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The development and implementation of mineral safeguarding policies at national and local levels in the United Kingdom



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ABSTRACT

Mineral extraction makes an essential contribution to national development and prosperity. However, unlike many other land uses, the location of sites where mineral extraction can take place is limited. The underlying geology dictates where mineral resources occur and other factors, such as economics, environmental considerations, surface land use or technology can limit access. To ensure a continued, steady and adequate supply of the raw materials needed by society, it is important that mineral resources are not needlessly sterilised by new, non-mineral related, development. Although this principle has been part of the UK planning process since the Town and Country Planning Act was introduced in 1947, the mechanisms and policies in place to support it were, until recently, largely ineffective. A more robust mechanism was, therefore, required.

In recent years, mineral policy has been revised by the UK government and a process known as 'mineral safeguarding' has been introduced and applied through the UK planning system within the devolved jurisdictions. Efforts undertaken so far focus on the safeguarding of onshore construction minerals, industrial minerals and coal largely because of the importance of their indigenous production. However, more recently the concept of mineral safeguarding is being applied to offshore aggregates. This paper describes how mineral safeguarding has been implemented in the UK. A number of case studies highlight different aspects of the mineral safeguarding process which, when applied and enforced, enables mineral resources to be appropriately considered within the land use planning process.

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Background

Mineral supply in the UK

Minerals are used for construction; in manufacturing, transport, and electricity generation; and in agriculture to increase the productivity of soil (Highley et al., 2004). Between 2002 and 2008 there was a major surge in global demand for raw materials that was driven particularly by emerging economies, such as China, where economic growth was high (EC, 2011). Despite the recent financial downturn experienced by many countries, demand for raw materials, such as mineral resources, is set to increase as attempts are made to push the growth of manufactured goods production and boost economies (Tiess, 2010, 2011). The indigenous supply of mineral resources is, therefore, likely to 'predominate into the foreseeable future' (Brown et al., 2011).

For its small size the UK is fortunate in being well endowed with a great variety of mineral resources, particularly energy, construction and industrial minerals (Fig. 1). The extraction and

use of these resources make a vital contribution to the economy (UKMF, 2009). Bulk minerals, such as aggregates, tend to be indigenously produced and serve local markets. In contrast, indigenously produced industrial minerals such as kaolin, fluorspar and ball clay command higher values than aggregate minerals and are, therefore, traded internationally more easily (Bloodworth et al., 2004). Whilst the UK contributes to meeting its energy needs via domestic production of energy minerals, it is heavily reliant on imports of, in particular, natural gas and coal (BGS, 2011a, 2011b). In addition, the UK is a major importer of refined and semi-refined metals as domestic production is currently limited to small volumes of gold, silver and lead ore (BGS, 2010).

Planning policy for minerals within the UK is, therefore, concerned with maintaining a steady and adequate supply of those minerals which can be indigenously produced and which support UK economic growth, without unacceptable adverse impacts on the natural and historic environment or human health.

Mineral sterilisation

The construction sector is a key enabler of growth right across the UK economy, creating about 2.9 million jobs (circa 10% of the UK workforce) and contributing around £90 billion (6.7% of the

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total) to the UK economy each year (GOV.UK, 2013). Ensuring a steady and adequate supply of raw materials is, therefore, important for economic growth. Maintaining this supply can be particularly difficult for mineral resources which are not only finite, but are also confined to specific geological formations and, therefore, geographic locations. Whilst geology restricts their occurrence, other factors, such as economics, environmental considerations, surface land use or technology can limit access. Non-mineral related surface development such as a reservoir, hospital, housing estate or power station, for example, can cause the ‘sterilisation’ of a mineral resource as the development could inhibit the working of the underlying mineral deposit (at least from the surface) (Fig. 2). Sterilisation may occur as a result of development directly overlying the mineral resource, or due to development that is

located adjacent to the resource in some cases where separation zones or blasting stand-off limits are required.

Efforts to protect mineral resources from unnecessary sterilisation are evident in several different jurisdictions around the world; it is a global issue. For example, in Carroll County, Maryland, Mineral Resource Overlay (MRO) zones are imposed on other zoning districts where mining is seen as a compatible activity (e.g. agriculture) and there are known economic mineral resources present (Dunn et al., 1980). Land within the MRO includes areas currently owned by a mineral extraction company or already in use for that purpose and areas for which the underlying mineral is economically viable for recovery, but not necessarily owned by a quarry company. Mineral resources within the MRO are protected from pre-emptive development (New Windsor Mayor and Council, 2007).

Baker and Hendy (2005) evaluated planning frameworks for construction aggregate resources in all Australian States and the Northern Territory (Table 1). They found that the identification and protection of resources was, generally, not well integrated into the planning framework. Where comprehensive resource inventories and well-developed planning and protection policies are present, such as in South Australia, a mechanism exists ‘to ensure that appropriate advice is obtained on development proposals that might sterilise mining activity’ (Baker and Hendy, 2005).

Wagner et al. (2006) provide information on different approaches to mineral planning policies and practices in Europe. They identified that protecting access to mineral resources was “not adequately addressed by most policies” highlighting examples in the Scandinavian Countries, Denmark, Belgium, some Federal States of Germany, some Provinces of Austria and some Regions in France as exceptions. In Austria, for example, a Mineral Resources Plan (Weber, 2012) has been developed which identifies ‘Mineral Protection Zones’ for land use planning purposes. These Mineral Protection Zones were derived through two phases: (1) the systematic identification and evaluation of mineral deposits with regard to their ‘protection-worthiness’; and (2) the elimination of protection conflicts caused by the mineral

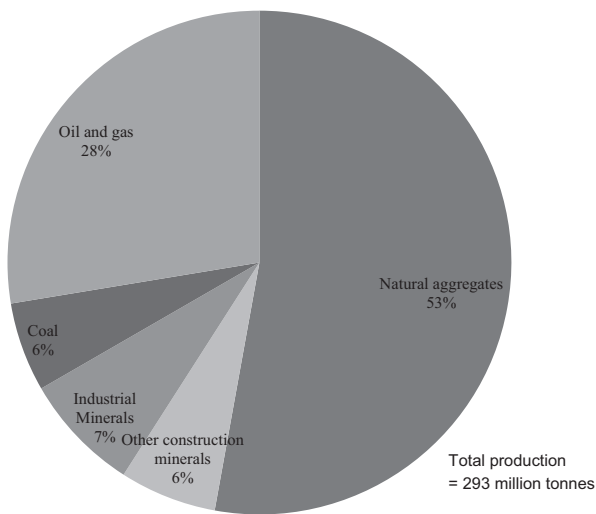


Fig. 1. Mineral production in the United Kingdom in 2012 (onshore and offshore). Source: BGS (in press).

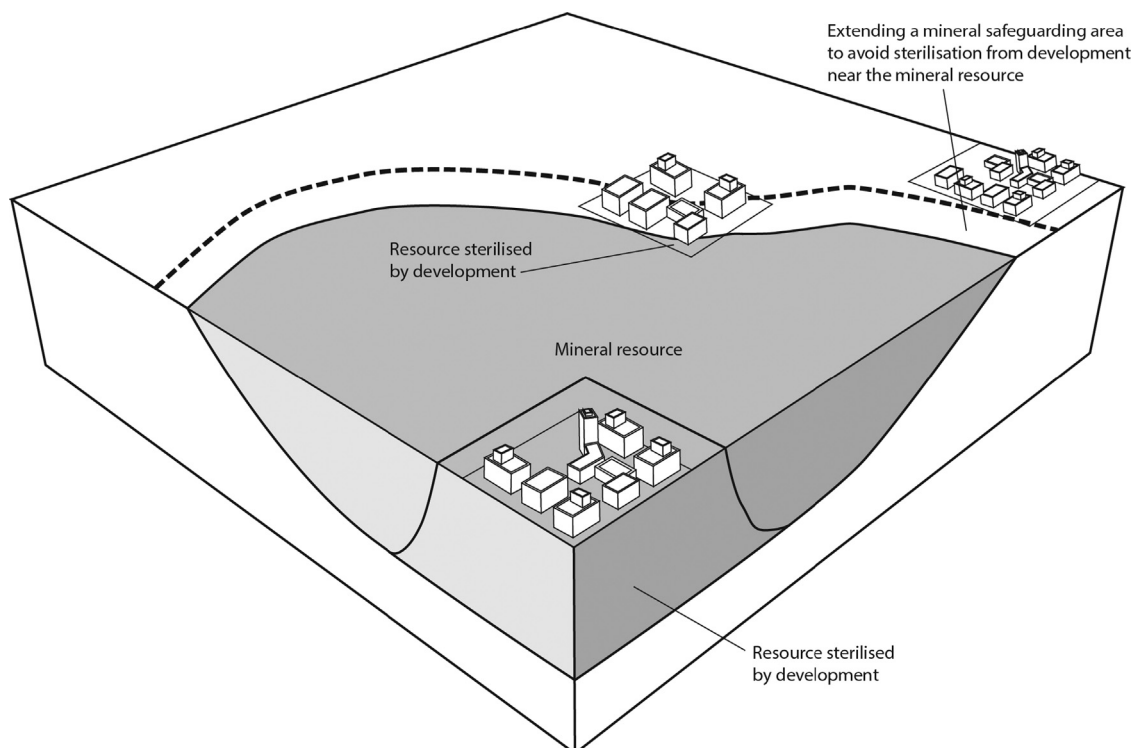


Fig. 2. The sterilisation of near surface mineral resource by surface development.

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