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Minerals Planning Policies and Supply Practices in The Netherlands

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Mineral Planning Policies and Supply Practices in The Netherlands

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2005

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The Netherlands

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1 Country Background

1.1 Country Specifications

1.1.1 General Information

Size: 41,528 square kilometres (33,873 sq. km of land) (1-Jan-2001).

Population: 16,192,572 inhabitants (1-Jan-2003).

GDP: €393,950 million i.e. €24,329 per head.

1.1.2 Political System

The Netherlands is a parliamentary democracy (council of ministers controlled by parliament: second or Lower Chamber and first or Upper Chamber). The Netherlands is divided into 12 provinces (with a provincial governor and a provincial council). Each province is divided into municipalities (with a burgomaster and a local council). There are 483 municipalities (1-1-2004). There are also areas owned by the national government (state waters: large rivers and coastal water areas).

1.1.3 Brief Description of Raw Material Policy

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 plan. 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.

From 1996 onwards, the government's extraction policy has been expressed in the first National Structure Plan on Surface Raw Materials (Part 1: intended content; Part 2: reactions; Part 3: final governmental decision; Part 4: approval by both Chambers of Parliament). 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 made under the first 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 the 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 As a consequence, Part 3 of the Second Structure Plan will not be published and effectuated. The main reasons for the reduction of the governmental role are financial cutbacks, and the encouragement of a more market-oriented extraction sector.

Since April 2004 the national policy on surface raw materials has been integrated in the National Spatial Plan in Part 3: final governmental decision (Ministries van VROM, LNV, VenW en EZ, 2004). The text is only one and a half pages. The second National Structure Plan consisted of 277 pages. 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.

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 grade up 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.

In recent years the Dutch provinces developed Regional Mineral Extraction Plans. The provinces are free to make such plans; these plans are not compulsory. The Ministry of Transport, Public Works and Water Management is responsible for the State Waters and the North Sea. For these waters also Regional Mineral Extraction Plans have been developed. In the National Spatial Plan it is announced that the extraction of sand from the North Sea is of national interest. Deep extraction of coarse sand will be allowed. Detailed conditions will be given in the Second Regional Mineral Extraction Plan for the North Sea.

A completely new component in the National Spatial Plan is the so-called *surface raw material assessment*. For intended new spatial plans outside the built-up area the initiator has to comply with the following basic principles (National Spatial Plan, section 4.8.1):

- The effects on the provision 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 functions must also be taken into consideration. Under particular circumstances, in such cases 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.

2 General Description of Mineral Industry

2.1 Geology

In The Netherlands the aggregates, which can be used as construction materials – such as gravel and sand – are restricted to unconsolidated sediments at or near the surface because of the almost complete absence of hard-rock outcrops. Exploitable gravels mainly occur in the south east of the country. Exploitable coarse sands occur in the middle and the south of the country. Fill sand - road construction, raising land surface – can be found throughout the country and the North Sea. Clay resources – bricks and dike construction – are located in almost every province. In The Netherlands 99% of the territory consists of Quaternary unconsolidated deposits (rivers Rhine, Meuse, the Scheldt and the Eems). Also large quantities of peat were formed in the large swamps. In the extreme south limestone (cretaceous age) can be found. Near Winterswijk, in the extreme east of the country also limestone (Triassic age) can be found. Also glacial deposits of sand and gravel are located in the Northern parts of the country. Silica sand only occurs in the southern part of the province of Limburg near the town of Heerlen.

2.2 Production and Employment

Table 1: Mineral Production from 1989-1999 and 2000

Commodity	Production 1989-1999 (a) (million tons)	Production 2000 (b) (millions tons)
Coarse sand	21	21,5
Gravel	7	6,6
Limestone	1,5	1,6
Silica sand	0,5	0,9
Clay	3,4	3,7
Crushed rock	0,0	0,0
Fill sand (fine sand)	74,0	87,7
Sand for lime-sandstone	3,6	2,6

(a) The second National Structure Plan on Surface Raw Materials, part 1, p. 20.

(b) Ministry of Transport, Public Works and Water Management, Road and Hydraulic Engineering Institute (2003c)

Table 2: Employment in 1998 and 2001 in The Netherlands minerals industry

Industry	Employment	
	1998	2001
Limestone (milling industry)	300	300
Limestone (cement industry)	1,280	690
Stoneware industry	3,000	?
Brick manufactures	2,100	1,475
Roof tile manufactures	600	600
Sand (gravel): regional producers	450	450
Gravel (sand): national producers	450	400

Sand (gravel): national producers	300	300
Lime-sandstone	1,000	800
Silica sand	70	60
Filling sand	?	?

Source: Estimation Federation of Surface Mineral Extracting Industries (FODI), 1988 en 2001

In 2002 by the Chamber of Commerce are registered:

Producers of raw building materials: 143 companies with 900 employees

Dealers in raw building materials: 129 companies with 1,700 employees.

(Source: ECORYS-NEI, 2002, p.40)

2.3 Structure of Industry

Limestone

There are only three locations:

- Cement industry: In the south of the Province of Limburg; ENCI is using the limestone for its own factory.
- Milling industry: Two quarries in the extreme east and the south of The Netherlands. Only one company: Ankerpoort Maalbedrijven N.V.

Silica sand

Two companies are assumed to have a market share larger than 10%. There are three smaller companies, which produce low graded silica sand.

Coarse sand (by-product = gravel)

- Regional producers: approximately 15 companies, producing 7 Mt per year;
- National producers: 8 companies, producing about 14 Mt per year. For larger sites they mostly cooperate in a new enterprise. Six companies work together in the Industrial Sand en Gravel Producers Association (IZGP)

Clay

About 50% of the brick factories are owned by two international building materials internationals (CRH and Terca/Wienenberger). The Royal Netherlands Brick Manufactures Association has 22 members (50 brick factories).

Gravel (by-product = sand)

The same companies as coarse sand. The extracting of gravel is mainly located in the central part of the province of Limburg. In the other provinces, gravel is produced as a by-product of the sand production.

Crushed rock

Most of the 16 members of the Association of Producers and Importers (VPI) are active in the import of crushed rock (from Belgium, Germany, Scotland and Norway). There are also Dutch extraction companies, which produce across the border and market crushed rock by themselves. The members of the Dutch Gravel and Sand Traders Association (NVGZ) also trade in crushed rock.

Filling sand (extraction in state waters, inland project. Coarse sand is by-product)

Around 50 companies are united in the Dutch Association of Sand Extractors. Also other companies are active in this market.

Sand for lime-sandstone

In The Netherlands there are eleven sand-limestone factories. The bricks are sold via the Central Selling Office. The sand-limestone factories produce almost all the sand near the factory (operated by the factory).

2.4 Imports and Exports

Table 3: Mineral Import and Export for 1989-1999 and 2000

Commodity	Import (million tons)		Export (millions tons)	
	1989-1999 (a)	2000 (b)	1989-1999 (a)	2000 (b)
Coarse sand	9	11	9	8.7
Gravel	19	13.1	1	2.6
Limestone	1.6	1.3	0.0	0
Silica sand	0.5	0.6	0.2	0.3
Clay	0.3	0.4	0.1	0
Crushed rock	4.9	9.6	0.0	0
Fill sand (fine sand)	0.0	0	2	3.6
Sand for lime-sandstone	0.0	0	0.0	0

(a) The second National Structure Plan on Surface Raw Materials, part 1, p. 20

(b) Publikatiereeks Grondstoffen 2003/11

2.5 Research and Technological Development

Budget Ministry of Transport, Public Works and Water Management (The second National Structure Plan on Surface Raw Materials, part 1, p. 156):

- A research programme for primary raw materials and related topics (€ 225,890 period 2000-2005);
- A research programme for re-use of secondary and recycled raw materials (€900,000 period 2000-2005);
- Sustainable building (sustainable building technologies, etc). (€635,000 period 2000-2005);
- Timber research (€225,000 period 2000-2003);
- Raw materials general (€860,000 period 2000-2005);
- Research project on the implementation of alternatives for extraction of concrete and masonry sand (provinces and ministry). (€3,600,000 period 2003-2007).

2.6 Country Specific Legislation and Structures Governing Minerals Industry

2.6.1 Up to Date List of Laws Relevant to Securing and Producing Minerals

- Spatial Planning Act
- Spatial Planning Decree.
- The Mineral Planning Act (Revised Excavation Act 1996).
- The Environmental Protection Act
- Building Material Decree.
- Building Decree.
- Noise Abatement Act
- Pollution of Surface Waters Act
- Air Pollution Act
- Soil Protection Act
- Soil Protection Act
- Administrative Law Act

2.6.2 Government Agency Responsible for Minerals Industry

The Minister of Transport, Public Works and Water Management was the first subscriber of the second National Structure Plan on Surface Raw Materials (part 1 2001). The Minister of Housing, Spatial Planning and the Environment also subscribed the document (second subscriber).

In the new situation (2004) the role of spatial planning regarding raw materials will be supported by the Ministry of Housing, Spatial Planning and the Environment (National Spatial Plan) and the Ministry of Agriculture, Nature Management and Fisheries (concerning nature management). The policy on the sustainable use of raw materials will become the responsibility of the Ministry of Housing, Spatial Planning and the Environment. The role of the Ministry of Transport, Public Works and Water Management will decrease.

The Ministry of Economic Affairs will be the first contact for the raw materials extracting industry.

2.7 Industry Organization

Important organisations with respect to mineral planning and extraction are (Ministry of Transport, Public Works and Water management (2003b):

- Federation of Surface Extracting Industries (FODI): an umbrella organisation for the producers of minerals for the building material industry. It is the main counterpart of the government for general mineral extraction policy. (*)

- Netherlands Association of Regional Industrial Sand and Gravel Producers (NEVRIP): unites the small-scale sand/gravel producers who deliver most of their product by truck in the region of operation. Involved in sand policy.
- Sand Foundation ('Stichting Zand'), an organisation of large-scale producers of industrial sand (i.e. sand for the concrete and mortar industries). Involved in sand policy.
- Gravel Foundation ('Stichting Grind'), an organisation of large-scale producers of gravel.
- Industry organisation of the Wholesale in Building Raw Materials (BGB). Umbrella organisation which unites the NVZ, NVGZ and VPI (see below).
- Dutch Sand Dredgers' Organisation (NVZ): unites the procedures who produce filling sand from the North sea. (*)
- Dutch Gravel and Sand traders' Association (NVGZ): unites the traders of coarse sand and gravel who import, export and market most of the sand produced by large-scale producers.
- Association of Producers and Importers (VPI): unites the producers and traders in building materials for road and hydraulic engineering, including crushed rock and secondary materials (slags).
- Royal Federation of Netherlands Brick Manufactures (KNB): coordinates most brick producers and is involved in clay extraction policy.
- Dutch Association of Tile Manufactures (NEDACO): interest in specific clays.
- Association of Dutch Sand-limestone Manufactures (VNK): interest in sand for sand-limestone manufacturing.

(organisations that are members of the Consultative Body on Surface Raw Materials (OOD) are marked with an asterisk (*))

3 National System Legislation/Governing Ownership of Mineral Resources

3.1 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).

For land-based extraction, the extraction company needs an extraction permit, and the company must have the permission of the landowner. It is also possible for the operator to purchase land.

3.2 Processes and Procedures Existing to Obtain Mineral Rights

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

3.3 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 (opencast mining). No payments have to be made to either the government or the landowner. The operator usually asks for permission of the landowner. For state waters a permit is needed. This usually concerns nautical aspects (State water Management Act).

3.4 Regulations and Administrative Procedures Controlling Access to Mining Land

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

4 National System Governing Securing Supply of Minerals

4.1 Exploration

Since 1997 the Netherlands Institute of Applied Geosciences is the central geoscientific information and research institute for The Netherlands. The institute manages the data and information on the Dutch subsurface. The research is commissioned by the national government, provincial governments and extraction companies. Between 2000 and 2003 approximately 500 drillings were carried out at the Dutch Continental Shelf, by order of the province of Zuid Holland and the Ministry of Transport, Public Works and Water Management. The aim of this project was to explore for the existence of coarse sand.

4.2 Extraction

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).

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). 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 for the 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 to the municipal executive. Regulations might be attached to this permit.

4.2.1 Excavation Act

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

Making an appeal has got suspensive power. Appeals have to be made to the State Council. The appeal procedure officially is about 12 months, in practice about 24 months.

Article 10 of the Excavation Act states that: “at the preparation of a decision concerning granting or refusing, c.q. adjustment or revokement of a permission, paragraph 3.5.2 up to and including 3.5.5 and 3.5.6 of the Administrative Law Act is applicable”. In fact, the Administrative Law Act regulates the procedure for the excavation permit.

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 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.

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 of the concerning parcel (maximum 6 months old);
- Official drawings which show the concerning parcel and the ones 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 drawings and design drawings. The civil engineering drawings need to contain slopes, benchmarks of the existing ground level, groundwater levels, transverse sections etc.

The authorized body for the state waters is the Minister of Transport, Public Works and Water Management. Mostly, the provincial executive will be the authorized body.

Through the Environmental Protection Act an environmental permit is needed for excavations. Under this Environmental Protection Act several laws are categorized, partly with respect to content, partly procedural (Air Pollution Act, Waste Substances Act, Nuisance Act, etc.). An environmental permission is not an integrated permit yet

because operators also need a discharging permit according to the Pollution of Surface Waters Act. It is expected that this Act will be integrated into the Environmental Protection Act.

Concerning permits the authorized body will be the local government or the provincial government. Roughly the situation is as follows:

- the municipal executive is the authorized body concerning those cases which previously fell under the Nuisance Act;
- The provincial executive is the authorized body concerning those cases which deal with more complex situations, and which previously fell under the Waste Act, Noise Abatement Act and the Air Pollution Act.

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 technically/juridically 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 resolute 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.

Excavations require an Environmental Impact Analysis if the site takes up 100 hectares or more. Also separate, but adjacent, sites, which take up more than 100 hectares together, need an Environmental Impact Analysis. Excavations at the Dutch Continental Shelf require an Environmental Impact Analysis if they take up more than 500 hectares. Before the authorized body comes to a decision about sites with a size like this, the EIA procedure needs to be passed through.

The statutory regulations for the Environmental Impact Analysis are laid down in the Environmental Protection Act. The activities, which require an EIA, are laid down in the EIA decree and in the provincial environment ordinances.

4.3 Restoration and Aftercare

The conditions that can be attached to excavation permits are defined in the Excavation Act and in the provincial ordinances. The Excavation Act has a decentralised set up (framework act) and is worked out in 12 provincial ordinances – which differ in details – and in one national ordinance for State Waters.

4.4 Monitoring and Enforcement

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). Public servants of the permit granting government take care of the enforcement practices.

4.5 Environmental Damage/Rehabilitation

Article 26 of the Excavation Act (revised in 1996) states that compensation has to be paid by the province or the state, depending on the agency responsible for granting the application.

In addition to this, it is assumed that compensations concerning the levy (see 3.2.2.6) are in the range of €0.005 per cubic meter solid material. There is no statutory limit to the tariff of these compensations in the Excavation Act.

4.6 Fees and Compensation

The domain fees for the North Sea are €0.32 per ton. For inland state waters the domain fees amount to €0.98 per ton.

In 1998 the Excavation Act was amended again. 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.

5 Land Use Planning

5.1 Sustainable Development, Strategic Planning

Sustainability concerning minerals planning in The Netherlands is defined in terms of recycling and the use of alternative and/or renewable materials. Especial 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.

A major part of the National Structure Plan on Surface Raw Materials was devoted to recycling and the use of alternative and renewable materials (see point b above). In section 2.2.2.2 it is already mentioned that the National Structure Plan on Surface Raw Materials has expired. At present, it is not clear to what extent the Ministry of Housing, Spatial Planning and the Environment will continue this policy.

Also the 25 guidelines which are drawn up in the National Structure Plan on Surface Raw Materials will be cancelled. Many of these guidelines were related to sustainable matters, for example:

Guideline 5: After the closing down of the minerals site, the site should have a change of use, which is acceptable to society.

Guideline 7: The extraction has to take place as much as possible in the same region as where the demand for the materials arises.

Guideline 8: Excavations have to be situated in such a way (if possible) that treatment of the materials at the site and transport by train or ship is possible.

Guideline 13: Secondary Plus extractions (for example: dredging deeper than necessary) need to be stimulated.

Guideline 17: Ecological and geomorphological harmful consequences need to be kept to a minimum.

It remains to be seen whether the provinces will enter these guidelines into their Regional Mineral Extraction Plans.

5.2 Forward Planning For Minerals

In The Netherlands the production of nationally abundant minerals such as *clay*, *fill sand* and *sand for lime-sandstone* did not require planning and co-ordination. The role of the national government was limited to monitoring (identification of supply problems). In the first and second National Structure Plan on Surface Raw Materials only quantitative goals (so-called excavation tasks) have been set for raw materials if the possibilities for extraction were limited and when the co-ordination between the government and the provinces gave reason for this.

For *gravel* the province of Limburg has an extraction task of at least 35 Mt for the period 1999-2008. This quantity will be linked to the river-widening projects of the river Meuse. Consequently 70 Mt could be won. In the future the province will only continue to meet the regional demand after the widening projects are finished.

In the future the extension of the *limestone* quarry of ENCI is very insecure. In the long term the quarrying of limestone for the milling industry will probably also stop in the province of Limburg.

The amount of *silica sand* that will be extracted in the province of Limburg during the period 2000-2025 will be at least 19 Mt. Future extension is disputable because the occurrences are situated in valuable areas.

For *concrete and masonry sand (coarse sand)* the provinces and the Minister of Transport, Public Works and Water Management have agreed that the provinces will guarantee the extraction of 143 Mt of coarse sand during the period 1999-2008. The Minister guaranteed 15 Mt from the State Waters during the same period.

The concept of extraction tasks was not quite clear. On the one hand they have the status of “agreements between provinces and the Minister”, on the other hand they have the character of “imposed excavation tasks”. For the period 1999-2008 the provinces and the Minister agreed on an underproduction of about 20%.

A division model was used to share the excavation tasks between the provinces. In the division model it was assumed that the relative sand-excavation concentration and/or effort per province should not exceed a specific maximum. In this way the provinces with a comparatively large demand but limited excavation possibilities would not be burdened disproportionately (Ike, 1999). The theoretical results of the division model have been used only partly in policy making. The calculating model seemed to function as a frame of reference.

Statistical forecast models for the future demand –based on a relation between historical demand and historical investments in the construction sector - only have been formulated for gravel, coarse sand and cement (limestone). For the other minerals it was not possible to generate a statistically reliable relation between the demand and investments. For clay, filling sand, silica sands and sand for lime-sandstone future, demands have been made based on the experience, insight and expectations of the industry (Ike, 2000).

In the National Structure Plan on Surface Raw Materials, excavation tasks have been considered as decisions of vital importance, approved by parliament. But it also has been national government policy for some years to decentralise public powers. In 2003 the national government decided to abandon its role in mineral planning. This means that there will be no more excavation tasks in the future for surface raw materials. The effects of a market-oriented approach will certainly be the largest for the concrete and masonry sand provision.

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

In The Netherlands several bodies and study groups exist. These bodies consist of policy makers on national and regional level and industry. These consultative bodies are (Ministry of Transport, Public Works and Water Management, Road and Hydraulic Engineering Institute, 2003b):

1. Consultative Body on Surface Raw Materials ('Overlegorgaan Oppervlaktedelfstoffen', OOD). This body consists of Ministry representatives, industry associations, environmental organisations and associations of lower levels of government;
2. Steering committee ('SIA') and Project team ('PIA') on the implementation plan for alternative extraction methods for concrete and masonry sand ('Stuurgroep en Projectgroep Implementatie Alternatieven voor de winning van beton- en metselzand uit landlocaties');
3. National Committee on the Co-ordination of Extraction Policy ('Landelijke Commissie voor de Coördinatie van het ontgrondingenbeleid', LCCO);
4. Society of the Civil Engineering Centre for Construction, Research and Regulation ('Stichting Civieltechnisch Centrum Uitvoering, Research en Regelgeving', CUR), having several study groups on surface raw materials;
5. Inter Provincial Consultative Body ('Interprovinciaal Overlegorgaan', IPO);
6. Association of Dutch Municipalities ('Vereniging van Nederlandse Gemeenten', VNG; unofficial translation).

Due to the run-down in governmental interference, it is unclear to what extent the bodies mentioned under point 1, 2 and 3 will live on.

5.3 National System Governing Land Use Planning

According to the Spatial Planning Act the Council of Ministers can determine aspects of national policy for spatial planning in several types of plans. Examples of similar plans are a National Structure Plan for one policy sector (pipelines, surface raw materials, traffic and transport, electricity supply, etc.) or a national policy document on spatial planning. These plans follow the so-called procedure of the spatial planning key decision. This procedure is laid down in the Spatial Planning Decree linked to the Spatial Planning Act. The obligation to make a National Structure Plan on Surface Raw Materials is laid down in the Excavation Act (revised 1996).

As a consequence of the new market-oriented approach in 2003 the government has to remove the National Structure Plan on Surface Raw Materials out of the Excavation Act. The national policy on surface raw materials will be integrated in the National Spatial Plan (Ministeries van VROM, LNV, VenW en EZ, 2004). This plan will also be embedded in the procedure of the spatial planning key decision. A spatial planning key decision is usually indicative and not legally binding. However, the Minister of Housing, Spatial Planning and Environment may issue assignments/directives as to what a province should include in its regional plan, and as to what a municipality should include in its Local Land Use Plan.

5.4 Regional System Governing Land Use Planning

The Spatial Planning Act enables the provincial council to make a *Regional Plan* or to revise an existing Regional Plan. Parts of a regional plan can be elaborated later. Most provinces have integrated their Regional Plan, the provincial Environmental Policy Plan and the provincial Water Management Plan in one comprehensive plan. In addition the provinces are allowed to draw up a Mineral Extraction Policy Plan (as an

elaboration of the Regional Plan). In the above-mentioned plans the provinces can allocate mineral extraction zones or “extraction sites” (see 3.2.2.2). The procedure for making a Regional Plan is regulated in detail by the Spatial Planning Act.

In the past the Minister of Transport, Public Works and Water Management and several provinces, but also provinces and extraction companies entered into an agreements under civil law.

5.5 Municipal System Governing Land Use Planning

The Spatial Planning Act gives the municipal council the right to adopt a *Structure Plan*. This plan is not compulsory and is indicative, but it can have important legal and political consequences. The procedure is not regulated in much detail in the Spatial Planning Act.

The Spatial Planning Act requires that a municipality must make a *Local Land Use Plan* for the territory of the municipality. The procedure is closely regulated in the Spatial Planning Act. A Local Land Use Plan has many legal consequences.

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 the municipal council has not promised its co-operation, at the same time as the provincial council has decided to allocate an “extraction site” in the Regional Plan, then the provincial executive directs the municipality to amend its Local Land Use Plan. Since 2003-2004 a change in the Excavation Act is in preparation. According to one of the amendments, the indication of an “extraction site” will automatically affect the municipal Local Land Use Plan. Regarding the change of policy towards a more market-oriented approach, it is quite unclear in which way the Excavation Act will develop.

5.6 Non-Legislative Considerations at State, Regional or Local Level

The planning of major minerals sites in The Netherlands is very often a very difficult matter, mostly because these extractions create major lakes, which disturb the geographical structure. In The Netherlands no hard-rock outcrops are found. Small amounts of sand and gravel are produced in “dry” quarries. Part of the excavations take place in waters.

Where minerals are produced for the use in other regions, very often a strong Not-In-My-Backyard (Nimby) feeling appears. This especially occurs in the case of large coarse sand extractions in the southern and eastern parts of The Netherlands.

Where the minerals are used for the regions in which they are produced, there are far less Nimby feelings and in some cases none at all. A good example is the production of fill sand and clay. These minerals can be found in almost every part of The Netherlands. Fill sand is mostly used for projects nearby. Despite the fact that every year 80 million tons of fill sand is needed, the planning of these sites causes little protest.

Further, it can be concluded that the past few years the relatively small operators were far more successful than the larger operators, who were trying to establish much larger sites.

6 Evaluation of Sustainability of Mineral Supply

6.1 Identifying Approaches which have Shown Demonstrable Successes and Those that have Failed

In Section 5.6, it is emphasized that major excavations have led to major problems, especially in cases where the minerals were transported to a different region, despite the fact that for cases like these special procedures are entered in the Dutch Excavation Act (revision of 1996). The Excavation Act gives considerable powers to the State to interfere where necessary.

The Minister of Transport, Public Works and Water Management and the Lower Chamber were able, through the National Structure Plan on Surface Raw Materials, to make apportionments, and so they did. However, the Minister of Housing, Spatial Planning and the Environment had to force the provinces into this spatial track. This construction did not work well because the powers were not assigned to one Ministry, like for example with the Dutch Infrastructure Act.

The planning of major Nimby locations under the supervision of the State with the principle of apportionments is considered to be a failure although the planning system was revised for this purpose. The fall of the Dutch mineral top-down planning system will have consequences for the sustainability of minerals supply (more long distance import).

6.1.1 *Identifying Approaches which have shown Demonstrable Successes*

In Section 5.6, it is mentioned that the development of project-bound excavations are successful. The minerals are produced within or nearby the project. In most cases this does not cause major problems.

Secondary excavation projects where minerals are produced, for example dredging a channel, constructing of a reservoir or widening a river, are successful in the main.

6.2 Identifying Key Elements of Successful Mineral Planning Approach Respectively Recommendations

The Netherlands is a relatively small country. As a consequence the market for scarce minerals, like coarse sand and gravel, is spread over the borders. Until 2002 the operators assumed that the provinces, under pressure of central government, would take a leading role in realising new minerals sites. In October 2002 the Secretary of State refused to appeal against a decision of the province of Gelderland to suspend a special Nimby procedure. This Nimby procedure within the framework of the Spatial Planning Act was meant to realise a major minerals site (coarse sand). This suspension was the turning point in the Dutch minerals planning policy.

Since then a policy has been developed to liberalize the market for aggregates. Because the operators were not prepared for this (new) situation, they were in a disadvantaged position. The central government promised to execute the apportionments for the period 1999-2008. It is doubtful whether this will work. Time is ticking. From 2008 on the operators have to develop new initiatives by themselves.

The problems mentioned above do not apply for aggregates which are not scarce, like fill sand and clay (see Section 6.1.1). These are mainly regional excavations, which are spread all over The Netherlands. Concerning these excavations, the central government never really gave any direction to these developments. At the provincial level there were no major problems in realising excavation sites. These excavations are favourable for regional economies. Besides this, transportation distances are reduced.

Establishing the afteruse of a minerals site before the operators starts to work seems to be a very good idea and creates a stronger social basis. Secondary excavations, like the construction of a harbour, nature projects, etc, seem to create fewer problems. Secondary excavations might also be used for producing more material than necessary. Such excavations are called secondary plus excavations.

Policies for lowering the surface level in advance might also be very useful. With projects like these the excavation depth is restricted to the maximum local groundwater level. Due to this, the area can be used in the same way as when no excavation was executed. The maximum amount of fill sand that can be produced in this way is 6-9 million tons a year. The maximum amount of coarse sand that can be produced in this way is 1-2 million tons a year (see Ministry of Transport, Public Works and Water Management, Road and Hydraulic Engineering Institute, 2001).

The newly proposed surface raw material assessment (see Section 1.1.2 and 1.1.3) seems to be an instrument that does not stop future excavations due to other developments. At least considerations have to be made.

7 Identification of the Best Practices to Ensure Sustainability of Mineral Supply

7.1 Best Practices for Cost Effective Administrative Legislative Procedures

Before the revision of the Excavation Act in 1996, the procedure for obtaining a mineral permit had to be passed through. Next, the procedure for adjusting the Local Land Use Plan (municipal level) had to be passed through. Incidentally, the Regional Spatial Plan (provincial level) also had to be adjusted. This series connection was very time consuming.

Since 1996 the procedures mentioned above have been 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 is therefore recommendable.

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 of 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.

In September 1999 the State proposed the introduction of a tax on surface minerals. The main goal of this proposal was to stimulate the more economical use of raw materials and to increase the use of secondary raw materials. A study carried out in May 2000, however, showed that the tax would only have a small positive effect. More important were the negative aspects of the introduction of this tax. Negative aspects were expected in the border regions, where the introduction of the tax would result in increased import.

As a reaction, the building industry proposed the introduction of a tax on new building projects, on the condition that the tax on surface minerals would not be introduced. An incentive fund for sustainable raw building material supply would be established. Profits from the tax would be paid into this fund and this money would be used for research projects to stimulate the use of alternative materials where scarce materials were used (concrete and masonry sand). The Cabinet decided that the tax on new building projects would not be achievable and as a counteroffer the Cabinet proposed the establishment of a fund consisting of contributions from the building industry. This money would then be used for research.

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9 Appendices