation can last for three years and has to be granted following approval of a technical operation plan. After three years the authorities can initiate final closure and remediation of the mine. The mining licence is transferable to another company. In the case of a concession contract, the consent of the Minister of Economy is required. In the case of a licence the consent of the mining authority is sufficient (§18, 26 of the mining act). The documentation required for the application for the transfer is as follows:

- the legal declaration of undertaking of all obligations (incl. remediation, decontamination, royalty, etc.),
- the account of the exploitable mineral reserves,
- the company registration documents,
- the proof of financial liability and other human and technical resources,
- agreement on the transfer of ownership of related facilities.

Ireland

A planning permission is obtained from the Local Planning Authority. One of the most important requirements is an Environmental Impact Statement which has to be prepared by the developer, containing an analysis of the likely effects

92 See country report.
of the project on people, flora, fauna, soil, water, landscape etc. The Planning Authority has two months to decide whether to:

1) Grant permission with or without conditions.

2) Refuse permission with reasons.

3) Ask for more information.

After reply by the developer, the Planning Authority has another two months to make its decision. Common planning conditions are:

- Replacement of water supplies
- Upgrading roads
- Landscaping
- Control and monitoring of subsidence
- Provisions for closing the operation once the deposit has been mined out

**Latvia**

The authorisation process for mining activities is regulated by the law “On the Subsoil” and the law “On Environmental Impact Assessment”. Central authorisation (at the national level) is required for the production of all minerals with the exception of common minerals. The State Geological Survey of Latvia is the institution responsible for issuing permits for the production of all minerals, with the exception of hydrocarbons.

The authorisation of the production of common minerals is carried out by local authorities, which issue permits. Furthermore, in order to start the production of minerals it may be necessary to carry out an environmental impact assessment. The mining activities must be authorised in terms of environmental protection by the national or regional environmental institutions boards. Such an authorisation is carried out by the Environmental Impact Assessment State Bureau.

**The Netherlands**

Extraction companies must apply for an extraction permit with the province or a regional directorate of the Directorate General for Public Works and Water Management (State Waters). An extraction permit is provided when the request is in accordance with the provincial Regional Spatial Plan (Spatial Planning Act) and/or Regional Mineral Extraction Plan (provinces and/or state waters). A Mineral Extraction Plan can be issued as part of the Regional Spatial Plan or Regional Policy Document. A Mineral Extraction Plan is not compulsory. The Regional Land Use Plans and the Regional Mineral Extraction Plans have to be consistent with the National Spatial Plan (2004).
The provincial executive plays a central role in the decision process. During the application process three main stages can be distinguished: Preparation stage (no time limit); permission process (6 months); appeal process.

In legal terms, the application needs to be admissible. It needs to comply with the following conditions, stated in the Excavation Law, the Provincial Excavations Ordinances and the Administrative Law Act:

- preliminary talks;
- filling in the application form (obtainable at the regional body);
- Land registry extract for the parcel of land concerned (maximum 6 months old);
- Official drawings which show the parcel of land and those adjacent to it. With scale and arrow indicating the north.;
- Topographic map, scale 1:25,000. (with shaded areas);
- Blueprints with cross sections. These drawings consist of civil engineering and design drawings. The civil engineering drawings need to contain slopes, benchmarks of the existing ground level, groundwater levels, transverse sections etc.

The Excavation Law is added to Article 13 of the Environmental Protection Act. Through this the coordination and regulation of chapter 14 of the Environmental Protection Act is applicable in case more permissions have to be granted for the same excavation. By request of the applicant, the authorization body needs to be conducive to coordinated consideration of the application. When the Administrative Law Act is applied to the preparation of decisions, a decision is usually made within six months. Two variants for applying for an environmental permit can be distinguished: first the “standard procedure” and the “extended procedure”. This “extended procedure” is adopted if the application concerns a technically/juridically complex or controversial situation. Large excavations will normally fall into this category.

Permit requirements can be:

- Administrative and organizational;
- Goal;
- Financial security;
- Energy, raw material and traffic;
- Aftercare;
- Requirements under resolutive and suspensive;
• Special requirements concerning waste.

Appeals against environmental permits can be made by those who objected to the draft decision and by statutory advisers.

Excavations require an Environmental Impact Analysis if the site is larger than 100 hectares.

**Norway**

The principal legislative control of extraction activities is the Mining Act. The Act specifies how the Directorate of Mining shall supervise all operations working claimable minerals, and the operators are obliged to report on their activities and plans to the Directorate at regular intervals. The operating permit granted by the Directorate describes the reporting routines, in addition to other topics and issues related to the environment and local conditions for which the operator is responsible and must comply with. Mining or extraction plans, including closure plans, must be approved by the Directorate before any extraction actually begins.

The Directorate has similar authority with regard to new operations working non claimable minerals. This practice is not stipulated in the Mining Act or vested in other legislation, but has developed because the Ministry of Agriculture and the Directorate have come to an agreement making it possible for the Mining Directorate to supervise all mineral operations in the same way. It is an advantage both for society and the industry that mineral operations are planned, worked and closed according to common and acceptable standards. This is done by issuing a standard set of conditions for non claimable mineral operations that are imposed in connection with the concession process that is formally the responsibility of the local authorities and the Ministry of Agriculture.

The Directorate has also had co-operation with some of the local municipalities and assisted them with incorporating similar standards and specifications of supervision in their land use plans, but this is only done on a voluntary basis on part of the municipalities. After land designation, and provided that certain stipulations in the Industrial Concession Act have been satisfied, the patent holder has the legal right to start exploitation with mining and processing. However, other legislation such as environmental protection regulations, emission permits, building permits and others must of course also be satisfied before physical development can start.

All commercial mineral operations must also be included in the land use plan developed by the local municipality. The municipal master plan designates different areas for different uses, and allocates areas for mineral exploitation. If a viable deposit is found outside the allocated area, and someone wants to develop it, the master plan has to be changed accordingly.

This is of course possible but may easily lead to conflicts of interest with other stakeholders, and it may take considerable time. The need for local development
plans and building plans are specified in the municipal master plan, and need not
cover the whole municipality. The municipal master plan is obligatory and must
be assessed during every electoral period and renewed when necessary. If the
municipal master plan also specifies local development planning and building
plans, these are also mandatory and must be assessed and renewed along with
the master plan.

Depending on the size and type of a project development projects require an
Environmental Impact Assessment document. The EIA document is subject to
public hearings and assessments by the appropriate national, regional and local
authorities before it is accepted or rejected. If the EIA is approved, project
planning can continue, but approval does not mean that the project can start
physical work by erecting buildings, making roads etc.

**Portugal**

The Minister of Economics grants the mineral rights for State owned geological
resources by issuing permits, one for prospecting and exploration, and another
for exploitation (mining). In both cases the permit is granted on the basis of an
application submitted by any natural person or body corporate, or following a
public tender. Each permit for prospecting and exploration or for exploitation
(mining) covers a particular geological resource in a well-delimited area, as
specified in the permit. The applicant shall provide proof of his professional
skills or experience to conduct the operations he applied for, and about his
capabilities to finance the project.

The Economy Regional Direction (Direcção Regionais da Economia (DRE)) or
the Municipal Council, depending on the scale of operations or its location,
issues a licence for quarrying specific construction minerals in a delimited area.
However, only the DRE may issue a licence for exploration of construction
minerals. In both cases, the licence is issued following an application submitted
by the owner of the land where the mineral deposit occurs, or by any other
natural person or body corporate which entered into a written contract with the
landowner.

Some mining and quarry projects are subjected to EIA, in accordance with the
thresholds and procedures stated in the relevant law. Where the thresholds
apply, the applicant for a mineral right shall submit an environmental impact
study (EIS), together with the application, and no site approval has to be shown.
In these cases, the site approval procedure is dealt as part of the EIA procedure.
There are general guidelines for the preparation with an EIS. The Ministry of
Environment, at a central or regional level, produces the EIA and then gives a
final notice to the relevant Mineral Administration to proceed (or not proceed)
with the granting procedure for the mineral rights.

Mineral licensing will generally follow an application submitted by the applicant
for the granting of one of four different mineral licences in accordance with the
type of activity to be undertaken and the type of resource, depending on
whether or not it is state owned:
• Administrative prospecting and exploration contract;

• Administrative mining contract; in both cases covering certain resources within that which are state owned (ore deposits, and hydro-mineral or geothermal resources);

• Quarry operating licence in respect of construction minerals; and

• Spring-water operating licence.

Applications for prospecting and exploration contracts and mining contracts are addressed to and decided by the Minister of Economics (ME), submitted to and processed by the General Directorate of Geology and Energy (Direcção Geral de Geologia e Energia (DGGE)) which will also monitor the operations covered by the contracts.

The applicant for an exploration or exploitation quarry licence for construction minerals shall submit a site approval together with the application for any of those licences. The site approval is granted by the relevant land use planning authority:

1. the Municipal Council for areas which have been set aside for the extractive industry and are included in the PDM (municipal development plan),

2. the Institute for Nature Conservation (ICN) for classified environmentally sensitive areas;

3. the regional land use planning and environment authority for any other location. The procedure for site approval is stated in the Quarry Law.

The procedure for site approval for exploration or for mining state owned minerals only exists within classified environmentally sensitive areas, but for other locations a consultation process with the land use planning and environment authorities is required, either by the applicant or the Mineral Administration, before or during the granting procedure for mining rights.

Slovakia

The principal legislative control of extraction activities in Slovakia is the Mining Act and the Act about Mining Activity, Explosives and the State Mining Authorities. Minerals extraction from a reserved mineral deposits, can be performed only on the basis of a permit issued by the appropriate Local Mining Office. According to the Mining Act and the relevant Government Decrees they Local Mining Offices are obliged to invite a municipality representative to participate in the licensing procedure. One of the conditions for issuing a mining permit is an environmental impact assessment which has to be assessed by the Regional Office of the Environment (Krajský úrad životného prostredia). This opinion is necessary in accordance with the Nature and Country Protection Act.
No. 543/2002 (Zákon o ochrane prírody a krajiny) and no mineral production can be allowed by the Local Mining Office without this opinion.

In the case of non-reserved mineral deposits the details of the exploitation are regulated by Government Decree No. 520/1991 governing non-reserved mineral deposit utilisation (Nariadenie vlády o využívaní ložisk nevyhradených nerastov). The Ministry of the Economics (Ministerstvo hospodárstva) and the Ministry of the Building and Regional Development (Ministerstvo výstavby a regionálneho rozvoja), co-ordinate the processing of the production development concept and the state mineral policy.

All 5 Local Mining Offices supervise mineral producing companies exploiting deposits of reserved and non-reserved minerals. This is an advantage for the extraction companies, as they are all controlled to the same standard.

MINERAL-BASED RAW MATERIAL DEPOSITS

Figure 7: Flow chart for mineral-based raw material deposits in Slovakia

Šlovenia

Spatial plans of state and local communities are at the base of the concession procedure. In accordance with public interest, the government adopts a decree
in accordance with which mining rights are awarded. There is then a public tender for mining right applications. Once the holders of mining rights have been chosen they are obliged to sign a concession contract. For exploitation the concession contract has a maximum duration of 50 years.

As mining rights are awarded on the basis of spatial plans they are already harmonised in terms of land use priorities. Environmental and other authorities are involved, when a mining right holder is seeking a location permit. Environmental impact assessment is required for most mining sites.

The operator may perform mining operations exclusively on the basis of an operating permit in accordance with Article 52 of the Mining Act (Temporary operating permit). In performing of mining operations, the operator shall observe the regulations concerning technical standards, regulations on safety at work and environmental protection, and other regulations, unless otherwise provided for by the present Act and in the relevant regulations issued on the basis of the Act, in order to ensure in time the security of people and animals, of traffic and adjacent structures as well as the safety of the facility and works, installations, equipment and materials. To perform mining operations pursuant of Article 4 of the Mining Act, which are directly related to the exploration and exploitation of mineral resources, the Ministry responsible for mining issues the following permits:

- Exploration permits,
- Exploitation permits,
- Permits to cease exploitation,
- Operating permits,
- Permits to use facilities and installations.

The permits mentioned above as well as the preliminary exploration permit are issued by the local authority in the area in which the mining operations will take place. The mine inspector is informed of every permit issued in accordance with this Article, and the local authority is notified about the permits.

Where a mining project referred to in Articles 74, 75 and 76 of the Mining Act includes the performing of operations, a permit (referred to in points 1, 2, 3, and 4 of Article 48 of the Mining Act) may be issued as a standardised permit in a summary procedure. The holder of a mining right may propose a summary procedure and the issuing of a standardised permit. The standardised permits are issued by the Ministry responsible for mining. The rights and obligations arising from the permits described in points 1 and 2 of Article 48 of the Mining Act shall be terminated by an order issued by the same authority which issued the relevant permits.
Figure 8: Acquisition of Exploration Permit in Slovenia

United Kingdom

England and Wales

Before the Mineral Planning Authority (MPA) reaches a decision on a planning application it notifies or consults interested parties and takes into account their views. The MPA does not determine an application before the end of the period of 21 days beginning with the date when a notice was displayed or served. This is done to allow members of the public and persons with an interest in the land to make representations to the MPA concerning the proposed development. Planning Authorities are required to advertise planning applications.

If the development is subject to Environmental Assessment, or does not accord with the development plan, or would affect a public right of way to which Part III of the Wildlife and Countryside Act 1981 applies, the application is publicised:

- by site display in at least one place on or near the land to which the application relates for not less than 21 days, and
- By advertisement in a local newspaper.

In any other cases,

- by site display, or
- By serving notice on any adjoining owner or occupier, and
- By advertisement in a local newspaper

MPG8 states that applications for registration of the permission must be made on an official form obtainable from the MPA and must be accompanied by the appropriate certificates that the necessary persons have been properly notified of the application, or that the application has been properly advertised.

Landbank
MPG6 defines a landbank is defined as a stock of planning permissions for the winning and working of aggregates. It recommends that for sand and gravel, Mineral Planning Authorities should aim to maintain a landbank sufficient for at least 7 years’ extraction and for crushed rock of 10 years or more. In Scotland, a period of 10 years is recommended. In Wales, MTAN 1: Aggregates states that a minimum 7 year landbank should be maintained for sand and gravel and minimum 10 year landbank for crushed rock throughout the plan period of development plans. Where landbanks already provide for more than 20 years of aggregates extraction, mineral planning authorities should consider whether any further extraction would be justified.

5.4.2.3.1.3 Standardised application forms

The use of standardised application forms is common practice in some Member States. In some Member States, the same form is used regardless of where the site is located, whereas in others the forms vary from local authority to local authority.

Denmark

Applications for commercial extraction have to be submitted to the Ministry of the Environment on a standard application form. The main components of the form are:

- applicant’s details
- location of the proposed working and ownership details (there is no requirement to have an interest in the land but applicants generally do)
- description of the raw material (e.g. capacity, production estimates, depth of mineral resource, groundwater levels and whether extraction will occur below this)
- quality and proposed end-use of the mineral
- machinery, plant, building and their location
- fuel storage details
- dust implications
- noise implications
- use of groundwater for washing materials, and disposal of waste water
- deposition of waste materials
- access routes (off-site)
- proposed hours of working
• restoration end-use
• any other points

As well as supplying the above information, the applicant must also submit:

• a Land Registry Certificate
• a general map on a scale of 1:25,000 showing the extraction area to which the application relates and the boundary of the property
• a map of the extraction area to which the application relates on a scale of 1:2000 or 1:4000.

Netherlands

Each province uses a different form. The form for Limburg Province requests the following:

“An accurate description of the current condition of the land for which a licence is being sought (ten copies) and of the condition to which the land is to be restored after excavation (ten copies). A sketch map must show points in accordance with the national triangulation system, at appropriate distances from another so as to give an accurate picture of the relief. The sketch map must also show the transverse and longitudinal sections necessary to give an accurate assessment of the condition of the land.”

United Kingdom

The use of standardised application forms is common practice.

Need for an interest in the land to make the application valid

Generally, it is not necessary for an applicant to have a legal interest in the land to make an application valid. In France, Belgium and the Netherlands however, the applicant must have permission from the owner to submit an application before they can do so. Without exception, the owner must be notified of an application either by the applicant or the local authority.

Portugal

In Portugal, for the acquisition of a mineral right over a Non-State owned mineral the applicant must have a legal interest in the land (be the owner of such land or have entered into a written contract with the landowner). In this instance, the landowner is not notified of an application. There is also no need to publicise the proposal, except in the cases where the development falls within the framework of the EIA Directive.

For State owned minerals, the application is always subject to a public inquiry, both at a national and local level, before any mining right might be granted. The
applicant does not need to have a legal interest in land, but once the mining right is granted he has to acquire it from the landowner. If such an acquisition fails, the holder of the mining right has to apply for the expropriation of such land, under the terms and procedures set out in the Expropriation Code.

5.4.2.3.1.5 Need for a local authority to publicise the proposal

In many Member States the application procedures provide for the publication of project applications. For example, in Italy applications affecting 1st category minerals have to be published in the registers of the municipalities concerned, together with topographical maps, geographical reports and work programmes.

5.4.2.3.1.6 Administration fees payable

It proved difficult to obtain information on whether applications have to be accompanied by a fee to cover administrative or other costs. The examples which have been identified reveal three basic ways for determining the amount payable. One is a pro-rata fee calculated on the basis of the volume of mineral to be worked. The second is similar, albeit it is calculated according to area rather than volume. The third is a once off payment which is only payable if authorisation is obtained.

- **Hungary**

  In Hungary, fixed administration fees are set in a legislative (e.g. ministerial decree) or quasi-legislative document (order of the mining authority) regardless of the actual size of the claimed land or the volume of the mineral reserve.

- **Slovenia**

  **Fees**

  All companies have to pay a royalty for all exploited mineral resources; they also have to pay a fee for the land used for mining operations. Furthermore, they have to establish a fund for the remediation of mine sites or they have to obtain a bank guarantee for the sum of any remediation works. Payment of royalties and other fees is reduced during the last two years of mining operations.

  **Compensation**

  To implement the mining right, the holder is liable to pay compensation to the state for the concession in accordance with the provisions of the Mining Act and related regulations. The basis for the calculation of such compensation is the average price of a mineral resource unit, and depends on the type, extent and occurrence of the mineral resource.

  The payment to implement a mining right for exploration is effected through a lump sum payable when signing the contract and may amount to a maximum of 100,000 tolars per hectare (about €400 / hectare) of the exploration area. A similar fee is required to implement the exploitation right although it is based on
a maximum of 20% of the average price of one unit of mineral resource produced in the year concerned. The payment goes to the State and to the community in equal portions, i.e. 50:50. The local community can only spend the money on defined purposes. The State share forms part of a Mining Fund, which can finance or offer loans for the exploration of mineral resources, dispatching of consequences of exploration and exploitation of mineral resources, new mining technologies etc.

**Poland**

The following fees are required:

- *Royalty* (only for mining enterprises extracting State owned minerals).

- The extraction fee is determined as a product of the quantity of the mineral extracted multiplied by a specific rate for given mineral. The Council of Ministers fixes the rates for different minerals on an annual basis. The range of the extraction fee (maximum and minimum) is determined in the Geological and Mining Law. 40% of the extraction fee goes to the National Fund of Environmental Protection and Water Management (NFEPWM) account, and 60% to the commune budget, where extraction takes place. An extraction fee is required for all mining activities.

**Greece**

*Exploration*

The administrative fees to apply for an exploration permit are the same for State owned and Landowner minerals. The fee is 190 € for the application plus 2641 € for areas smaller than 5km² and 190 € plus 3815 € for areas greater than 5km². For industrial minerals and marbles the administrative fee for the application is 1467 €. No other payments are made to the Government or to the Landowner.

*Extraction*

There are no administrative fees for an application for an extraction permit but there are other payments made to the Government. For example, if the mineral rights are owned by the State, royalties ranging from 1% to 10% of the mineral value have to be paid to the State (in this case the State leases the deposit). It is not valid when the State issues an exploration permit concession and a deposit is found. In the case where the mineral rights are owned by the landowner payments are made to the landowner which vary according to private contracts.

**5.4.2.3.1.7 Statutory period for processing an application**

The statutory period for processing an application varies from country to country, ranging from 30 days in Norway to six months in the Netherlands. It also depends on whether or not an Environmental Impact Assessment is required. In practice these periods are frequently exceeded.
5.4.2.3.2 Rights of Appeal

Regarding the permission for mineral extraction, the principal point of difference between Member States relates to rights of appeal.

The rights of appeal are an essential part of the authorisation process and have to be seen as an additional check in the system. Such a check is felt to be especially important in relation to mineral extraction because of the potentially damaging impact on the environment in general, and on nearby residents in particular.

Appeals are one of the major causes for delays in decision making with associated costs to the minerals developer. There are two types of right to appeal. One belongs to the applicant and applies when an application is refused, the other belongs to third parties who may wish to appeal against a decision to authorise mineral extraction. Both are characteristic of many of the mineral planning systems in the EU.

5.4.2.3.2.1 Operator - right of appeal against refusal of authorisation

Ireland

Appeals can be made to the Planning Appeals Board. The board normally makes its decision within four months.

Latvia

According to the law “On Pollution”, “the operator or other natural and legal persons involved, including non-governmental organisations, may appeal the decision taken by Regional Environmental Board concerning issuing of a permit or certain permit conditions related to the operation of such polluting activity that may endanger human life or have adverse effects on human health, safety, property or the environment, within 30 days after the date of entry into force of this decision. The appeal shall be submitted to the Environmental Impact Assessment State Bureau. The above-mentioned persons may complain to the Bureau also about insufficient public information during the permitting process (…). Any natural or legal person, whose health, safety or propriety may be affected by the Regional Environmental Board’s decision on necessity of investigation or remediation of contaminated or potentially contaminated area, or by the decision on coverage of the investigation or remediation costs, may appeal to the Environmental Impact Assessment State Bureau within a 1 month after the date when he/she has learnt about the decision.”

The Netherlands

Appeals have to be made to the State Council. The appeal procedure officially is about 12 months, in practice it takes about 24 months.

By request of the applicant, the authorized body needs to be conducive to coordinated consideration of the application. When the Administrative Law Act is applied to the preparation of decisions, a decision is usually made within six months. If the authorized body takes the view that the execution of the
excavation can no longer wait, the body has the power to authorize the excavation under article 12 of the Excavation Law, as long as no irrevocable decision has been made. In fact, this authorization is a temporary permit. Under the Administrative Law Act appeal can be made against the authorization. Article 17 of the Excavation Law states that appeals can be made to the Council of State.

ś Portugal

The mineral operator has the right of appeal against refusal of authorisation, against certain safeguarding conditions, or against delay in reaching a decision beyond the statutory period. The same right of appeal applies to any other parties, including local municipalities, having a legitimate interest (as defined in the law), against the granting of a mineral right, especially if such a decision affects the environment.

ś United Kingdom

England and Wales

Appeals must be made on an official form obtained from the Office of the Deputy Prime Minister (ODPM), for cases in England, or the National Assembly for Wales. Appropriate certificates that the necessary persons have been properly notified of the application, or that the application has been properly advertised must accompany the appeal. Once an appeal has been finally determined:

- In the case of a determination where there is no valid permission, the permission will cease to have effect from the date of the final determination.
- In the case of a determination that the permission is valid but for a different area or subject to different conditions from those set out in the application, any working that does not comply with the determination may be liable to enforcement action.

The applicant has three months from the date of the mineral planning authority’s (MPA) determination to appeal to the Secretary of State if the MPA either refuses the application, or proposes to impose planning conditions that the applicant considers to be unreasonable. If the MPA fails to give notice of their decision within three months of receipt, the application will be deemed to be refused on the expiry of the three months and the applicant has three months from the date of the deemed refusal to appeal to the Secretary of State. If no appeal is made within the three month period:

- In the case of a determination, or deemed determination that there is no valid permission; the permission will cease to have affect on the expiry of the three-month period.
• In the case of a determination that the permission is valid but over a different area or subject to different conditions from those set out in the application, any working that does not comply with the MPA’s determination may be liable to enforcement action.

Scotland

Rights of appeal can be made to the Secretary of State against:

♂ The decision (within six months of the receipt of the decision notice).
♂ Delays, if the Planning Authority has failed to make a decision within two months.

5.4.2.3.2.2 Third party rights of appeal

Third party rights of appeal are generally restricted to those parties defined in legislation as having a legitimate interest in the decision.

♀ Denmark

The provisions of the Raw Materials Act of Denmark illustrate how “third parties” may be defined. Section 15 of the Act lists those persons who are entitled to appeal:

- the person to whom the decision is directed,
- a public authority,
- a person who has a significant, individual interest in the decision,
- the local associations and organisations which have a significant interest in the decision, and

The determining authority is responsible for notifying those entitled to appeal either directly or, in the case of individuals and local organisations with a significant interest, by public announcement (usually a notice in a local newspaper).

In Denmark the right to appeal is not exercised very frequently in relation to mineral extraction. The reason for this is that any contentious mineral issues are resolved at the plan making stage, which in Denmark incorporates strategic environmental assessment. This can be attributed to the ability of the plan-making procedure to resolve any potential conflicts, with preferred areas for mineral extraction being identified accordingly. As a result, proposals for extraction are mostly within the preferred areas and are not contested. Proposals outside the preferred areas are rare.
Danish Society for the Conservation of Nature:

The specific reference to a voluntary society in the legislation is unique. The Danish Society for the Conservation of Nature is an extremely influential and well supported campaigning and pressure group. The Society has acquired a legal right of appeal relating to environmental issues. The Society continues to play a key role in the formulation of environmental legislation.

✿ Hungary

In Hungary the law ensures the right of appeal for all interested parties, i.e. the operator, the co-authorities involved, and third parties who are able to prove their vital interest. The appeal authority has to perform and repeat the complete licensing procedure, just as if it was the first-instance, i.e. to involve all co-authorities again.

✿ Latvia

Persons who are entitled to appeal: The local society and legal persons, as well as their associations may influence the licensing process according to the law “On the Environmental Impact Assessment” since “(…) the general public have the right to access information on the Proposed Development and to participate in Impact Assessment procedures”. Citizens have the right to appeal against the decisions and actions which ignore the rights and legal interests of citizens and their organisations.

Environmental State Inspection has the right to appeal against enforcement decisions of the institutions it supervises (regional permitting and enforcement organisations). The Construction Board (local authority) may also block the process of a new mining project.

✿ Netherlands

Anyone can appeal against a decision provided they have lodged an objection with the determining authority before the decision is made.

✿ United Kingdom

England and Wales

In England and Wales there is no provision in planning legislation for third parties to appeal to the Secretary of State against the Authority’s decision. General Policies and Principles (PPG1) make it clear that the planning system does not exist to protect the private interests of one person against the activities of another. It is considered by the Government that third parties already have sufficient opportunity to make their views on development proposals known, without recourse to a legal right of appeal.

Scotland
There is no provision in planning legislation for third parties to appeal to the Secretary of State against the Authority’s decision. Third parties may refer to the Ombudsman if they consider that there may be grounds for a claim of maladministration against the planning authority.

5.4.2.3.3 Public Hearing - Participation process

Public Hearing - Participation process

*Consideration of proposals at a public hearing before a final decision is reached features as an important part of the authorisation process in several Member States.*

*Belgium*

In the Walloon Region of Belgium, a public hearing is held for every minerals application. These hearings are less formal and appear more closely to resemble the examination-in-public system (EIP) for structure plans in England and Wales.

*England and Wales*

In England and Wales, the Town and Country Planning Acts make provision for formal public inquiries into development proposals in certain circumstances (e.g. an applicant may appeal against refusal of a planning permission which may be heard at a public inquiry, or the Secretary of State for the Environment may call-in a planning application for consideration at a public inquiry. The inquiry procedure involves a hearing or inquiry in public before an inspector, being the person appointed by the Secretary of State to hear the appeal.

*Hungary*

Public hearing is a feature of the advanced level of environmental licensing (detailed environmental impact study) and the land use plan approval procedures. At this stage the environmental inspectorate might require a detailed impact study, the public approval of which includes a hearing.

*Latvia*

The public discussion concerning mining activities which may have an environmental impact is regulated by the law “On the Environmental Impact Assessment”. Article 3 of this law determines that: “4) the general public have the right to access information on the Proposed Development and to participate in Impact Assessment Procedures;”

According to this law "(...) 2) the assessment of the impact (...), is carried out based on the information provided by the initiator and that obtained from the state and local authorities’ institutions, and taking into consideration proposals expressed during public discussions; (...) 4) the society has the right to obtain information about the planned activities and participate in the evaluation of impact (...).”. Regulation No. 213 (1999) requires that “in order for the public
to be able to express their views and make written submissions regarding the potential environmental impact of the proposed development, the proponent submits for publication in newspapers a notice of the proposed development. The notice for publication in newspapers shall be submitted at the same time as a written submission to the Bureau requesting that a programme be elaborated.”

The law “On environmental protection” states that “physical and legal persons, as well as their associations, organizations and groups have the right to receive (…) from all levels of public authorities (…) information regarding applications for licences or receipt of permits for activities, which may impact on environment quality, in order to express their point of view and to participate in the taking of decisions associated with environmental protection”.

**France**

In some circumstances, a public hearing is convened to consider an application. For example, all quarry applications in France are subject to a public inquiry, and the Direction Regionale de l’Industrie, de la Recherche et de l’Environnement’ (DRIRE), will also consult the town mayor and the relevant department’s environment, industry and transport services.

Similar formal procedures exist in Austria, the Netherlands, Northern Ireland, Scotland, and Portugal.

**Finland, Germany and Italy**

Conversely, some systems do not allow for public hearings. This is the case in Finland, Germany and Italy, although some regional authorities in Italy are introducing the concept into their procedures. Germany and Finland do have third party rights of appeal for “neighbours” and “those living in the municipality” respectively.

**5.4.2.3.4 Use of legal Agreements**

**England and Wales**

The use of legal agreements to provide an extra layer of control over extraction and to facilitate planning is an established part of the system in England and Wales. A developer is enabled to enter into a planning agreement with a local planning authority or make a unilateral obligation to:

- Restrict the development or use of land in any specified way
- Require specified operations or activities to be carried out on, under or over land
- Require the land to be used in a specific way
- Require money to be paid to the authority on a specified date or dates periodically

**Belgium**
Similar arrangements apply in Belgium, where the 1988 Decree on Quarries allows for agreements between an operator, the communal authority and the regional authority.

**Ireland**

A local authority is enabled through the 2000 Planning Act to enter into separate legal agreements with the developer. This is in addition to the granting of planning permission. If a mining lease or licence is required under the Minerals Development Acts, an application fee is charged. This varies from €6,300 for small industrial minerals operations to €19,000 plus €0.13 per tonne of planned annual output for metalliferous mines. The terms of mining leases and licences are individually negotiated. The terms are related to ownership issues and commonly include:

- Period of validity, which is normally related to the projected mine life
- Compliance with best practice
- Provisions to avoid and mitigate damage to surface lands and water supplies
- Payment of a rent and royalty varying from about €0.5 to €1 per tonne for industrial minerals, to a percentage of revenue for metal mines.
- Recoupment to the State of any compensation payable to private mineral owners
- Bonding to ensure rehabilitation.

### 5.4.2.3.5 Period for which authorisation is valid

The period for which an authorisation is valid is listed in Table 17.

**England and Wales**

All planning permissions must have a time limit condition, requiring development to cease not later than the expiry of 60 years or such longer or shorter period as the Mineral Planning Authority may specify. Permissions existing on 22 February 1982, which are not already time-limited, become time-expired on 22 February 2042.

**France**

*Quarries*

The permit, called a permit for temporary occupation, is normally limited to 30 years.

*Mining*
Art. 29 of the Mining Code specifies that a permit is valid for a maximum of 50 years. It can be prolonged by successive periods of a maximum of 25 years.

**Greece**

For metallic ores an exploitation concession (Articles 44 – 64 of the Mining Code), is valid for 50 years and is renewable (see also section 3.2.1.3). The concession is granted by the Government. For industrial minerals and aggregates the exploitation permit may be valid for a number of years depending on the time that it was originally issued. For example there are cases where the permit can be renewed for up to 40 years. The permit is granted by the Government.

**Portugal**

In Portugal, the maximum period for which authorisation is valid must be stipulated in the agreed exploitation concession contract, based on the prefeasibility study, and usually does not exceed 50 years (or 90 years for old concessions). The authorisation for quarrying has no maximum period stated in the law.

**5.4.2.3.6 Authorisation procedure for mineral extraction – principle of regulating private development in the public interest (balancing interests)**

Although the details of the authorisation procedures in Member States vary from country to country, the principle of regulating private development in the public interest is universally applied.

**Denmark**

The Raw Materials Act in Denmark sets out the principal considerations to take into account when assessing proposals for mineral extraction. The purpose of the Act is to ensure that exploitation of raw material deposits on land and on the seabed takes place as an element of sustainable development after comprehensive weighing of interests and an overall evaluation of (relevant) considerations (i.e. the nature of the resources alongside all commercial and environmental factors):

1) that extraction and after-treatment are planned in such a way that the after completion of mining the area may be utilized in other ways.

2) a supply of raw materials is issued in the longer term

3) that raw materials are used according to their quality

4) that waste products are used instead of natural raw materials to the greatest possible extent

**Sweden**

Article 5 of the Planning and Building Act in Sweden states that: “When issues are scrutinised in accordance with this act, consideration shall be given to both
public and private interests unless otherwise prescribed”. It is interesting to compare the Swedish example with the summary of how the planning system in England and Wales should operate in MPG1 “General Policies and Principles”.

“Private interests” are the interests of people directly affected by a proposal rather than the interests of the applicant. The planning system in England and Wales should operate according to PPG1 “General Policies and Principles” as follows: “It should operate on the basis that applications for development should be allowed, having regard to the development plan and all material considerations, unless the proposed development would cause demonstrable harm to interests of acknowledged importance”.

Further: MPG1 “General considerations and the Development Plan System” develops this theme by stating that planning control should reconcile mineral working with other claims on land, taking account of such factors as:

- the needs of society for minerals
- preventing unnecessary sterilisation of mineral resources
- the acceptable levels of environment damage or loss of amenity caused by mineral working
- reclamation and suitable after-use

The examples imply the importance of balancing interests when making decisions about development proposals, albeit that one is written in legislation whereas the other is policy guidance.

5.4.2.4 Regulatory conditions controlling mineral extraction

5.4.2.4.1 General

In every Member State the issue of a permit or equivalent is a prerequisite for mineral exploration and/or exploitation work. This permit usually contains a number of general and site specific conditions which have to be met by the permit holder. The specific condition normally covers the technical aspects of mineral extraction, general health and safety requirements, environmental and land use planning matters.

Depending on site specific circumstances the various authorities involved in the authorisation process can impose specific conditions which have to be met by the operators. Such a condition could for example be the need to concentrate mining operations. Other specific conditions could cover the choice of mining method and equipment used to minimise environmental impacts or to facilitate mine rehabilitation and restoration of mining land.

Depending on the individual Member States the conditions imposed on the permits could either be part of one single comprehensive permit (e.g. Denmark (§ 8 Mining
Act), The Netherlands (Excavation Act), or be specific in a number of individual (separate) permits, which together constitute the overall permit. It should be noted that very often it is only the imposition of specific conditions which makes it possible for mineral extraction to proceed. The conditions that can be imposed on the permit holder fall into the following areas:

- correct mining,
- safety and health, and
- environmental performance during and after the period of extraction.

5.4.2.4.1 Correct Mining

Under the term “correct mining” all procedures which impact on health and safety and the environment are summarised. In all Member States legislation and administrative procedures exist which address these issues. In a number of countries these are different for the extraction of metal ores and industrial minerals and for construction minerals.

Denmark

The power to impose conditions is usually defined by the principal legislation governing mineral extraction. In Denmark, this is the Raw Materials Act. Section 3 of the Act states that an authorisation to extract minerals may comprise the following terms:

1. “That the holder of the authorisation shall participate in mapping and after treatment of the area or defray costs in this connection in full or in part;

2. That the raw material shall be used for certain purposes or activities;

3. That the necessary assurance is given concerning after-treatment;

4. That a certain stated minimum or maximum volume (amount) shall be extracted per quarter/half year.”

These general provisions are translated into detailed conditions for individual sites.

5.4.2.4.2 Health and safety

Latvia

Safety requirements in the mining industry are described in the Regulations of the Cabinet of Ministers No. 253 “Work safety requirements during exploration for and production of minerals” (2002). This document prescribes “the labour protection requirements in work of geological search, investigation and surface extraction of minerals, as well as underground extraction of minerals through drilling”. The requirements of these Regulations apply to all undertakings
involved in the search for minerals, investigation of minerals as well as to the extraction and preparation of extracted minerals for sale.

Chapter II prescribes obligations of the employer to ensure safe work of the employees, i.e. “(…) such design, construction, equipment, complementation, utilisation and maintenance of workplaces as the employees shall be able to perform work duties without endangering the safety or health of themselves or other employees (…)” Point 7 of this Chapter states that “the employer shall ensure the development, and preparation of a labour protection plan and updating thereof in conformity with changes in the process of work.” The plan shall also include “an assessment of the work environment risk, labour protection measures in order to ensure the safety and health protection of employees, a certification that the construction, utilisation and maintenance of the workplace and equipment is safe and the procedures for work organisation, management and labour protection”. 93

Poland

The Ministry of Economy has issued a set of regulations governing operations of mining plant, safety and hygiene of works as well as fire protection for the following categories of mines

- Underground mines,
- Borehole mines,
- Surface mines extracting basic minerals
- Surface mines extracting common minerals.

In 2003, each mine was requested to establish a “safety document”. This document contains a number of internal regulations and provisions concerning occupational risks and determines preventive means aimed at decreasing risk. A Regulation issued by the Minister of Internal Affairs and Administration dated 14th June 2001 deals with natural mine hazards and addresses specifically the following mining hazards:

- Methane,
- Water inflows

A Regulation of the Minister of Economy dated 11th June 2002 requires mine managers, supervisory personnel, mining surveyors and geologists as well as certain plant operators, to have special formal qualifications to a standard accepted by the Ministry.

Slovenia

93 Chapter III describes “general labour protection requirements at workplaces”, Chapter IV “special labour protection requirements for extraction of minerals in coastal areas by drilling thereof”, Chapter V “special labour protection requirements for extraction of minerals at sea by drilling thereof” and Chapter VI “special labour protection requirements for surface extraction of minerals”.
According to the Mining Act, the Minister responsible for mining shall prescribe the following regulations for the implementation of technical and safety measures in performing mining operations:

- For the exploration and exploitation of mineral resources in surface and underground mines,
- For the exploration and exploitation of mineral resources by long-hole drilling,
- For electrical equipment and installations in mines with surface and underground exploitation of mineral resources,
- For surface or underground operations not associated with the exploration and exploitation of mineral resources,
- For the processing of mineral resources,
- For the storage and utilization of secondary or temporary waste resources produced by mining,
- Other technical regulations and regulations on health and safety at mining work.

The Minister responsible for mining in agreement with the Minister responsible for labour shall issue the regulations on safety and health in mining operations.

5.4.2.4.2 Mining and the Environment - Requirements for Environmental Performance

Table 19 gives an overview of issues which require additional permits to ensure compliance with environmental standards. The following environmental issues are covered in most Member States by specific legislation:

- Noise,
- Emissions (Integrated pollution control),
- Flora/fauna,
- Restoration,
- Traffic,
- Water,
- Landscape,
- Other.
5.4.2.4.2.1 Environmental conditions –Comparison

Comparative information on requirements for environmental performance (used in Member States) is difficult to obtain. This is because precise standards are often set to suit particular circumstances such as the type of mineral being extracted, the distance of the site from the nearest population centre, and the environmental qualities of the surrounding area.

There does, additionally, appear to be some variation on the level of detail included in environmental conditions. However, it is possible to compare the main factors which are taken into consideration, and examine how the methods of implementation vary from one country to another, as the following examples illustrate.

Austria

The approval of exploitation plans by the mining authority requires that inter alia the following criteria are met (Article 116 Mining Law):

- No irresponsible and destructive exploitation of a deposit (i.e. the extraction has to correspond with the technical, economical and safety technical requirements).

- The land surface required for mining has to be utilised responsibly.

- Measures necessary to utilise the surface after termination of mining activities need to be specified.

- Avoidance or reduction of emissions through use of best available technology.

- No harm to life or health of people

- No unreasonable harm to the environment.

- The production of waste should be avoided by using best available technology.

Extraction is not allowed to commence before an exploitation plan has been permitted.

Belgium - Walloon Region

The standard operating conditions for mineral extraction in the Walloonia Region illustrate the approach adopted in Belgium. There are 52 conditions listed under the following major headings:

- extraction boundaries

- use of explosives (time of day, control of dust)

- control of dust and noise
• protection of the aquifer-zone
• settling ponds,
• transport on site
• restoration and guarantees

**Denmark**

Permission for extraction is subject to certain conditions partially depending on the specifics at each locality. The conditions will usually cover the following topics:

• Water supply.
• Emissions to air: dust, noise, gases.
• Working hours.
• Traffic conditions: access points, permissible use of certain roads etc.
• Specific issues related to restoration: top soil storage, types of cultivation etc.
• Buffer zones, slopes, public safety.
• Conditions that follow from local plans and other legislation.

**England and Wales**

Legislation and Government guidance clearly defines the matters which may be covered by conditions. This is achieved by setting out the criteria for judging whether a condition is valid, and needs to be considered in the mining plan. The criteria serve two purposes. Firstly they provide a basis upon which the Inspectorate can make a recommendation to the Secretary of State if an applicant appeals against the imposition of a condition. Secondly, they establish the dividing line between those matters which can be legitimately dealt with by conditions and those where some other measure is required. The latter is usually a form of legal agreement.

**Finland**

Section 11 of the Land Extraction Act July 24 1981 states that a permit to extract mineral resources must be accompanied by regulations which define what the applicant must do to avoid or minimise the damage caused by the project, unless these matters are dealt with adequately in the extraction plan. Some of the regulations are compulsory, others are optional. In the former category are the delimitation, depth and form of excavation; protection of the area during and after extraction; and the preservation and replanting of trees and other vegetation. The latter category comprises regulations covering traffic arrangements; protection of groundwater; time limits; and any other measures needed to avoid or minimise damage.
Section 11 states that the regulations must not cause loss, inconvenience or nuisance to the permit holder which can be considered “…excessive with respect to the extent of the undertaking and the profit gained”.

**Norway**

Before extraction can commence, an operator has to apply to the Norwegian Pollution Control Authority for a permit for a “special polluting activity”. The Authority has the power to require an operator to submit an impact assessment to determine the effects of pollution. Also, the Authority may impose permit conditions.

**Poland**

According to the Act dated 27th of April, 2001 on Environment Protection Law (J.L. of 2001 No. 62, item 627), conditions can control emissions of particular pollutants:

- Gas and dust,
- Sewage,
- Wastes,
- Noise.

The environmental agency issues a permission to perform mineral extraction on the basis of the application of the mine operator, which must contain amongst other:

- Information about the venture and the technology which is to be applied,
- Information about the quantity and sources of present and planned emissions of pollution during the normal exploitation as well as in special cases e.g. breakdown;
- Information about the planned period of function of an installation;
- Information about the environmental impact of emissions and ways to prevent or limit them;
- Procedures for monitoring technological processes and keeping a report of the emissions.

The permission is valid for 10 years, but in the case of a violation, it can be withdrawn without compensation. Regulation of Minister of Environment (J.L. of 2002, No. 122, item 1055) lists types of installations which can have large environmental impacts and will require specific permission for emissions of pollutants, e.g.:
In the mineral industry:

- Production of cement clinker in the rotary furnaces with production capacity over 50 tons in 24 hours,

- Asbestos processing, production or processing of products containing asbestos.

In the area of waste management:

- Recovery or treatment of hazardous wastes excluding storage in plants, with a processing capacity over 10 tonnes per 24 hours,

- Treatment of other waste material, excluding storage in plants, with a processing capacity in excess of 50 tonnes per 24 hours.

Installations must not exceed the level of emission established for them.

**Portugal**

In Portugal, a permit is required for waste disposal from mineral extraction. This permit is usually granted as part of the approval process of the mining plan / restoration plan of works.

In countries such as Belgium, Denmark, France and the Netherlands, England and Wales the nature and scope of regulatory conditions controlling mineral extraction is broadly comparable.

### 5.4.2.4.2.2 Integration of land use planning with aspects of environmental protection

A relevant issue is the extent to which individual Member States have managed to integrate land use planning with other aspects of environmental protection. Mineral extraction, because of its potential to give rise to significant adverse environmental effects, is an activity where integration of the various aspects of environmental control (in land use planning systems) is crucial.

There exist considerable differences in Member States on the extent to which this integration process has taken place. Examples where the integration of land use planning with other aspects of environment protection is well advanced include the Netherlands, Sweden, and Denmark. Well integrated systems have shown significant advantages in streamlining administrative procedures in connection with applications for exploration and exploitation permits:

**Denmark**

One very important aspect with regard to the permitting process for extraction is the fact that § 8 of the Raw Materials Act specifically states that an application for mineral extraction is also an application for permits regarding other relevant legislation e.g. the Water Supply Act, the Nature Conservation Act etc. This means that the county authorities will assess and handle all the relevant legal
issues in co-operation with other responsible authorities as part of the permitting process. The majority of these issues may already have been settled in connection with the regional spatial planning process where the County council is obliged to designate areas for future exploitation of mineral resources. *This approach will obviously streamline and facilitate the application process.*


**Sweden**

The main purpose of an *Inventory Plan* is to identify sand, gravel and stone resources over a certain area (not conforming to administrative boundaries), also to consider issues of nature conservation and to promote the efficient use of resources. The counties make assessments of the future needs of the county in relation to anticipated expansion, which is assessed in consultation with municipalities who plan on a 10-15 basis. They also examine issues of groundwater protection and nature conservation.

**5.4.2.5 Restoration and Aftercare - Practices**

The restoration and aftercare of mining land are seen as important environmental issues of mineral extraction. Apart from the associated technical and environmental issues three important points emerge:

- who is responsible for carrying out restoration, aftercare and long term management
- whether conditions can be attached to permissions to ensure appropriate restoration, aftercare and long-term management
- whether some form of bond, bank guarantee or equivalent financial security is required either under law or through common practice, to ensure that the costs of restoration are covered in the event of company failure.

**5.4.2.5.1 Responsibility for restoration, after care, long term management**

All Member States have procedures to ensure that exhausted mineral workings are restored. Restoration of worked out mineral workings is accorded a high priority in most Member States. It is normal practice in most Member States to impose restoration conditions on the permission to extract.

In most Member States it is now practice for the operator to be responsible for restoration works.


**Belgium**

The Order of the Walloon Government of 17 July 2003 provides details of the rehabilitation of surface excavations, e.g.:

- Art.22: The rehabilitation must take into consideration the final destination of the area within the plan for land use.
Art.23: One has to adapt the rehabilitation as a function of the geological conditions, the characteristics of the soil and the occurrence of natural plants.

Art.24: One has to take measures to ensure the safety of the site (e.g. stability of slopes) in the long term.

Art.25: A practical guide for good practice is written by the responsible Ministry.

Art.26-29: The cost for the rehabilitation has to be estimated prior to the commencement of the extraction and has to be updated yearly. The quarry has to make a bank guaranteed deposit for the entire amount, prior to the start of the extraction.

The Flemish Decree on Surface Mineral Resources (‘Oppervlaktedelfstoffen Decreet’) of 4 April 2003, followed by the Order of the Flemish Government of 26 March 2004, cover specifically restoration and aftercare. The permit holder has to provide the Flemish Government with a financial guarantee for site rehabilitation (Art.18). This guarantee can be either an insurance, a bank guarantee, or a guarantee by a person or by a company (Art.19). Without such a guarantee, the extraction may not start (Art.20). The Flemish Government fixes the amount of the guarantee (Art.21). The Order of 26 March 2004 allows the Minister to fix a price per surface area (m²). The total sum of the guarantee can be variable in time; e.g. if the extraction takes place in successive phases, it increases when the extraction advances; and if part of the rehabilitation is completed, it may decrease.

**Denmark**

When the county grants a permit to develop an extraction site, a restoration plan must be prepared. The plan may be submitted in connection with the application for a permit, or it can be developed afterwards. The plan can either be prepared by the county administration at the cost of the operator, or by the operator for approval by the county. The contents and objectives of a restoration plan will depend on the type of operation and the planned land use after extraction has been completed.

A financial guarantee must be given to ensure that restoration will be made according to the plan accepted by the county authority. Extraction sites are often rehabilitated to accommodate various recreational activities such as nature parks, golfing, motor sport etc. but also for agricultural use and/or afforestation. Restoration may also be mandatory in connection with non-commercial extraction by for instance a farmer using sand and gravel to maintain roads on his own property. The County will normally make a final inspection and assessment about ten years after the operation has been closed down and fully rehabilitated before the restoration work is approved and the financial guarantee lodged by the operator is released.

**France**
The rehabilitation of an extraction site forms part of the environmental impact study. With other items, rules for rehabilitation can be attached to the conditions of authorisation.

At the end of the 1990s, a public interest group was formed by BRGM and INERIS (GEODERIS). Its objective is to administer the technical aspects of the closure of mining operations. In 2002, the main effort was oriented towards taking into account the environmental impact on the prevention plans of mine risks (PPRM, ‘Plans de Prévention des Risques Miniers’).

In 2005, the last large mining companies extracting iron, coal, potash and uranium will cease operating. The State has adapted the Mining Code to take the new situation into account. The Law of 30 March 1999, Art.94, requires the State to develop prevention plans for mining risks (PPRM), similar to prevention plans for natural risks. The Decree of 16 June 2000, following this Law, stipulates the following risks: subsidence, caving, flooding, dangerous gases, soil pollution and emission of ionised rays. The first step has been mainly focussed on the collection of relevant data in the framework of GEODERIS. INERIS has drawn up, at the request of the Ministry in charge of industry, a methodological guide for mine-site closure, as well as the model structure and contents for a typical decommissioning dossier. The guide also draws up an inventory of the main risks and impacts that may result from the termination of mining activities, and suggests a method of residual-risk analysis. Finally, it recapitulates the main remedial measures that can be implemented to mitigate impacts on the local environment. The following six categories were considered:

- Impact on groundwater and surface water,
- Risks associated with surface-terrain stability,
- Risks due to the presence of gas in mine workings,
- Risks due to the presence of surface outlets of mine workings,
- Impacts and risks associated with spoil dumps and tips,
- Environmental impacts associated with surface installations.

**Greece**

Restoration is the responsibility of the operator, regardless of the minerals rights ownership. There are certain bonds required in legislation for aggregates and industrial minerals, but not for metallic minerals. There are also bonds with no legal requirements but frequently used in order to enforce the EIAs. The state and landowner have the ability to impose restoration and aftercare conditions. There is a provision to allow local authorities to manage such lands.

The precise details of the restoration are determined by negotiations between the Forest Service, the Ministry of the Environment and the Prefecture.

**Hungary**
The closure of mines is regulated in the §42 of the Mining Act. The mining entrepreneur shall submit a technical operation plan for the closure. The mining authority and the co-authorities involved judge the possibility of the further use of mined spaces and facilities. Underground workings must be abandoned in such a condition that they do not constitute a hazard to the environment, or the surface.

According to §26 of the implementing Government Decree No. 203/1998 (XII 19), the technical operation plan for closure shall contain:

- an environmental impact assessment,
- the technical measures for the protection of the surface, groundwater and natural values,
- the remediation measures and their timing,
- the presentation of facilities for further use or demolition,
- plans for the utilization or clean-up of waste rock heaps, etc.

A series of documents must be attached to technical operation plans (TOP) such as mining operation maps, mineral reserve accounting, environmental licence, etc. The further utilization of underground mining spaces is acceptable once remediation is completed, the environmental damages are restored or compensated and the new financial proof for environmental liability has been paid.

The problem of abandoned (closed but not remediated) mines is covered by the sections of the mining law and its implementing decree dealing with remediation (§36) and financial fines and guarantees (§41). The mining rights (including all liabilities) of the bankrupted mining company without legal successor are announced by the Hungarian Mining Office for tender in the Official Journal of the Ministry of Economy. If the transfer of these rights and obligations is unsuccessful after a year, the mining authority deletes the licence from the register and initiates the necessary measures in order to cover the costs of closure, remediation, etc. from the reserved financial guarantees of the company as described in §41.

If this sum does not cover the total cost, the obligation of remediation and environmental clean-up sooner or later settles back to the state who is the original owner of minerals. There are no specific regulations for remediation methodology. It is generally an iterative process between the authorities and the mining company during the licensing phases (when approving TOPs, remediation plans) to set an acceptable and viable methodology for remediation. However, the detailed guidelines issued by the Hungarian Mining Office concentrate more on safety and less on environmental restoration.

Latvia
The issues concerning the restoration and the remediation of the areas disturbed by mining activities are described in the law “On the subsoil”. The mining operator is obliged to:

1. “To remove and preserve the fertile part of the soil for remediation;

2. At his own expense, to liquidate the damage to the land as a result of the use of the subsoil during the term stated in the licence;

3. To compensate all damages occurring as a result of the use of the subsoil to the owners and users of the subsoil, the environment, cultural monuments (…).”

According to the same law the local authorities control the remediation of the sites of mineral deposits.

The issues concerning closure of the mining enterprise (including site restoration and monitoring of the restored site) are contained in the licence requirements. The applicant must include the description of remediation operations or to guarantee funds for such measures after the mine closure. The applicant is also obliged to monitor the environmental components which may be affected by the closed mine after restoration. The requirements for the remediation are not stated in the law. The remediation technology is chosen considering the character of remediated area, the landowner’s wishes, the area development plan and the details of technology are described in the Remediation Plan.

**Lithuania**

Restoration and aftercare are not well regulated in Lithuanian Law. Some general rules are given in several laws, which state that the person (legal or natural) who does the damage is responsible for its repair.

**Luxembourg**

The rehabilitation of an extraction site forms part of the environmental impact study. As for other items, rules for the rehabilitation can be attached to the conditions of authorisation.

**The Netherlands**

The conditions that can be attached to excavation permits are defined in the Excavation Act and in the provincial ordinances. These also cover remediation work after completion of mineral extraction.

**Poland**

A detailed study of all aspects of mine closure has to be prepared by the mine owner and submitted for approval by the director of the mining district office. The closure study has to be approved by the mayor of the town where the mine
is situated. The restoration of the mining area is part of the closure study and the measures proposed are subject to approval by starosta. The work performance is supervised by:

- Concession bodies,
- Mining controlling bodies
- Bodies of the State Labour Inspection,
- Bodies of the State Protection of Environment Inspection.

In Poland restoration measures are carried out in two stages. The first stage includes direct restoration which consists of the restoration or assigning a utility or natural value to devastated or degraded land through appropriate landscaping, improving physical and chemical properties, regulating waterways, regenerating soils, strengthening scarps as well as constructing or reconstructing necessary roads (Article 4 of the Act on the Protection of Agricultural and Forest Land). The second stage includes redevelopment of the reclaimed area for its future use. In general, the owner of land is responsible for the restoration of land, but there are some exceptions (Article 102, Protection Environment Law):

- When the landowner can prove that another person/organisation damaged the land, then the person/organisation identified by the landowner is responsible for the restoration;
- When damage of the land took place with the knowledge of the owner of the land, then both parties are responsible for land restoration;
- starosta\(^\text{94}\)
  - When the person responsible for the damage has no rights to the land,
  - When it is impossible to initiate compensation proceedings because the restoration work was without result,
  - When the damage to the land is the result of a nature disaster,
  - When there exists danger of life, health or environment and immediate reclamation is required.
  - When the damage of land is done by unknown persons or by natural disaster and agricultural or forest restoration is planned then:

\(^{94}\) Explanation of starostka: See section 5.5.2.3.1.2
In the case of agricultural land, the starosta is responsible for restoration and uses finances from the Fund of Agriculture Ground Protection.

In the case of forest land, the director of the regional directorate of State Forest is responsible for restoration. Funding of the work comes from the State budget.

A requirement is that the mining company has to carry out restoration work in all those parts of the mining area, which are no longer required for extraction.

**Portugal**

Article 55º of the Decree Law 88/90 of 16.3.1990 (applicable to mining operations) defines (as an obligation of the concession holder) the restoration of the site, which includes construction of facilities, which as far as possible, fit in with the surrounding countryside and, on completion of exploitation, reconstitution the terrain for use according to the purposes for which it was employed prior to commencement of extraction activities unless some other use has been determined in a plan approved by the competent authority. The Quarry Law (Decree Law nº 270/2001, of 6.10.2001) defines the Environmental and Restoration Plan as a technical document formed by the description of the measures for environment control and protection, and the solutions proposed by the operator for closure and restoration of the quarried areas (Article 2º, m).

Article 49º states that “The operator shall, at closure of quarry operations, restore the quarried area in accordance with the approved plan, when: a) if and where it is possible, as far as the progress of extraction works, b) the operator completes quarrying, c) the operator abandons the quarry, or the quarry licence ceases in accordance with the law.

**Slovakia**

The actions for restoration and aftercare are laid down in the licences governing mineral exploration and exploitation. This refers to all geological and exploitation projects that must be evaluated by the competent authorities from the viewpoint of the landscape and nature protection. It is also necessity to evaluate all activities associated with waste disposal within waste dumps, tailings, ponds, underground spaces and natural rock masses structures, which are considered as mining activities, and require a mining licence issued by the district mining office.

All reclamation work after completion or termination of mining activity is the responsibility of the organization in whose name a mining claim is registered. The reclamation itself is not permitted by a district mining office, but by a county office, division of allotments, agriculture and forest management. All activities related to restoration and aftercare works in Slovakia have to be performed by the main state organisation, which has the financial provisions of the mines in the liquidation phase. However, there is an increasing tendency to stipulate such a provision in the permits for new projects. There are a considerable number of
old and abandoned mine workings that require financial support for the remediation of environmental impacts in connection with geospace and underground water.

٠ Spain

The Real Decree 2994/1982 governs details of restoration of extraction sites. The applicant has to present a plan to the Ministry of Industry or to the competent mining organ of the autonomous communities (in general), which provide details of the restoration activities.⁹⁵

٠ Sweden

Any new operation will in its application for an extraction permit also outline the plans for restoration and aftercare. Such work should as far as possible be an integral part of the daily operations, and not be postponed to the final phase of the project. New operations have to give a financial guarantee to secure future restoration. There are a considerable number of old and abandoned mine workings all over the country, and some of them cause quite substantial environmental impacts, especially in connection with surface run-off or water from underground workings. The government gives financial support to the various counties who manage projects aimed at mitigation of the most severe cases.

٠ UK

England

The statutory definitions of restoration and aftercare are established in Schedule 5 of the 1990 Town and Country Planning Act. The Mineral Planning Authorities (MPA’s) draw up the restoration and aftercare conditions and are the responsible authority for monitoring the mineral operators activities. Replacement of soil in the appropriate order and to appropriate depths can be required by the restoration conditions. Mechanical subsoiling can also be required of the restored soil layers. It is generally appropriate to require subsoiling of the uppermost overburden before replacing top soils.

Where soils are not placed by loose tipping using dump trucks, it is often appropriate to replace subsoils in layers, with subsoiling of successive layers prior to placing subsoil. All soil movements and treatments must be undertaken when the soil moisture conditions are suitable and having regard to the effective depth of subsoiling equipment (Department of the Environment, Transport and Regions, November 1996).

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⁹⁵ Later legislation particularly EIA both nationally and specially in the Autonomic Communities, include the compulsory drafting of a Reclaiming Plan: Real Decreto Legislativo 1302/1986, de 28 de junio, de Evaluación de Impacto Ambiental; Andalucía : Ley 7/1994, de 18 de mayo, de Protección Ambiental (BOJA nº 79, de 31.05.94); Aragón: Decreto 118/1989, de 19 de septiembre, de procedimiento de Evaluación del Impacto Ambiental.
Schedule 5 of the 1990 Town and Country Planning Act provides MPAs with powers to impose aftercare conditions on the grant of planning permissions in relation to land which is to be used for:

- Agriculture
- Forestry
- Amenity

*Phased restoration is encouraged wherever possible.*

MPAs are usually required to inspect sites to ensure compliance with the restoration and aftercare conditions. This creates a heavy load on the resources of the MPA’s and it has been suggested that operators should pay a fee for site inspections.

**Scotland**

Restoration and aftercare is widely discussed in National Planning Policy Guideline 4 (NPPG4). Recommendations are made under paragraphs 42-47. The importance of the principle of “the polluter pays” is mentioned. The Review of NPPG 4 concluded that more advice on restoration and aftercare is required (The Review of NPPG4: Land for Mineral Working p. 26) NPPG4 states that “Once mineral working has ceased, the land should be made suitable for other uses at the earliest opportunity and this can be facilitated by progressive restoration over the life of the operation.

Most Member States appear either to rely on a public authority taking over after-care and management once restoration is complete, or some form of agreement with an operator at the time of granting development consent to undertake management for a prescribed period.

**5.4.2.5.2 Restoration conditions**

In most countries, conditions attached to restoration work will normally cover the following subject areas:

- types and use of materials to be used in restoration,
- timing of restoration works,
- slope stability,
- landform/landscaping,
- planting (e.g. species, plant management etc.), and
- funding.
Restoration work is often aimed at a specific end use, such as agriculture, nature conservation, recreation or some form of built development.

**Greece**

The environmental permit which accompanies the extraction permit will include details about the restoration conditions. Although the imposition of conditions on permits is fairly common practice in most countries, Greece is *probably unique in that the environmental terms have to be agreed under the “Joint Ministerial Decision” of the Ministries of Environment (now the Ministry of Environment, Planning, & Public Works), Industry (now the Ministry of Development), and, for Protected Areas, Agriculture, in consultation with the relevant Prefecture.*

**Poland**

Conditions for restoration are agreed with the environmental institution on the basis of the application (art.106, Environment Protection Law) including the following:

a) Areas requiring restoration,

b) Current functions of areas requiring restoration,

c) Planned range and method of restoration as well as the deadline for completion.

In the case of restoration of agriculture or forest areas the following issues need to be considered (art. 22, The Act on the Protection of Agricultural and Forest Land):

a) Degree of loss of the utility value,

b) Person/Organisation responsible for the restoration,

c) Future use of restored areas and of completion,

d) Decision about the finalization of restoration work.

The following decisions are made by *starosta* but after an opinion has been given by:

- Director of mining district office in the case of mining activity,

- Director of the regional office of the State Forest or Director of National Parks

- commune board.

Supervision of restoration and redevelopment of a mining area is the responsibility of the mining controlling body.
5.4.2.5.3 Restoration – development plan

An important feature of development plans is the preferred after-use of the extraction area. This determines the nature and details of the restoration work. In many Member States details of the restoration work are specified in the exploration and extraction permits.

\[\text{\textit{\}}} \text{ Denmark}\]

For the extensive Hedeland sand and gravel workings in Denmark, the Hedeland Structure Plan sets out the restoration proposals. Operators are required to restore their workings to the basic landforms which will ultimately make up the fully restored site. At this stage, the I/S Hedland will decide whether to take up its option to purchase the restored land and then implement the preferred after-use, and carry out subsequent aftercare and management.

\[\text{\textit{\}}} \text{ Portugal}\]

The restoration plan is approved by the regional authority responsible for environment and land use planning, in consultation with the relevant municipality which is responsible for the accomplishment of its land use municipal plan. Restoration should leave the restored site in basic conditions for some other beneficial use, as far as possible. After-use under the mining laws is the responsibility of the operator.

5.4.2.5.4 After-use and long term management

In most Member States, the mining laws do not preclude the mine operator from becoming actively involved in after-use activities.

Whereas the principle of after-use of extraction areas and the need for long term management of the restored land is accepted by the Member States there are considerable differences in the way long term management of restored areas can be achieved. A challenge in this regard can be that the after-use is usually determined by the characteristics of the location of the workings (as provided for in development plans). Thus, in the Hedland example in the previous section, restoration is principally applied to agriculture and open space for recreation, both formal (e.g. amphitheatre, golf course etc.) and informal (e.g. walking, horse-riding, fishing). In the Netherlands, restoration is often to either amenity water bodies or nature conservation wetlands due to the natural tendency of workings to fill with water.

In contrast, in less densely populated countries, such as Greece and Portugal, restoration is usually aimed purely at mirroring the landscape which existed prior to extraction rather than to a specific end-use, such as nature conservation or amenity, but forestry and lakes are also commonly used in Portugal. Similarly, in rural parts of Spain where population levels are extremely low there appears little concern about the landscape impact of mineral extraction. This is not the case, however, in the area around Madrid where there has been a significant level of sand and gravel extraction much of which has never been restored.
The use of after-care conditions and voluntary agreements to secure the management or restored sites for at least a five year period is now common practice in England and Wales. Although there appears fairly widespread recognition of the vital contribution made by management to the overall success of restoration schemes in other Member States, after-care conditions do not appear to be very common. This is not to say, however, that management is left to chance, as the examples of Austria, Greece, Italy, Portugal and Spain illustrate.

**Austria**

Aftercare of the site is the responsibility of the operator until the site has been restored to the satisfaction of the relevant authority. The issue of the closure certificate, which formally relinquishes the legal responsibility of the permit holder, is linked to an assessment of the restoration of the extraction area. Since the State takes over the responsibility for post mining areas once the closure certificate has been issued, very few closure certificates have been issued.

The issue of so called closure certificates, is linked to the question of who is responsible for the long term management of the restored area and for how long. Views on this important matter differ.

**Italy**

Regional authorities often levy a tax on the operator which is paid to the Municipality based on the quantity and quality of material extracted each year which then goes towards ongoing maintenance of the mining area by the Municipality. However, in general, operators are required to maintain sites for 3 to 5 years following restoration for 2\textsuperscript{nd} Category minerals, and up to 21 years for 1\textsuperscript{st} Category minerals.

**5.4.2.5.5 Restoration issues in arid countries**

A point consistently raised in Mediterranean countries is the difficulty of adequately restoring workings in arid regions. The problems are seen to be mainly fourfold:

- lack of top soil,
- lack of water,
- extreme fluctuations in climate and micro-climate, especially in mountainous regions, and
- uncontrolled grazing.

As a result it is often difficult to establish vegetation for landscaping and soil stability. Furthermore, occurrences of flash-flooding can lead to the collapse of restored slopes, as well as gullying and heavy soil erosion. This appears to be a common problem in such areas.
Some companies have introduced their own measures to make sure that their restoration programmes succeed; one such company is the Silver and Baryte Company which operates a number of Bauxite mines close to Delphi. Restoration practitioners in arid areas have concentrated on working with nature rather than trying to create productive soils. This is considered to be a more environmentally sustainable approach in that the restoration does not rely on the import of new and possibly alien soil forming materials, or the use of inappropriate species.

5.4.2.5.6 Guaranteeing restoration

The funding of restoration work is an issue which is of concern to most Member States. The problem results from the fact that much of the restoration work takes place after completion of the extraction activities, which is a time when the operating company has no further operating income. For this reason most Member States provide mechanisms in their minerals legislation to secure the funding of restoration work. This is being done through the provision for the establishment of closure funds, bank garanties or other forms of security. These arrangements are part of the extraction permissions.

In some cases this principle is set down by law, as is the case in Denmark, Finland, Greece, Portugal, Spain, and Sweden. In many of the others, however, it is common practice despite not being underpinned by legislation.

The use of financial guarantees to ensure restoration is completed is standard practice in most Member States.

The principal question which has to be examined is whether the compulsory use of financial bonds has benefited the restoration performances.

The evidence obtained so far is inconclusive. The various approaches adopted are illustrated by some examples:

**Portugal**

One example, which should be mentioned in the report is the fiscal provision for restoration of a mined site, created in Portugal in 1997 by the Decree Law 21/97. Under this law, and based on a restoration plan and its budget, the holder may deduct each year during the life time of the mine/quarry a certain amount of money (provision) and put it in a fund, shown in the accounts and annual report of the company. This annual provision is considered a cost for tax purposes. The resulting fund accumulated during those years must be used only for paying future costs for restoration and rehabilitation works of the site, after the end of the mine and for a further three year period (which may be extended). If at this time, the fund was not used at all, or only partially used for such purpose, the part not used is considered as revenue and subjected to income tax. However, it should be noted that only very few companies use this fiscal mechanism.

**Poland**

The mine operator must pay a so called extraction fee for mineral extraction according to the Geological and Mining Law (J.L. no 110, item 1190). 40 % of
the extraction fee goes to National Fund of Environmental Protection and Water Management (NFEPWM) account, and 60% to the commune budget.

According to the Law of Environment Protection, income from the fees (extraction fees) and a financial penalty established on the basis of the Mining and Geological Law is to be used in equal parts for:

- Geological needs: exploration of geological structures of the country, economy of the useful mineral resources and underground water;
- Mining needs: limiting environmental pollution resulting from the mineral extraction and closure of the mines.

Restored agricultural and forest areas can be supported by a Fund for Agriculture Ground Protection, established on the basis of The Act on the Protection of Agricultural and Forest Land (art. 23-25). This fund is financed from land occupation payments and from annual charges paid for the exclusion of the land from agriculture and forest use.

According to the Geological and Mining Law and its relevant executive regulation of 1 of January 2002, the mine operator has to establish a so-called fund of mine closure and save money for closure and restoration activities.

The Mining and Geological Law provides details of the fees that are collected to establish the closure fund. These depend on the method of mining (surface or borehole mining) and whether or not mine workings have been backfilled.

The fees collected for mine closure are based in the operating costs of extraction. The fees are paid into a separate bank account and is interest bearing. The Concession Body and Mining Authority can control the bank account.

After the mine closure project has been approved by the authority, the mine operator can use the saved money for the following purposes:

- Closure work and protection of the mining plants,
- Closure work for the mine and other areas connected with the extraction,
- Restoration of the mining areas,
- Protection works in order to avoid a hazard, including mine water drainage.

Table 19 illustrates how practice varies between the countries.
5.5 Monitoring and Enforcement

All Member States acknowledge the important contribution of monitoring and enforcement to the planning process and have put in place procedures to ensure the activities take place.

The test of whether these procedures are effective is performance on the ground, something which is generally difficult to measure.

A distinction needs to be drawn between:

- Monitoring by legislation, and
- Monitoring by voluntary activities by companies (e.g. codes, technical guides).

By drawing up voluntary codes of good practice, a number of mineral operators seek to ensure that statutory environmental and planning requirements are met or even exceeded. Some codes are adopted at an individual company level. The common characteristic of all the codes of practice and guidance notes (referred to as best practice in Chapter 7) are that they are prepared by representatives of the mineral industry as opposed to government or local authorities. Nevertheless, they have tended to become a common reference point for all those concerned with minerals planning.

Monitoring the implementation of planning authorisations and recourse to enforcement action should it prove necessary are important in ensuring that the overall objectives of planning policy are met. The use of voluntary codes of practice by mineral operators and the publication of technical guidance notes are intended to improve and maintain high standards of practice. *Nevertheless there is still obviously a requirement for the relevant public authorities to ensure that appropriate standards are being reached and, if necessary, to take corrective action if they are not.*

5.5.1.1 Monitoring - Level of Responsibility

Responsibility for the monitoring and enforcement of environmental and planning standards encompasses all tiers of government from national and regional, through to county and municipal.

The national government usually has overall responsibility for controlling standards for extraction where the rights are owned by the state; whereas the monitoring of minerals where the rights belong to the landowner usually occurs lower down the hierarchy, at regional level or below.

The frequency with which mineral extraction sites are inspected varies both between, and within, the Member States.

In the Netherlands and Belgium, the national government is only responsible for monitoring marine based extraction.

*Belgium*
There is no mining law as such in force anymore, as was the case prior to the creation of a federal state in 1993. A separate Inspectorate of Mines no longer conducts inspections in the Regions. The extraction industry is considered in a similar way as other industrial activities. Most monitoring and enforcement is done at regional level. For example, safety is the responsibility of the regional Ministries of Employment, while the environmental aspects are for the regional Ministries of Environment. The situation for the use of explosives is more complex: (1) the Federal Ministry of Economic Affairs is involved in providing a permit and in the control of it, (2) the regional Ministries of Environment are responsible for handling the environmental aspects, and (3) the Provincial Governor becomes involved in the event of an accident. Apart from control and monitoring by the authorities, local commissions are created to follow-up the activities at a quarry. Members of the commissions are representatives of the Municipality and the Region, as well as persons living in the neighbourhood.

**Denmark**

Monitoring and inspection of commercial mineral operations is performed by the county authorities on a regular basis. Details are specified in the Raw Materials Act which has very explicit provisions about the right to make inspections, gain access etc. Inspection related to worker safety and health conditions is the responsibility of the Work Inspection Authority which is an agency under the Ministry of Employment. The County council can issue fines for non-compliance with the conditions set down in the extraction permit, and in serious or repeated cases, even withdraw the permit and close the operation. It is also possible to bring a case to court, especially if violation has been caused by gross negligence or motivated by perceived or realised economic gains. In such cases the perpetrator can even be sentenced to jail for up to one year.

**England and Wales**

Codes of practice:

Most companies have some form of environmental policy or code or subscribe to a code produced by their trade association. Usually these codes are not formal and inadequate to ensure compliance with conditions imposed on planning permissions (Department of the Environment, Transport and Regions 1999a). The Governments, however, welcome the codes of practice drawn up by the mineral industry and encourages those mineral companies to use such codes.

**Enforcement**

The Mineral Planning Authorities have responsibility for enforcing conditions attached to planning permissions. Most of the enforcements arise because of complaints from third parties.

**Scotland**
The Planning Authority (PA) has to make sure that the conditions attached to permission are adhered to. The Planning Authorities have several powers to enforce planning permissions:

- Revocation or modification of permission with regard to the development plan and to other material considerations.
- Discontinuance of use of the land, including mineral extraction.
- The planning authority may prohibit the resumption of mineral extraction and impose certain requirements including removal of plant and restoration and aftercare where it appears that mineral extraction has permanently ceased.

The PA can issue a suspension order requiring steps to be taken to protect the environment where it appears that workings have temporarily been suspended.

**Estonia**

State supervision is exercised by the “Technical Inspectorate”. The Inspectorate has the following responsibilities:

- supervision over the safe organization of site works and over the operation of authorities assessing and attesting the conformity of persons;
- investigation of the causes of breakdowns or accidents on site;
- issue of precepts and making of resolutions;
- inspection of plans.

In case of violations of regulations, the officials exercising state supervision can issue precepts, which:

- demand that the offence be terminated;
- where necessary, demand that activities related to the offence be suspended in part or in full, or
- demand that acts necessary for the lawful continuation of the activities are implemented.

The Mining Act provides for that the following are violations and require penalty payments:

- Submission of false information and failure to give notice of changes to information
- Violation of requirements for mining, secondary utilisation of underground workings and preparation of related plans
• Violation of requirements for assessment and attestation of conformity of person.

The amount of the penalty is limited to 10,000 Kroons (about € 640).

**Finland**

The Work Safety Authority of the Ministry of Trade and Industry is responsible for the monitoring of mining operation. The Mining Act stipulates measures for non compliance with regulations laid down in the Act. These measures can come in the form of economic fines or even imprisonment for up to six months, for revoking of permits or criminal charges. The Work Safety Authority can stop operations immediately if there is serious breach of safety regulations. Inspections in connection with operating issues are carried out by an Inspector appointed by the Ministry.

**France**

*Details of monitoring of quarries and mines are defined in the permits.* They cover a broad spectrum of issues, such as noise, dust, surface and groundwater. The measurements have to be conducted or paid for by the operator. The Prefects may impose new conditions for protecting the environment on the operator at any time during the operations, e.g. when monitoring has shown a new risk or danger.

**Hungary**

The mine closure regulatory process includes the requirement for remediation of mining land, as prescribed by the §42 of the Mining Act and the §26 of the implementing Government Decree No. 203/1998 (XII 19). §36 of the Act and the §22 of the Decree give details of remediation. The mining company shall continuously remediate the surface area, which is no longer used, to achieve a state harmonizing with the natural environment or condition for further utilization in accordance with the technical operation plan. A separate remediation plan has to be submitted to the interested authorities three years after commencement of mining operations. The completion of the remediation work has to be reported to the authorities for final acceptance.

These sections do not give provisions on the post-closure monitoring but the obligatory participation of the environmental, water and geological authorities in the licensing process ensure that this is considered if needed.

**Ireland**

**Codes of practice:**

The Minister of Communications, Marine and Natural Resources has issued new guidelines for Good Environmental Practice in Minerals Exploration, which are mandatory. These guidelines are based on the following principles:
• Environmentally responsible management should be an integral component of all exploration programmes

• For the protection of the environment there should be compliance with all relevant government regulations. Best practice in environmental management standards shall be maintained in conjunction with effective exploration where such laws and regulations do not adequately protect the environment.

Monitoring:

Mineral operations are periodically inspected by the Department of Communications, Marine and Natural Resources and the Health and Safety Authorities as well as by local authorities and the Environmental Protection Agency (Department of the Environment 1995)

Luxembourg

The monitoring of mineral extraction is governed by the Law of May 1990, which relates to the control of dangerous, dirty and noxious installations. This enables the competent authority (e.g. Ministry of the Environment) to review the operator’s compliance with the requirements and conditions concerning environmental protection, as stipulated in the permission. The conditions of authorisation can be revised, if negative effects occur which had not been foreseen. Article 22 of the Law of May 1990 provides the possibility to stop extraction immediately, if the conditions attached to the permission are not fulfilled.

The Netherlands

Enforcement is regulated in the Excavation Act (Article 21g - 25) and the Environmental Protection Act (Article 18.4 to 18.12 and Article 18.14 and 18.16). Officials of the permit granting government agency are responsible for enforcement practices.

The Limburg province in the Netherlands has a special department for monitoring all extraction permits, which ensures that every quarry is visited between four and twelve times a year. In the Dutch province of Gelderland, Article 17 of the Excavation Order (1990) states that: “The investigation officer must, insofar as it is reasonably necessary for the performance of his duties, have access to all areas of water and land, and also to all … which are intended for excavation.”

Norway

The operating licences prescribe a set of Codes of Practice and Technical Guidance Notes that the licence holder has to comply with. The Mining Directorate is responsible for monitoring the operating licence, and the production site. The operator also has to report on his activities. The operator can be fined for serious non-compliance with codes of practices and/or guidance
notes, or the operation may even be closed down temporarily or permanently by revoking the operating licence. Other government agencies or directorates are responsible for monitoring other activities of the operation such as health and safety, or emissions of dust, noise, water and gases. The different agencies may to a certain extent co-operate and organise inspections together. The effectiveness of monitoring and enforcement may of course vary, but since much of the responsibility lies with national agencies, these activities will usually be conducted in a reasonably consistent manner.

**Portugal**

In Portugal, the Quarry Law (2001) states that every quarry should be visited six month after the issuing of the licence, and then, at least once every three years. Representatives of the licensing and environment authorities should make these visits together, and when possible with the participation of the authority responsible for health and safety.

Decree n.º 198-A/2001 of 6 July establishes the legal basis for the restoration of the old abandoned mining areas. This decree is applicable to mining areas that constitute a potential risk to public health or environment preservation and justify State intervention by financing the restoration and rehabilitation works, in accordance with priorities defined by the Mineral Authority.

**Slovakia**

In Slovakia the operating licence contains the requirement for the mine operator to prepare a closure plan. Adherence to the closure plan is monitored by the State Mining Administration (HBU), which is also responsible for the monitoring of mining operation. Reclamation and post-closure monitoring are covered by the mining closure licensing procedure.

**Slovenia**

The inspection of the implementation of the provisions of the Mining Act, regulations issued on the basis of the present Act, technical regulations and regulations on health and safety at work, as well as other regulations concerning the exploration and exploitation of mineral resources and other mining operations is performed by the Mine Inspector. The Mine Inspector’s office coordinates activities with other inspection offices as well as with expert organisations in mining. The chief mine inspector is in charge of the Mine Inspector office.

Mine inspection (Article 86 Mining Act) is performed by the mine inspector. As far as the monitoring and enforcement of health and safety regulations are concerned the mine inspectors have equal rights and obligations as labour inspectors pursuant to the provisions of the act regulating labour inspection and the act regulating health and safety at work. The legislation specifies that a mine inspector shall also be competent to supervise the physical development caused by mining operations after the physical development permit has come into force
and in the case where an inadmissible environmental intervention has been made in the area directly adjacent to the exploration or exploitation area.

Sweden

The Mining Inspectorate monitors all operations falling under the Minerals Act, and each operation is inspected once a year. In addition the operator must report on his activities to the Inspectorate every two years. An exploration permit or an exploitation concession may be revoked if the holder does not fulfil the general obligations stipulated by the Minerals Act or other obligations issued for the specific project.

5.5.1.2 Production of an Annual Report

In a number of countries, including Finland, Greece, France, the Netherlands, Portugal minerals operators have to provide an annual report for each of their extraction sites. The scope of these reports is broadly similar in all these countries, and includes the quantity extracted that year, the planned extraction for the following year and the programme of restoration work.

In practice, companies in most Member States prepare similar reports regardless of whether the authorities require them by statute. Annual reports detailing extraction rates, restoration, compliance with legal standards etc. help companies to regulate their own activities, although they are rarely made public because they contain commercially sensitive information.

5.5.1.3 Enforcement Powers

In most Member States, sanctions used to enforce planning and environmental standards include the suspension of permits, the imposition of fines, and may extend to imprisonment.

Prison sentences are used as a final sanction in Belgium, Finland, Denmark, Ireland, the Netherlands and Sweden. In most of these countries, the maximum sentence is six months; however there are exceptions to this. In Sweden, a maximum prison sentence of two years can be prescribed in certain circumstances.

5.5.1.4 Effectiveness of Monitoring and Enforcement Procedures

Opinions regarding the effectiveness of monitoring and enforcement are mixed.

Government representatives generally believe that their system of control involving regular site visits and a wide range of sanctions works effectively.

In contrast, mineral operators (and/or government officials) in a number of Member States indicated that monitoring of adherence to regulations and standards was ineffective due to one or more of the following reasons:

- a lack of personnel and resources
• the large number of authorities with monitoring and enforcement responsibilities at different levels, which leads to overlaps and, on occasion, gaps.

5.6 Fees and Compensation

Financial provisions (fees, royalties, taxes, etc.) relating to mineral exploration and extraction are broadly similar across the European Community, although amounts vary between States and between mineral types.

📍 Austria

The licence of a right for exploration and extraction of “free for mining” minerals must pay a mining fee in which the area of entitlement is located. Fees are paid for the exploration permit for the mining area for “free for mining” minerals; and surfaces interest, field interest, storage interest and conveyor interest for State owned minerals.

Compensation must be paid for damages because of cession of property rights (Article 148 Mining Law), cession of the use of private waters (Article 152 Mining Law), refusal of a building permit (Article 156 Mining Law), securing of the surface use after terminating the mining operations (Article 159 Mining Law), and for mining damages (Articles 160, 161, 164, 168 and 169 Mining Law).

📍 Belgium

There are no compensation provisions in Belgium. A fee has to be paid to the Municipality for each tonne extracted. The extraction of gravel in the Province of Limburg is a special case. It is regulated by the Gravel Decree of 14 July 1993, aiming at a systematic reduction of river gravel production in the Belgian Province of Limburg (see also Appendix A). A fee is charged per tonne of gravel extracted and a foundation has been created to manage this money. The aim of the foundation is among others to investigate alternatives for gravel, to help in the re-structuring of this branch of the industry, to assist with the social aspects for the people working in the quarries, etc.

📍 Czech Republic

The Mining Act prescribes that the individual operators exploiting reserved mineral deposits have to pay for the mining area as well as for the exploited minerals. The fee for the mining area is CZK 10,000 per year and per square kilometre. In the case of mining claims of less then two hectares the annual fee is CZK 2,000

Mineral rent in accordance with the Mining Act and the appropriate decree does not exceed 10% of the price of the mineral. The mineral rent is an economic tool of the state as the owner of deposits. In the case that payment for the mining area or the mineral rent is not realised in the specified time, the Local
Mining Office claims the payment in accordance with the Administration Fee Act.

Denmark

A general fee is paid to the State on each unit volume of mineral extracted. The fee covers the administrative costs of the Forest and Nature Agency in connection with the Raw Materials Act. The fee is partially also seen as one of various policy tools that have been introduced in order to encourage recycling of heavy building waste. There is no extra fee or royalty paid to the State for extraction of marine resources from the sea floor. Compensation to the landowner for the value of extracted mineral is a matter of negotiation between the parties. The landowner also receives full compensation for any damage caused by exploration, extraction and/or processing.

Estonia

The extraction tax (royalty), required by the Government is a tax for the right to exploit the state minerals. The extraction tax depends on the location site, level of nature protection and quality of the minerals. The Government of the Republic has the right to increase or decrease the level of extraction tax and even drop it.

The income derived from the extraction of deposits of state importance is paid to the extent of 30% into the Environmental Fund. The remaining proportion of 70% supports the local budget. The extraction tax for the deposits located in transboundary watercourses, territorial and coastal waters and exclusive economic zone is paid into the Environmental Fund. The income derived from the extraction of deposits of local importance is paid into the local budget. The local government can offer tax allowances for the payment into the local budget. The user or the owner of the land has to pay a land tax. The rate of land tax is 0.1-2.5 per cent of the assessed value of the land annually.

Finland

In the case of claimable minerals, the Mining Act stipulates that a fee or compensation must be paid to the landowner(s). The fee is 0.1 per cent of the primary product value extracted from each active claim patent issued to the claim holder. In addition, holders of pre-claim licences and claim patents must pay an annual fee to the state for each licence or claim patent. If the payment is not made in time, the fee is doubled, and if the fee is not paid before the new deadline, the holder looses their rights.

There is no royalty paid to the state for exploitation of claimable minerals. In the case where it is not possible to reach an agreement between the landowner and the operating party, the project owner has the possibility to get the land handed over by expropriation. The compensation to the landowner is decided by a local appraisal board or expert assessment.

France
There are no compensation provisions in France. For mined materials, the operator must pay to obtain the rights to extract (after having obtained the extraction permit).

Germany

The licencee of a right for exploration and extraction of minerals (i.e. minerals covered by the federal act) must pay a mining royalty to the Federal State in which the area of entitlement is located. The royalty for the exploration permit of free for mining minerals for industrial purpose (“Feldesabgabe”) has to be paid by the permit holder to the respective landowners within one year. Compensation must be paid for exploration, notification of discovery and the compulsory assignment of land.

United Kingdom

The United Kingdom has an Aggregates Levy which was setup to help to offset the environmental costs associated with aggregates quarrying operations in line with the Government’s statement of intent on environmental taxation. The Levy is intended to reduce waste of construction materials and encourage the use of re-cycled materials, thus reducing the demand for virgin aggregate.

The levy applies to quarried and dredged sand, gravel and crushed rock subjected to commercial exploitation in the UK. A one stage, non-deductible specific tax of €2.42 per tonne is charged.

Landfill tax: A tax on waste disposal in landfill sites was introduced in 1996. The objective of this tax was to encourage business and consumers to produce less waste, to dispose of less waste in landfill sites and recover value from the waste that is produced, for example through recycling. Two rates exist: €3.12 a tonne for inactive or inert wastes listed in the Landfill Tax Order 1996 and €20 a tonne applying to all other taxable waste rising. The higher rate is subject to annual increases.

The Landfill tax and the Aggregates Levy, together, have greatly increased the rate of re-use of construction, demolition and excavation wastes, particularly in England. The use of suitable mineral wastes has not yet increased significantly, partly because the tips are located relatively far from potential markets so investment in bulk transport facilities would be needed before these can be fully exploited.

Greece

Fees and compensation in relation to exploration:

The administrative fees for application are the same for all kinds of mineral rights. The fee is 190 € for the application plus 2,641 € for areas smaller than 5km² and 190 € plus 3,815 € for areas greater than 5km². For industrial minerals and marbles the administrative fee for the application is 1467 €. There are no other payments made to the Government or to the Landowner.
Fees and compensation in relation to extraction:

In this case there are no administrative fees for an application but there are other payments made to the Government. If the mineral rights are owned by the State royalties of (1%-10%) of the income from minerals sales have to be paid to the State. This is true where the State leases the deposit. It is not valid when the State issues an exploration permit concession and a deposit is found. Where the mineral rights are owned by the landowner payments are made to the landowner which vary according to private contracts.

Hungary

Mining companies have to pay mining royalty as defined by §20 of the Mining Act for exploited minerals and geothermal energy. The rate of the mining royalty is defined individually and can be a subject to negotiation in the case of concession contracts. In the case of exploitation licences, the rate of the royalty is as follows, with regard to the value of the quantity of mineral raw material exploited:

- 5 % for non-metalliferrous minerals mined in open-pits, with the exception of energy minerals;
- 2 % for other solid minerals and geothermal energy;
- 100 % for quantities mined illegally.

The basis of the calculation is the market value of the unprocessed minerals leaving the mining works. The payment is done monthly in the case of hydrocarbons and quarterly for other minerals.

The Minister of Economy may, in agreement with the Minister of Finance, reduce the rate of mining royalty, with regard to the interests of the management of mineral resources or other public interests. There are no other provisions for deferred payment which concern environmental investments or other measures related to mining waste management (e.g. recycling).

According to the provisions of the water act and of its implementing regulation (Decree No. 43/1999 (XII. 26.) of the Minister of Transport and Water Management on the calculation of water resource charge), the mining operator shall pay for the water volume used. All water users pay a water resource charge based on the quantity of water defined in their water licence or used without it. The amount of the charge is:

\[ \text{Charge} = \text{"V"(m}^3) \times \text{"B"(HUF/m}^3) \times \text{"m"} \times \text{"g"}, \]

where:

- "V" is the volume of the used water
- "B" is the basic charge
• “m” depends on whether the volume of used water measured or estimated
- “g” depends on the quality of the extracted water and the type of the water resources.

**Italy**

The regional or provincial authority levy a tax on the operator, which is paid to the municipality, based on the quality and quantity of material extracted each year. The proceeds from this tax are released as necessary for maintenance works.

Regional legislation specifies that operators must enter into an agreement with the communal authorities, requiring them to carry out restoration work at the operator's expense, and that provisions can be made for ownership to be transferred to the commune once activity has ceased, if this is the end-use agreed in the excavation plan.

This agreement is also an obligation on the part of the applicant to pay the communal authority an annual sum known as “excavation fees” commensurate with the quantities and type of material extracted, according to tariffs established by the Regional Council. 80% of the receipts go to the municipality (to help pay for monitoring and enforcement of restoration), 15% to the provinces (to help pay for minerals research and administration) and 5% to the region. In practice, a large proportion of the fees are set aside for ongoing maintenance, following restoration of the site for which the applicant is responsible. The size of the fees depends on the mineral. First category mineral extraction is not subject to this tax.

**Latvia**

The mining enterprise like every other commercial enterprise in Latvia has to pay corporate income tax. A unified tax rate of 25% applies to all types of businesses.

Since 1995, a natural resource tax has to be paid for the extraction of construction raw materials and peat. The tax rate for each resource may differ depending on the type of use. According to the Article 8 of the law “On the Natural Resource Tax”, the amounts of the payments are calculated “(…) based on the tax rates for each (…) unit of a natural resource. The tax is paid for the actual (…) volume of extraction of a natural resource, based on the (…) accounting of data of the payer regarding the production of a natural resource.” The tax rates are contained in the Appendices to the above law. The payments are made periodically in line with production. The tax rates may be reduced if the mine operator funds projects aimed at minimising environmental contamination or wasteful consumption of mineral resources. 40% of the natural resource tax goes to the special state budget for environmental protection and 60% to the special budgets of parishes or towns where the activities take place.
The mineral production permits (for all minerals) are issued for a fee.

**Lithuania**

The cost of a licence for exploration is 150 Lt (44 Euro). The cost of permission to use mineral resources depends on the sort of mineral resources:

- Resources of amber and metal ores - 2500 Lt (724 Euro);
- Resources of industrial and mineral groundwater - 500Lt (145 Euro)
- Other mineral resources 200 Lt (58 Euro)

There are a number of different taxes fees and compensations existing in Lithuania. As a compensation for exploitation of mineral resources (and also other natural resources) an operator has to pay the natural resource tax. In the case of mineral resources extraction, the amount of the tax depends on the volume of extracted mineral resource. The natural resource tax is a part of the taxation system of Lithuania and is paid to the state budget.

An extraction enterprise has to pay pollution taxes for emissions of harmful substances into the environment and the storage and distribution of wastes. In addition a tax is levied for the use of the land for industrial purposes and the extraction companies are also subjected to the usual commercial taxes.

**Luxembourg**

There is no compensation at all.

**The Netherlands**

The domain fees for the North Sea are € 0.32 per tonne. For inland state waters the domain fees amount to € 0.98 per tonne.

In 1998, the Excavation Act was amended. Since 1998 the provinces have been authorised to levy tax up to € 0.10 per cubic metre to meet the costs of compensation measures in case of far-reaching excavations. The application regulations are restricted to restoration and aftercare of the abandoned working site and restoration of the surrounding areas. If compensation has to be paid elsewhere, a single payment can be drawn from the proceeds of the levy. The provinces are also authorised to levy tax up to 50% of the costs with respect to the research and planning of extraction (Excavation Act, art 21f). This tax ranges from € 0.03 up to € 0.05 per cubic metre.

**Poland**

Mining enterprises have to pay income tax according to Act of 29 August 1997 Taxes Law (J.L. No. 136, item 926). The level of income tax in 2004 is 19%. According to the Act of 12 January 1991 on Local Taxes and Fees (uniform text J.L. of 2002 no 9, item 84) enterprises have also to pay local taxes for land and infrastructure.
The level of taxes is laid down by regulations. In 2003 the tax required for land occupied by an economic activity was limited to 0.62 zl per 1 sq. m. The actual amount is determined by the commune. The maximum tax for the buildings connected with economy activity in 2003 was 17.31 zl/m³ and 2 % of structure value (Note in 2004 1€=4.5 zl).

**Slovenia**

All companies have to pay royalty for all exploited mineral resources; they also have to pay fees for land used for mining operations. They also pay a pay back fee for remediation of mine sites or they have to get a bank guarantee for the sum of remediation works.

The mining right holder is liable to pay compensation to the state for the concession in accordance with the provisions of the Mining Act and related regulations issued on the basis of this Act.

The basis for the calculation of such compensation is the average price of a mineral resource unit, and depends on the type, extent and occurrence of the mineral resource. The payment for the implementation of a mining right for exploration is paid as a lump sum when signing the contract and may amount to a maximum of 100,000 tolar per hectare of the exploration area. The payment for the implementation of a mining right for exploitation is payable annually and is a maximum of 100,000 tolar per hectare of exploitation area and a maximum of 20% of the average price of one unit of mineral resources produced in the year concerned. The payment falls to the State and to the community in equal portions, i.e. 50:50. The local community should spend that money only for determined purposes. The State share is an income of the Mining Fund, which can finance or offer loans for: exploration of mineral resources, dispatching of consequences of exploration and exploitation of mineral resources, new mining technologies etc.

**Sweden**

An application fee must be paid in advance to the Mining Inspectorate when applying for an exploration permit or an exploitation concession. The size of the fee depends on the size of the exploration or exploitation area. The holder of an exploration permit must also pay a fee in advance for all the three years that the permit is valid. The fee varies according to the size of the area and class of concession mineral, and it will increase if the exploration period is extended after the initial three years. There is also an application fee to be paid for an exploitation concession, but once the concession has been granted the concession holder does not have to pay any further fees to the State or the landowner(s).

Compensation to landowners and other affected parties in connection with land acquisition is under the management of the Mining Inspectorate in the case of concession minerals. In the case of non-concession minerals compensation is a matter of negotiation between the company and the landowner and other affected parties.
Norway

In the case of claimable minerals, the Mining Act stipulates that a fee must be paid to the landowner(s) for the value of the extracted mineral(s). The fee is 0.1 per cent of the first hand product value from each active claim patent issued to the claim holder. In addition, holders of pre-claim licences and claim patents must pay a registration fee and an annual fee to the State for each licence or claim patent. If the payment is not made in time, the fee will be doubled, and if the fee is not paid before the new deadline, the holder will lose their rights. The project owner must also pay a fee to the directorate for the land designation procedure.

There is no royalty paid to the State for the exploitation of claimable minerals. In the case of non-claimable minerals, will the landowner fee for exploitation of a deposit is decided by agreement between the landowner and the operator. If it is not possible to negotiate an agreement between the landowner and the operating party, the project owner has the possibility to get the necessary land handed over by expropriation if exploitation of the deposit is considered to be of major national interest (see Chapter 3). The compensation to the landowner is decided following an appraisal made by a professional engineer assessor.
Table 11: Ownership of Mineral Rights

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Footnotes

(1) Limestone of very high purity, which is listed under the Mineral Resources Law of Austria or a mineral belonging to the State (i.e. free mineral).

(2) Soapstone and marble are “mining minerals” under the Finnish Mining Act and belong to the state.

(3) In Norway, acquisition of ownership or exploitation rights for limestone and quartz needs a concession issued by the Directorate of Mining, and the Directorate can impose conditions about the exploitation of the deposit(s).
Table 12: Government’s Active Role in Exploration

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<td>Landowner</td>
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</table>

Footnotes

(1) No permit required for minerals not covered by the Federal Mining Act
(2) With the exception of aggregates
(3) Mining ores only
(4) In principle, to indicate prognostic resources
(5) Hungarian Geological Survey
(6) Not important
(7) DGGE and INETI
(8) Regional Directorate of Economy and INETI
(9) INETI of Portugal (Geological Survey of Portugal)
(10) This role corresponds to National and Regional Government
(11) Additional to National geological Survey it is a Regional Geological Survey and other Consejerías involved in geological assistance
(12) In different ways as National or Regional Administration
(13) The former state company Geological prospecting was divided into the local geological prospecting companies which perform local geological and geophysical prospecting.
(14) Geophysical and geological prospecting is ensured by Ministry of Environment of SR - Department of geological research and prospecting. The state releases tenders for geological prospecting works. They are performed by state through the state geological office (ŠGÚDŠ) or by the private companies (in case of the realisation of technical works).
(15) Geophysical and geological prospecting is ensured by Czech geological survey - Geofond.
(16) In Denmark must the prospecting party obtain a permit from the County if the exploration work encompasses trial extraction or sampling of more than 200 m3 of material. The Ministry of the Environment is the only party doing exploration work on state owned marine materials.
(17) The Finish Geological Survey is by far the most active among the Nordic countries in national and international marketing of the potential for mineral exploitation in their country. One of the successful measures has been international auctions of the rights to deposits discovered and further investigated by the Survey.
<table>
<thead>
<tr>
<th>Country</th>
<th>National</th>
<th>Regional or Equivalent</th>
<th>County or Equivalent</th>
<th>Local or Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>National Mineral Plan (National Plan: in preparation).</td>
<td>provincial laws/plans, sub-regional (i.e. district) plans: there exist also some mineral plans</td>
<td>municipal planning programmes, local development plans</td>
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<tr>
<td>Belgium</td>
<td>Federal Ministry of Economic Affairs delivers the authorizations of gravel and sand exploitation on the Belgian continental shelf.</td>
<td>Flemish Region is establishing a framework for defining plans of surface mineral resources.</td>
<td>Local plans, prepared by Municipalities. But do not form an important part of the policy context for quarries and mines, except for very small operations.</td>
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<tr>
<td>Czech R.</td>
<td>Policy Guidance through government's resolution &quot;The Raw Material Policy of the Czech Republic...(1999)&quot;</td>
<td>prepared</td>
<td>prepared</td>
<td>prepared</td>
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<tr>
<td>Denmark</td>
<td>Policy Guidance Notes Planning Directives Planning Regulations¹</td>
<td>General plans and Sectoral plans (optional)</td>
<td>Municipal plans and Local plans</td>
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</tr>
<tr>
<td>Estonia</td>
<td>No specific planning for minerals.</td>
<td>No specific planning for minerals.</td>
<td>No specific planning for minerals.</td>
<td>No specific planning for minerals.</td>
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<tr>
<td>Finland</td>
<td>Indirectly through plans showing areas that are protected due to environmental importance¹</td>
<td>Regional plans may be prepared by groups of municipalities</td>
<td>No specific planning</td>
<td>Municipal Master plans and Town plans/building plans</td>
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<tr>
<td>France</td>
<td>Legislation setting out content of (mineral-)plans</td>
<td>Departmental schemes of quarries (Quarry Plans), realised by departmental commission for quarries (CDC)</td>
<td>Land use plans, showing also mineral extraction zones</td>
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<tr>
<td>Germany</td>
<td>National Planning Law, setting also guidelines for minerals planning</td>
<td>Superordinate planning for a regional/subregional development; considering minerals issues in development plans</td>
<td>municipal planning programmes, local development plans consider minerals issue</td>
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</table>

¹: The importance of environmental protection varies across different municipalities and regions.

Table 13: Planning Framework for Minerals
<table>
<thead>
<tr>
<th>Country</th>
<th>National</th>
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<th>County or Equivalent</th>
<th>Local or Equivalent</th>
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<tr>
<td>Greece</td>
<td>Some national plans for important sectors (e.g. agric, lignite, marble)</td>
<td>Co-ordination of Prefectural plans (Regional Plans to be introduced); considering also siting of quarrying areas.</td>
<td>Prefectural Plans</td>
<td>City Master Plans, Town Plans/Urban Plans, Rural Settlement Plans. Municipalities may also allocate areas to secure future supply of for instance aggregates.</td>
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<td>Ireland</td>
<td>x</td>
<td>Regional Planning Guidelines</td>
<td>General development plans</td>
<td>not applicable</td>
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<tr>
<td>Italy</td>
<td>Minerals issues are particularly integrated in the National Plan for Sustainable Development</td>
<td>Different plans between regions. Emilia-Romagna for example prepares a Mineral Extraction Regional Plan (PAE) for aggregates, which is interpreted at a detailed level by Municipal Extraction Activities Plans (PAEC).</td>
<td>Interregional plans, Much variations depending of regional characteristics</td>
<td>Municipal Extraction Plans in some cases</td>
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<td>Latvia</td>
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<td>Lithuania</td>
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<tr>
<td>Luxembourg</td>
<td>National Land Use Plan; but there are no specific guidelines to regulate the rates of extraction.</td>
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<tr>
<td>Netherlands</td>
<td>one chapter in National Spatial Plan</td>
<td>optional minerals plan and land use plan</td>
<td>n/a</td>
<td>local general land use plans</td>
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<tr>
<td>Norway</td>
<td>National planning and land use policies1</td>
<td>n/a</td>
<td>County plans</td>
<td>Municipal Master plans, Local development plans and Building development plans</td>
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<td><strong>Poland</strong></td>
<td>Conception of land use plan in preparation.</td>
<td>Voivodships land use plans: taking into consideration substantiated mineral deposits</td>
<td>n/a</td>
<td>Local land use plans, which include borders and ways of development of mining areas</td>
</tr>
<tr>
<td><strong>Portugal</strong></td>
<td>According the Law on Spatial Planning: National Plan Use (in preparation), Sector Plans for Mineral Resources (in preparation), Special Plans (coasts, protected areas) (in preparation)</td>
<td>Regional Plan for each Region, Intermunicipal Plans, Estremoz marble Plan</td>
<td>Municipal Plans for each City</td>
<td>Municipal plans, including beside &quot;areas of search&quot;, areas of existing mines/quarries</td>
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<td><strong>Slovakia</strong></td>
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<td><strong>Slovenia</strong></td>
<td>In preparation</td>
<td></td>
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<tr>
<td><strong>Spain</strong></td>
<td>At present National Mining Plans do not exist.</td>
<td>There are mining promotions; but not complete planning processes for minerals.</td>
<td>x</td>
<td>Some communities prepare Mining Sector Plans. Usually to promote mining investigation.</td>
</tr>
<tr>
<td><strong>Sweden</strong></td>
<td>Legislation safeguarding valuable mineral resources, plus co-ordination of Inventory plans by Environmental Protection Agency⁴</td>
<td>n/a</td>
<td>Two types: County Administrative Boards prepare Inventory plans, and Regional plans prepared by Regional Planning Bodies set up by state²</td>
<td>Two types: Householding plans prepared by groups of municipalities or County Administrative Boards, and Comprehensive plans³</td>
</tr>
</tbody>
</table>

**Footnotes**

(1) National government influence is made in different ways through policy guidelines (Denmark and Norway), through specific legal requirements (Denmark and Sweden), or indirectly other legislation that prohibits mineral exploitation in certain areas (Finland).

(2) The Inventory Plans prepared by the County Administrative Boards in Sweden show mineral resources and whether exploitation should be allowed in principle.

(3) The Swedish municipalities prepare Householding Plans which aim to match the need for minerals with the exploitable resources identified in the Inventory Plans prepared by the County Administrative Board which represents national government at county level.
Table 14: Mineral Issues Covered in Development Plans

<table>
<thead>
<tr>
<th></th>
<th>Preferred Areas for Extraction</th>
<th>Safeguarding Important Resources from other Development</th>
<th>Protection of Important Environmental Areas</th>
<th>Environmental Capacity</th>
<th>Recycling and Use of Secondary Materials</th>
<th>Restoration</th>
<th>Transport Modes and Routes</th>
<th>Location of Ancillary Operations</th>
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<td>Preferred Areas for Extraction</td>
<td>Safeguarding Important Resources from other Development</td>
<td>Protection of Important Environmental Areas</td>
<td>Environmental Capacity</td>
<td>Recycling and Use of Secondary Materials</td>
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<td>Transport Modes and Routes</td>
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</tbody>
</table>

**Footnotes**

1. Only for Aggregates through quarry zoning
2. No such areas
3. Economic Mineral Reserves are Protected
4. Nature Conservation areas are protected
5. Generally high capacity in Hungary
6. It is coming into practice
7. Significant improvement in the recent years
8. Not so relevant, but environmental impact statements consider this issue
9. Contemplated in territorial plans, specially in PDM’s (municipal plans)
10. In very few cases
11. They are the Protected territory deposits - CHLU.
12. Traffic System
13. In Finland protection of important environmental areas is incorporated in the exploitation permits rather than plans.
14. In Finland environmental capacity issues are incorporated in the exploitation permits rather than plans.
15. In Finland use of secondary materials is incorporated in the exploitation permits rather than plans.
16. In Finland transport issues are incorporated in the exploitation permits rather than plans.
17. In Finland the location of ancillary operations is incorporated in the exploitation permits rather than plans.
18. Preferred areas for extraction are part of some provincial land use plans but not all.
(19) The licensing process considers transport as a critical issue.
Table 15: Preparation and Status of Development Plans

<table>
<thead>
<tr>
<th></th>
<th>Preparation of Consultation Draft</th>
<th>Preparation of Deposit Draft</th>
<th>Public Hearing</th>
<th>Provisions for Secretary of State Call-In</th>
<th>Development Plan as most Important Material Consideration</th>
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</tbody>
</table>
Footnotes

(1) Development plans are most important consideration for landowner raw materials
(2) Hearings for EIA studies are provided for. Hearing of EIAs for aggregates are handled at the prefecture level
(3) For aggregates only
(4) Obligatory
(5) Required in the second phase of environmental licensing
(6) Mineral resources have a very low priority in development plans, thus inhibiting their exploitation
(7) Regional Governments can modify Municipal Plans and must approve the final Plan
(8) Only in the second category minerals
(9) Related with all Plans
(10) In most cases as possibility
(11) Development Plans are more important in consideration for Regional and Municipal Plans. The development plan concerning the minerals does not exist in Slovakia and Czech Republic. It is partially included in the territorial plan.
(12) In Denmark call-in normally is used for Municipal Plans only. Regional Plans are subject to Minister of State veto.
(13) Public hearing may take place in Finland, but there is no legal requirement.
(14) In Finland all Regional Plans as well as the Municipal Plans in the 16 biggest cities must be approved by the Ministry of the Environment.
(15) Under the Swedish Planning and Building Act decisions under any other Act, including the Mining Act, must, not contravene detailed development plans or area regulations.
<table>
<thead>
<tr>
<th></th>
<th>Mineral Rights owned by</th>
<th>Permit/License Required for Exploration</th>
<th>Administration Fees Payable</th>
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Footnotes

(1) Economic deposit for possible damage
(2) Issued by the Minister of Economy through DGGE
(3) DRE (Regional Directorate of Economy)
(4) It corresponds to Regional Administration
(5) A licence is required from the landowner for permission to explore for minerals
(6) A specific planning permission may also be required under the provisions of the G.P.D.O.
### Table 17: Obtaining Authorisation for Mineral Development

<table>
<thead>
<tr>
<th>Mineral Rights owned by</th>
<th>Responsibility Level for the Decision</th>
<th>Statutory Period for Processing an Application</th>
<th>Statutory Consultation Period</th>
<th>Applicants Right of Appeal</th>
<th>Third Party Right of Appeal</th>
<th>Public Hearing</th>
<th>Use of Legal Agreements</th>
<th>Period for which the Authorisation is Valid</th>
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Footnotes

(1) Autonomous Administration
(2) Indirectly this authority is involved (build permission)
(3) Possibility to pass to PI situation in case of Direct Concession
(4) Really, not less than 1 year
(5) 90 days to process the exploration licence and 120 days the mining licence
(6) 35 days for the exploration licence, and 65 or 80 days for the quarry licence depending if it is granted by the Municipal Council or the DRE (Regional Authority)
(7) District Administrative Authority
(8) Only parties directly involved in the application
(9) Against maladministration in the decision-making process
(10) Hearings for EIAs are provided for.
(11) For metallic minerals with possibility of 25 year extension. For marbles and industrial minerals, initial permit is from 15-25 years to a total final period of 40 years. For aggregates, initial permit is 15 years for a total of 30 years.
(12) For private land, extensions can be indefinite.
(13) For quarries
(14) The Local Mining Offices - OBÚ is responsible
(15) The Local Mining Office responds to the request in 30 days, by completing the request in 60 days. The priority by extraction place allocation has according to the law the organisation which has the licence about reserved deposit. It has to start the extraction in XXXX months.
(16) The consultations can come only after the completion the request. The Local Mining Office will specify the time of consultations.
(17) Exploitation of state owned mineral resources in Denmark is marine sand and gravel sorting directly under the Ministry of the Environment, and permits are issued by the Forest and Nature Agency under the Ministry.
(18) The Danish Raw Materials Act does not require public consultation before authorising extraction proposals. However, after a decision is made, there is a four-week period when parties with legitimate interest can appeal.

(19) Under Danish and Finnish legislation the applicant can only appeal on strict legal matters.

(20) In the case of landowner minerals in Finland, is the right of appeal limited to those who live in the municipality.

(21) For state owned minerals in Finland and Norway is development authorisation valid until the economic resource is depleted.

(22) For landowner minerals in Norway and Sweden will the authorisation mainly depend on the agreement between the landowner and operator.

(23) Authorisation for development of state owned resources in Sweden is given by one of the two regional offices of the Mining Inspectorate.

(24) In England there are sometimes either 2 levels of local authority or a unitary level. Where there are two the upper one (County) takes the decision.

(25) In Wales and Scotland, local governments are entirely composed of unitary authorities and thus it is the “municipal authorities” which take the decisions.
Table 18: Authorisation for Mineral Extraction (Application requirements)

<table>
<thead>
<tr>
<th>Mineral Rights Owned by</th>
<th>Authorisation Required for Extraction</th>
<th>Standard Application Form</th>
<th>Need for an Interest in the Land to Make the Application Valid</th>
<th>Requirement for Applicant to Notify Interested Parties of the Application</th>
<th>Need for Local Authority to Publicize the Proposal</th>
<th>Administration Fees Payable</th>
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**Footnotes**

(1) Administration fee is required. Other expenses are incurred such as for technical studies, etc.
(2) Minister of Economy through DGGE
(3) Regional Directorate for Economy or the Municipality, depending on the scale of operations
(4) Not local authority but DGGE makes public hearings of the application and then makes public notice of the granted licence
(5) Regional Administration
Table 19: The Use of Conditions with Authorisation

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Footnotes

(1) As set down in regional environmental policy, although there are no limits to what conditions can cover.

(2) All aspects are covered by a number of legislation

(3) Regional Administration

(4) State also owns inland waterways

(5) Local Administration

(6) Central Administration

(7) Almost all conditions are defined by appropriate legal instructions.

(8) The listed conditions are specifically defined for every mining area separately. So the conditions are not given by any law but by the existence of the mining area.

(9) Some of the conditions are not very relevant for state owned minerals in Denmark because these are mainly marine mining of aggregates.

(10) The land owners in Denmark have only the mineral rights for resources that can be exploited from the surface. Underground resources belong to the state.

(11) In Finland are such conditions dealt with under separate permits and not in connection with the exploitation concession for mining minerals belonging to the state.

(12) In Norway such conditions will be incorporated in exploitation permits specified either by the Mining Directorate, or the local municipality.

(13) In Sweden are the conditions specified in the legislation mainly focused on the protection of public interest or individual rights, and minimisation of harmful impacts on the natural environment.
Table 20: Restoration and aftercare

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Footnotes

(1) For aggregates and industrial minerals. Not for metallic minerals
(2) Used for enforcement of EIAs
(3) There is a provision to allow local authorities to manage such lands.
(4) Under the scope of the criminal law
(5) Law cover a Financial Assistance
(6) The Environmental Ministry is the competent authority
(7) The Ministry of Industry is the mining authority
(8) Local Authorities often carry out the long term management funded by taxes on extracted minerals
(9) The DGGE and the Institute of Environment are the competent entities in consultation with regional authorities
(10) Regional Directorate for Economy, Regional Directorate for Environment and the Municipality are the competent entities
(11) It is a great variety of condition related with many Regional Norms
(12) The state has no obligation and responsibility for the land recultivation, but the owner who is licensed to mine. Only the organization for supervising of the whole process exists in SR and Czech Republic.
(13) The state has no objections if the appropriate contracts exist. The companies can sign contracts but not in conflict with the law.
(14) This is not legally completed. No obligations to create the recultivation fund exist so far. In Czech Republic there exists a fund for recultivation of territories.
(15) In Finland a bond for restoration can be legally stipulated for landowner minerals, depending on the size of the project.
(16) Both in Norway and Sweden long term land management can be imposed on the operator/owner in connection with extraction permits.
### Table 21: Monitoring and Enforcement

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<tr>
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<tr>
<td></td>
<td>Mineral Rights owned by</td>
<td>Responsibility Level for Monitoring and Enforcement</td>
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<td>Lithuania</td>
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<td>Landowner</td>
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<tr>
<td>Sweden</td>
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<tr>
<td></td>
<td>Landowner</td>
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</tr>
</tbody>
</table>
Footnotes

(1) The responsibility for non-reserved minerals have the Local mining offices - OBÜ
(2) Autonomous authority
(3) In Norway the Mining Directorate is responsible for all monitoring due to the fact that they approve working plans also for landowner mineral deposits.
(4) In Sweden the county can delegate the monitoring of landowner mineral working to the municipality.
Chapter 6  Evaluation of the Impact of Minerals Policies/Systems

6.1 Introduction

In Chapter 2 it was shown that minerals are essential for the economic development of Europe. In the case of many metal ores the demand is met in most Member States through mineral imports whereas in the case of industrial minerals and in particular construction minerals economic and environmental constraints (transport) demand that the requirements of Member States are met through local production or through imports from neighbouring states.

In Chapter 6 the impact on sustainability (of mineral supply) of minerals planning policies and related procedures including the impact on the competitiveness of the European mining and quarrying industries is evaluated. This evaluation is done in terms of the three pillars of sustainability, namely Economic, Social, Environmental factors. In relation to minerals these are:

- Competitiveness of the European mining and quarrying industries;
- Social benefits; and
- Environmental performance

As far as the competitiveness of the extractive industries (or other individual industrial sectors) are concerned, there is no generally accepted definition. A recent DG Enterprise working paper on the assessment of the competitiveness of the EU non-energy extractive industries has highlighted the difficulties encountered in defining the competitiveness of this sector of industry compared to other sectors. These difficulties are that the extractive industry differs in many important respects from most other industrial sectors. Arguably the most significant difference is that the location of the industry and the nature and quality of the material it produces is determined by geology. It also differs from most other sectors, with the possible exception of that for forestry and wood based products, in that as a producer of the basic raw materials required by the downstream industries (whether, for example, as raw material for the ceramics or steel industries, or as construction aggregates for road or house building), the success of the industry is strongly linked to the success and competitiveness of these sectors.

Within the context of this report the competitiveness of the European minerals industry is defined as the ability of the minerals industry to make a significant contribution towards meeting the demand for minerals required by the European industry and society in terms of quantity, quality and cost of production. Competitiveness is controlled by two factors, namely the quality and quantity of mineral deposits and the political, legal, administrative, social and economic environment in which mineral extraction takes place.
Before dealing with the individual factors it has to be pointed out that the competitive environment for metal ores, industrial minerals and construction minerals differ significantly. Metal ores and some of the industrial minerals are traded on international markets and have to compete globally. In the specific case of metal ores, prices are determined at international commodity exchanges such as, for example, COMEX in New York or the London Metal Exchange. In the case of industrial minerals the prices are usually determined by the quality of the product and can vary within wide margins. In the case of construction minerals the market is usually local or regional although the opening of super quarries in coastal regions in North-Western Europe has introduced a new dimension. Here the prices can change significantly even over relatively short distances depending on the local supply situation.

The geological factors governing mineral extraction are determined by nature and can only be influenced by a process of selection. That is only mineral deposits of a certain quality and quantity are considered exploitable. However, as economic circumstances change and/or technological developments in the area of mineral extraction and processing take place, mineral deposits previously considered uneconomical, may become economical. This implies that long-term protection of mineral resources should include also those deposits which under present economic circumstances are considered to be uneconomical.

Considering that the geological factors are pre-determined the evaluation of the competitiveness of the minerals industry concentrates on the political, legal and administrative environment in which minerals extraction takes place. This can be summarised under the heading “Minerals Planning Policy”.

This evaluation of Mineral Planning Policies in Europe therefore has been undertaken using the following criteria (as already discussed in chapter 3):

- Existence of a national Minerals Policy
- Existence of a clearly defined legal base/administration governing
  - Mineral rights
  - Access to minerals
  - Health and Safety
  - Environment
  - Mine closure
  - Monitoring
6.2 Sustainability – Minerals supply

The measurement chosen to evaluate the impact of minerals policies/systems on the minerals industry is the sustainability of minerals supply to European society. In using this concept the following difficulties were encountered:

- Sustainability is a broad concept and embodies values about the kind of world we want to live in and leave for future generations. Human values are not fixed and independent of social, economic, and ecological context, and as a result, there are multiple perspectives on what sustainability means, and how it should be achieved. This is particularly true for the enlarged Europe where significant differences in standards of living and in economic activity exist.

- Within the general framework of sustainability different European countries have adopted different approaches to suit their specific requirements and needs. There are, however, some general threads that guide the discussion on sustainability and the options available to policy makers.

- There are many interrelated issues and as a result several parameters, some of which are only loosely related, can impact on sustainability. In these instances it was sometimes difficult to identify those parameters which have the biggest impact.

6.2.1 Sustainable development – minerals

The following comments summarise the situation in Member States as far as the implementation of the principles of sustainability are concerned. This summary is not complete but provides a representative overview of the situation.

- Austria

  Although there is no legal definition of “sustainable development” in Austrian law the basic principles of sustainability have been implemented in minerals, waste, nature and environmental legislation. The underlying thrust of minerals policy in Austria is to ensure a sufficient supply of minerals to foster economic growth and to protect, as far as possible, mineral deposits from sterilisation due to other users of land. The importance of minerals in land use planning differs from province to province. If exploitable deposits are not found within Austria, then every effort is made to safeguard supplies from other countries.

- Belgium

  Sustainable development plays an important role in the mineral planning policy (i.e. land use planning).

- Czech Republic
The main goals of the raw material policy are to create conditions for securing the requirements of the domestic economy while heeding the principles of sustainable development and environmental exploitation limits.

**Denmark**

The principle of sustainable development is incorporated in most legislation and is also clearly stated among the main objectives of the Raw Materials Act.

**Finland**

The Finnish government emphasises the elements of sustainable development that improve quality of life, ecological conditions and social cohesion. In 1993 the Finnish National Commission on Sustainable Development was established in order to promote and co-ordinate the efforts at different levels in public administration and the private sector. In 2002, 86 per cent of the population lived in municipalities that either have established or are in the process of establishing their own local Agenda 21. No specific references to mineral production and strategic planning of mineral supply in a sustainability perspective have been identified, but the Geological Survey of Finland has a duty to “promote a balanced and sustainable use of natural resources”.

**Germany**

The German government considers that the Rio Conference confirmed the objectives and central features of the country’s existing development and environmental policies. Germany has stated that it will endeavour to ensure that the resolutions of the conference are implemented.

**Greece**

Although Greece has not yet been able to implement any legislative or administrative measures relating to the recommendations of the Rio Earth Summit Declaration, it has submitted a report to the UN on sustainable development.

**Hungary**

The Act XXI of 1996 on Regional Development and Regional Planning was designed in the interest of promoting the well-balanced regional development of the country, as well as the social, economic and cultural development of its regions, furthermore, implementing a comprehensive regional development policy and co-ordinating the national and regional duties related to regional development and regional planning, also taking into account the regional policy of the European Union, as well as the requirements of joining its basic principles, system of means and institutions.

**Italy**

The National Plan for Sustainable Development in Response to Agenda 21 refers to the mineral extraction sector, and puts forward proposals for regulations covering the restoration of exhausted workings and for ensuring the use of the most environmentally friendly extraction techniques. At the national
level, the Government aims to promote sustainable development concepts such as the re-use and recycling of raw materials. However, no specific laws exist relating to the minerals industry. Some regions are promoting such policies, emphasizing the need for recovering materials from demolition sites for use in road construction.

The Netherlands

Sustainability concerning minerals planning in The Netherlands is defined in terms of recycling and the use of alternative and/or renewable materials. Special policies concerning recycling have been very successful. Besides this, guidelines for the provinces have been developed on how to deal with excavations (primary excavations).

Article 7a of the Excavation Act states that the national Structure Plan on Surface Raw Materials should contain, a) the outlines and the basic principles of the policy concerning the extraction of solid materials, and b) the policy for stimulating the use of alternative materials in order to limit the extraction of solid materials.

Norway

With regard to sustainable development, the Norwegian government refers to the Brundtland definition and the three pillars of economic development, social development, and environmental integrity. The government has published numerous white papers for parliament on policies for sustainable development, but the contents are on a superior and general level. No specific references to mineral production and strategic planning for mineral supply have been made. The Mining Act does not mention sustainable development as it dates back to 1972.

Poland

The basis of the existing mineral policy in Poland is the sustainable development principle. Sustainable development concerning mineral resources is defined as the management of mineral resources (prospecting, exploration, extraction and use) so as to ensure their use for the present and future generations. The need for environmental protection and natural balance through reclamation and the redevelopment of exploited areas should be taken into account in the management of the mineral resources.

Slovenia

Sustainable development principles are incorporated into many governmental documents at the strategic level, in particular in those that are linked to the environment and natural resources. The Spatial Planning Act aims to ensure sustainable spatial development.

Sweden
The Swedish government is committed to the principle of sustainable development and the balanced integration of the three pillars: economic development, social development and environmental integrity. This commitment is also affirmed in relation to minerals planning and exploitation in various acts, regulations and instructions.

**United Kingdom**

The minerals policy in the United Kingdom is based on the concept of sustainability, namely:

- Maintenance of high and stable levels of economic growth and employment
- Social progress which recognises the needs of everyone
- Effective protection of the environment
- Prudent use of nature resources

**6.3 National Minerals Policy**

In Chapter 5 the Minerals Planning Policies adopted by the Member States were presented. It was shown that very few of the Member States have specific and clearly defined national mineral policies. However the underlying minerals legislation often incorporates general aspects or elements of a mineral policy. These are based on the concept of sustainable development and the careful use of mineral resources as well as the protection of the environment.

Key elements of a national minerals policy are:

- Importance of minerals for the national economy and infrastructure development
- Determining demand for minerals
- Defining strategies to meet the national, regional and local requirements for minerals, through local supply and/or imports.
- Reduction of minerals consumption, through the promotion of economic and responsible use of minerals, and through the promotion of recycling of minerals and the substitution of minerals with renewable materials
- Promotion of use of local mineral resources to reduce dependence on minerals imports and to minimise transport.
- Promotion of mineral exploration
- Protection of mineral deposits from sterilisation due to other land uses.
• Access to deposits
• Land development planning
• Appropriate environmental standards
• Efficient administrative and legislative structures

Depending on circumstances all or some of the listed policy elements form the national minerals policy. The details of the national minerals policy can give an indication of the importance which a government attaches to the role of minerals for society. As minerals issues are long term they often tend to be moved down the list of priorities.

*Based on a clearly stated national minerals policy the legal and administrative framework can be created and the standards which are attached to minerals production can be defined and set.* It is in the nature of minerals production that these are long-term decisions and as such should not be changed frequently.

Elements of a minerals policy therefore can found at the following levels:

• Policy statements by the national government concerning minerals issues
  - Recognition that minerals are essential for the economic development of a country
  - Strategies to meet the mineral requirements of the national economy in the short, medium and long term

• In the aims and objectives of the principal legislation governing mineral extraction.
  - The establishment of a legal and administrative framework to implement the minerals policy.

• In the regulative framework controlling the minerals industry (e.g. in the provisions of land use planning legislation).
  - In the setting of priorities in cases of competing interests (i.e. land use planning)

As far as minerals policies are concerned the following comments have been made by representative European minerals association. According to the European Aggregates Association (UEPG) a long term and flexible Minerals Policy should be based on the following principles found in Table 22.
Table 22: Principles for an effective and workable Mineral Planning System

<table>
<thead>
<tr>
<th>Planning</th>
<th>European</th>
<th>National</th>
<th>Regional / Local</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Provide a level playing field based on secure access to mineral resources</td>
<td>Consider minerals as a key resource</td>
<td>Identify and protect reserves of mineral resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incorporate minerals in land-use planning</td>
<td></td>
</tr>
<tr>
<td>Decision</td>
<td>Include proportionality</td>
<td>Consider Public Interest</td>
<td>Autonomy from local political pressures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Have a long-term vision</td>
<td>Indicate time length to obtain a permit, or extension of existing permits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clarify which authority is in charge</td>
<td></td>
</tr>
<tr>
<td>Implementation</td>
<td>Monitor best practices across Europe</td>
<td>Promote flexibility by considering local conditions and the specific nature of each project</td>
<td>Give certainty to operators</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Assess the results of the transposed directives impacting the minerals industry</td>
<td>Assess reserves of authorised available resources</td>
<td>Number of permit applications Number of refusals</td>
</tr>
</tbody>
</table>

Source: UEPG, 2004

Euromines and the Industrial Minerals Association (IMA) stated that in order to guarantee sustainable supply for the sustainable development of Europe, the EU needs to:

- Identify its own mineral resources and, where this is the case, their absence,
- Optimise the use of the resources considering sustainable development criteria,
- Provide an effective and stable legal framework characterised by:
  - Competent authorities,
  - Efficient and time conscious bureaucracy,
  - Simplified processes,
  - Stakeholder processes that are carried out on an informed, scientific basis,
  - Decision making processes that are free from party politics but are based on the needs of society.

These comments indicate the importance of high level minerals policies for the sustainable supply of minerals to the European society.
6.3.1 Policy statements concerning minerals

According to the survey of Member States only some of the Member States have at national level a formal minerals policy which guides Governments in the decision making processes concerning minerals development. Some Member States are working on the establishment of a national minerals policy (Table 23). In most Member States governments do not consider minerals to be a priority area.

Austria

In Austria, a minerals policy was formulated in 1980 and had been announced as such. Since then the national and international environments have changed and many of the assumptions on which the original policy was based are no longer valid. This is particularly true for the so called strategic minerals. With the promulgation in 2001 of amendments to the Mineral Resources Act of 1999 the National Assembly requested the Minister of Industry and Labour to develop a Mineral Resources Plan for Austria. Work on this plan commenced in 2002 and is scheduled to be completed in 2007.

Czech Republic

The Czech Republic Government approved a raw material policy in terms of Resolution No. 1311 in December 1999 (“The Raw Material Policy of the Czech Republic in the Field of Mineral raw materials and their Resources”). The decree was arranged by the Ministry of Environment and Ministry of Industry and Trade.

The Raw Material Policy of the Czech Republic in the Field of Mineral raw materials and their Resources is a conceptual document. It originates from the requirements of society for minerals and attempts to define a scope of activities to ensure the supply of minerals either through direct utilisation of domestic mineral resources and through imports of some minerals. The aims of the raw material policy originate from the analysis of the domestic raw material base and prediction of the demands for mineral raw materials in the future. In order to achieve the individual goals, separate tools and their institutional background are specified. Some of the main goals of the raw material policy of the Czech Republic are shown in Table 23.

Table 23: Main Goals of the Czech Republic Raw Material Policy

<table>
<thead>
<tr>
<th>Tools</th>
<th>Institutional Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create condition for securing of requirements of the domestic economy while heeding the principles of sustainable development and environmental exploitation limits</td>
<td>MID, ME, MLD, MF, CMO, SAMR, SGS, district offices, communities, professional associations, civic associations, entrepreneurs</td>
</tr>
<tr>
<td>Industrial policy, energy policy, state environmental policy, legislative regulations, informatics, land development planning documentation</td>
<td></td>
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</tbody>
</table>

Main Goals of the Raw Material Policy
Achieve conditions common in countries of the European Union in the area of utilisation of domestic mineral resources and assessment of their availability, as well as in the area of trade with mineral raw materials including secondary materials

- Legislative regulations, informatics, land development planning documentation, principles of sustainable development
- ME, MIT, MLD, CMO, SGS, commodity exchanges, professional associations, civic associations, entrepreneurs

Further decrease the consumption of mineral resources as result of structural changes of the economy and technological advancement

- Restructuralisation, privatisation, industrial policy, research and development support programmes
- MIT, MF, Academy of Sciences of the Czech Republic, universities, professional associations, entrepreneurs

Reach the level of EU countries in lower consumption of limited sources of mineral raw materials by their profound utilisation and higher degree of utilisation of secondary materials and recycling, with respect to the initial conditions of the mineral raw material base at after period of extensive exploitation

- Economic incentives, principles of sustainable development, research and development support programmes, business support programmes, Waste Act
- MIT, ME, MF, communities, professional associations, entrepreneurs

Specify raw material policy in detail in particular conditions of regions and areas for purposes of decision making in the areas

- Legislative regulations, land development documentation, land utilisation limits
- MLD, MIT, ME, CMO, SGS, district offices, professional associations, civic associations, entrepreneurs, citizens

Ireland

The Irish Department of Communications, Marine and Natural Resources sets out the following objectives:

- To maximise the level of minerals exploration by marketing Ireland’s potential to attract national and international investment.
- To collect fees for prospecting licences and negotiate equitable contracts with developers to secure fair financial benefits for the State.
- To foster and regulate the minerals sector so that it operates in accordance with the environmental, social and economic pillars of sustainable development.
- To gather and analyse intelligence on the E & M industry nationally and internationally, to inform policy/decision-making.
- To formulate national minerals policy proposals and influence policy at international level so as to promote the interests of the State.
• To implement Departmental policy in relation to customer service to ensure that a top class service is provided to customers.

• To ensure, through appropriate management, that Divisional staff perform and develop to their full potential.

• To provide an efficient service to the Minister, Minister of State and other members of the Oireachtas so that they may properly fulfil their representative role.

Ý  Slovenia

While Slovenia makes reference in its National Mineral Resource Management Programme (Mining Act-Article 5) to a Minerals Policy no such policy has been formulated as yet. According to information received\textsuperscript{96} work on a national Minerals Policy is to commence soon.

6.3.2 Aims and objectives of the principal legislation governing mineral extraction

The principal legislation governing mineral extraction is one of the instruments through which national minerals policy is implemented. The principal legislation governing mineral extraction can be a mining act, an excavation act, a general land use planning law or environmental acts (see Chapter 4). Most Member States have revised their principal legislation governing minerals extraction in recent years. The following policy elements feature prominently in the principal legislation governing minerals extraction in most Member States (Table 23):

• The exploitation of mineral raw materials should be on the basis of the principles of sustainable development.

• Exploitation should be done in an environmentally appropriate and responsible manner and the land used for mineral extraction should be restored and returned for alternative future uses.

• Recycling and the use of waste materials and secondary materials should be promoted.

Ý  Denmark

The Raw Materials Act has the following main objectives:

That exploitation of mineral raw materials onshore and off-shore is undertaken according to the principles of sustainable development. This must be assured after a comprehensive evaluation and weighting of interests regarding the quality and supply

\textsuperscript{96} Dr. S. Solar from the Geological Survey of Slovenia reported that work on a national Minerals Policy is to commence soon.
of mineral raw materials, sound exploitation of resources including commercial and societal aspects, and appropriate environmental protection.

Denmark has been very active and successful in developing policies to encourage recycling and reuse of heavy construction waste from demolition and asphalt waste, and at present about 90 per cent of such waste is being reused instead of being deposited or incinerated.

**Finland**

The fact that the mining legislation defines a number of mineral substances that can be freely explored for and exploited, regardless of who owns the land, is in itself a clear expression of a national raw material policy. Society wants public ownership and free access to these resources in order to facilitate economic growth, increased employment and increased export and/or decreased imports of important raw materials.

**France**

In France, large public companies were responsible for the extraction of iron, coal, potash and uranium. Most of the companies have ceased operating or have the intention to stop production by 2004 or 2005. Apart from these large companies, there were numerous small mining operations active, all over France. Only ten to twenty small mines will remain in operation after 2005.

The emphasis of mineral extraction is now on construction minerals and industrial minerals. At the level of the Departments, the Law of 4 January 1993, being the legislation for classified installations for environmental protection (ICPE, ‘Installations Classées pour la Protection de l’Environnement’), it is stipulated that an analysis has to be conducted of the need for natural materials, the geological possibilities and the production capacity. By 2002, about 80 % of these studies were completed. For gravel and crushed rock, inter-regional evaluations have also to be conducted, mainly as there are some areas with large or very large consumption. For industrial minerals, such an analysis has to be done at the national level, as the transport cost is less relevant. The overall policy of the Government is to:

- secure the supply of minerals,
- encourage the rational use of natural resources, including recycling, within the framework of sustainable development,
- promote the further development and the competitive position of the extraction industry.

**Hungary**

The country does not have an explicit national mineral policy in a separate legislative document. Act XLVIII of 1993 on mining was tailored to fit the free market, but it does not reflect the long-term, strategic national, regional and
local interests. The act refers to mineral resources management among its objectives, to royalty payment exceptions, and to criteria for the approval of technical operation plans. It defines mineral management as: "including the activities, measures, production programmes, prospecting, exploration and working systems and methods, which serve the economical exploitation of mineral raw materials in such a way that they do not damage parts of the mineral resource not included in the mining activity, and protect them for the purpose of future exploitation; and enable at the same time the reduction of losses, as well as the exploitation of mineral resources as complete as technically feasible and as justified by the market conditions".

**Norway**

The mining legislation defines a number of mineral substances that can be freely explored for and exploited regardless of who owns the land. This can be seen as a clear expression of a national raw material policy. The legislation, however, has historical reasons going back hundreds of years, and is not based on present political priorities with regard to economic development in connection with the exploitation of minerals. Society in its time wanted public ownership and free access to these resources in order to facilitate economic growth and industrial development based on mineral raw materials. The legislation from an industrial/economic, a strategic, or a sustainable development point of view, is however, not actively promoted by government. National and regional government is to a very limited extent engaged in promoting development of the mineral sector.

**Sweden**

The Environmental Code Chapter 3 §7, states that areas that contain valuable substances or materials, be protected as far as possible against measures that can seriously jeopardise the exploitation of these substances and materials. This statement also applies to mineral deposits of national interest. With regard to aggregates, the Swedish government has imposed a tax on the production of sand and gravel in order to preserve limited reserves in the southern part of the country where the majority of construction activities are taking place. The goal is to reduce the use of sand and gravel from the present (2002) 23 Mt per year to about 12 Mt in 2010. By the same time recycled materials should constitute 15 per cent of the total aggregate consumption.

**Belgium**

For the extraction of gravel in the Province of Limburg (Flemish Region), the Regional Government has taken a significant initiative. On 14 July 1993, they approved a Gravel Decree, aiming at a systematic reduction of river gravel production in the Belgian Province of Limburg. This Decree was further amended by the Decree of 6 July 2001. From 2006 onwards, there should be no more extraction of river gravel, except as a side product of other extraction activities (e.g. sand extraction or large civil engineering projects). A fee is charged per tonne of gravel extracted and an organisation (foundation) has been established to manage this money. The aim of the foundation is amongst others
to examine alternatives for gravel, to help in the re-structuring of this branch of the industry and to assist with the social aspects for the people working in the quarries etc.

Similar actions were taken in the Netherlands for the extraction of sand and gravel in the Dutch Province of Limburg. As the date to end production (end of 2005) approaches, a future policy has to be developed, based on the economic consequences of this Decree, on possible alternative products and on the possibility of imports. The future policy should look at economical, environmental and social aspects. As the original planned production volume will not be reached by the end of 2005, there will most probably be an extension of this date.

6.3.3 Provisions for the mineral industry’s future operations and the regulative framework within which the industry operates

National Level

Netherlands

From 1996 onwards, the government’s extraction policy is expressed in the first National Structure Plan on Surface Raw Materials. The National Minerals Plan includes an inventory of geological reserves and forecasts of future mineral demands for different surface minerals. The whole of the Netherlands is divided into zones:

- Areas where in principle no minerals extraction will be allowed
- Areas where extraction may be allowed subject to certain conditions
- Areas where in principle mineral extraction will be permitted.

In June 2001, part 1 of the second National Structure Plan on Surface Raw Materials was published. Part 2 was published in July 2002. The structure plan was established under the responsibility of the Ministry of Public Works and Water Management. In May 2003, the Secretary of State of Public Works and Water Management announced the withdrawal of government’s role in mineral planning and raw materials supply. As a consequence, Part 3 of the Second Structure Plan will not be published and/or affected. The main reasons for the reduction of the governmental role are financial cut-backs, and the encouragement of a more market-oriented extraction sector. The national policy on surface raw materials will be integrated into the National Spatial Plan (April 2004). In this case the responsible minister is the Minister of Housing, Spatial Planning and Environment.

England and Wales

A totally different approach to minerals planning, as far as construction minerals, i.e. aggregates are concerned, has been adopted by England and Wales. In these
countries the National Government exercises influence over minerals extraction through the publication of national policy guidelines in so called “Mineral Planning Guidance” (MPG) documents. These guidance documents recognize the need for minerals extraction and lay down certain general guidelines on how this can be accomplished. In contrast to the Netherlands or other Member States these guidance documents do not define particular areas of land which have been set aside for mineral extraction or where minerals extraction is prohibited. A similar system is in place in Scotland where advice on minerals planning is given through Planning Advise Notes (PAN’s).

The most important feature of the minerals planning approach adopted in the UK is that the need for the provision of minerals is recognized and specified, usually in so called landbanks (for aggregates); but it is left to the lower levels of government to determine how to achieve the specified targets. In MPG6 a landbank is defined as a stock of planning permissions for the winning and working of aggregates. It recommends that for sand and gravel Mineral Planning Authorities should aim to maintain a landbank sufficient for at least 7 years’ extraction and for crushed rock of 10 years or more. In Scotland a period of 10 years is recommended. In Wales, Minerals Technical Advice Notes (MTAN) 1: Aggregates states that a minimum 7 year landbank should be maintained for sand and gravel and minimum 10 year landbank for crushed rock throughout the plan period of development plans. Where landbanks already provide for more than 20 years of aggregates extraction, mineral planning authorities should consider whether any further extraction would be justified.

**Regional level**

In most Member States the responsibility for implementation of minerals policies has been delegated to lower tiers of government. Examples of this are Belgium, Germany, Italy, Netherlands, England, Wales, Sweden and others.

In the case of mineral policies at lower tiers of government the policies are usually executed in connection with land use planning. Two fundamentally different approaches have been adopted, namely:

- To define areas where mineral extraction is either permitted or prohibited (Netherlands, Belgium, Denmark, Austria (not systematically, different provinces apply different concepts), Bavaria, others)

- To provide guidelines for minerals provisions and to use these guidelines in the preparation of structure plans at county level which in turn are the basis of local development plans (UK).

**Belgium**

The market determines the production of raw materials. Various levels of the Federal State (Federal and Regional Governments, plus Provinces and Municipalities) are directly or indirectly involved in providing permits for exploitation and for monitoring.
The plans for land use (in the Flemish Region ‘Structuurplan Vlaanderen’ and for the Walloon Region ‘Plan de Secteurs’) are important tools. Due to the high population density, there is competition between different land uses. The plans for land use sometimes limit the extraction possibilities, especially in cases where the land is not considered as a future extraction site. Hence, these plans for land use may allocate potential extraction areas to totally other uses, such as industrial, housing, agricultural or nature areas.

Presently, the Flemish Region is establishing the framework for making plans of surface mineral resources (‘Oppervlaktedelfstoffenplannen’). Also, in the Flemish Region, the exploitation of gravel in the province of Limburg forms a special case. The Gravel Decree of 1993 provides the gradual reduction of gravel extraction and an end to extraction in 2006. Preserving the environment, increasing conflicts in land use (gravel pits coming too close to living areas) and rehabilitation problems led to this decree. Now that the deadline is approaching, studies are going on to determine the advantages and drawbacks of extending the deadline. A prolongation seems not to be excluded for the moment.

Ø Norway

In Norway the location of extraction sites is part of the municipal master planning process.

Ø Germany - Federal State of Bavaria

A comprehensive Minerals Policy was established by the government of the Federal State of Bavaria in Germany\(^\text{97}\) in connection with the revision of the Development Programme in 1994. While the review of this programme was motivated by ecological considerations much attention was given to creating an environment which promotes economic development.

In this connection the importance of access to minerals for the future development of Bavaria was formally recognized and measures defined to ensure protection of mineral resources for future use. A number of measures of how this can be achieved were identified. Amongst these were the inclusion of areas reserved for mineral extraction and inclusion of mineral protection areas in regional land use plans. Particular attention in the development plan was given to construction minerals which were identified as being of key importance for the economic development of Bavaria. Other measures concerned risk sharing in exploration work and minimising the environmental impacts of minerals extraction.

6.3.4 Summary of Observations concerning Minerals Policy

Minerals Policy is in many Member States a low key issue and few Member States have specific and clearly defined and published mineral policies. Most Member States have however a principal minerals legislation which is based on the concept of sustainable

\(^{97}\)Government of Bavaria. Development Programme for the State of Bavaria. 01.03.1994
development. Most Member States delegate implementation of minerals policy issues to lower tiers of government. This is particularly the case for construction minerals. At this level the instrument to implement the policy is land use planning. In countries which do not have clearly defined mineral policies minerals issues are at this level often allocated lower priority compared to other issues such as environment protection.

Access to and protection of mineral deposits is another important aspect of mineral planning policies. This aspect features in the legislation governing land use planning of only a few of the Member States. In most Member States no reference is made to minerals being an important consideration in land use planning. Some Member States have however identified areas which have been set aside for minerals extraction.

A number of Member States have minerals legislation which dates back to a time when minerals were considered as one of the pillars of economic development and for this reason minerals were given a high legal status as reflected by the category of “free minerals”, i.e. Austria, Germany, and Norway. However, this preferential status was received for minerals of high intrinsic value and not accorded to construction minerals. Today, environmental priorities and other considerations dominate and the role of minerals has diminished.

### 6.4 Legal and Administrative Framework of European Mining and Quarrying Industries

As discussed in Chapter 3 the minerals planning policy – legal and administrative framework concerning the extractive industry – is seen as the means of implementing the National Minerals Policy.

#### 6.4.1 Legislation

All Member States have legislation governing mineral rights, licensing of minerals exploration and exploitation, monitoring and supervising of mining activities and mine closure.

#### 6.4.1.1 Principal legislation to control mineral extraction

With regard to the principal legislation controlling mineral extraction there exist - as discussed in Chapter 3 – in addition to the specific minerals legislation (i.e. Mining Act) other forms of legislation, such as an excavation act, planning act or other laws which impact on mineral extraction. In some Member States the specific minerals legislation no longer applies (e.g. Belgium) or applies only to minerals which do not belong to the landowner. In addition to the specific minerals or raw materials legislation there are a number of other laws which are of direct or indirect relevance to minerals extraction in the Member States. These cover the following areas:

- Nature conservation, environmental protection,
- Water, agriculture, forestry
As a result, minerals of low value (mostly aggregates) are legislated by other laws; usually by a general land use planning law or an environmental law (e.g. Belgium, France, Germany).

There is an increasing tendency in Europe to regulate minerals extraction through provisions in other legislation, i.e. environmental protection. As most of these provisions are of a prohibitive nature minerals extraction is adversely affected.

A feature of European legal practice which impacts on the competitiveness of the minerals industry are the increasingly more stringent environmental standards which are formulated at European level, promulgated in the form of EU-Directives and ultimately become national law.

6.4.1.2 Mineral Rights

In most Member States several categories of minerals are defined. Usually these are minerals of lower value (construction minerals and some of the industrial minerals) with the mineral right belonging to the landowner and minerals of higher intrinsic value (e.g. metallic ores) with the mineral right usually belonging to the state.

In most Member States the minerals legislation distinguishes between minerals that belong to the state and landowner minerals. In some countries there is a third category of minerals, namely the so called free minerals.

In the case of landowner minerals a private law agreement has to be reached with the landowner concerning the use of the land for mineral extraction and, in addition, agreement has to be reached on royalty payments for the extracted minerals.

In the case of minerals belonging to the state the land required for mineral extraction can be expropriated if this is in the public interest and if no private law agreement can be reached with the landowner. As far as mineral rent is concerned the situation is different in different Member States. In some states a mineral rent has to be paid whereas in other states this is not the case. For free minerals no mineral rent has to be paid to the state.

The special rights which are attached to minerals of intrinsically higher value are often a measure of the importance which the state attaches to the mining of these minerals. In Member States where this applies the extraction of minerals has been given priority over other uses of the land as the minerals legislation provides for the expropriation of the land if this is seen to be in the national or regional interest.
Some countries such as Austria and Germany have more complex mineral rights which also include so-called free minerals where the mineral right lies with the State but anyone is allowed to mine such minerals provided they meet certain technical and financial criteria. In Norway, where the mineral legislation was modelled on the German legislation, the principle of “freedom to mine” exists. The same principle applies to Finland and Sweden. In this case the mine operator does not have to pay a royalty to the State but has to secure the use of the land where the mineral deposit is situated. From the point of view of access to land this category can be treated in the same way as minerals that belong to the state.

In the case of landowner minerals the mine operator usually has to pay a mineral rent to the landowner. The same applies to free minerals in Norway, Sweden and Finland.

6.4.1.3 The legal structure of minerals extraction

National legislation, usually in the form of a mining law, lays down the principles for acquiring the right to exploration and exploitation.

Legislation (and enforcement) in many Member States is the responsibility of the regional or local tiers of government. This includes the setting of precise conditions for mineral extraction, and environmental protection, such as methods of working, waste management and site restoration.

Proper implementation and strict enforcement of legislation are essential pre-conditions for ensuring effective environmental protection and even-handed treatment of the industry.

To achieve these results, adequate legal structures are necessary. Clearly stated legal structures also provide adequate administrative structures, i.e. efficient, transparent structures, to deal effectively with the issues arising.

Aspects of national mining legislation most relevant for the business climate and the competitiveness of the industry include:

- Property rights over mineral/land
  - access to mineral deposits
- Regulatory framework
  - licensing scheme (including co-authorities),
  - licensing deadlines,
  - appeals,
  - sanctions, etc.
- Administrative tools
  - designation of prohibited and favoured areas,
o EIA
  o leasing tenders, etc.

• Economic-financial tools
  o royalty,
  o royalty exemptions,
  o environmental taxes,
  o government subsidies,

• Security of investment

Experiences in some Member States indicate that the required legal certainty does not always exist. For example, in Germany land has been set aside for mineral extraction as part of the land use planning process but there is no guarantee that mineral extraction is actually permitted in such priority areas. This creates uncertainty on the part of the developer.

 República de Dinamarca

A good approach is one which, integrates the different issues to authorisation of minerals extraction, i.e. environmental and land use provisions, in one law. An example is Denmark: Paragraph 8 of the Raw Materials Act which states specifically that an application for mineral extraction is also an application for permits required by other relevant legislation e.g. the Water Supply Act, the Nature Conservation Act etc. This means that the county authorities assess and address all the relevant legal issues in co-operation with other responsible authorities as part of the permitting process.

Greece

Conversely in Greece, there is no single Mining Law or Mining Code that covers the different issues to authorisation of minerals extraction. This creates a large confusion to prospective mining companies and also creates long delays for permitting even simple operations. There is a large number of Ministerial Decisions, Presidential Decrees and other legal paperwork amending or clarifying aspects of the exploitation of industrial minerals and aggregates, especially with respect to environmental controls, fees and fines etc. This has been coded by different agencies (i.e. the technical chamber of Greece, the Inspectorates of Mines of Northern and of Southern Greece, etc).

However, it should be noted that there is currently a political agenda to come up with a framework law to cover the mining of industrial minerals and aggregates in Greece.

Finland
Processes and procedures to obtain mineral rights are *clearly stated* in Finland. There is a *general right* for anyone to prospect for mining minerals, regardless of who owns the land. There is no legal need to obtain a permit for surface mapping and similar work that does not entail excavation work, road building, drilling etc. The restrictions which exist are in connection with proximity to built-up areas, infrastructures, military areas etc. There is a requirement that the prospector has to inform the landowner or, in the case of public land, the local registrar’s office before the work starts.

In Finland, the process for obtaining mineral rights *consists of four steps leading from prospecting/exploration to exploitation*. The four steps are:

1. Reservation of the right to apply for a pre-claim licence (inmutningsområde) for a single area of up to a maximum of 9 km² (This step may be skipped).
2. Direct application to the Ministry for a pre-claim licence, which is:
   - Granted for a single area of up to a maximum of 1 km²,
   - Issued for a period up to five years, and can be extended by a further three years.
3. Application for a claim patent (utmål) for successful discoveries that are considered technically and economically recoverable with a reasonable probability.
   - It is possible to apply for both a pre-claim licence and a claim patent at the same time, provided that the probability of an economic mineral deposit is high.
   - If the project is of a size and type to warrant an environmental impact assessment according to the Environmental Assessment Act No. 468 of 1994, the assessment must be made and documented, and the report shall be submitted together with the application for a claim patent.
4. Issue of a mining right which is secured by a claim patent. The claim patent is issued for 10 years and can be extended. In order to explore and exploit minerals other than the mining minerals, agreements or contracts must be made with the landowner(s).

### 6.4.2 Administrative structures

From an administrative point of view the exploitation of mineral deposits involves the following main activities:
• Authorisation for Mineral Development (Mineral rights and the issue of exploration- and exploitation permits, environmental permits, as well as mine closure certificates)

• Monitoring and enforcement (Supervision of exploration and exploitation activities, health and safety during operations, environmental performance)

The discussion of the legislative environment has shown that a number of different laws are of relevance to mineral exploitation and that these laws are administered by different government, provincial and local authorities. This raises the issue of the effectiveness and **efficiency of the administrative processes governing mineral extraction**.

Efficient and effective administrative structures are essential to speed up the authorisation process, to save costs and to enhance industry confidence. This is particularly important for SME which often lack internal resources to deal with the issues effectively.

The study has shown that different approaches have been adopted by Member States and that in some cases the situation can be quite complex with the potential for inefficiencies, time delays and increased cost. 98

For this reason the administration of mineral extraction processes has been examined below under the headings “Authorisation of mineral development” and “Monitoring and enforcement”. Under “Authorisation of mineral development” all processes will be considered which are necessary to obtain the mineral rights, exploration permit, exploitation permit, environmental permits, and after completion of the mining activities the closure procedures.

**6.4.2.1 Authorisation of mineral development – Responsible authority**

The situation observed in the Member States is summarised in Table 16. Table 16 gives details of the administrative level at which decisions are taken and shows that substantial differences in the authorisation process exist between Member States. In the case of state owned minerals the responsibility for decision making in most Member States is at the national level whereas for landowner minerals the decisions are usually taken at a lower level, that is at the regional, county or municipal level.

Not evident from Table 16 is which authority actually makes the decisions. In none of the Member States is mineral extraction the responsibility of a dedicated Ministry or Government Department.

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98 The authorisation procedure for new extraction projects in Austria typically involves the following agencies: for state controlled minerals: National Mining Authority, Nature Conservation, Environmental Office of the provincial government, Forestry Department, Water Authority, Waste management office of the provincial government, Labour Inspectorate, District office of the provincial government. For landowner minerals the situation is similar except that the National Mining Authority is not involved except in cases where landowner minerals are extracted from underground. As a result of the large number of agencies participating in the authorisation process the time required to complete the process take several years. Similar situations are reported from other countries, for example Bavaria in Germany.
The responsibility for minerals at government level often rests with the Ministry of Trade and Industry, the Ministry of Economic Affairs or the Ministry of the Environment. In some of the new Member States the National Geological Surveys are involved in the administration of minerals extraction. Issues involving environmental protection, nature conservation, water, land use planning, health and safety, etc. are usually covered by dedicated government departments.

As a result several different government departments can be involved in the authorisation process. In some instances the responsibility for the process can change during the authorisation process from one department to another. Table 16 shows that in some Member States several levels of government are involved in the decision making process. This can create difficulties and result in unnecessary delays in the authorisation process. To illustrate the complexity of the administrative structures (concerning the authorisation process) the situation in a number of the Member States is described below.

**Austria**

In Austria, the administration of the authorisation process is the Minister of Economic Affairs and Labour. Within this ministry there are several departments or sections within departments that participate in the process. The lead unit is the Mining Authority which is responsible for the authorisation process involving the state owned and free minerals as well as the authorisation of mining operations of landowner minerals that are extracted from underground. As far as the remainders of the landowner minerals are concerned responsibility for the authorisation process rests with the Trade Department of the Ministry of Economic Affairs and Labour. This department has delegated its responsibility to the provincial governments which in turn have delegated some of the responsibilities to the district (county) administration.

An essential part of the authorisation process is the environmental impact assessment. All mineral extraction ventures exceeding 10 hectares require an environmental impact assessment. This component of the authorisation process is the responsibility of the provincial Governor and the head of the environment unit of the province. The Mining Authority which is the lead agency for the overall process enjoys only the status of a party in the environmental impact assessment. Other government agencies that become involved in the authorisation process are the provincial nature conservation agency, the forest department, the water authorities and the labour inspectorate. Third parties have the right to participate in the authorisation process and also have the right of appeal. The hearings in connection with the environmental impact assessment are public. These factors usually result in a very drawn out authorisation process which can exceed several years. This has led to regional shortages of authorised mineral reserves and has become a serious problem for mineral producers.

**England and Wales**

In England and Wales the Authorisation process is governed by Mineral Policy Guidance documents which are prepared at national level.
A central element of the process is the concept of landbanks as explained earlier.

Planning applications are administered at county level. Before the Mineral Planning Authority (MPA) reaches a decision on a planning application it notifies or consults interested parties and takes into account their views. The MPA can not decide an application for planning permission before the end of the period of 21 days beginning with the date when a notice was displayed or served. This is done to allow members of the public and persons with an interest in the land to make representations to the MPA concerning the proposed development. Planning Authorities are required to advertise planning applications according to Article 8 of the GDPO which states: “A detailed communications and consultation process has to be followed if the development is subject to Environmental Assessment, or does not accord with the development plan, or would affect a public right of way to which Part III of the Wildlife and Countryside Act 1981 applies.”

France

For mineral resources such as coal, lignite, and metallic ores, it is still the national government, which issues the extraction permit. For quarries, it is the DRIRE (‘Direction Régionale de l’Industrie, de la Recherche et de l’Environnement’), and the regional Directorates for industry, research and environment, which evaluates the application, but the DRIRE reports to the general council for mining (‘Conseil Général des Mines’). Finally, it is the Ministry of Industry who decides on the permit. The procedure for a mining permit can take several years. Reasons for refusing a permit application are, for example, a major impact on the natural and/or human environment, high risks or uncertainty about these risks, and insufficient technical or financial guarantees. The applicant may appeal, first to the Administrative Court and second to the State Council (‘Conseil d’Etat’), against the decision to refuse permission. Third parties have also the right of appeal for a six month period, following authorisation. Third parties may be individuals or corporate bodies.

Applicants for an extraction permit do not have to own or be renting the land before making an application. However, they must have the authorisation of the owner to apply for an extraction permit. Mineral developers have to provide a public notice of their intentions, by both advertising the plans in a newspaper and displaying a notice on site or near the site.

For mined materials of national importance, there is a procedure whereby the operator can apply for the temporary occupation of the land, in order to use the land required for mining, without obtaining the ownership of it.

Authorisation for mineral extraction is given by the departmental Prefect (‘Préfet’), who is the central Government representative at local (departmental) level. The Regions do not have a significant role in the authorising process. However, the regional Directorates for industry, research and environment (DRIRE, ‘Direction Régionale de l’Industrie, de la Recherche et de l’Environnement’) play an important part in the authorisation process. The
Directorates are the regional services of the Ministry of Industry, but they also carry out assignments for other Ministries, e.g. Environment, Research and Transport.

The DRIRE examines the results of a public hearing and the advice of the Municipality and other organisations involved (e.g. water, military, etc.). The public hearing has to be announced in the town hall and in two local newspapers. The basic length of a hearing is one month, but can be extended by 15 days. The DRIRE reports to the CDC, the departmental commission for quarries (‘Commission Départementale de Carrière’), which advises the departmental Prefect (‘Préfet’). The report by the DRIRE is also forwarded to the public hearing commission, the mayor and the applicant. It is the Prefect who takes the final decision and publishes this decision. In most cases, the Prefect follows the advice of the CDC.

The procedure for a quarry permit takes normally between 6 and 12 months. The applicant may appeal, first to the Administrative Court and second to the State Council (‘Conseil d’Etat’), against the decision to refuse permission. Third parties have also the right of appeal for a six month period, following authorisation. Third parties may be individuals or corporate bodies.

A one-off tax or an annual tax is payable when authorisation for a quarry is granted, renewed or extended, as part of the legislation on installations classified for environmental protection purposes (ICPE, ‘Installations Classées pour la Protection de l’Environnement’).

The three examples illustrate the spectrum of differences that exist in the administration of applications for mining permits. They highlight the implications of the minerals planning policies adopted by the various countries on the administrative processes:

<table>
<thead>
<tr>
<th>Administrative Structures</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Level Policy Guidance, Local Level decision making</td>
<td>England and Wales, Scotland</td>
</tr>
<tr>
<td>Involvement of Central Government - local level</td>
<td>France</td>
</tr>
<tr>
<td>Involvement of Government at national, regional, local level (district level)</td>
<td>Austria</td>
</tr>
</tbody>
</table>

Germany

Minerals covered by the Mining Act:

Approval procedures under the Federal Mining Act (‘Bundesberggesetz’): The overall operations plan represents the basis for subsequent operation plans and is usually approved for a period of 10 to 20 years. However, as it does not permit
the installation and operation of a plant, the operator is required to submit additional operations plans. The approval of the overall operations plan by the mining authority merely implies that the project meets the requirements necessary for approval. The main operations plan is to be drawn up for the installation and operation of a plant. The contents of overall operation plans may vary, among others depending on:

- Extent and type of plant
- Methods of exploration and extraction
- The phase of operation for which the main operations plan is drawn up

The main operations plan is approved for a fixed term of two years. The authority is entitled to extend or shorten this period of time according to the prevailing circumstances. In order to carry on with the operation of a plant, the main operations plan must be either drawn up again or extended. A main operations plan for the operation of a plant must comprise the following:

- Details on the installations and facilities of the plant, development of the plant
- Methods of exploration and extraction used
- Equipment used

Minerals not covered by the Mining Act:

The minerals (i.e. construction minerals) are the property of the landowner and the operator is allowed to explore for and extract them without requiring a mining licence. Nevertheless, the operator must be granted the right to use the land for the purpose of exploration and extraction of the minerals. There exists no uniform body of law for (construction-) mineral extraction in Germany.

Environmental permission for all minerals:


Greece

The authorisation procedure is highly centralised. To apply for a permit for extraction, the applicant has to have gained the rights for extraction from the State, thereby establishing a concession from the State to extract. However, to implement the concession an operator requires a (further) permit which can only be granted once a technical report has been submitted to the Ministry of
Industry detailing the type, quality and quantity of minerals to be extracted, and work specifications for working including timing and phasing.

In addition to the technical report, the operator must also submit an environmental assessment (EA) to the Ministry of the Environment. If the site is in an area designated as a Protected Forest (as most are), a detailed EA also needs to be submitted to the Forest Service which is part of the Ministry of Agriculture.

Hungary

Irrespective of whether the right of exploration was granted by a licensing process or through a concession the first obligatory step to the exploitation is the establishment of a mining plot, as defined by §26 of the Mining Act. The documentation to support the application is the final report of the geological exploration, which should prove the existence of economic mineral reserve and demonstrate that the planned mining activity is viable. The licence is issued by the mining authority, with the involvement of professional co-authorities (Geological Survey, Environmental Inspectorate, National Park Directorate, Directorates of Water Management, local municipality), the representative of the local government and the owners of the surface land.

To start the mining activity a technical operation plan (§27) and construction licences (§31) have to be approved by the mining authority based on the consent of other authorities. The mining act gives provisions for the duration of technical operation plans (TOP). In case of underground mines an accepted TOP is valid for two years, and for five years in the case of open pits. However TOPs have to be revised annually and have to be submitted to the mining authority in case of modification (§27).

For the establishment of new mining facilities within the same site construction, environmental (and other) licences are needed.

According to §30 a break in operation can last for three years and has to be granted by the approval of a technical operation plan. After three years the authorities can initiate final closure and remediation of the mine. The mining licence is transferable to another company. This applies to the concession contract and the licence granted by authorities. In the first case the consent of the Minister of Economy is required, whilst in the latter case the consent of the mining authority is sufficient (§18, 26 of the mining act). The content of the attached documentation required for the application for the transfer is as follows:

- the legal declaration of taking over all obligations (incl. remediation, decontamination, royalty, etc.),
- the account of the exploitable mineral reserves,
- the company registration documents,
• proof of financial liability and other human and technical resources,
• agreement on the transfer of ownership of related facilities.

Ireland

A planning permission is obtained from the Local Planning Authority. One of the most important requirements is a Environmental Impact Statement which has to be prepared by the developer, containing an analysis of the likely effects of the project on people, flora, fauna, soil, water, landscape etc. The Planning Authority has two months to decide whether to:

1. Grant permission with or without conditions.
2. Refuse permission with reasons.
3. Ask for more information.

After reply by the developer, the Planning Authority has another two months to make a decision. Common planning conditions are:

- Replacement of water supplies
- Upgrading roads
- Landscaping
- Control and monitoring of subsidence
- Provisions for closing the operation once the deposit has been mined out

Latvia

The authorisation for the extraction of common minerals is done by local authorities, which issue extraction permits. In order to commence production of minerals it may be necessary to carry out an Environmental Impact Assessment. The mining activities must be authorised in terms of environmental protection by the national or regional environmental institutions boards. Such an authorisation is carried out by Environmental Impact Assessment State Bureau.

Netherlands

Extraction companies must apply for an extraction permit with the province or a regional directorate of the Directorate General for Public Works and Water Management (State Waters). An extraction permit is provided when the request is in accordance with the provincial Regional Spatial Plan (Spatial Planning Act) and/or Regional Mineral Extraction Plan (provinces and/or state waters). A Mineral Extraction Plan can be issued as part of the Regional Spatial Plan or Regional Policy Document. A Mineral Extraction Plan is not compulsory. The
Regional Land Use Plans and the Regional Mineral Extraction Plans have to be consistent with the National Spatial Plan (2004).

The provincial executive plays a central role in the decision making process. During the application process three main stages can be distinguished: Preparation stage (no time limit); permission process (6 months); appeal process.

In legal terms, the application needs to be admissible. It needs to comply with the following conditions, stated in the Excavation Law, the Provincial Excavations Ordinances and the Administrative Law Act:

- preliminary talks;
- filling in the application form (obtainable from the regional body);
- Land registry extract for the land (maximum 6 months old);
- Official drawings which show the land and that adjacent to it;
- Topographic map, scale 1:25,000. (with shaded areas);
- Blueprints with cross sections. These drawings consist of civil engineering drawings and design drawings. The civil engineering drawings need to contain slopes, benchmarks of the existing ground level, groundwater levels, transverse sections etc.

At the request of the applicant, the authorized body needs to be conducive to coordinated consideration of the application. When the Administrative Law Act is applied to the preparation of decisions, a decision is usually made within six months. Two variants for applying for an environmental permit can be distinguished: first the “standard procedure” and the “extended procedure”. This “extended procedure is being adopted in case the application concerns a technical/juridical complex or controversial situation. Large excavations will normally fall into this category.

Permit requirements can be:

- Administrative and organizational requirements;
- Goal requirements;
- Financial security requirements;
- Energy, raw material and traffic requirements;
- Aftercare requirements;
- Requirements under resolutive and suspensive requirements;
- Special requirements concerning waste.
Appeals within the framework of environmental permits can be made by those who objected to the draft decision and by statutory advisors.

An Environmental Impact Analysis is required if the site takes up 100 hectares or more.

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Norway

The principal legislative control of extraction activities is the Mining Act. The Act specifies how the Directorate of Mining shall supervise all operations working claimable minerals, and the operators are obliged to report on their activities and plans to the Directorate at regular intervals. The operating permit granted by the Directorate describes the reporting routines, in addition to other topics and issues related to the environment and local conditions for which the operator is responsible and must comply with. Mining or extraction plans, including closure plans, must be approved by the Directorate before any extraction begins.

The Directorate has similar authority with regard to new operations working non-claimable minerals. This practice is not stipulated in the Mining Act or vested in other legislation, but has developed because the Ministry of Agriculture and the Directorate have come to an agreement making it possible for the Mining Directorate to supervise all mineral operations in the same way.

It is an advantage both for society and the industry that mineral operations are planned, worked and closed according to common and acceptable standards. This is done by issuing a standard set of conditions for non-claimable mineral operations that are imposed in connection with the concession process that is formally the responsibility of the local authorities and the Ministry of Agriculture.

The Directorate has also had co-operation with some of the local municipalities and assisted them with incorporating similar standards and specifications of supervision in their land use plans, but this is only done on a voluntary basis on part of the municipalities. After land designation, and provided that certain stipulations in the Industrial Concession Act have been satisfied, the patent holder has the legal right to start exploitation with mining and processing. However, other legislation such as environmental protection regulations, emission permits, building permits must also be satisfied before physical development can start.

All commercial mineral operations must also be incorporated in the land use plan developed by the local municipality. The municipal master plan designates different areas for different uses, and it is in this connection that areas for mineral exploitation are allocated. If a viable deposit is found outside the allocated area, and someone wants to develop it, the master plan has to be changed accordingly.

This can lead to conflicts of interest with other stakeholders, and it may take considerable time. The need for local development plans and building plans are specified in the municipal master plan, and need not cover the whole
municipality. The municipal master plan is obligatory and must be assessed during every electoral period and renewed when necessary. If the municipal master plan also specifies local development planning and building plans, these are also mandatory and must be assessed and renewed along with the master plan.

**Portugal**

The Minister of Economics grants the mineral rights for State owned geological resources by issuing permits, one for prospecting and exploration, and another for exploitation (mining). In both cases the permit is granted on the basis of an application submitted by any natural person or body corporate, or following a public tender. Each permit for prospecting and exploration, or for exploitation (mining) covers a particular geological resource in a well-delimited area, as specified in the permit. The applicant shall provide proof of his professional skills or experience to conduct the operations he applied for, and about his capabilities to finance the project.

The Economy Regional Directorate (Direcçao Regionais da Economia (DRE)) or the Municipal Council, depending on the scale of operations or its location, issues a licence for quarrying specific construction minerals in a delimited area. However, only the DRE may issue a licence for the exploration of construction minerals. In both cases, the licence is issued following an application submitted by the owner of the land where the mineral deposit occurs, or by any other natural person or body corporate which entered into a written contract with the landowner.

Some mining and quarry projects are subjected to environmental impact assessment (EIA), in accordance with the thresholds and procedures stated in the relevant law. Where the thresholds apply, the applicant for a mineral right must submit an environmental impact study (EIS), together with the application, and no site approval has to be shown. In these cases, the site approval procedure is dealt as part of the EIA procedure. There are general guidelines for the preparation of an EIS. The Ministry of Environment, at a central or regional level, makes the EIA and then gives a final notice to the relevant Mineral Administration to proceed (or not proceed) with the granting procedure for the mineral rights.

Mineral licensing will generally follow an application submitted by the applicant for the granting of one of four different mineral licences in accordance with the type of activity to be undertaken and the type of resource, depending on whether or not it is state owned:

- Administrative prospecting and exploration contract;
- Administrative mining contract; in both cases covering certain resources within which are state owned (ore deposits, and hydro-mineral or geothermal resources);
- Quarry operating licence in respect of construction minerals; and
• Spring-water operating licence.

Applications for prospecting and exploration contracts and mining contracts are addressed to and decided by the Minister of Economics (ME), submitted to and processed by the General Directorate of Geology and Energy (Direcção Geral de Geologia e Energia (DGGE)) which will also monitor the operations covered by the contracts.

The applicant of an exploration or exploitation quarry licence for construction minerals must submit a site approval together with the application for any of those licences. The site approval is granted by the relevant land use planning authority:

1 - the Municipal Council for areas which have been set aside for the extractive industry and are included in the PDM (municipal development plan), 2 – the Institute for Nature Conservation (ICN) for classified environmentally sensitive areas; 3 – the regional land use planning and environment authority for any other location. The procedure for site approval is stated in the Quarry Law.

The procedure for site approval for exploration or for mining state owned minerals only exists within classified environmentally sensitive areas, but for other locations a consultation process with the land use planning and environment authorities is required, either by the applicant or the Mineral Administration, before or during the granting procedure for mining rights.

Slovakia

As mining rights are awarded on the basis of spatial plans, these are harmonised in terms of other potential lands uses. Environmental and other authorities are involved in the phase, when a mining right holder is applying for a location permit. Environmental impact assessment is required for almost all mining sites. It is one of the obligatory requirements for obtaining a location permission.

The operator may perform mining operations exclusively on the basis of an operating permit in accordance with Article 52 Mining Act (Temporary operating permit). In the performing of operations the operator shall observe the regulations concerning technical standards (hereinafter referred to as Technical Regulations), regulations on safety at work and environmental protection, and other regulations, unless otherwise provided for by the present Act and in the relevant regulations issued on the basis of the present Act, in order to ensure in time the security of people and animals, of traffic and adjacent structures as well as the safety of the facility and works, installations, equipment and materials. For the performing of mining operations pursuant to Article 4 of the Mining Act which are directly related to the exploration and exploitation of mineral resources, the Ministry responsible for mining issues the following permits:

1. Exploration permits,

2. Exploitation permits,
3. Permits to cease exploitation,

4. Operating permits,

5. Permits to use facilities and installations.

The permits mentioned in the preceding paragraph as far as technical stone, gravel, sand, fine sand, clay, fly-ash, marl, potter’s clay, ceramic clay and brick clay are concerned as well as the preliminary exploration permit are issued by the local authority of the area in which the mining operations will take place. To perform mining operations, which are not related directly to the exploration and exploitation of mineral resources, only permits 4 and 5 above can be issued.

The mine inspector, and the local authority of the area for which a permit is issued is notified of the permits.

Slovenia

The government adopts a decree, with which mining rights are awarded. After that, there is a public tender, carried out by the competent ministry, through which the holders of mining rights are chosen. These are obliged to sign a concession contract for exploitation with a maximum duration of 50 years.

As mining rights are awarded on the basis of spatial plans, these are harmonised in terms of other potential lands uses. Environmental and other authorities are involved when a mining right holder applies for a location permit. Environmental impact assessment is required for almost all mining sites.

Conclusions

The analysis of the various procedures adopted in the different Member States shows that in all instances the authorisation process is such that it is unavoidable that in the final decision making step local and/or regional authorities become involved in the process. The main difference between the Member States is the role of national government in the process. In some countries and for some categories of minerals the national authority becomes involved in the authorisation process in an operational manner. An example are applications for the exploitation of state owned minerals and free minerals in Austria.

The other extreme are states where the role of national authorities is to define policies and to provide guidance but not to become operationally involved in the process (England and Wales). Another feature of the authorisation process in England and Wales is that the lower level authority is charged with the responsibility to ensure that adequate reserves are available for the extraction of certain minerals, such as aggregates (landbanks). Between those extremes, France has delegated the responsibility for the administration of minerals applications to the regional directorates but in the case of state owned minerals, reserved the final decision to the national level. The difference between France and Austria is that in France the role of provincial and local authorities in the authorisation process is restricted.
A further point to note is that the role of central government in issuing permits for the extraction of minerals is very limited. In the majority of Member States these decisions are made at the regional and sometimes local level.

Table 24: Structure of the Authorisation Process in Selected Member States

<table>
<thead>
<tr>
<th>Country</th>
<th>Mining (State)</th>
<th>Mining (landowner)</th>
<th>Nature</th>
<th>Environment</th>
<th>Land use planning</th>
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</table>

Comments:

x: main responsible authority  [Table 16]

Environment: According Directive 85377/EEC [following Table 6]

Land use planning: referred to Table 12

Nature: insufficient information in most country reports

6.4.2.2 Authorisation Process – Key elements

Key elements are:

- Balancing of interests
- Correct mining
- Regulatory conditions controlling mineral extraction
- Restoration conditions
- Efficient procedures - time required for approval procedures
- Public hearing
- Land use planning

There are considerable differences in the authorization processes of the Member States. The differences are caused by the differences in minerals legislation and administrative infrastructure. The situation observed in the Member States is summarised in Table 16 (Chapter 5.1). This table gives details of the statutory period for the processing of applications, statutory consultation periods, the right for appeal, the need for public hearings as part of the authorisation process and the time for which the permits are valid.
In many countries there will also be differences depending on ownership of the minerals (state/landowner). As there are significant differences between state owned and landowner minerals the two categories will be treated separately. Free minerals have been treated in this context in the same manner as state owned minerals.

As far as access to mineral deposits is concerned there are two aspects to consider, namely:

- The issue of land use planning, i.e. whether mineral extraction is permitted in the area where the mineral deposit is situated, and
- Access to the land itself.

The second issue is closely linked to the mineral rights issue. More complex is the situation concerning whether mineral extraction is permitted in a particular area or not. This is a matter of land use planning.

*Policy tools/instruments* are:

- Safety of investment: i.e. access to mineral deposits
- Regulatory framework
  - licensing scheme
  - appeals,
- Administrative tools
  - designation of prohibited and favoured areas (i.e. securing minerals supply)
  - EIA
- Economic-financial tools
  - royalty
  - environmental taxes,

6.4.2.2.1 Importance of balancing interests

The following examples imply the importance of balancing interests when making decisions about proposals:

**Ö Austria**

The approval of exploitation plans by the mining authority requires that inter alia the following criteria are met (Article 116 Mining Law):

- No irresponsible and destructive exploitation of a deposit (i.e. the extraction has to correspond with the technical, economical and safety technical requirements).
- The land surface required for mining has to be utilised responsibly. Measures necessary to utilise the surface after termination of mining activities need to be specified.
- Avoidance or reduction of emissions through use of best available technology.
- No harm to life or health of people
- No unreasonable harm to the environment.
- The production of waste should be avoided by using best available technology.

**Denmark**

The Raw Materials Act in Denmark sets out the principal considerations to take into account when assessing proposals for mineral extraction. The purpose of the Act is to ensure that exploitation of raw material deposits on land and on the seabed takes place as an element of sustainable development after comprehensive weighing of interests and an overall evaluation of (relevant) considerations (i.e. the nature of the resources alongside all commercial and environmental factors):

1) That the future supply of raw materials is assured.
2) That exploitation is done in such a way that the restored area can be easily incorporated through spatial planning into other uses.
3) That the raw materials are used for purposes appropriate to their quality.
4) That non-renewable natural resources are replaced with waste materials.

**UK**

“Private interests” are the interests of people directly affected by a proposal rather than the interests of the applicant. The planning system in England and Wales should operate according to PPG1 “General Policies and Principles” as follows: “It should operate on the basis that applications for development should be allowed, having regard to the development plan and all material considerations, unless the proposed development would cause demonstrable harm to interests of acknowledged importance”.

Further: MPG1 “General considerations and the Development Plan System” develops this theme by stating that planning control should *reconcile mineral working with other claims on land*, taking account of such factors as:

- the needs of society for minerals
- preventing unnecessary sterilisation of mineral resources
- the acceptable levels of environment damage or loss of amenity caused by mineral working
- reclamation and suitable after-use
6.4.2.2 Correct mining

Under the term correct mining all procedures are summarised which impact on the complete as possible, safe and environmentally acceptable extraction of mineral deposits. In all Member States legislation and administrative procedures exist which address these issues. In a number of countries these are different for the extraction of metal ores and industrial minerals and for construction minerals.

6.4.2.2.3 Application – Efficient procedures

- The Netherlands

The Dutch Environmental Protection Act offers the opportunity for the applicant to request for the consideration of all approvals in parallel and coordinated. By this, much time can be saved. All applications are treated as one application. Appeal can be made to this single order. In this way, dispersal of appeals is avoided.

- Denmark

One very important aspect with regard to the permitting process for extraction is the fact that § 8 of the Raw Materials Act specifically states that an application for mineral extraction is also an application for permits regarding other relevant legislation e.g. the Water Supply Act, the Nature Conservation Act etc. This means that the county authorities will assess and handle all the relevant legal issues in co-operation with other responsible authorities as part of one permitting process. The advantage of this approach for both the operator and the authority is that it helps saving time.

- Greece

Land use planning is a weak point in the Greek legislation, in the sense that it progresses too slowly to take account of current trends and needs. Many factors make the system (for the mining-entrepreneur) difficult to operate. In particular, when considering the planning functions controlling mineral development, it is very hard to distinguish between the roles of the different levels of the legal and administrative framework. The result is that the enforcement of relevant laws and regulations can be both time consuming and difficult, with numerous agencies involved.

6.4.2.2.4 Key issue in the Authorising process: Land use planning

A distinction must be made between the following situations:

- where preferred extraction areas are identified in land use plans and where that is not the case.

- where the future extraction areas are identified inland use plans and where that is not the case.
Germany

Today raw material protection is hardly possible in some regions because of restrictions of regional spatial planning and because of restrictions by decrees. Restrictions of regional spatial planning (e.g. groundwater reservations and precedence areas for biotopes) often set the precedence for restriction by a decree (e.g. water protection areas, nature reserves, avalanche, forest and protection forest, etc.)\(^99\). This means that *long-term securing of mining sites is not guaranteed*. In practise, priority areas for raw material extraction are often secured only for less than 10 to 15 years.

Extraction areas in regional plans do not forestall the single approval procedure. All relevant interests are checked with the corresponding approval procedures. There is no guarantee that mineral extraction is permitted in a priority area. Often only one part of this area is permitted for extraction.

Italy

Land use plans play an important role at two levels: In the case of *second category minerals* (i.e. construction minerals), it *must* comply with the geographical and other requirements (e.g. restoration, transport) - laid down in the Infra-Regional plan (PIAE) and Mineral Extraction Regional Plans (PAE). *Applications for second category minerals are only be considered for approval if they can be found within areas designated for this purpose*. For example, any proposal for workings in Emilia-Romagna can only take place within areas designated for this purpose in the PIAE.

For second category minerals, the principle of an area being acceptable for extraction will have already been established during the planning stage of the relevant land use plan. Objections to applications can only be taken into account if they are in the public interest.

In the case of *first category minerals* (i.e. metal ores) the application *must* comply with other land use restrictions included in the above plans. These cover such issues as landscape, habitats, soil and water protection. If the application is approved, but does not comply with the relevant plans, they have to be changed.

In addition, for both first and second category minerals, the operator has to prove that the land is available for working, ownership of the land is, however, not necessary.

Belgium

When mineral deposits intended for extraction are not situated in an extraction area on the plans for land use they have to be changed. But changing land use plans is a time consuming effort. There is no maximum time period foreseen for

\(^{99}\) For instance, 26.9% of the national territory is under landscape protection, 7.5% was announced for the protection of birds directive and FFH directive to the EU committee, 2.5% of the territory is under nature conservation and 18.9% is natural parks.
such a change and there are examples of time periods of 10 to 14 years. All stakeholders involved must be consulted and the Regional Government requires an independent environmental impact study, before granting such a change.

The following examples are considered good practice:

Ø **Denmark**

In Denmark any contentious minerals planning issues are resolved at the plan making stage, which in Denmark incorporates strategic environmental assessment. This can be attributed to the ability of the plan-making procedure to resolve any potential conflicts, with preferred areas for mineral extraction being identified accordingly. *As a result proposals for extraction are mostly within the preferred areas and are not contested (streamlining the authorisation procedure). Proposals outside the preferred areas are the exception. An advantage of the approach adopted in Denmark is that the right to appeal is not exercised very frequently in relation to mineral extraction.*

Ø **England and Wales**

Minerals development plans are usually prepared by minerals planning authorities (MPAs) and provide identified areas that may be suitable for mineral extraction subject to suitable planning applications being made by the industry. Nevertheless the system also provides criteria for assessing applications for mineral extraction proposals that may be situated outside identified extraction areas.

These examples show that the declaration of extraction areas can

- *facilitate the access to minerals and*

- *reduce the time required for obtaining approval for a new mining venture or expanding existing one.*

- *In contrast, where such areas are not declared* access to minerals is often prevented. Changing the plans for land use is usually a time consuming effort.

6.4.2.2.5 **Regulatory conditions controlling mineral extraction - Environmental permits**

Depending on the individual Member States the conditions imposed on the permits could either be part of one single comprehensive permit (e.g. Denmark (§ 8 Mining Act), The Netherlands (Excavation Act)), or be specific in a number of individual (separate) permits, which together constitute the overall permit. The latter is mostly used. An example is:

Ø **Poland**
The environmental agency issues a permission to perform mineral extraction activities on the basis of the application from the mine operator, which must contain:

- Information about the venture and the technology which is applied,
- Information about the quantity and sources of present and planned emissions of pollution during normal exploitation as well as in the special cases e.g. breakdown;
- Information about the planned period of use of an installation;
- Information about environmental impacts of emissions and methods of prevention or limitation;
- Procedures for monitoring technological processes and reporting on the emissions.

**EIA-Procedures – Complex issues:**

Experience in the Member States shows that the preparation of Environmental Impact Assessments (EIA’s) is a complex issue and is also time consuming.

**Italy**

Italy does not have a national law on EIA (Environment Assessment), therefore, some regional authorities have decided to pass their own laws. For example, some regions have passed legislation which approximates the EU criteria while other regions have gone further requiring compulsory EIA.

In most cases, different regional and provincial regulations have provided dimensional thresholds for mineral extraction activities above which an application must be accompanied by an ES (Environment Study). For example, Trento (an autonomous province) requires EIA’s, including public inquiries, for all workings over 500,000 m$^3$. For Valle D’ Aosta, the threshold is set much lower at 50,000 m$^3$. Furthermore, some regions have passed laws which require EIA’s for all applications in environmentally sensitive areas. In areas where legislation exists, responsibility for preparing EIAs lies with the developer. No formal guidance has been issued although the subject is regularly commented upon.

**Latvia**

It is necessary to carry out an environmental impact assessment for quarries and open-cast mines with a surface area exceeding 10 hectares. The law states that “Impact Assessment shall be carried out at the earliest possible stage of the planning, design and decision making phase of the proposed development”. It is also regulated that “at the same time as applying for a construction permit or registration card from the relevant administrative region’s Construction Board (or before the commencement of other design works, or before the elaboration of a physical planning activities), the proponent shall also submit a written
application to the State Environmental Impact Assessment Bureau or the Regional Environmental Board of the Proposed Development (…)“.

For the activities which do not require an environmental impact assessment, so called Technical Requirements, are necessary. These set environmental quality threshold values and emission threshold values in surface water, groundwater, air, topsoil, subsoil and other types of environment to safeguard its quality; and requirements regarding the site of activities, paying special attention to the requirements of administrative acts pertaining to:

- waterways, water bodies, environmental and natural resource protection zones, specially protected nature areas, specially protected species and biotopes, as well as micro reserves and specially protected forest areas;
- cultural monuments and cultural-historical landscapes;
  especially vulnerable territories;
  geological processes;
- requirements regarding groundwater protection;
- requirements regarding waste, resulting from activities, management; limitations regarding activities in contaminated areas (…)

Ø Norway

Depending on the size and type of a project all development projects must produce and submit an Environmental Impact Assessment document. The EIA document is subject to public hearings and assessments by the appropriate national, regional and local authorities before it is accepted or rejected.

If the EIA is approved, project planning can continue, but approval does not mean that the project can start physical work such as erecting buildings, making roads etc. An EIA is always mandatory if the total production from the site will be more than 2 million m$^3$, or cover an area of more than 200,000m$^2$. In special circumstances e.g. areas with cultural monuments or valuable nature, an EIA process is mandatory for projects with a total extraction of more than 750,000m$^3$ or covering an area of more than 75,000m$^2$.

The mandatory EIA process is a two step procedure. The applicant must first compile a document that describes the planned project and propose the contents and scope of the EIA investigation. This proposal is submitted to the responsible authority and is also subjected to a public hearing. After the hearing, the responsible authority decides on the actual contents and scope of the EIA investigation. The Mining Directorate is the appropriate authority in connection with mineral exploitation. The description of the EIA investigation is, however, approved by the Ministry of the Environment.

Ø Spain
The General Directorate of Energy and Mines or the Councils of Industry of the Autonomic Communities are the administrative bodies which ultimately grant the authorisation for mineral projects.

Law 6/2001 modifies the Royal Legislative Decree 1302/1986 referring to the Evaluation of Environmental Impact introducing improvements contained in Directive 85/337/CEE. Thus in Article 1 "the projects, public or private, consisting of the accomplishment of works, facilities or any other included activity in Annex I of the present Real legislative Decree will require an evaluation of environmental impact in the form anticipated in this disposition". Article 2, provides that projects that, according to Article 1 of the present Real legislative Decree, are to be subjected to an evaluation of environmental impact will have to include at least, the following information:

- General description of the project and foreseeable changes in time, in relation to the use of the ground and of other natural resources.
- Estimation of the types and amounts of spilled residues and emissions.
- Presentation of the main studied alternatives and a justification of the main reasons for the adopted solution, considering the environmental effects.
- Evaluation of the direct or indirect foreseeable effects of the project on the climatic factors, population, fauna, flora, ground, air, water, the landscape and goods, including the artistic historical and the archaeological patrimony.
- Anticipated measures to reduce, to eliminate or to compensate the environmental effects.
- Program of environmental monitoring.
- Summary of the study and conclusions in easily understood terms. Report, in case, of the informative or technical difficulties found in the elaboration of the same one.

Environmental Impact Assessments (EIA’s) have complex procedures, a crucial aspect therefore is to carry out an environmental impact assessment in an efficient way. A good example of this is:

**Denmark**

The procedure adopted in Denmark is highly commendable: Here potential extraction areas are identified on geological grounds. As part of the land use planning process, these areas are then subjected to a general environmental assessment to determine whether minerals extraction is likely to have adverse effects on the environment. Areas where no adverse effects have been identified are then declared potential extraction areas in the land use plans. Extraction projects which fall in such areas have already had a pre-
screening procedure. Individual projects are normally only assessed in a supplement to the regional plan. The supplement is subject to an eight week period of public consultation, during which time the Minister of the Environment has the right to veto.

6.4.2.2.6 Restoration conditions

Restoration of mining land and aftercare are seen as important environmental issues for mineral extraction. In most Member States it is now normal practice for the operator to be responsible for restoration works. This has not always been the case in some countries.\(^\text{100}\)

In most countries, conditions relating to restoration work (in the authorising process) will normally cover the following subject areas:

- types and use of materials to be used in restoration,
- timing of restoration works,
- slope stability,
- landform/landscaping,
- planting (e.g. species, plant management etc.), and funding.

Restoration work is often aimed at a specific end use, such as agriculture, nature conservation, recreation or some form of built development.

\[\text{\textit{\ae} Denmark}\]

The power to impose conditions is defined by the principal legislation governing mineral extraction (Raw Materials Act). Section 3 of the Act states that an authorisation to extract minerals may comprise the following terms:

1. “That the holder of the authorisation shall participate in mapping and after treatment of the area or defray costs in this connection in full or in part;
2. That the raw material shall be used for certain purposes or activities;
3. That the necessary assurance is given concerning after-treatment;
4. That a certain stated minimum or maximum volume (amount) shall be extracted per quarter/half year.”

\[\text{\textit{\ae} Greece}\]

\(^{100}\) For example Estonia: Although the obligation for restoration is stated in the Earth’s Crust Act restoration is a problematical issue. Many quarries has been left without any restoration, there is no idea what to do. Nowadays the Earth’s Crust Act states - in order to ensure restoration – that the operator has to pay an extraction tax on the deposits. However, the amount is not clearly stated.
The environmental permit which accompanies the extraction permit includes details about the restoration conditions. Although the imposition of conditions on permits is fairly common practice in most countries, Greece is probably unique in that the environmental terms have to be agreed under the “Joint Ministerial Decision” of the Ministries of Environment (now the Ministry of Environment, Planning, & Public Works), Industry (now the Ministry of Development), and, for Protected Areas, Agriculture, in consultation with the relevant Prefecture.

6.4.2.2.7 Time required for obtaining approval for a new mining venture or expanding an existing one

The time required for extraction permission varies considerably. It ranges from a few months to several years and usually exceeds the time specified in national legislation. Reports from Member States indicate that the time required for 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 different authorities in the licensing procedure
• Inefficient procedures
• Minerals not being considered in land use plans
• Involvement of the public in certain elements of the approval process.
• Appeal procedures
• Environmental Impact Assessments (EIA’s)

The following examples illustrate the situation:

Ø Austria

The time required for obtaining a mining approval / permit may take 1-8 years.

Ø Denmark

The approval process is much quicker where regional plans have designated areas for the extraction of minerals. If an environmental impact assessment is not required, the approval process in such areas may take as little as 4 – 6 weeks, but can take four months or longer. However, the permit must still be subjected to a public hearing. The time needed for processing an EIA report may be four months in addition to the time required for the preparation of the assessment. The approval process may, however, take much longer in the case of a mining venture being planned on land that has not been designated for mineral extraction in the regional plans.

Ø Estonia
Procedures are very clear and predictable. But it seems to be difficult to determine exactly the time necessary for obtaining approval for a new mining venture. According to the Administrative Procedure Acts the time in which approval or rejection of licence application has to be made is 30 days. In some cases it is also necessary to carry out a Environmental Impact Assessment. In this case the time necessary can extend the statutory period of 30 days, especially as both procedures include public consultation with statutory times for public statements and appeals.

**Finland**

The time taken by the Ministry to decide on an application for a pre-claim or prospecting licence is about two months. The time needed to process an application for a claim patent or a mining concession can vary between 6 months to almost a year, provided that all the necessary documentation is ready at the time of the application.

**France**

The procedure for a mining permit can take several years.

**Germany**

The time required for obtaining a mining approval / permit may take 2-8 years depending on the federal state and the sensitivity of the area.

**Greece**

In Greece, expanding an existing mining operation is preferred to a new mining venture, especially for construction materials. The time required for obtaining the mining approval / permit depends on many factors. Currently average times for permitting existing operation frameworks, i.e. opening a new mine next to an old one may take 3 to 5 years.

**Latvia**

Due to the involvement of many different organisations in the authorisation process the time required can be long and the outcome uncertain.

**Lithuania**

An enterprise wanting to start a new mining venture is required to have a licence. The process takes up to 30 days. After that period the enterprise is entitled to an answer. The licensing procedure requires the applicant to prepare a comprehensive set of documents (for example, plan for exploitation, EIA, maps, etc.). In case of an EIA the public is included in the process. This can lead to delays in completing the Environmental Impact Assessment.

**The Netherlands**

Before the revision of the Excavation Act in 1996, it was necessary to obtain a mineral permit and then to adjust the Local Land Use Plan (municipal level).
The Regional Spatial Plan (provincial level) also had to be amended. As a consequence, the process was very time consuming.

Since 1996, the procedures mentioned above operate in parallel. The local government is asked to adjust their Local Land Use Plan if “extraction sites” are designated in the Regional Spatial Plan. If the local government refuses to cooperate they can be forced to. The estimated time for this procedure is about 45 months. Even when the local government cooperates, the estimated time for this procedure is also 45 months. If no “extraction sites”, but “extraction zones” are designated in the Regional Spatial Plan, the estimated time for this procedure might take up to 5.5 years. Much more time was needed before the revision of Excavation Act. The use of procedures in parallel has shown to be very beneficial.\(^{101}\)

**Norway**

In Norway, experience shows that it takes 3 years from the time the decision is made to develop a project until all the necessary permits and licences have been issued and production can start. This is a minimum, and requires that the project owner co-operates closely with national, county and local authorities, and works effectively with parallel processing of applications, planning and design. In the case of starting up a non-claimable mineral deposit, it is essential that all negotiations and agreements with the landowner(s) have been finalised.

**Poland**

Procedures required for obtaining the concession for prospecting, exploration and extraction of mineral deposits are very lengthy and complicated.

The applicant has to prepare an environmental impact assessment. Details of the Environmental Impact Assessment are given in the Environment Protection Law. In the EIA report the applicant must describe the construction and exploitation stages. Included in the EIA are details of the expected emissions, the impacts of the project on the public, fauna and flora, ground surface, water, air, climate, cultural objects and landscape. The report must specify all measures to prevent limit or compensate the negative impact of the activity on the environment.

Land use planning procedures are also complicated: In particularly it is necessary to complete the local land use plan twice. The first time, as part of the application for a concession, the second time – after granting the concession, it is necessary to prepare a local land use plan for the so called “mining area”.

**Slovenia**

\(^{101}\) Compare also the Dutch comments on draft report Leoben: “This procedure is going to be refined further in planned change of the Dutch Excavation Law. In a first phase, a principal decision on the project will be made mainly based on spatial considerations. Only when this is positive, more detailed (technical) permits will be run in parallel. In this way costs of detailed applications only need to be made when a project is likely to proceed.”
Expanding an existing mining operation is preferred to a new mining venture, especially for construction materials. The time required to obtain the mining approval/permit is process dependable. It is important that the process (including democratic discussion) is complete and consensus built.

**Sweden**

According to a set of performance indicators published by the Mining Inspectorate, the average administrative time for assessment and issuing of an exploration permit is about 1-2 months. The time needed to obtain an exploitation concession is about 1.5 years. An EIA document will normally take about 6 months to assess in addition to the time needed to prepare the document, provided that the contents and analyses are satisfactory. No information is available about the typical time needed for planning and developing a project with all necessary permits in place, after the exploitation concession has been issued.

**Spain**

The time required to obtain permission to extract minerals can be lengthy, and frequently exceeds the specified times. Part of the difficulty is the involvement of many different agencies in the authorisation process.

**Conclusion**

The time required for extraction permission varies considerable. It ranges from a few months to several years and usually exceeds the time specified.

The main reasons for time delays are the involvement of many different authorities in the licensing procedure and the involvement of the public in certain aspects of the approval process.

Normally the time required for extraction permission is shorter if the application concerns a mining venture which is situated in a designated mineral extraction area. The most important factor controlling the time required for the completion of the authorisation process is land use planning. The crucial element is the extent to which information relating to mineral deposits is already incorporated in existing land use plans.

Examples in Bavaria, Baden-Württemberg show that the authorisation process for mineral extraction projects that are situated in declared extraction areas (i.e. potential sites) is significantly shorter than for projects in areas that have not been set aside for minerals extraction.

Also the time required for extraction permission is shorter if the application process is such that approvals are parallel and coordinated. The approach taken in the Netherlands is a good example. The Dutch Environmental Protection Act offers the opportunity for the applicant to request for consideration all approvals in parallel. This saves much time.

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102 See section 5.3.2.5
All applications are treated as one application. Appeal to this single order is possible. In this way, dispersal of appeals is avoided.

The preparation of the Environmental Impact Assessment (EIA) tends to be very time consuming. Therefore efficient procedures are important.

6.4.2.3 Monitoring and Enforcement

The legislation governing minerals extraction provides for monitoring of adherence to regulations, health and safety performance and environmental performance and, where necessary enforcement. A noteworthy feature is that in a number of countries monitoring and enforcement structures are different for different classes of minerals. In many instances the monitoring of mining activities involving State owned minerals differ from those of landowner minerals. In general, the supervising authorities for State owned minerals tend to be situated at the national or at least regional level whereas those for landowner minerals are at the regional or local level.

One aspect which does not appear to be fully appreciated is the levels of skill required to supervise and monitor mining operations. These differ significantly for surface and underground mining operations. This aspect is recognised by some Member States, which have laid down very specific qualifications for members of the supervising and monitoring body. Examples are amongst others the mining authorities in Austria, England, Germany and Poland. In these countries the law requires that persons involved in supervising and monitoring mineral extraction activities have to have demonstrated theoretical and practical experiences in mineral extraction.

In most instances this means a university degree in mining and a practical mining background. In Germany, the mining authority has established a specific training and development programme to ensure that the technical and legal competency of its personnel. Similar systems are in place in Austria, England, France, Poland and Wales. In Poland, the University of Krakow offers a special degree course for people planning to join the mines inspectorate. The Mineral Resources Law of Austria specifically refers to the differences between surface and underground mining and has made the national Mining Authority responsible for the supervision and monitoring of all underground mining operations, irrespective of mineral rights.

6.4.3 Land use planning – Securing Minerals Supply

6.4.3.1 Objective and level of minerals planning

The objective of land use planning is to find sustainable solutions to conflicts of multiple landowners taking into consideration medium to long term views, and local, regional and national interests.

A central issue of land use planning is the concept of sustainable development, i.e. it is to reconcile the ecological, social and economical aspects and to find solutions which will benefit the present generation without impacting on the aspirations of future generations. As land use planning is also a matter of setting priorities between conflicting interests, it is important that mineral issues are given the same weight as other
considerations. In countries which have no national minerals policy this balanced treatment of interests does not usually exist.

The level at which planning for minerals is done is crucial. At the national level regional demands for minerals can be considered and included in overall mineral development plans taking into account the distribution of mineral resources in the country. However, at the national level it is impossible to include all detailed site specific considerations. This is the responsibility of lower level planning. Lower level planning on the other hand lacks the broader background and a long-term vision.

It appears therefore, that minerals planning must be done at two levels, namely long-term strategic planning at the national or at least regional level and detailed planning at the lower level.

Models for such an approach are England and France.

6.4.3.2 Relationship between a national geological survey and land use planning

Exploration for mineral deposits is an essential element of a planned and co-ordinated system for ensuring an adequate supply of minerals to industry. It serves to pinpoint the location of mineral deposits and provides data on the quantity and quality of the mineral resource. It provides important information for long-term land use planning. Exploration is done at two levels, namely at the national level and the project level.

The role of national government in exploration is crucial with regard to land use planning.

Experiences gained in Member States show that land use planning for minerals should be done at a high level and should consider long time periods. Land use planning is an integrative process, in which different claims of land utilization are subjected to a structured evaluation process. For land use planning to be an effective tool it is essential that it is based on a solid and well substantiated data base and that it includes all necessary information. From a minerals development point of view, it is crucial that the information concerning mineral deposits is entered into the land use data bases to ensure that minerals are considered in all land use planning decisions. National Geological surveys are probably the most suitable organisations to make the data about mineral deposits available.

Finland

The Finnish government, through the Ministry of Trade and Industry, funds and undertakes geological and geophysical surveys in order to provide geological maps and other geological information. Such information is of considerable interest and provides valuable support to parties planning to prospect for mineral deposits of any kind. The data are available in digital form, or as maps, reports and publications. This work is mainly done by the Geological Survey of Finland. The Survey has its focus on two strategic activities: 1) Bedrock and

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103 20 years and more.
raw materials and 2) Land use and environment. The overall goal is to create conditions for supporting sustainable raw materials supply and land use, and to facilitate economic growth and increased welfare for society at large.

In the case of important mineral commodities the Survey has put considerable efforts into prospecting for, locating and describing deposits of specific mineral raw materials, e.g. kaolin. Several of these minerals are fully or partially imported today. This involves exploration from regional- to prospect-scale projects, and the Survey provides sufficient data for the different prospects to encourage further evaluation by the private sector.

**Germany**

An ad hoc working party of the geological departments of the German federal states has identified mineral resource protection as a responsibility of the state and sees as one of the most urgent and important steps the integration of information on minerals into land use data bases.104

The mineral planning concept of Baden-Württemberg used in the past 13 years is considered good practice. It is characterised by the close interaction between the state geological survey and 12 regional planning authorities. The survey has the task of delineating, describing and assessing the near-surface mineral resources of the state, based on results from mapping, drilling, geochemical and geophysical investigations. The planning authorities mediate between the mining industry and the numerous other land users, always taking into account the actual need for raw materials. The mineral maps produced by the geological survey show all the valuable mineral resources that are known so far, both near the surface and deep-seated. The use of GIS technology and a nationally applicable spatial reference system allows the mineral maps to be presented at different scales. In order to better integrate the results into the day-to-day mineral planning activities of the state authorities, a second phase of the mineral planning concept is currently being developed.

**Sweden**

The Swedish landbank system was developed by declaring various types of mineral deposits to be of national interest in accordance with the Environmental Code. It aims at protecting the resources from being sterilised by other land use development, thereby ensuring the sustainability of minerals supply in Sweden.

The Geological Survey of Sweden has in accordance with the Environmental Code (Chapter 3, § 7) and in co-operation with county municipality administrations, classified a number of mineral deposits as being of national interest. The deposits are mainly industrial minerals and construction minerals and are considered important for the security of supply of mineral raw materials both in peace and war. About 100 such deposits have been declared to be of national interest. In addition, most of the existing exploration permits (pre-claim

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licence according to earlier legislation) and exploitation concessions granted according to the Minerals Act are classified as being of national interest. This also includes metalliferrous ores.

The counties and local municipalities carry the responsibility to monitor and preserve these deposits/locations in order to prevent that they are sterilised by building and other development.

Mineral deposits that are classified as being of national interest, therefore, have an important legal and political standing that forms part of the Swedish national system governing the security of supply of mineral raw materials.

It should also be mentioned that both the Geological Survey of Sweden and the Mining Inspectorate have developed English language web pages with useful information about legislation, regulations and other topics relevant for mineral exploration and exploitation. The Survey can also provide interested foreign parties with extensive geological information, much of it in digital form.

In addition, the County Administration Board compiles inventory maps of sand, gravel and stone resources in co-operation with the Geological Survey. The “Inventory Plans” (Inventeringsplan) detail mineral resources and indicate whether extraction would be allowed in principle.

6.4.3.3 Securing minerals - Different approaches to land use planning

As discussed in Chapter 5 land use planning is practiced at different levels. In most Member States land use planning is coordinated at national level and moved downwards to regional and local levels. In this way national interests can be taken into consideration in land use decisions. Some Member States have identified areas which have been set aside for minerals extraction. Frequently this decision is taken at lower tiers of government.

A key issue in land use planning discussions and decisions is the mechanism of conflict resolution as invariably there are conflicting issues.

*Experiences are that where such a mechanism is in place the time required to obtain mining permits is greatly reduced.*

**Ö Austria**

In Austria, the responsibility for land use planning rests with the provincial authorities. As a result different approaches to land use planning have been adopted by the provinces. In some provinces, areas have been defined for mineral extraction whereas in other provinces areas where no mineral extraction is permitted have been declared. Some provinces again have taken no decision at all. One of the objectives of the national minerals plan is to address this situation and to find solutions which take into consideration national interests without impacting on the autonomy of the provinces.

*Methodological procedure – raw-material extraction and land-use planning*
On behalf of the Styrian government, Joanneum Research developed an effective methodology for assessing conflicts that might occur over mineral extraction. The core of the procedure is the utilization of various thematic maps, so-called natural potential maps, where certain information has been purposefully selected and overlapped, with respect to, and serving the interests of, raw-material extraction. The thematic overlap of different forms of utilization identifies certain conflicts that are ranked according to their priority and then resolved. Based on the findings of the evaluation scheme, the government came up with a regional development programme for the Northern part of the Leobenitzer Feld, which comprised the extraction, restoration and potential for after-mining activities. The assessment procedure includes the following steps in evaluating:

- all relevant utilization structures
- the hydrological situation
- mineral deposits at or close to the surface

A set of thematic maps has thus been obtained containing significant information and parameters for planning. Based on these settings, so-called “positive and negative areas” regarding raw-material extraction have been identified and form the basis for decision makers. The concept and method used in the preparation of the maps was governed by two overall goals: first, to develop a system for planners which would be transparent and flexible to allow for the input of new information and, therefore, to identify new products; secondly, to provide a basis for other planning uses in order to make the map system as versatile as possible.

Belgium

At the present, the Flemish Region is establishing a framework for defining plans of surface mineral resources (‘Oppervlakteelfstoffenplannen’). These plans transform the objectives of the Decree on Surface Mineral Resources (‘Oppervlakteelfstoffen Decreet’) of 4 April 2003 into mining plans. The plans examine future development over a 25 year period and contain actions for a period of five years. These plans have to be evaluated every five years. One single plan covers the entire Flemish Region; other plans look at separate but homogeneous extraction areas. The Decree addresses the specific needs of the extraction industry and includes its needs in several different areas, such as:

- plan for land use,
- supply and use of natural resources,
- restructuring and
- environmental and health aspects.

The global aim of this Decree is to establish the sustainable management of mineral resources occurring near the surface. The Decree looks also at the use
of secondary minerals or alternative materials, and at rehabilitation of sites at the end of extraction. The plans of surface mineral resources (‘Oppervlakte-afvalstoffenplannen’) address the problem of minerals supply in the Flemish Region, but the legislation is too recent (only approved on 26 March 2004) to be already evaluated.

 República Tcheca

The principles of implementation of the mineral raw materials policy include specification of area limits as well as time limitations for exploitation of mineral raw materials in land development plans for large areas heeding the capacity of the area.

The plans determine for specified periods of time the mineral deposits to be opened, to what extent and in which order exploitation shall commence and proceed, termination of exploitation, recovery and landscaping activities in the vicinity of exploitation. The objective is to decrease the immediate load on the territory and to reduce pressure to open a number of deposits at the same time in areas with concentrated occurrence of mineral raw materials shall be prevented. At the same time legal securities are provided for the development of communities as well as other activities using capacities of the territory.

Dinamarca

One of the specific topics for the rural land use administration is to ensure that the extraction of minerals is considered as part of the regional land use plan. The counties have therefore the responsibility to incorporate mineral resources and the future supply of raw materials in their regional plans. There are no guidelines for the planning horizon other than that the regional plan shall have a time perspective of 12 years with regard to the overall development goals for the region. The plan is assessed and updated during each election period (4 years). However, some counties make specific spatial plans for raw material supply with a time perspective of up to 25 years, and in a few cases, tentative plans are being drawn up a period of 50 years.

The Danish EIA procedure is integrated into the planning process at the regional level.

Inglaterra y Gales

Minerals development plans are usually prepared by minerals planning authorities (MPAs) and provide:

- policies for the control of mineral working and the restoration of sites
- identified areas that may be suitable for mineral extraction subject to suitable planning applications being made by the industry; and criteria for assessing applications for mineral extraction proposals that may be submitted outside identified extraction areas.
In Scotland the National Planning Policy Guideline (NPPG4) sets out how mineral development should be addressed in Structure Plans and Local Plans. It includes:

**Spatial considerations**

- Safeguarding mineral deposits from other development
- Conservation of the natural heritage, Conservation of the built environment, Green Belts, quality of agricultural land
- Local designations, tourism and recreation
- Proximity to settlements

**Operational considerations**

- Site conditions, Visual impact
- Noise, dust, water courses and groundwater,
- Transportation
- Restoration, aftercare and after-use

**Structure Plans:**

- Safeguard mineral deposits from development that would inhibit their subsequent extraction.
- Define preferred areas for mineral workings, in relation to other strategic priorities and subject to detailed evaluation in local plans or individual applications.
- Define areas where, because of environmental and other considerations, proposals to work minerals are likely to prove difficult to reconcile with other policy considerations.
- Set the framework for Local Plans including priorities for development control.

**Local Plans:**

- Safeguard mineral deposits from development which would inhibit their subsequent working.
- Consider re-phasing other developments to enable mineral working to take place.
Indicate sites, or define areas of search, where planning authorities would favour mineral working.

Indicate sites or areas where other considerations are likely to militate against mineral working.

Guide developers on the amelioration of significant environmental effects.

Encourage the removal of all minerals in a single operation from any site where this is economically feasible.

Provide for the reclamation of sites to beneficial after-use.

Provide an explicit development control framework.

Provide for regular monitoring and the preparation of environmental audits.

Provide for the re-use of materials in waste tips and construction wastes.

**France**

Under the existing legislation, Departments are obliged to produce plans for quarried minerals. These plans must include information on the supply of, and demand for, quarried minerals, and in particular for sand and gravel. *This helps the identification of possible new sources of aggregates, in order to meet existing shortages.* For gravel and crushed rock, inter-regional evaluations have also to be conducted, as there are some areas with large consumption. Environmental organisations are also represented in these commissions. The legislation specifies that the plans must include the following:

- an inventory of known resources,

- an analysis of the Department’s likely demand for minerals,

- the impact of existing quarries on the environment,

- an evaluation of future local needs, in order to eventually take into account the particular national needs,

- the setting of objectives to ensure the wise use of resources and to minimise impacts on the environment,

- an examination of transport networks and preferential routes and transport type (e.g. road, rail and waterways) for transporting minerals, environmentally protected areas, preferred after-use of mineral extraction sites (such as forest, leisure, agriculture, re-development, wetland, etc.).
The specified types of transport (such as road, rail or waterway) may then be imposed in the authorisations.

Germany

The State Development Plan 2000 for Hesse states that the raw material resources available in the country have to be protected in the long term by regional planning. Through the designation of areas for the extraction of near-surface deposits (mining areas) and of near-surface deposit areas, the general conditions regarding the guarantee to supply the economy with domestic raw materials have to be created. In the designated areas on the regional plans for the exploitation of surface near deposits, the extraction of mineral resources has a priority over other spatial important utilization claims or designations. The areas of near-surface deposits are a long-term raw material provision. In these areas mineral resources have to be protected by making provisions for the long term according to the state spatial planning. The spatial plans ("Raumordnungspläne"), which have been valid for the three planning regions North Hesse, Central Hesse and South Hesse since 2000/2001, are being developed at the moment. Due to various general framework conditions, the updating of raw material protection areas marked according to the regional plans is becoming more and more difficult.

Hungary

In Hungary a clearly defined national minerals policy does not exist. In practice, the area of zones, where mineral extraction is prohibited, is extending rapidly, whilst no legislation has been made in favour of saving the potential mineral resources in the national domain.

The Netherlands

The national policy on surface raw materials will now be integrated in the National Spatial Plan: This means that in the future there will be no more excavation tasks for surface raw materials: The effects of a market-oriented approach will certainly be the largest for the supply of concrete and masonry sand.

A completely new element in the National Spatial Plan is the so-called surface raw material assessment. For intended new spatial plans outside built-up areas the following basic principles will have to be adhered to (National Spatial Plan, section 4.8.1):

- The effects on the supply of surface raw materials have to be taken into consideration.

- The geological occurrences of scarce surface raw materials such as concrete and masonry sand (coarse sand), gravel, limestone, clay for bricks and silica sand also have to be taken into consideration. In this way the excavation possibilities will not be obstructed for future generations.
The possibility of combinations of raw material excavations and other uses of extraction zones must also be taken into consideration. Under particular circumstances, more raw materials may be extracted than strictly necessary.

It is unknown to what extent the provinces, municipalities and property developers will elaborate the above-mentioned specification of the surface raw material assessment.

In the future minerals planning will especially be provided for by the provincial mineral extraction plans.

In the Regional Spatial Plan, a province can designate two types of extraction locations: an extraction zone or a so-called “extraction site”. An “extraction site” has the level of detail of a Local Land Use Plan (municipal level). In the Excavation Act (revised 1996), it is provided that an extraction location for which a permit is requested has to be consistent with the Local Land Use Plan. If a municipal council does not cooperate, then the provincial executive can give a direction to the municipality to amend its Local Land Use Plan. In 2003-2004 a change in the Excavation Act is in preparation. According to one of the amendments the indication of an “extraction site” by the provincial council will automatically affect the municipal Local Land Use Plan.

Sweden

The main purpose of an Inventory Plan is to identify sand, gravel and stone resources within a certain area, which does not have to conform to administrative borders, and to consider issues of nature conservation and to promote the efficient use of resources. The counties make assessments of their future needs in relation to anticipated expansion, which is assessed in consultation with municipalities who plan on a 10-15 basis. They also examine issues of groundwater protection and nature conservation.

Each area of resource shown on the Plan is identified as being either:

- Class I, where environmental considerations outweigh the need of the resource and extraction is not allowed; or,
- Class II, where there are some significant environmental issues that would need to be addressed prior to extraction; or,
- Class III, where in principle, extraction would be allowed.

Municipalities prepare “Household Plans,” which aim to match the need for minerals with the exploitable resources identified in the Inventory Plans. The “Household Plans” relating to sand and gravel extraction are more detailed and usually are prepared by groups of municipalities, and in some instances the County Administrative Board. Again these plans are not confined to administrative borders. They relate instead to assumed market boundaries for the materials which tend to cover an area at least the size of a county.
The “Household Plans” are prepared once the Inventory Plan has been completed. “Household Plans” identify all the sites shown on the Inventory Plan but then look in closer detail at the anticipated expansion of each municipally (over the next 10-15 years) and the likely need for construction minerals. Taking account of the nature conservation issues highlighted in the Inventory Plan, the “Household Plans” concentrate their examinations only on Class 2 or Class 3 sites. Land Use Plans refer to issues such as infrastructure, transport, economic and the need for the material which are considered in a sifting process.

“Household Plans” also identify specific areas for preferred extraction. The likely end use of the materials is an important consideration in this process so as to prevent “the trivial use of important gravel”.

Spain

The Geologic and Mining Institute of Spain (Geological Survey of Spain) (IGME) has made important contributions to the Spanish mining industry by carrying out regional plans by agreement with the Autonomic Communities. IGME has developed a model of a mining and environmental planning map where different categories are defined and delimited to areas that contain potentially exploitable resources, areas with environmental protection and exploitable areas according to several priority levels. In order to develop these maps a methodology has been designed based on the analysis of the land capability/vulnerability balance regarding mining activities. This methodology is supported by a Geographical Information System that allows an effective and relatively simple use of a high volume of cartographical information. The proposed method is systematic and achieves both an important transparency and reproducibility of the assessment processes.

Conclusions

As shown in Chapter 5.3.3, reference to minerals issues is often missing in land use planning. Member States often use a more general environmental assessment in plan preparation and extraction sites are allocated on the basis of environmental impacts rather then on a genuine assessment of the overall benefits including sustainability of minerals supply.

6.4.4 Societal benefit

Societal benefits can be measured in the most direct way by the number of persons directly and indirectly involved in the non-energy extractive industries. Directly involved are persons working on the extraction and processing of minerals and the production of mineral based products such as cement, bricks, tiles and other mineral based building materials such as ready made concrete. Indirectly involved are persons manufacturing goods and materials used by the non-energy extractive industry and those which provide services to it. The third group benefiting from the production of minerals are those working in industries which make extensive use of minerals and mineral products. The most important industry in this respect is the construction industry.
One of the fundamental problems encountered in assessing the importance of the non-energy extractive industries is the incomplete statistical information. As far as the traditional mineral commodities such as metal ores and the more important industrial minerals are concerned there exist relatively reliable statistical data in many Member States. The same can not be said for the bulk of minerals produced in Europe, namely the construction minerals.

This is seen as a serious shortcoming as it does not reflect the true importance of the sector. In the case of construction minerals another difficulty is that many of the companies are also involved in downstream activities which add value.

The problem here is twofold. Firstly, in most European countries there exist and operate a large number of small and very small producers. These are normally not included in national statistics. In Austria, for example, this group of producers accounts for more than 50% of total sand, gravel and crushed stone production. The second problem is that many of the producers of construction minerals also produce higher value mineral products such as cement, bricks, tiles, other building materials and ready made concrete. The figures quoted for these companies normally do not distinguish between minerals production, minerals processing and manufacturing of minerals based products.

Typical examples are ready-mixed concrete or manufacturing of bricks or cement. In the case of many industrial minerals producers, mineral extraction is only a minor aspect of the business. The difficult question is where to draw the line. If only mineral production is considered, then the value created by the construction minerals industry is in excess of 20 Billion Euro. This estimate is in good agreement with the figures published by UEPG (Union Européenne des Producteurs des Granulats), which states that the 17,000 member companies employing 250,000 persons produced 2.6 billion construction minerals corresponds to an annual turnover of 18.5 billion Euros. To this have to be added the production values of companies not belonging to UEPG and the production from the New Member States. If, however, the construction industry is considered as a whole the value was 342.6 billion Euros in 1997. The true value is probably between these extremes.

IMA-Europe reports that its members operate more than 650 mines and quarries throughout Europe. These operations offer direct employment to some 40,000 persons and process an annual volume of 100 million tonnes, contributing a value of around € 10 billion to the EU’s gross domestic product (GDP). If downstream industries such as glass, foundries, ceramics, paper, paint, plastic, etc. are included, these figures are

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105 Official statistics show the production of construction minerals in Austria as being 45.5 million tonnes per annum whereas the actual figures are around 100 million tonnes. Noestatter, R. und Wagner, H. Zur langfristigen Entwicklung der Nachfrage nach Baurohstoffen in Österreich-Rückblick und Vorschau. BHM, Vol. 148 (2003) pp.316-320. Similarly the 461 million tonnes quoted for Germany fall short of figures quoted by the construction minerals industry, which depending on the source range between 600 and 800 million tonnes. The reason for this difference is that official statistics only cover medium and large producers but not the very substantial number of small and very small producers. The difference between reported and actual production of construction minerals is dependent on the structure of industry. In Member States where large where the bulk of production comes from large companies the difference will be smaller than in states where small producers dominate.

106 3 Billion tonnes at a sales price of about 7€/tonne.


several magnitudes greater. As was shown in Table 1b the industrial minerals industry is a major player in global terms and in certain sectors contributes between 40 and 50% of global production.

According to Eurostat, about 202,000 persons were employed in 2001 in the non-energy extractive industry of the EU-15 Member States. Another 71,000 persons have to be added to this estimate to include those which are employed by the non-energy extractive industries of the New Member States. As pointed out earlier the Eurostat figures do not cover small and very small enterprises and are, hence incomplete. The seriousness of the employment underestimate becomes evident when the UEGP and the IMA-Europe figures are added. Together these two organisations employ about 290,000 persons. This figure has to be compared with the Eurostat EU-15 employment figures as these two organisations are not really active in the new Member States. This suggests an underestimation of employment figures of nearly 100,000, which is almost 50% of official employment figures. In actual fact the situation is worse as EUPG and IMA-Europe do not represent the European metal mining sector.

The extent to which these figures may under represent the situation becomes evident when the figures for Austria are compared. According to Eurostat 4,937 persons were employed in the non-energy extractive industries of Austria whereas the actual figure is closer to 17,000 of which about 14,000 are involved in the production and processing and of construction minerals and the manufacturing of mineral products. Only a small portion of this group of employees is covered by Eurostat. The situation is similar in Germany where the official production figure of 460 million tonnes falls far short of the figures quoted by the Federal States in Germany and German trade associations. Depending on the source the figures range from tonnes 600 million tonnes to 800 million tonnes.

Direct employment in the non-energy extractive industries in Europe has decreased as a result of the closure of many mines and in particular as the result of very marked improvements in productivity, which in some countries has been significantly higher than in other sectors of industry.\(^\text{109}\)

A factor which must not be overlooked is the role which minerals play in the daily life of every citizen. The reliable supply of minerals and mineral products at competitive prices is an important factor for the European industry and in particular the provision of an excellent transport-, energy- and communications infrastructure, which would not be feasible without locally manufactured minerals.

Although the employment figures of the European non-energy extractive industries are small compared to some other industries they are nevertheless significant. More important from a society point of view is that the material requirements of the European society could not be met without minerals and in particular locally produced minerals which reduce the dependency of Europe from minerals imports and in the case of construction minerals significantly reduce minerals transport.

The following examples give an indication of the importance to society of the non-energy extractive industries in some Member States.

Austria

The number of employees in the non-energy extractive industry has decreased over time. Nevertheless the industry is still an important employer with more than 17,000 persons employed in the extraction and processing of minerals and the manufacturing of mineral products. Of particular importance is that many of the minerals operations are situated in less developed areas of Austria where other employment opportunities tend to be limited. A matter which is often overlooked but which has a considerable impact on the population is minerals transport. A study which was conducted a few years ago but is still of relevance today showed that minerals transport accounts for about 50% of the mass transported on Austrian roads and about 25% of the transport effort expressed in tonne-kilometres. The difference between the two figures is due to the relatively short transport distances and due to decentralised extraction activities.¹¹⁰

Czech Republic

One of the primary social benefits resulting from mineral-based raw materials industry is the possibility of creating new working places in remote regions and Higher Territorial Units in the Czech Republic. These are mostly regions where mineral deposits are located. The municipality gains 50% from the payments from the Mining Area. Of the received amount, 50% is direct income to the local community in whose vicinity the mining claim is, and the other 50% is part of the national budget where the resources are used to fund repair of environmental damage, caused by the exploitation of reserved deposits. The fees for mining claims in 1998 amounted to CZK 23 million.

Denmark

Areas that are designated for mineral extraction are usually located in rural areas and these areas are not densely populated. Creation of direct jobs in mineral extraction activities and procurement of associated services may therefore play an important role in local communities. Securing the supply of low value minerals (mainly construction materials) to local markets seems to be well looked after in connection with regional planning and the permitting processes for which the regional authorities are responsible. This also gives the industry the opportunity to contribute to future economic and societal development, and at the same time to maintain and preserve natural and environmental values.

Estonia

The mineral industry is not a key employer in Estonia. Only a few percent of those employed are working in mining and quarrying. Mineral materials are a

necessary component for the economy and industry growth, but in Estonia attention by government is focused on energy minerals.

**Finland**

A socio-economic study of the *Finnish mineral industries* indicated that job creation in downstream industries using mineral raw materials is 35-40 times the number of people working directly in the mineral sector.

**United Kingdom**

The system of aggregates supply management has been successful in securing the steady and adequate supplies for construction and infrastructure that is needed by the community. The planning system as a whole has secured significant improvements in site management and restoration over the years and, while there are still exceptions, the standards are generally high. However mineral extraction is, by its nature, a disturbing activity. Applications are widely opposed by the public. However the system does secure planning decisions within reasonable periods of time. Many of the larger companies have developed effective community liaison schemes to deal with local problems and complaints.

Part of the money collected through an Aggregates Levy is used to support research on alternatives to primary aggregates, better management of aggregates operations, and community projects to help offset the environmental impacts of this major sector of the UK industry. The minerals industry is a significant source of employment in some rural areas and supports many jobs in manufacturing and other industries that require minerals feedstock.

**Latvia**

The mineral industry has a negligible importance as a source of employment in Latvia. The lack of valuable mineral resources restricts the possibilities of mineral industry development. The Latvian economy is well supplied with raw construction minerals. The production covers the local demand and enables export of construction minerals.

**Norway**

Mineral deposits can only be worked where they are located, and the mineral industry is an important employer in many local communities, especially in the less densely populated parts of the country. These communities are often also the ones that have developed the most active approaches to mineral planning. Securing supply of minerals to local markets has usually not been a problem, but there is an increasing level of conflict and opposition to mineral exploitation especially in built up areas, but also in connection with protected areas or areas that are popular for recreational purposes.

This will, however, hardly jeopardize security of supply, but construction materials may have to be supplied from more distant resources at increased economic and environmental costs. Mineral resources are non-renewable, and any specific deposit will eventually be depleted. However, this does not mean
that the mineral industry is not sustainable. With proper management the industry contributes to economic and societal development while at the same time maintaining and preserving the environment.

**Sweden**

All the large Swedish metalliferrous mines, located in the north central and northern parts of the country, make significant contributions to the local economies both with regard to direct employment and procurement of local services. Boliden has also developed downstream activities with smelting and further processing of base metals in the north central part of the country. The iron ore mines supply one steel plant and some of this steel is further processed to produce specialty steel, generating substantial export earnings.

**Slovakia**

One of the primary social benefits resulting from minerals development is the possibility of creating new work opportunities in remote and less developed regions of Slovakia.

Apart from the employment, the municipalities also benefit from income received from the minerals operator for the land on which the extraction activities take place. This income can be used by municipalities for social programmes and community development.

The municipality receives 50% of the payments for the specified Mining Area and the financial means acquired from the exploration of deposit are used for different social programs.

**Slovenia**

The situation in Slovenia is similar to that of Slovakia. In Slovenia the licence is paid in equal proportions to the state and the community. The state’s share goes into a Mining Fund, which is used to finance or offer loans for the exploration of mineral resources, restoration of environmental damage caused by exploration and exploitation of mineral resources, new mining technologies, etc. The local community share is used for specific purposes.

**6.4.5 Environmental performance**

Environmental considerations are an important aspect of the planning and operation of minerals extraction sites in all Member States. In most Member States the larger producing companies have established environmental quality management systems and report on their environmental performance. Many of the smaller mineral producers in Europe do not have the resources to implement such systems. One of the
recommendations for overcoming this was that small enterprises should be assisted with the implementation of new regulations.\footnote{111}

No standardised approach to environmental performance reporting exists in the Member States. Most of the large mineral producing companies in Europe do however report on environmental performance in their Annual Reports. In some Member States the polarisation between environmental groupings and mineral producers no longer exists and meaningful ways of collaboration have been found to mutually benefit both sides.\footnote{112}

A matter of concern to the European minerals producers is the continuing shifting of goalposts as far as environmental standards are concerned. This has adverse effects on investments in mineral development which are long term by nature. Another concern is that environmental standards increase continuously. This trend has to be seen against the life span of mineral production projects, which range from 20 to 100 years.

The most serious threat to the non-energy extractive industries in Europe results from the environmental impact of the extraction and processing activities. The population of Europe has over the years become extremely sensitive as far as environmental matters are concerned. As a result major attention is being given by the authorities and the minerals producing companies to this matter. The layout and design of extraction sites, the choice of method of mining and the equipment used are nowadays selected on the basis of environmental considerations. Experience has shown that environmental aspects should be considered at the earliest stage, which is the planning stage. Where this is being done the environmental costs are manageable and a good relationship can be developed with the affected public. Many minerals producing companies in the Member States have adopted this approach and have had good experiences. The introduction of quality management and auditing systems such as ISO-9000, ISO 14000 and EMAS is widespread in many Member States.

Enhanced environmental performance can be measured in terms of improvements in air and water quality, reduced noise and dust levels and reduced visual impact of mining activities on the landscape. In all these areas considerable improvements have been made in the Member States. Environmental Impact Assessments in connection with new mining projects and existing mining operations are now a common feature in many Member States. A matter of concern is that different Member States apply different criteria for the application of Environmental Impact Assessments. As these are a major cost factor small minerals operators can no longer afford the high upfront costs

\footnote{111} The Federal Ministry of Economy of Germany has commissioned a study into the effects of EU regulations on the work environment and economic situation of enterprises. This investigation was concerned primarily with health and safety but the results are of more general importance. Major conclusions were that in the category of small and medium size companies (<500 employees) the implementation of new EU-regulations was made difficult because of missing resources. This was particularly so in the case of companies with less than 50 employees. It was observed further that the increased effort to implement these regulations was compensated by some benefits. Helmut Hägele: Sicherheit und Gesundheitsschutz im Bergbau – Auswirkungen von EU-Regelungen auf das Arbeitsumfeld und die wirtschaftliche Situation der Unternehmen. In Studien der ISG Sozialforschung und Gesellschaftspolitik. Band 23. Köln 1998

\footnote{112} The Forum Rohstoffe and the WWF actively cooperate in Austria and have conducted a number of joint studies and nature programmes. Forum Rohstoffe und WWF vergeben den Naturschutzpreis 2003. Stein&Kies November - Dezember 2003. pp.1-1.
associated with these assessments. In the longer term this could lead to a change in the
structure of the minerals industry in some of the Member States. In the case of
construction minerals this could result in a change from a decentralised supply structure
with many small operators to a more centralised structure with fewer but larger
production centres and increased transport distances.

ū Austria

Stringent environmental regulations are applied in Austria in connection with
minerals extraction. Environmental Impact Assessments have to be conducted
when the project area exceeds 10 hectares. As the EIA process involves the
public and a wide range of third parties with rights of appeal the EIA process
tends to be lengthy and costly. To date only a small number of projects
involving EIA’s have been approved. Many of the larger mineral producing
companies in Austria are validated according to EMAS and they are also mostly
certificated according to ISO-9000 and ISO-14000.

A close and constructive working relationship has been established between the
minerals section of the Austrian Chamber of Industry (Fachverband Stein und
Keramik der Österreichischen Wirtschaftskammer) and the World Wildlife
Fund. An important outcome of this cooperation is the finding that many of the
quarries constitute a habitat for endangered species. Another important feature
in the environmental area is the development of new mining concepts which are
all based on minimising environmental impacts and integrating mineral
extraction with restoration and rehabilitation work.

ū Belgium

Different federations have developed practical guidelines for their members. One
of the tasks of the various federations is to interact with the authorities and to
ensure that they take into account the typical aspects and problems linked to the
extraction industry, which is different from other industrial activities. These
federations also provide guidelines for good practice, e.g. on environmental
aspects.

ū Czech Republic

The Chamber of Mines Association (Tezební unie) in the Czech Republic issues
periodicals in which documents concerning the main environmental laws and
their relation to mineral production are published.

Implementation and certification of Environmental Management Systems
(further referred to as EMS) in Czech Republic must be in accordance with
standards of the file CSN EN ISO 14000. Interest-free loans for implementation
of the system are available for enterprises dealing in exploitation and processing
of mineral raw materials. One of the alternatives is the State Environmental
Fund. The objective behind the implementation of the EMS is to provide
solutions to various environmental issues and to promote continuous
improvement of the environmental management of business enterprises.
Implementation of EMS results in qualified specification of priorities to avoid
negative impacts of activities on the environment, to prevent pollution and accidents and to reduce energy inputs to production as well as more efficient use of mineral resources.

*Environmental performance indicators:* Environmental indicators (e.g. water consumption per tonne of extracted mineral, energy consumption per tonne of extracted mineral, etc.) are regularly monitored. In the case that the operator exceeds the threshold limits of individual environmental indicators (water and air pollution, etc.) penalties may be issued.

**Denmark**

Environmental protection, including EIA procedures, is firmly integrated in the management of the Raw Materials Act and the processing of applications made by the County authorities for onshore resources and the Forest and Nature Agency for marine resources on the sea floor. The Raw Materials Act also ensures that other environmental legislation is incorporated in the application process and the issuing of operating permits. However, it is also of great importance that the industry itself adopts a pro-active role with regard to environmental protection, community relations, transparency and other stakeholder issues in order to develop its social licence to operate and grow.

**Finland**

All of the large operators have published documents with codes of conduct and mission statements. These documents are usually based on the principle of sustainable development. All enterprises must also develop and maintain a health and safety management system. While an environmental management system does not seem to be legally mandatory, all the large operators have such systems in place.

The larger mineral producers publish annual reports that also provide environmental information. Some of these reports also present information on specific and relevant performance indicators. Finland has developed a national set of environmental performance indicators, although no information been found with regard to the existence of common sets of indicators for the industry as a whole or in specific branches of the industry.

Some codes are adopted at an individual company level, for example by the Outokumpu Metals and Resources Oy group of companies (OMR) in Finland. Amongst other things, OMR requires that its subsidiary companies:

- define their specific environmental duties and responsibilities at all organisational levels;
- educate, guide, and encourage employees in their specific tasks to take responsibility for environmental protection;
- take a positive attitude towards constructive communication with the authorities, environmental protection agencies, the general public, and the press.
France

One of the tasks of the various federations is to interact with the authorities and to ensure that they take into account the typical aspects and problems linked to the industry. The UNPG, national union of gravel producers (‘Union Nationale des Producteurs de Granulats’) established in 1992 a voluntary code of good practice (CHARTE, environmental charter for the quarry industry; ‘Charte Environnement des Industries de Carrières’) based on the following three principles:

- early and extensive public consultation;
- the establishment of a management committee for each quarry, comprising local government officials representatives of the quarry operators, local residents and property owners; and
- the production of comprehensive and scientific Environmental Statements.

Various documents have been written by public organisations, covering different aspects of sustainable development and environmental issues (e.g. BRGM, GEODERIS, INERIS and Ifen).

United Kingdom

It is standard practice amongst UK companies to adopt internal procedures based on good practice. Indeed it is the view of many in the industry that the internal standards adopted by companies, particularly with regard to environmental and safety measures are ahead of legislative requirements.

Ireland

In Ireland, both the Irish Mining and Quarrying Society and the Irish Mining Exploration Group have adopted voluntary codes of practice, which are said to carry considerable weight within the industry.

Luxembourg

For practical guidelines, reference is often made to codes of practice in neighbouring countries (e.g. France and Germany).

Latvia

Environmental issues are contained in Latvian legal acts relating to mineral production. The law “On the Subsoil” and several other legal acts lay down the requirement of the environmentally safe use of the subsoil. Any damage caused to the environment by the subsoil user must be compensated. The subsoil users have to pay natural resources tax for the extraction of minerals and dumping of wastes. The use of environmentally safe and modern production methods is envisaged by the law “On Pollution”.

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Waste management is an important yet still unsolved issue in Latvia. The Latvian legislation does not contain a definition of “mining waste” and the “Waste Management Law” does not apply to “waste resulting from prospecting, extraction, recovery and storage processes regarding mineral deposits”.

 élèves

Norway

The Aggregate Association is encouraging its members to start reporting some of the environmental performance indicators developed by the European Union of Aggregate Producers. Reporting is voluntary and encompasses as a start energy consumption per tonne of product, water consumption per tonne of product, mode of transport and average transport distance for products, and the land area occupied by excavation and processing. The larger mineral producers publish annual reports that also provide environmental information. It is still early days, but the general impression is that the quality and content of these reports regarding environmental and sustainable development issues are improving.

 élèves

Slovakia

The environment protection plays an important role in the mineral industry of Slovakia. Every producer is by law obliged to establish and adhere to the “Plan of the Opening, Preparation and Exploitation for deposits of reserved and non-reserved minerals” or to the “Plan of Deposit Utilisation for non-reserved mineral deposits”. Important elements of these plans relate to the environment protection.

 élèves

Spain

Environmental Aspects - Good Environmental Practices Codes

The establishment of “Good Environmental Practices Codes” is an initiative of the Mining Associations with the objective to promote the companies awareness and the commitment to the environmental management principles which are compatible with sustainable development.113

Metallic Mining

In the past the environmental activities concentrated on reducing damage of mining activities to the land. More recently disasters prevention is a preferred subject, being the preoccupation of the technical personnel in more than fifty percent of the companies. Some companies receive external auditing on this matter or makes its environmental policy public.

Non-Metallic Mining

The completion of an environmental impact study prior to authorization or as a result of the revision of an activity licence, ensures that the resource operation takes into consideration all likely environmental damages. The landscape, the waste deposits and the dust control are the most important investment areas in this mining sector.

**Aggregates**

89% of the companies have put in practice measures to minimise and correct environmental damage and 74% apply some type of clean technology. The choices of a responsible environmental technique, the establishment of a plan to reduce wastes, the preparation of environmental reports are common practice in a great number of companies. 95% of the companies use external consulting services for the elaboration of Recovery Plans, Environmental Impact Evaluations, etc. Less than 20% of companies use in-house expertise to assess environmental risk, the definition of an environmental policy and some specific environmental assignments.

**Dimension stone**

The Independent Communities give the companies the opportunity to adapt environmental norms, by means of collaboration agreements. In terms of these types of agreements, the companies are taking the following environmental steps:

- Accomplishment of environmental reports.
- Fulfilment of the effective environmental norm.
- Fulfilment of all corrective measures proposed in the agreements.

**Sweden**

The larger mineral producers publish annual reports that also provide environmental information. Some of these reports will also present information on specific and relevant performance indicators. No information was found regarding the existence of common sets of indicators for the industry as a whole or in specific sectors.

**Conclusion**

Environmental considerations are an important aspect of the planning and operation of minerals extraction sites in all Member States. In most Member States the larger producing companies have established environmental quality management systems and report on their environmental performance. Many of the smaller mineral producers in Europe do not have the resources to implement such systems.

No standardised approach to environmental performance reporting exists in the Member States. Most of the large mineral producing companies in Europe do however report in their Annual Reports on environmental performance. In some Member States, the polarisation between environmental groupings and mineral producers no longer exists.
and meaningful ways of collaboration have been found to the mutual benefit of both sides.

A matter of concern to the European minerals producers is the continuing shifting of goalposts as far as environmental standards are concerned. This has adverse effects on investments in mineral development which is long term in nature.

6.5 Summary of Country Reports relating to the Approach to Minerals Planning

According to the country reports successful mineral planning is indicated by the following elements:

- There is no mineral supply shortage
- Prices are stable
- The mineral sector has good communication with industry (royalties are paid in time and by almost all mining right holders)
- The mineral sector is gradually creating an implemented regulatory framework
- Industry is encouraged to improve partnership with local community and population
- The construction industry is mostly using domestic raw materials if they are available (some are not due to the geological settings)
- Industry’s competitiveness is at a high enough level.

On the other hand there are some failures of current and past mineral policy approaches. The results of these approaches are:

- Land use conflicts with other sectors and development plans
- Insufficient environmental monitoring by governmental bodies or agencies
- Inconsistent policy goals for different sectors within the ministry; or among different ministries.
<table>
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<th>Country</th>
<th>Exploration</th>
<th>Extraction</th>
<th>Mining Plant</th>
<th>Land Use Planning</th>
<th>Water</th>
<th>Emission</th>
<th>Other Environmental Issues</th>
<th>Summary</th>
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Footnotes

(1) 4 months if a EIA is required
(2) Coordinated consideration
(3) The requested period of 30 days can be extended to 60 days, in the complicated cases the supervisory body of the Ministry of Economy of SR will decide about the period of agreement.
(4) The mining activity permit is applied.
(5) They are not authorised separately because they are part of the mining activity permit, which needs the statement or approval of the Ministry of Environment.
(6) In Denmark is the time needed to obtain an extraction permit very much depending on the size of the project.
(7) In both Denmark and Norway is the time required for environmental approval related to processing a mandatory EA document. In addition comes the time needed to prepare the document itself.
(8) 4 months concerning state owned minerals; 2 months concerning construction minerals
(9) Variable depending on autonomous administration.
(10) Variable depending on autonomous administration. It is usually more than 12 months
(11) Greece: Currently average times for permitting in existing operation frameworks, i.e. opening a new mine next to an old one may take from 3 to 5 years. That is usually an expensive procedure both in cost and man-hours
Table 26: Sustainable Development of National Mineral Policy

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Note: 1, 2, 3, ..., refer to the level of reference to sustainable development concepts.
Reference to Sustainable Development Concepts in Policy

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Footnotes

(1) Reference is made to 'environmental protection'
(2) Implicit in the National Environmental Plan
(3) National Environmental Program
(4) Significant, dominate
(5) Coming into use, e.g. ash, mining waste
(6) Beside general taxes mining companies pay royalty after exploited volumes. Less payment is possible due to enhanced recovery methods of extraction
(7) For chosen group of minerals
(8) Law 2742 / 1999
(9) 1. The proposals of the mineral policy of Slovak republic are being in the preparation since 1995. The concept from the year 2004 introduces the extended proposal, which does not include the renewable sources of minerals and secondary minerals. 2. The proposal of the mineral policy of Slovak republic related to the area of raw minerals from the year 2004 is a part of the material - The Concept of Creation of the Economical Policy
(10) The relation of mineral extraction and principles of the sustainable development in SR is not legislatively completed.
(12) Denmark has a more concrete and active policy in place, but it is mostly dictated by security of supply for construction materials.
(13) Mineral policy preparation is stated as one of the goals of the Danish Raw Materials Act.
(14) Denmark is the only Nordic country that has specifically referred to sustainable development in their Raw Materials Act.
(15) In all the Nordic countries are sustainability issues incorporated on a general level in numerous government policy declarations, but also in relevant legislation such as Building and Planning Acts, Nature Preservation Acts etc.
(16) Denmark is at present developing a research project where the basic idea is to encourage “the right quality and type of material for the right use” in order to reserve high quality resources for high quality purposes.
(17) All the Nordic countries have policy declarations about increased recycling and use of secondary materials, but only Denmark seems to have achieved noticeable success.

(18) All the Nordic countries have taxes on various types of waste materials and depositing, but with the exception of Denmark, these taxes are not specifically levied in order to encourage recycling of inert construction waste.

(19) The mining Acts in Finland, Norway and Sweden can be considered an expression of a mineral policy, but it is passive and not proactive.

(20) The Mining Acts in Finland, Norway and Sweden are under revision.

(21) The Mining Acts in Finland, Norway and Sweden do not refer to sustainable development.

(22) The Swedish Act on the Management of Natural Resources includes specific policy measures with regard to mineral exploitation.

(23) Sweden has introduced a tax on natural sand and gravel in order to preserve reserves by increased use of crushed aggregates.
Chapter 7  Best Practices

7.1 General

Sustainability of mineral supply is mainly about ensuring the ongoing supply of minerals to society whilst maintaining,

- An optimal flow of benefits for all stakeholders, and
- Minimal negative impacts to the environment or society.

Best legal and administrative practices are considered to be those practices which are transparent, clearly understood by all stakeholders, safeguard the rights and call for responsibilities of all concerned parties and lead to a result in a reasonable time and at an acceptable cost.

Minerals Policy

The existence of a broad minerals policy based on the concept of sustainability which defines the role of minerals at all relevant levels, from national, regional to local, is considered good practice. Minerals policy needs to have a clear link to other spatially oriented policies, acts, strategies or plans, in particular land use plans.

Best practices are based on a clearly stated mineral policy that is harmonized with other sector policies and the government, and with industry and social interests and goals.

All procedures should be transparent and carried out in an adequate time frame. Procedures which are too quick can in the long run fail because of insufficient stakeholder involvement.

Some of the Royalties from mining operations could be used for policy improvements; especially with regard to information support (monitoring and research data and information) at the national and also local level. This could also lead to a useful set of indicators for different stakeholders (policy-makers, decision-makers, general public, environmental NGOs and others).

It is important to continue and further develop social partnership/dialogue among government, industry and social partners (local community, NGOs, consumers, labour force, etc.). This would provide and in many cases increase the validity of the social licence to mine and to supply the demanded minerals.

A transparent process of minerals supply can be done through obligatory and voluntary reporting by the government and industry. Industry in particular should be encouraged to report its economic, environmental and social performance to stakeholders, not only shareholders.

The economic aspect should be in favour of raising industry’s competitiveness, employment and other economic goals. The environmental aspects should cover two
main areas: minimizing the negative impacts on the environment during the mining cycle and sustaining the mineral resource flows. The social aspects mainly deal with equity (inter and intra-generational) and fair distribution of costs and benefits of minerals supply. These aspects should be incorporated into the national legal framework and included also in regional and local land use and development plans. Some guidelines could be obligatory, such as environmental protection (environmental impacts assessments and monitoring), some others voluntary (local partnership between the mining company and the local community, company’s annual reporting to the public).

Ireland

In Ireland, the non-energy extractive industry is of considerable national importance. This is reflected also by the attention which the government pays to minerals issues.

The Exploration and Mining Division (EMD) of the Department of Communications, Marine and Natural Resources has responsibility for government policy in relation to minerals exploration and development. The core policy goal of the EMD is to stimulate discovery of economic mineral deposits and to maximise the contribution of the mining sector to the national economy, with due regard to its environmental and social impact. The EMD has four strategic objectives:

- Strategic Objective 1: Maximise the Level of Exploration for minerals
- Strategic Objective 2: Equitable permitting regime for prospecting (Prospecting Licences) and mining (State Mining Facilities - Leases and Licences)
- Strategic Objective 3: To require and facilitate sustainable development in the minerals sector
- Strategic Objective 4: Well informed policy and decision-making processes

Prospecting

In Ireland Prospecting Licence Competitions are held every three months. By making use of this system, all interested parties know which licences terminated or have been declined. All interested parties have the opportunity to apply for competition areas. Twice a year the situation concerning licences is published. These publications include updating of current licence details, a revised map of State Mining and Prospecting Areas, etc. (Department of Communications, Marine and Natural Resources 2004a). This Competition makes the authorisation process a very transparent one where all interested parties have equal opportunities.

Every application for a prospecting licence is made in accordance with the Minerals Development Act. The Minerals Development Act states that
requirements can be made for the financial standing of the applicant and his technical qualifications. One of the most important requirements is an Environmental Impact Statement which has to be prepared by the developer. This must be prepared for all minerals subject to the Minerals Development Acts and for other proposed surface extraction involving more than 25 ha. These requirements can be considered as good practice.

Guidelines for Good Environmental Practice

The Minister of Communications, Marine and Natural Resources has issued guidelines for Good Environmental Practice in Minerals Exploration which are mandatory. These guidelines are based on a number of principles:

- Environmentally responsible management should be an integral component of all exploration programmes
- For the protection of the environment there should be compliance with all relevant government regulations. Best practice in environmental management standards is maintained in conjunction with exploration work.

The use of Guidelines for Good Environmental Practice in Minerals Exploration is considered good practice.

Periodical monitoring the mineral operations by the Department of Communications, Marine and Natural Resources and the Health and Safety Authorities as well as by local authorities and the Environmental Protection Agency is considered good practice. Local authorities have extensive powers to enforce the terms of planning permissions, and to take action against any unauthorized developments.

National Spatial Strategy – Importance of mineral resources at national level

In 2002 the National Spatial Strategy (NSS) for Ireland was established. The NSS sets out an ambitious view for the future development of Ireland and provides a framework for all sectors of society, national government, regional and local authorities. The NSS states that best use needs to be made of natural resources and therefore sustainable development is at the heart of the NSS. The recognition at the national level of the importance of mineral resources is considered good practice. Regional governments, who use the NSS as a framework for their regional spatial plans, also recognize the importance of mineral resources as a form of land use. A better use of natural resources (including minerals) should strengthen regional economics (Department of the Environment, Heritage & Local Government 2002). These developments can be considered good practice.
7.2 Authorising Minerals Extraction

The authorisation of mineral extraction by a public authority is a central element of mineral planning in all Member States. Two aspects of authorisation have to be considered, the application requirements, and the authorisation process.

7.2.1 Application requirements

Experience shows that “Standardised Application Forms” have the advantage that the applicant knows in detail what information and in which form he has to submit.

The use of “Standardised Application Forms” is considered good practice.

In some Member States such as Norway or Slovenia the authorities can provide quite extensive services to Project owners with regard to applications for permits and licences, and even prepare other documents necessary for approval. In both countries this is a service that is being offered, it is not mandatory according to the regulations or work instructions given by higher authorities. No fees are charged for this service, except for direct costs in order to, for instance, visit a prospective site.

7.2.2 Authorisation process

As far as the structure of the authorisation process is concerned no clearly better structure was found although there are indications that structures where all decisions are taken at the same level have certain advantages. This is largely due to the fact that the communication between officials representing the different subject matters tends to be better. This helps save time.

The responsibility for the authorization process for state owned or state controlled minerals, tends to be allocated to a higher tier of government than is the case with landowner minerals. There appear to be two reasons for this practice, namely the value which society attaches to the rather scarce scheduled minerals and the practice that the bulk of landowner minerals is used in close proximity to where it is extracted. Since landowner minerals are used primarily in construction and infrastructure development it is good practice to regulate them at county or even municipal level.

The authorisation process often involves separate investigations of different subject matter, for example, environment protection, nature conservation, water quality and forests.

In some Member States the authorisation process provides for sequential assessment of these issues whereas in other Member States the assessment is in parallel. Experience in Member States shows that parallel assessment is clearly a better practice in terms of the time required for the completion of the authorisation process.

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114 Authorities should be helpful, but not taking side when decisions need to be taken (Solar, S.).
115 Note: Land use planning concerning landowner minerals and in particular construction minerals should be done at a higher level- See Land use planning.
Canada

The “one stop-one shop” Canadian arrangement is a successful model in which all the authorities involved join together to meet the applicants instead of the applicants having to go to meet the various authorities separately.

The Netherlands

Since 1996, the local government is asked to adjust their Local Land Use Plan if “extraction sites” are designated in the Regional Spatial Plan. If the local government refuses to cooperate it can be forced to. The estimated time for this procedure is about 45 months. Even when the local government cooperates, the estimated time for this procedure is also 45 months. If no “extraction sites”, but “extraction zones” are designated in the Regional Spatial Plan, the estimated time for this procedure might take up to 5.5 years. Much more time was needed before the revision of Excavation Act.

The use of procedures in parallel is therefore recommended. The Dutch Environmental Protection Act offers the opportunity for the applicant to request for the consideration of all approvals in parallel. By this, much time can be saved. All applications are treated as one application. Appeal can be made to this single order. In this way, dispersal of appeals is avoided.

By far the most important factor controlling the time required for the completion of the authorisation process is land use planning. The crucial element is the extent to which information relating to mineral deposits is already incorporated in existing land use plans. Examples from Belgium, Denmark, England and Wales show that the authorisation process for mineral extraction projects that are situated in declared extraction areas (i.e. potential sites) is significantly shorter than for projects in areas that have not been set aside for minerals extraction.

Baden Württemberg / Germany

The duration and effectiveness of the approval procedure are dependent on the quality of the application documents and preliminary conversations with the authority. The planning office determines the basic conditions for the approval procedures. At the first on-site discussion, which is before handing in the application to the authorities, representatives must already be prepared to be able to report about the deposits, the environment, legal aspects, etc. and to inform the various parties involved in the procedure (neighbours, professional specialists) about topics as well as problems with the planned extraction project. The focus of this “practice” is on implementing a realistic administrative process with the purpose of obtaining a positive result, i.e. an approval. Such a practise, which can streamline and facilitate the application process, is considered good practice.

Denmark

\[^{116}\text{Citation: Meeting in April 2004}\]
\[^{117}\text{Citation: Meeting in April 2004}\]
The regional land use planning authority has to take into account the national objectives for regional development in urban, recreational and rural areas, and establishes guidelines for a framework for municipal planning and a basis for regulation of land use (local planning). The Danish EIA procedure is integrated in the planning process at the regional level. The regional plan also ensures “extraction of raw materials” is a specific topic in connection with the rural land use administration.

One very important aspect with regard to the permitting process for extraction is the fact that § 8 of the Raw Materials Act specifically states that an application for mineral extraction is also an application for permits regarding other relevant legislation e.g. the Water Supply Act, the Nature Conservation Act etc.

This means that the county authorities will assess and handle all the relevant legal issues in co-operation with other responsible authorities as part of the permitting process. The majority of these issues may already have been settled in connection with the regional spatial planning process where the County Council is obliged to designate areas for future exploitation of mineral resources. This approach will obviously streamline and facilitate the application process.

7.3 Land Use Planning

Land use planning for minerals should be done at a high level (National or regional) and should consider long time periods.\(^{118}\)

Land use planning is an integrative process, in which different claims of utilization are subjected to an evaluation process on the basis of which the land use planning authority identifies areas where in principle no minerals extraction will be allowed, areas where extraction may be allowed but subject to certain conditions, and areas where in principle extraction will be permitted. For land use planning to be an effective tool it is essential that it is based on a solid and well substantiated data base and that it includes all necessary information. From a minerals development point of view it is crucial that the information concerning mineral deposits is entered into the land use data bases to ensure that minerals are considered in all relevant land use planning decisions.

Incorporation of minerals in land use planning decisions is considered good practice and essential for a sustainable minerals supply in Europe.

Identification of:

- areas where in principle no extraction will be allowed,
- areas where extraction may be allowed subject to certain conditions, and
- areas where in principle extraction will be permitted

\(^{118}\) 20 years and more.
is considered good practice.

England and Wales

In England and Wales the concept of “landbanks” has been established to ensure continuity of production of aggregates. A landbank is defined as a stock of planning permissions for the winning and working of minerals. The aim of landbanks is to allow speed and flexibility in bringing supplies into production. The concept of landbanks is considered good practice.

Spain

The Geologic and Mining Institute of Spain (IGME) has made important contributions in the world of the Spanish mining by means of its regional plans on mining arrangements. IGME, in the framework of its mining and environmental resources planning working area, has developed a mining and environmental planning map where different categories are defined and delimited to areas that contain potentially exploitable resources, areas with environmental protection and exploitable areas according to several priority levels. In order to develop these maps a methodology has been designed based on the analysis of the land capability/vulnerability balance regarding mining activities. This methodology is supported by a Geographical Information System that allows the effective and relatively simple use of a high volume of cartographical information. The proposed method is systematic and achieves both an important transparency and reproducibility of the assessment processes.

Slovenia

In Slovenia the objectives of environmental legislation are to minimize the negative impacts on the environment during the mine cycle and to sustain the mineral resource flows. The social aspects mainly deal with equity (inter and intra-generational) and fair distribution of costs and benefits of minerals supply.

These aspects need to be incorporated into the national legal framework and included also in regional and local land use and development plans. Some guidelines can be obligatory, such as environmental protection (environmental impacts assessments and monitoring), some other voluntary (local partnership between mining company and local community, company’s annual reporting to public).

Latvia

The Latvian legislative system regulating mineral production is relatively new. According to Latvian law the access to land for mining purposes is relatively easy. There is no necessity to buy the land for the production of minerals. It is sufficient (and necessary) to come to an agreement with the landowner before applying for a licence. It is possible to obtain a licence based on a competition announced by the governmental institutions, local authorities or landowners. In such cases all requirements are described by the organiser of a competition. The time required to obtain the licence is reasonably short (30 – 60 days).
The Latvian legal system is stable and predictable. Several attempts have been made to adjust the Latvian law to UE requirements. All new legal enactments are in accordance with UE directives.

Lithuania

Lack of important minerals resources such as metal ores or coal, have restricted the mineral industry of Lithuania to a local scale. The legal framework is quite stable, most of legislation was issued in the early 90’s and is rarely amended (most of it not at all). Land access for further industrial activity is not very difficult. An enterprise which is interested in an activity does not have to be the owner of the land, but has to posses the rights to use the land and the agreement of the land owner and the local government. Codes of conduct and mission statements have been issued by the local business federations.

Environmental aspects of exploitation are covered in a number of legislative acts, beginning with the Underground Law, through the Law on Environmental Protection, the Law on Land, the Law on Water, the Law on Protected Areas and some others. Most of this acts are with EU directives or are under the process of translation to directives. Lithuania as a young country has very modern legislation.

Best practice in Lithuania which deserves to be highlighted is the way of organization and work of the Geological Survey of Lithuania. The Geological Survey of Lithuania is responsible for granting (in most cases) mining and exploration licence, enforcement and monitoring of extraction activities and other related issues. This single point of contact approach makes it easy for the applicant and can be recommended to other Member States.

The Geological Survey of Lithuania is also very well organized and prepared for new challenges which are connected with EU accession. Much legislation has been translated into English and is available on the Internet.

Luxembourg

One of the tasks of the various federations is to interact with the authorities and to ensure that they take into account the typical aspects and problems linked to the industry.

Poland

A good example of a detailed regional minerals planning approach is the “Atlas of Kujawski District of Carbonate Raw Materials Extraction”. The atlas was drawn up as part of the programme entitled “Protection and shaping of the natural environment”. The atlas is the result of a comprehensive study of the Kujawski mining district where carbonate raw materials are extracted.

On the basis of four maps giving details of the geological situation, the mining situation (including old mines and waste dumps), the cultural landscape, forecasts of future mining activities and the details of a multi-plant enterprise for the processing and manufacturing of carbonate raw materials, the following questions were addressed:
• Design and optimisation of minerals extraction
• Optimisation of production and processing of minerals in the district
• Assessment of material and energy consumption in the district
• Assessment of the effect of extraction and production activities on the environment.

7.4 Codes of Practice and Technical Guidance Notes

Codes of practice and technical guidance notes are important instruments to achieve environmental and technical excellence.

Different federations in Belgium and elsewhere have developed practical guidelines for their members. One of the tasks of the various federations is to interact with the authorities and to ensure that they take into account the typical aspects and problems linked to the extraction industry, which in many aspects is different from other industrial activities. These federations also provide guidelines for good practice, e.g. on environmental aspects.

The UNPG, national union of gravel producers (‘Union Nationale des Producteurs de Granulats’) of France has established in 1992 a voluntary code of good practice (CHARTE, environmental charter for the quarry industry; ‘Charte Environnement des Industries de Carrières’). Various documents have been written by public organisations, covering different aspects of sustainable development and environmental issues (e.g. BRGM, GEODERIS, INERIS and Ifen).

The ‘MILOS Statement’, titled Contribution of the Minerals Professional Community to Sustainable Development agreed at a conference on Sustainable Development Indicators on the island of Milos, Greece, in 2003 provides a useful vision, “Our minerals community will contribute to a sustainable future through the use of our scientific, technical, educational, and research skills in minerals, metals, and fuels”. Some codes are adopted at an individual company level, for example by Outokumpu Metals and Resources Oy group of companies (OMR) in Finland. Amongst other things, OMR requires that its subsidiary companies:

• define their specific environmental duties and responsibilities at all organisational levels;
• educate, guide, and encourage employees in their specific tasks to take responsibility for environmental protection;
• take a positive attitude towards constructive communication with the authorities.

All Norwegian enterprises that employ people must develop and implement a management system that integrates Safety, Health and Environmental (SHE) management. This is made mandatory according to a regulation called the Internal
Control Regulation, and it is controlled and enforced by different agencies under the Ministry of Labour and Government Administration, the Ministry of the Environment, the Ministry of Children and Family Affairs, and the Ministry of Justice and the Police. The regulation is quite flexible so that the internal control system can be readily adapted to any kind, size and complexity of an enterprise.

The Norwegian Aggregate Producers Association encourages their members to start reporting some of the environmental performance indicators developed by The European Union of Aggregate Producers. Reporting is voluntary and encompasses energy consumption per tonne of product, water consumption per tonne of product, mode of transport and average transport distance for products, and the land area occupied by excavation and processing. The larger mineral producers publish annual reports that also provide environmental information. It is still a new method, but the general impression is that the quality and contents of these reports regarding environmental and sustainable development issues are improving.

Since 1996, the Polish National Centre for Cleaner Production Implementation together with the Training and Information Centre of The Central Mining Institute has been implementing a strategy of Cleaner Production (CP) among other to the mineral industry and related ones. The programme of Cleaner Production included the following tasks:

- Implementation of Environmental Management Systems (EMS) on the basis of Cleaner Production for the preparation of enterprises to participate in The Community Eco-Management and Audit Scheme (EMAS) and the implementation of ISO 14001;

- Development and implementation of sustainable development strategies and programs at the local, and regional (Regional Environmental Management) level;

Between 1996 and 1999, around 20 projects for Cleaner Production were implemented in the mining industry.

A special case that deserves to be considered within the framework of good practices is AITEMIN in Spain. AITEMIN is a Technological Centre of a private and non-profit making nature, whose activity is mainly carried out in the sectors of extractive industry, construction and environment. Its activities include research and technological development projects, as well as technological services to companies, organizations and government agencies.

AITEMIN has four centres, located respectively in Madrid, Toledo, Mieres (Asturias), and La Ribera de Folgosos (León). More than fifty companies, industrial associations, central and autonomous community government agencies and other entities in the field of education and research belong to this Association. AITEMIN is recognized and registered as an Innovation and Technology Centre in accordance with Royal Decree 2609/1996 and is a Technological Centre in keeping with the definition set forth under the Spanish National Scientific Research, Development and Technological Innovation Plan. As such, AITEMIN focuses its endeavours totally on industry and on serving companies.
One of the future tasks would be unifying standards and codes (depending on the degree possible).

7.5 Environmental Aspects

7.5.1 Good Environmental Practices Codes

The publication of Good Environmental Practices Codes is an initiative that leaves the Sectorial Associations with the objective of promoting the companies’ awareness of, and commitment to, environmental management principles which are compatible with sustainable development. These Codes propose that companies make effective their recommendations, to identify the objectives which have been adopted, and define practical measures which should be undertaken.

All of the large operators in Sweden have published documents with codes of conduct and mission statements. These documents are usually based on the principle of sustainable development. The Norwegian Aggregate Producers Association and the Norwegian Mining Industry Association have issued some general documents on Codes of Conduct and Mission Statements. The two large trade associations, Danish Industry and Danish Contractors Association, have issued documents on Codes of Conduct and Mission Statements, but these are at a general level. In addition, the larger enterprises have formulated their own declarations which are specifically aimed at sustainable development.

The Slovak Mining Chamber (Slovenská Banská Komora) and the Slovak Association of the Stone Producers (Slovenské združenie výrobcov kameniva), and the Chamber of Miners Association (Tezební unie) in the Czech Republic have issued periodicals which explain the main environmental laws and their relation to mineral production.

In the Spanish extractive industry, the Spanish National Association of Aggregates Manufacturers (Asociación Nacional Española de Fabricantes de Áridos ANEFA) issued a Code of Good Environmental Practices in Quarries, Gravels and Aggregates Treatment Plants in 1998. These environmental initiatives must assure that all companies within the corresponding sector:

- Will operate in agreement with the norms demanded by the Law and in accordance with good industrial practices,
- Will make the production as well as the recovery processes environmentally friendly, as far as is possible,
- Will favour a suitable environmental management,
- Will contribute to the natural resources conservation by means of an efficient energy and raw materials use,
- Will put to knowledge the recommendations of these Environmental Codes to the employees and the contractors,
§ Will recognize the legitimate interests of the local communities, and

§ Will respect the rules in these Codes.

Environment Australia has published a series of booklets on Best Practice Environmental Management in Mining (BPEM Booklet Series.) There are more than 20 booklets published, and the series has also met significant international success seen by the fact that several booklets have been translated into a number of foreign languages.

7.5.2 Environmental control

Ireland

Environmental control is exercised through two methods. For mines and large plants, an Integrated Pollution Control Licence (IPCL) is required. This is analogous to the IPCL system enacted at the European level. It relates to air and water pollution, noise and vibration and waste. A key aim is to minimize risk to the whole environment by preventing the emission of potentially polluting substances wherever practicable, or to minimize such emissions where this is not possible (Department of Communications, Marine and Natural resources, 2004c).

There is a simpler system for quarries which operates at Local Planning Authority level through the Water and Air Pollution Acts, and through the Planning System. This is regarded as good practice.

Spain

The establishment of the Mining Registry of Spain at the end of the 1980s was a major contribution to knowledge about mining in Spain. This Mining Registry is being updated by the Geology and Mining Institute of Spain (IGME). Based on this information the IGME has developed a mining and environmental planning map where different categories of minerals are defined and delimited into areas of potentially exploitable resources, areas of environmental protection and areas suitable for exploitation but with competing interests.

In order to develop these maps a methodology has been designed based on the analysis of the land capability/vulnerability balance regarding mining activities. This methodology is supported by a Geographical Information System which allows an effective and relatively simple use of a high volume of cartographical information. The proposed method is systematic and achieves both an important transparency and reproducibility of the assessment processes.

The application field of these maps are industrial rocks and minerals with which it is possible to analyse diverse alternatives for the location of their exploitations as these types of resources are relatively abundant.

An important development is the extent to which business has taken into account the environmental aspects of its operations. This has mainly happened with the large sized industrial mineral or non-metallic producing companies.
Many companies have adopted ISO 14 000 to obtain the corresponding environmental qualification. Another important development is the role which some professional associations of the construction minerals sector have adopted to collaborate in the identification of good practices in the processes of their affiliated industries.

An example is the case of the National Association of Manufacturing Industrialists of Aggregates (ANEFA) which has prepared a *Guide of good appearance in quarries and gravels*. This guide gives details of measures to improve the appearance of the operations, treatment plants and facilities.

ANEFA also organises courses on aggregates and the environment, training for Environmental Coordinators, campaigns on dust prevention, and noise in the construction minerals industry. Similar programmes are offered also by the Federation of Stone (FDP).
Chapter 8  Recommendations

8.1 Introduction

The study of minerals planning policies in the EU- Member States has identified a number of problem areas. These can be divided into problems of a general nature and specific problems. The Chapter on “Best Practices” contains a number of suggestions on how some of the more specific problems can be addressed. In this Chapter issues of a more general nature will be dealt with. This will be done by presenting the nature of the problem. This will then be followed by a recommendation.

8.2 Issues and recommendations

Issue Nr. 1:

The limited knowledge of the importance of the non-energy extractive industry in Europe.

The study has shown that the official statistics concerning the non-energy extractive industries are incomplete. The most serious shortcomings are in the important areas of industrial minerals and construction minerals and in particular aggregates. The problem is caused by the structure of this sector which in many Member States comprises of a substantial number of medium, small and very small enterprises. These are not covered by the national statistics and consequently also not by Eurostat. The second difficulty arises from the fact that many enterprises in this sector are vertically integrated and that it is difficult to clearly identify which part of the business is minerals extraction and which is processing and value added. As a result of the incomplete statistical data the economic and strategic importance of the sector is not fully appreciated.

Recommendation:

It is recommended that a study group is established to address this issue and to come forward with a proposal how more complete and reliable data on the economic importance of the sector can be collected on an ongoing basis. The following data should be collected:

• Production

• Employees

• Revenue generated

• Land used for mineral extraction

• Land returned for other uses.
**Issue Nr. 2:**

*The lack of appreciation of the strategic importance non-energy minerals and in particular construction minerals (aggregates) for the development of Europe.*

The study has shown that about 3 billion tonnes of aggregates are produced and used in Europe annually. These aggregates are required by the construction industry for building and infrastructure development. In addition the industrial minerals sector is of global significance. The minerals legislation of most Member States does not recognize the growing importance of these sectors of industry. This is particularly noticeable in the areas of land use planning and access to mineral deposits.

**Recommendation:**

It is recommended that at the European and national level more attention is given to the growing importance of industrial minerals and construction minerals (aggregates), including at the political and legislative level. Issues of particular importance are access to mineral deposits in areas of high industrial activity.

**Issue Nr. 3:**

*In most Member States non-energy minerals are allocated a low priority by the governments of the day.*

The study has shown that only a small number of Member States have clearly defined national minerals policies although all Member States subscribe to the concept of sustainable development. The low level of importance attached to non-energy minerals is seen as a disadvantage in land use planning. Land use planning is a matter of deciding between different options of land use, and deciding on priorities. As a result, access to mineral deposits is becoming increasingly more difficult with the effect that many mineral deposits are no longer accessible. This however impacts on the sustainability of the minerals supply from local mineral resources. This could develop into a long term supply problem particularly in the case of aggregates which are consumed in such large quantities and can not be imported readily from most parts of Europe.

**Recommendation:**

It is recommended that Member States examine how the sustainable supply with non-energy minerals and in particular with construction minerals can be secured in the light of increasing demands.

**Issue Nr. 4:**

*In most Member States access to mineral deposits is becoming more difficult.*

Under issue Nr. 3 reference was made to land use planning which is considered to be the key to sustainable minerals supply. The study has identified that one of the problems in connection with land use planning is lack of information on mineral deposits within land use data bases. As a result minerals are often not being considered in land use planning.

**Recommendation:**
It is recommended that Geological Surveys become more actively involved in land use planning and as a matter of priority provide information on mineral deposits for land use data bases.

It is also recommended that land use planning is done at two levels, namely the strategic long term level looking at the national level at time frames of several generations and at the operational level, where all details have to be considered.

It is further recommended that minerals extraction areas are identified in land use planning systems and protected against other potential uses.

**Issue Nr. 5:**

*The time required for authorization of mineral extraction tends to be very long and the outcome is often uncertain.*

The study has shown that the authorization process can take several years. This has resulted in situations where the proposed extraction period is the same duration as the authorization process. Furthermore the cost of the authorization process is such that it is no longer affordable for small operators. The main causes for this development are the large number of authorities involved in the process, the complexity of the environmental assessment procedure and the increasing involvement of the public.

**Recommendation:**

It is recommended that attention is given to how the authorization process can be made more transparent and stream-lined. Attention should be given to the concept of “one shop-one stop” which is being applied successfully in Canada and based on the principle of parallel processing and intense cooperation between the authorities.

**Issue Nr. 6:**

*The increasing environmental pressures on the non-energy extractive industries.*

In recent years numerous EU-Directives on environmental matters have been issued. These have had a significant effect on the extractive industries both in terms of access to mineral deposits as well as in terms of complexity and cost of the authorization process. Examples are amongst others the Habitats-Directive and the EIA-Directive.

**Recommendation:**

It is recommended that in addition to the environmental initiatives at the EU-level initiatives which address the sustainable supply of Europe with natural resources and in particular mineral resources are also being considered.
Chapter 9 References


27. http://www.stbg.de


32. Magno, Carlos. “The extractive industry - from the supply control model to a regulatory model geared to the challenges of sustainable development” Mining Bulletin (Boletim de Minas), Vol. 38, No. 4.


37. Moll, St, Bringezu, St., Schütz, H. „Resoure Use in European Countries“, Project WP3c Cooperation with DG Environment – Thematic Strategy on the Sustainable Use of Resources Copenhagen 2003


55. www.globalreporting.org
## Chapter 10 Appendix

### Project team:

<table>
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<tr>
<th>Name</th>
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</tr>
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<tbody>
<tr>
<td>Horst Wagner</td>
<td>Univ. Prof. Dipl.-Ing. Dr. mont Head of Department of Mining Engineering and Mineral Economics University Leoben Dr.-Ing. Franz-Josef Strasse 18, 8700 Leoben, Austria</td>
<td>Coordinator of the study Austria, Germany</td>
</tr>
<tr>
<td>Günter Tiess</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kai Nielsen</td>
<td>Professor, Dr.Ing. Department of Geology and Mineral Resources Engineering Norwegian University of Science and Technology Sem Sælands vei 1 NO-7491 Trondheim</td>
<td>Norway, Denmark, Sweden, Finland</td>
</tr>
<tr>
<td>Slavko Solar</td>
<td>Dr.-Ing. Slovenia Geological Survey, Ljubljana</td>
<td>Slovenia</td>
</tr>
<tr>
<td>Tamás Hamor</td>
<td>Dr.-Ing. Hungarian Geological Survey, H- 1143 Budapest, Stefánia út 14.</td>
<td>Hungary; Contribution and comments to Chapter 4.2: “Relevant EU-legislation and policy impacting on national minerals policies”</td>
</tr>
<tr>
<td>Paul Ike</td>
<td>Dr.Ir University of Groningen Faculty of Spatial Sciences Department of Infrastructure and Environmental Planning PO Box 800 9700 AV Groningen The Netherlands</td>
<td>Netherlands, Great Britain, Ireland</td>
</tr>
<tr>
<td>Andre Vervoort</td>
<td>Prof. Dr.-Ing. Research group Mining, Department of Civil Engineering, KULeuven, Kasteelpark Arenberg 40, 3001 Leuven, Belgium</td>
<td>Belgium, Luxemburg, France</td>
</tr>
<tr>
<td>Jose Antonio Espi</td>
<td>Dr. –Ing. Departamento de Ingeniería Geológica Escuela Superior de Ingenieros de Minas de Madrid. Ríos Rosas 21 28003-MADRID Spain</td>
<td>Spain, Portugal, Italy</td>
</tr>
<tr>
<td>Zacharias Agioutantis</td>
<td>Prof. Dr.-Ing. Head of the Department of Mineral Resources Engineering, Technical University of Crete; University Campus, 73100, Hania, Greece</td>
<td>Greece</td>
</tr>
<tr>
<td>Wieslaw Koziol</td>
<td>Prof. Dr.-Ing.</td>
<td>Poland, Baltic States</td>
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<tr>
<td>Viliam Bauer</td>
<td>Prof. Dr.-Ing. Faculty of Mining, Ecology and Process Control and Geotechnologies of the Technical University of Kosice-Slovakia, Letna 9 042 00 Kosice, Slovakia</td>
<td>Slovakia, Czech Republic</td>
</tr>
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</table>

Further more:

**DG Enterprise:**

Dr. Paul Anciaux and Dr. Tom Simpson

**Austria:**

Markus Ramler (Dipl. Ing.), Claudio Vallefuoco (Dipl. Ing.), Department of Mining Engineering and Mineral Economics University Leoben

**Estonia, Lithuania:**

Professor Dr.-Ing. Wieslaw Koziol, M.Sc. Pawel Kawalec

**Germany:**

RA Wolf Müller, German Building Materials Association (Bundesverband, Baustoffe, Steine und Erden e.V.), Germany

RA Reinhard Fischer, Bundesverband der Deutschen Kies- und Sandindustrie, Germany

Dr. F. Dingethal, Bayrischer Industrieverband Steine und Erden e.V., Germany

**Italy:**

Dr. Giovanni Badino, Politecnico di Torino

Dr. Angelica Frisa, Morandini Politécnico di Torino

Dr. Marcos Sertorio, Universita di Torino

**Latvia:**

Dr. Marcin Chodak.

Department of Opencast Mining, University Krakow

**Poland:**
Professor Dr.-Ing. Ryszard Uberman, M.Sc. Anna Ostrega

**Poland and Baltic States:**

Director of project: Professor Dr.-Ing. Wieslaw Koziol,

**Portugal:**

Dr. Carlos Eduardo Feio Magno, Instituto Geológico e Mineiro
Table 27: Raw Metal Minerals for Member States (thousand tonnes/year)

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<td>25,673</td>
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<td>2,580</td>
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<td>2,695</td>
<td>3,136</td>
<td>3,290</td>
<td>3,421</td>
<td>3,407</td>
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<td>Perlite</td>
</tr>
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<td>2,011</td>
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<td>1,187</td>
<td>852</td>
<td>857</td>
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<td>878</td>
<td>879</td>
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<td>-59.56%</td>
<td>Phosphate</td>
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<td>414</td>
<td>371</td>
<td>417</td>
<td>406</td>
<td>423</td>
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<td>500</td>
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<td>14.39%</td>
<td>Potash</td>
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<td>7,553</td>
<td>8,388</td>
<td>7,736</td>
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<td>5,083</td>
<td>8,142</td>
<td>7,890</td>
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<td>64</td>
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<td>65</td>
<td>127</td>
<td></td>
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<td>Sulfur</td>
</tr>
<tr>
<td>Luxembourg</td>
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</tr>
<tr>
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<td>0</td>
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<td>0</td>
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<td>0</td>
<td>0</td>
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<td>6,278</td>
<td>6,593</td>
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<td>12,089</td>
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<td>13,876</td>
<td>14,326</td>
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<td>15,954</td>
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<td>18,116</td>
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<td>68</td>
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<td>57</td>
<td>60</td>
<td>-51.61%</td>
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</tr>
<tr>
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<tr>
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<td>10,707</td>
<td>10,465</td>
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<td>92,653</td>
<td>94,351</td>
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