

## **Towards a new European Coastal Mineral Aggregates Planning Regime**

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## Introduction

A project plan was recently presented in the Netherlands with a view to extracting the riverbed area of the Heesseltsche Uiterwaarden. This is part of the much larger Fort St. Andries project. The area of the Heesseltsche Uiterwaarden is 350 hectares and lies between the villages of Tiel and Neerijnen. In the Environmental Impact Assessment it was concluded that the present ecological values will be affected by the extraction of clay and the dumping of slightly polluted silt. Besides these effects, there is the possibility of negative external effects on traffic and noise. The local inhabitants are organising themselves in a local action committee and are opposing Rijkswaterstaat, which is the formal decision maker for this project. They think that the project includes much that is not necessary. The only thing that they in fact want to see is an increase in protection against extreme high water tides, due to heavy rainfall such as occurred in 1995. At that time most of the area had in fact to be evacuated.

There are many of these examples in the Netherlands where local interests conflict with projects of regional, national or even international interest. As such, simple top down organisation of, and an easy commitment to, large -scale spatial developments seems to be no longer acceptable to a majority of the people. A new way of planning and organising is thus needed in order to help realise such projects, most of which inevitably have an enormous impact at the local level. Projects in this category include the Betuwe- and HSL-rail line, the F3B mineral extraction aggregates site, the fifth runway for Schiphol airport, etc (see for example Voogd and van der Moolen, 1995).

These examples have to be considered not only in themselves, but also in their larger political context. The social context in terms of authority and legitimacy is changing, particularly with regard to the way in which people react to one another. In the Netherlands the year 2002 must be seen as being of particular importance in this regard, especially as it heralded the dramatic arrival of several new political parties, i.e. 'Leefbaar Nederland' and 'Lijst Pim Fortuijn'. Instead of the so-called 'regenteske' way of dealing with political matters, there should be more transparency, openness and a greater measure of clarity in the way things are decided and organised. Without the pretension to give an accurate description, we could however describe this process as a 'peoples movement to achieve more power'.

We believe this is also reflected in the planning processes of modern large-scale projects in our countries. With respect to mineral aggregates extraction, we have clearly underestimated the management tasks attached to mineral resources according to Neeb and Dahl (2002). It remains a mystery as to why there is so little attention paid to, or appreciation of, mineral aggregates planning. For a long time little attention was paid to what we now call sustainable development. According to MMSD (2002) 'in the context of the minerals sector, the goal of sustainable development should be to maximise the contribution to the well being of the current generation in a way that ensures an equitable distribution of its costs and benefits, without reducing the potential for future generations to meet their own needs'. Land use management should recognise competing interests and attempt to negotiate according to an integrated land use planning. We feel that the mineral aggregates are not fully appreciated.

In this paper we attempt to describe this process from the viewpoint of mineral aggregates extraction, with examples from Great Britain and the Netherlands. We will conclude with a proposal on how to deal with such matters in a different way in future.

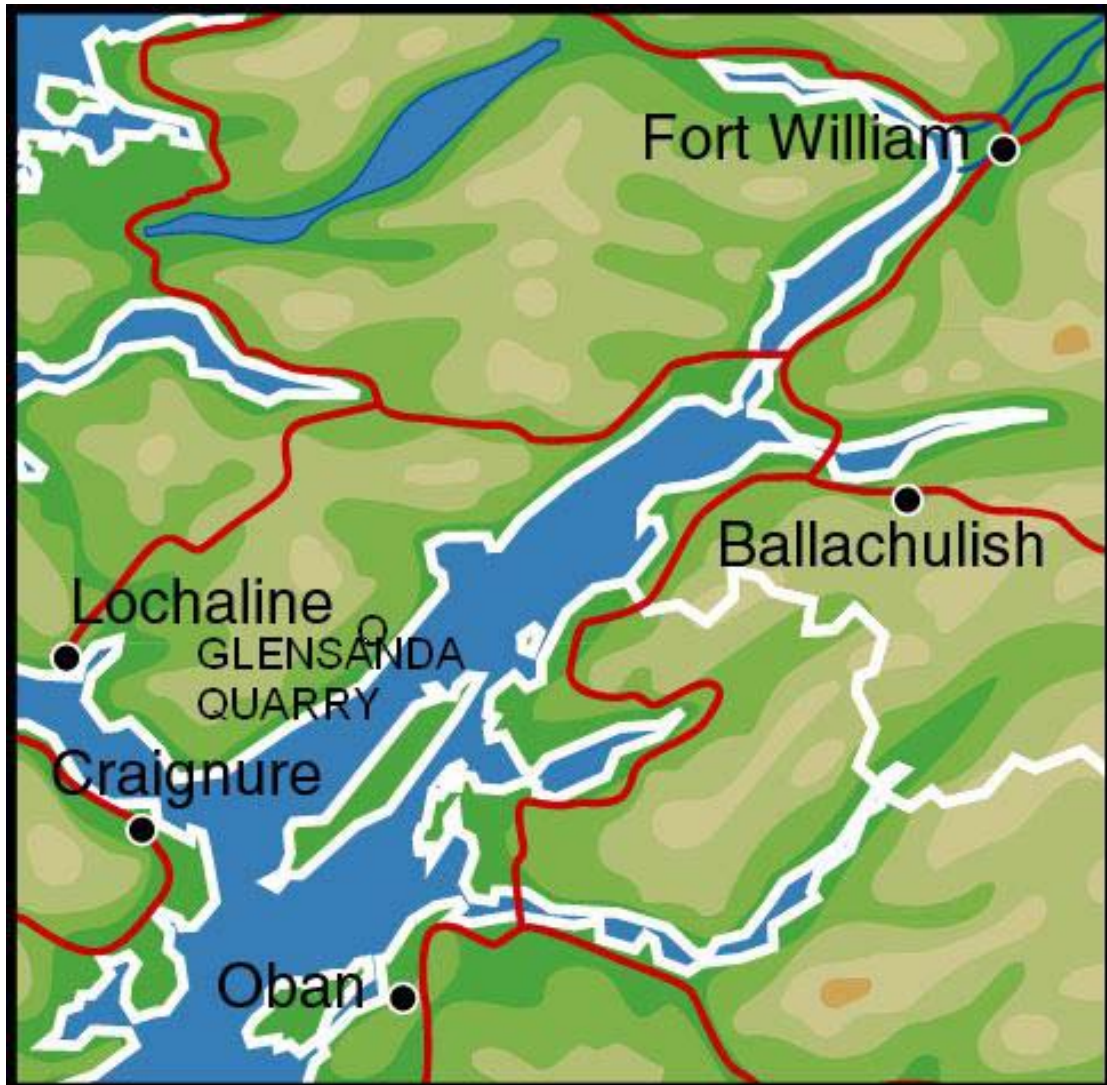
### **Mineral aggregates extraction: Some facts and figures**

A recent study on imports and exports in Europe shows that imports from the scarcely populated countries to the more densely populated countries are significant and are expected to rise in the near future (Pietersen et.al., 2002). Uncertainty however remains due to the fact that not only is there a definitional problem with regard to similar data between European countries, but that the data collected does not reflect the actual quantities involved, as it is based on company – or perhaps turnover size alone. Moreover, in some countries such as federal states, it is difficult to obtain data for the national level. Nonetheless, it is possible to draw some general conclusions. Countries such as Belgium and the Netherlands, and regions such as Lower Saxony strongly depend upon imports, whereas Scotland and Norway are net exporters (fig. 1 Pietersen). Due to actual planning practices in England, the Netherlands, and countries such as Belgium it is not so difficult to foresee a rise in the international trade of gravel and sand. This means, spatially or geographically, that there will be a surplus in the northern parts of Europe and a deficit, or greater demand for these materials in central Europe.

What does a super quarry look like? Based on the experience of the Glensanda Quarry in Scotland, we can make some general remarks. This quarry has been developed because of increasing environmental pressure against sand and gravel extraction in populated areas, the increasing demand for aggregates, and policy guidance with regard to the need for the recycling of aggregates and for an increase in the import of aggregates from remote sources (Lucas, 1998).

Some 15 kilometres north west of the town of Oban, and accessible via a forty – minute boat crossing of Loch Linnhe from the eastern side, lies the super quarry (see map below). Permission was granted for a twenty five-year period, while a limit of 15 million tonnes per annum was placed upon the output. Economically, there are 150 jobs attached to this quarry. The number of quarries is to be constrained to 4 over the period up to 2009, including Glensanda (Lucas, 1998). There is a marked contrast here to the planning climate prevalent in Norway, where companies seem to be openly encouraged to consider establishing super quarries. Glensanda is located on the top of the mountain above and behind the foreshore. A 1.6 km conveyor tunnel was driven into the mountain in 1988 and, from this, a 300 metre vertical shaft was raised up into the quarry site (figure). The total capital investment to date has been in the region of 40 million pounds. Permitted reserves are 450 million tonnes within an area of 75 hectares. Freehold ownership extends to 8,100 hectares. Quarry operations take place 24 hours a day, 365 days a year.

Another interesting point here is the effect on the local economy. There are 150 employees at work, of whom 70 % are from the local area. The annual operating costs are around 4.2 million pounds, much of which goes into the local economy. Glensanda supplies a number of markets: the English market, as well as the Dutch, French, Belgian, German, Polish, Spanish and Portuguese ones.



The other important supplier-country in this market is Norway. The Norwegian mining and quarry industry had a turnover of roughly 0,9 billion Euros in 2001. It employed some 5.200 workers. The export value of the minerals was almost 500 million Euros. The industry provides the backbone of many Norwegian communities. By April 2002 some 5.200 people were employed in the mining and minerals industry. Since 1990 exports to the European continent have risen by 150 %. The advantages held by Norway in this market are the great variety of rocks, its long coast with harbours for shipping, a high level of technological development, and good research and development facilities.

In the following we present Scotland and Norway as the two prime exporting countries. Before describing these we will outline some common practices in aggregate extraction in both the UK and the Netherlands.

## **Common practice**

In the Netherlands and in the UK it is common practice that the individual firm or company closes a deal with the regional/provincial government to obtain the necessary permits in order to extract from a certain site over a preset a number of years. In return, the company has to deal with the extraction activities in a certain way: for example between 07.00 and 22.00 hr, a certain mode of transport must be used, and the restoration of the area after finishing the extracting activities must also be undertaken.

Due to the fact that it will take many years before the firm attains the necessary permits, many companies invest a lot of money in obtaining sufficient interesting and promising hectares of land. They invest a lot of money hoping that they will get their return once they have the necessary permits. The primary interest of the companies is where sand, gravel or clay of good quality can be found. In the context of this process the local community has a number of official opportunities to react to the plan to extract in their local neighbourhood or vicinity. In the Netherlands the 'Ontgrondingenwet' en 'Wet op de Ruimtelijke Ordening' offers such opportunities to react and oppose. In the UK a more or less analogous situation exists. Local inhabitants are here officially represented by their local governments. Increasingly however local inhabitants do not feel this to be the case when these large-scale spatial developments are presented. They form their own local action committee or seek representation by means of other organisations such as NGO's as Stichting Natuur en Milieu, English Nature etc. And after a long period of struggle the permit is more often than not granted, and every day life goes on, leaving the community however in a certain state of distress during the period to come, and probably with less faith in their representatives than before.

We draw the conclusion here that there needs to be another way of dealing with these matters that better fits the realities of modern life (see for example also Lengkeek, 2002, Voogd and van der Moolen, 1995).

## **From Scotland and Norway with love**

This is not the title of the new James Bond movie, but it is rather a signal of what should develop in Europe over the next few years. Abundant supplies, enough to cover the demand for mineral aggregates in some European countries for many years. We will describe this in terms of its spatial, economic and natural effects.

	<b>Scotland</b>	<b>Norway</b>
<b>Spatial</b>	Thousands of hectares project area	Thousands of hectares project area
<b>Economic</b>	Local people can be attracted as employees. Improving local investment climate. Input from employees from abroad. Changing social conditions.	Local people can be attracted as employees. Improving local investment climate. Input from employees from abroad. Changing social conditions.
<b>Natural</b>	Geological: Actual removal of rock, though visually from out of the direction of the sea hardly visible. Nature: removal of habitat; noise and human presence; rise in transport Environment: chance of pollution from noise, dust, oil, traffic danger.	Actual removal of rock, though visually from the direction of the sea hardly visible. Nature: removal of habitat; noise and human presence; rise in transport. Environment: chance of pollution from noise, dust, oil, traffic danger.

	<b>Netherlands</b>
<b>Spatial</b>	Less impact of new aggregates extraction sites Less chance of reaching synergy between different societal goals such as developing new nature areas, realising new living areas with recreational facilities, etc.
<b>Economic/ Environment</b>	More capacity will be needed in harbours for importing sand and gravel by large bulk carriers. More regional and local traffic from a few central locations. Perhaps prices of building materials will rise by a few euros.

### **The European perspective**

Despite the fact that three European conferences on mineral planning were organised (1997, Zwolle, the Netherlands, 1999, Harrogate U.K.; and 2002 Krefeld, Germany) the emergence of a clear vision or perspective on this kind of development remains illusory. In order to tackle this growing geographical Nimbyism we feel that the concept of environmental justice is important. We do not believe that it is acceptable for the populous centre of the European Union to export its environmental problems, associated with the winning of construction aggregates, to other European communities or foreign countries and then expect them to accept lower environmental standards. Environmental justice would mean that the best possible environmental

working practices would be used and that a Code of Practice covering all aspects of the development be entered into between the local community and the developer. Monies would be made available from the European Sustainability Fund, which would be set up to refund the EMFI monies to qualifying projects.

It is proposed that a Code of Practice between the local community and the developer, covering all aspects of the mineral workings, be legally entered into. Other parties having an input into the Code of Practice would include, other community groups, the local authority, the land and mineral owner, Government and environmental NGOs. There will also be a need for participatory planning in the field of mineral aggregates extraction.

It is clear that the existence of community involvement in negotiating a Code of Practice that covers economic and environmental considerations is a key difference from present practice. In fact, we propose that the local community becomes the de-facto controller of all the natural resources of the community. The community would then become a royalty recipient and would thus be entitled to additional monies returned from the EMFI to assist with both economic and environmental projects. This community control is particularly important where it is proposed to work on the world-class coastal hard rock resources of Europe.

### **A European fiscal instrument**

We propose a European Minerals Fiscal Instrument (EMFI), which would be used to bring about an environmentally acceptable supply of construction aggregates in the European Union, i.e., BPEO. The EMFI would go further than, for example, the UK Aggregate Levy, in that it would encourage industry to invest by exempting particular environmentally acceptable methods of winning minerals from the levy. The EMFI would finance a European Sustainability Fund (ESF), which would reward communities prepared to host mineral workings by making monies available for local environmental and bio-diversity projects as well as for economic development. Such monies would be in addition to monies received by the community from its status as a mineral royalty recipient.

### **Environmental restraints**

In order to minimise the local environmental impacts of working coastal deposits as much as possible, only 'glory hole' and/or cavern mining should be permitted. Glory hole removes vertical columns of rock but leaves the outside of the mountain un-worked. Cavern mining also leaves the outside and the surface un-worked. As these methods are more expensive than traditional open pit working, the EMFI should not be paid by companies undertaking these working methods and signing up to the Code of Practice. There should however be a positive reward for those who do and who actually try to establish a positive relationship with the community they are working in. The wider environmental implications at the delivery ends can be overcome by using floating trans-shipment terminals to break bulk. It is anticipated, as in the oil business, that consortia would be formed to work the coastal deposits. Delivery of 'crusher run' product would be made to consortia members' 'virtual quarries' for further processing.

Environmental opportunities arise from the glory hole or cavern mining of aggregates as they have the obvious benefit of minimising or avoiding landscape and visual

impacts. Industrial development is restricted to the processing, stocking and loading activities associated with the development. Through careful design these may be located or screened to reduce impacts to minimal levels.

### **The Community, Sustainability and Biodiversity**

The reversal of declining rural populations through sustainable minerals development linked to future energy requirements may be further aided by use of mineral production by-products. Mineral 'fines' may be used for soil re-mineralisation, enabling land to be brought into beneficial production. Base-rich mineral dusts mixed with green waste compost as a growing medium have undergone successful trials in Scotland. Future community self sufficiency in agricultural produce, currently imported from central distribution centres, would be in accordance with the current trend away from the CAP and the subsidies it attracts. Distant rural communities, disenfranchised by existing adverse land use quality, may be further impacted by this action. Consequently an EMFI that enables sustainability across the board through the planning of a structured and visionary strategic mineral planning regime for Europe is to be commended.

### **Conclusions**

In that context, we argue that the working of large-scale mineral deposits by glory hole and / or cavern techniques represents the best local environmental option. In other words, we believe that it is not necessary to destroy the environment of a far away local community in order to save a community in the Netherlands or Belgium for example. Environmental justice must be applied. It is no longer acceptable for the populous European centre to seek to obtain its future supplies of construction aggregates by exporting its environmental problems to either (1) other European communities not able to resist or (2) to third-world countries prepared to ignore environmental damage concerns.

Particular attention in this analysis has been paid to the fact that the European Union has world-class reserves of rock located in some of its remotest peripheral communities where they are finding it difficult to survive without the help of financial subsidies from the European Union. In our analysis between BAU and BPEO we examine how these world-class resources of rock can be worked to the benefit of both the local community and the wider population of the European Union.

In conclusion, we attempt to show how a Fiscal Instrument can assist the change from BAU to BPEO and in so doing, bring about an environmentally acceptable supply of construction aggregates in the European Union.



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