Landfill Tax and Aggregates Levy

The main aim of the Landfill Tax is to reduce waste tipping and that of the Aggregates Levy is to reduce the use of green field sites for aggregates supply and to encourage the use of secondary and alternative materials. The Landfill Tax was an implementation of EU directives on environmental sustainability. The Aggregates Levy is a UK initiative.

Some of the cash netted is redistributed via the Aggregates Levy Sustainability Fund (ALSF), reserved specifically for projects connected with aggregates' environmental impact. The Aggregates Levy, currently £1.60/tonne, has so far raised c. £340m, of which £35m is returned for use across England, Scotland and Wales via the ALSF.

The funds have increased partnership and collaboration with the mineral aggregates extraction industry, increasing opportunities for geotourism and promoting more widely the importance of geological sites within the UK via education and greater involvement by all groups in geoconservation.

The future

The aggregates industry manages large areas of land. Careful planning, operating, restoring and management are needed to allay concerns and meet the expectations of government, planning authorities and public.

With continued emphasis on the importance of site restoration, the long-term impact of the aggregates industry can remain positive. In our increasingly leisure-orientated society, the development of recreational parks, woodlands and conservation areas is essential and will be appreciated by generations to come.

The aggregates industry also can contribute to increased biodiversity. Environmental disturbance associated with quarrying increases habitat diversity. For example, a gravel pit turned into a lake vastly increases the ecological niches available, while quarries create fresh cliff habitats in landscapes where they did not exist before.

In the future, we may see the development of a few "superquarries" in isolated or coastal areas, which do not impinge on communities. Already, where the right rocks occur, technology now exists to allow quarries to be opened and operated almost directly onto waiting ships (minimising road and rail traffic) (e.g., Dean Quarry (RMC) or Glenanda Quarry (Foster Yeoman Scotland)). Modern technologies are beginning to make it possible to consider "underground aggregate quarries" that are both economic to work and have minimal environmental impact.

Further information

- Quarry Products Association (QPA), 156 Buckingham Palace Road, London SW1W 9TR (tel 020 7730 6194) www.qpa.org
- The British Geological Survey’s dedicated minerals website www.mineralsuk.com
- English Nature www.english-nature.org.uk
- Office of the Deputy Prime Minister, Eland House, Bressenden Place, London SW1E 5DU www.odpm.gov.uk
- The Environment Agency www.environment-agency.gov.uk/qwcl
- The Campaign to Protect Rural England (CPRE) www.cpre.org.uk
- English Heritage www.english-heritage.org.uk
- Scottish Natural Heritage www.snh.gov.uk
- Environment and Heritage Service for Northern Ireland www.ehni.gov.uk
What are aggregates?

Aggregates are granular materials used in construction. They may be as small as sand grains (in mortar) or as large as blocks weighing many tonnes (in sea defences). Sand and gravel, or solid rock crushed for use, or sand and gravel dredged from the seabed (see EIOH 12) are all aggregates.

Why do we need aggregates?

Aggregates are an important resource. It takes 50–60 tonnes of aggregate to build an average house.

- Every home, factory, school and hospital is built using quarry products
- Aggregates provide the basis for our transport network, water and sewerage systems
- They are the essential raw materials for the construction industry (including concrete and asphalt) which accounts for 10% of the country’s GDP and provides jobs for 1.4 million people
- Quarrying employs 20,000 people and a further 20,000 depend upon the industry for their livelihood
- About 15–20% of the aggregates market is met from recycled aggregates. Recycled plus secondary natural aggregates (see Box) comprise 20–25%.
- Primary aggregates are the main category and will continue to predominate for quality products where long life and durability are important
- Over 700 Sites of Special Scientific Interest (SSSIs) were formerly quarries
- There are over 1200 working quarries, sand and gravel pits in the UK

Definitions

Aggregates may be natural, manufactured or recycled.

- **Natural aggregates** have been subjected to no more than mechanical processing e.g. sand and gravel or crushed rock. **Primary aggregates** come from deposits of sand & gravel or rock extracted from the ground (or sea-bed). **Secondary aggregates** arise as waste during the extraction of other geological materials such as coal, slate or china clay.

- **Manufactured aggregates** originate from by-products of industrial processes involving thermal or other modification and include the remains of pulverised fuel from coal-fired power stations (PFA), slag from steelmaking etc.

- **Recycled aggregates** result from processing inorganic material previously used in construction: e.g., demolition waste, concrete, asphalt from roads and even bottle glass and tyre chippings.
Where, and why?

Primary aggregates are either deposits of unconsolidated sand and gravel, or are created by blasting and crushing suitable rock.
- River gravels – deposited by rivers in lowland valleys
- Glacial gravels – deposited by glaciers and associated rivers after the last Ice Age
- Hard rock of many types and ages

Getting permission

Extraction is carried out mostly by private companies who have received planning permission from the Mineral Planning Authority (MPA). The MPA is the authority with planning control over mineral working in its area – e.g., the County Council. Aggregate resources with planning permission are termed “reserves”.

Planning permission is granted where applications fall within the framework of government guidance, taking into account the need and the best location. Bodies such as the Environment Agency, English Nature, Forest Enterprise, the Department of the Environment, Food and Rural Affairs (DEFRA), and utility (gas and electricity) companies are consulted, among others.

The Government’s Minerals Planning Guidance for Aggregate Minerals (MPG6) with the National and Regional Guidelines for Aggregates Provision in England: 2001 – 2016 (June 2003), apply the principles of sustainable development to minerals planning. These include “supply and demand issues, the use of recycled, secondary (and marine) sources, and the more efficient use of minerals of different grades”.

MPAs monitor all sites and impose controls by attaching conditions to the planning permission to ensure that work is carried out in the most environmentally acceptable way and with minimum impact. Examples of controls include:
- noise and dust control
- blast vibration control
- method of working
- hours of working (e.g. restrictions on blasting times)
- traffic controlling measures
- protection of water courses (rivers, streams and groundwater)
- protection of archaeological and heritage sites
- site screening, including tree and shrub planting
- restoration and aftercare.

How much material is extracted from a site varies. MPAs have to plan for an adequate and steady supply of aggregate, but must balance this against the impact on the environment and local communities. This is sometimes referred to as the “Plan, Monitor and Manage” (PMM) approach.

What is “sustainable”??

The objectives of sustainable development for aggregates planning in England are:
- to conserve aggregate minerals in the ground as far as possible, without switching to imports or to other primary building materials
- to give priority to secondary and recycled materials so that primary aggregates are only worked as a last resort
- to use aggregate minerals for highest grade applications for which they are technically suited
- to ensure the efficient use of aggregate minerals (as part of the Government’s Sustainable construction programme)
- to encourage sensitive working practices and to see the best practicable environmental option (BPEO) for satisfying aggregate needs.

The role of the geologist

Geologists are able to apply their knowledge of where and how aggregates occur and have a key role in finding sources of aggregates (exploration) and assessing their suitability for particular purposes (assessment) and also analysing geotechnical and structural geology of the source – ensuring safe extraction.
Environmental concerns

Aggregates are a necessary fact of life. They must be extracted somewhere, and can only be extracted from those places where they occur. They are mainly found in rural locations, but can also be found near towns. In any event, they then have to be transported to where they are needed, which also impacts on the environment.

In the past, some impacts of aggregate extraction have been irreversible; e.g., loss of ancient woodland, archaeological remains or change of landscape. The main concerns of people living near sites under consideration for quarrying include:

- possible visual damage to the landscape
- disruption to agriculture and forestry (loss of trees and hedgerows, disturbance to wildlife and loss of farmland)
- lorry traffic, noise, dust and vibration
- diversion of footpaths and bridleways
- use of the site after the work has finished.

Nowadays, however, these issues are most likely to be short-term or negligible. There will be some disruption or disturbance during extraction, but where codes of practice are adhered to and constraints are in place (e.g., through planning procedures) concerns can be kept to a minimum and impacts reduced. If unexpected archaeological or geological finds are made, site managers are made aware of their importance and of the need to preserve specimens for educational or research purposes.

Extraction of minerals is a temporary land use. The time scales associated with extraction, restoration and regeneration vary depending on the aggregates and the landscape. Following sand and gravel extraction, restoration may be complete in 5–10 years – much shorter than for a rock quarry, which may last for c. 40 years. Deeper working within the same area often means that opportunities for progressive restoration are more limited for rock quarries than sand and gravel pits.

Environmental benefits

In addition to providing for essential building needs, aggregate extraction brings many environmental benefits including:

- increased biodiversity, with the establishment of new habitats for wildlife (sand martins, peregrines, orchids etc.) and restoration or improvement of habitats
- increased geodiversity, with provision of sites with geological exposures, accessible for education and recreation
- improved local or regional economy through increased tourism etc.
- restoration or improvement of agricultural lands (i.e., to higher grade).

In the past it was normal practice to leave a site to transform naturally or help it to revert back to land suitable for farming. Nowadays mineral companies are restoring sites and providing alternative benefits such as wildlife and recreational access, including:

- forestry/woodland areas
- recreation parks, special areas, geological and nature trails
- nature conservation zones.

Site restoration may result in new landforms, with raised or lowered land surface levels. River valleys may be transformed as lakes. Sites may also be filled in with wastes including:

- soil or subsoil from elsewhere
- construction or demolition waste
- commercial or industrial waste*
- Domestic waste (household waste)*

(* Such uses are carefully controlled – see EGH 9, Landfill & Waste)

In many cases sites are not only restored, but improved. Tracts of land that may have been of limited use (e.g., poor farming potential) can be transformed into areas of outstanding beauty for recreation, used and appreciated by whole communities (and as golf courses, sailing lakes, fishing waters etc.). In other cases the former quarry may be used for building.

Regulation and legislation

Government Policy is expressed through the former Department of the Environment’s Mineral Planning Guidelines for aggregate provision in England (MPG6) (currently being revised), and the National and Regional Guidelines for Aggregates Provision in England: 2001 – 2016 (June, 2003) of the Office of the Deputy Prime Minister (ODPM).

Welsh aggregates policy is currently evolving through a consultation process, following the issue of the draft Aggregates M/TAN in early 2002, and is likely to be published before the end of 2003.

In Scotland, all minerals including aggregates are covered by the former Scottish Offices NPPG4 (National Policy Planning Guidance Note 4) issued in 1994. The Scottish Executive intend to revise this document shortly.