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Aggregates supply in England

Issues for planning

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Introduction

The management of aggregates supply in support of construction activity in England has been an important part of minerals planning policy and practice for the past 30 years. To assess whether such intervention is still necessary to ensure an adequate and steady supply of construction aggregates, and to evaluate possible future options, a series of research projects was carried out in 2007–2008 for the Mineral Industry Research Organisation (MIRO) and the Department for Communities and Local Government (DCLG). This Overview summarises the main findings of the report by the British Geological Survey (BGS) on **Managing aggregates supply in England: a review of the current system and future options**¹. It also draws on essential messages from the four other reports in the series which examined:

- the present-day relevance of the 1976 Verney Report^{2, 6}
- the need for aggregates supplied from indigenous sources³
- recent trends in and the present state of reserves of aggregates with planning permission in England and the reasons behind those trends⁴
- the possible alternatives to current indigenous sources of supply⁵.

The views expressed in these reports are those of the authors alone. They are intended to inform the land-use planning debate and are not statements of Government planning policy or guidance.

Aggregates are the most commonly extracted and used construction materials in the UK. They comprise about 75% by tonnage of all land-won UK mineral extraction. Primary aggregates are land-won and marine-dredged sand and gravel, and crushed hard rock. Recycled and secondary aggregates (collectively referred to as alternative aggregates) comprise construction, demolition and excavation waste, industrial slag and fuel ash, and mineral waste — mainly from china clay, coal and slate working. About 216 million tonnes of aggregates was consumed in England in 2005 (Figure 1).



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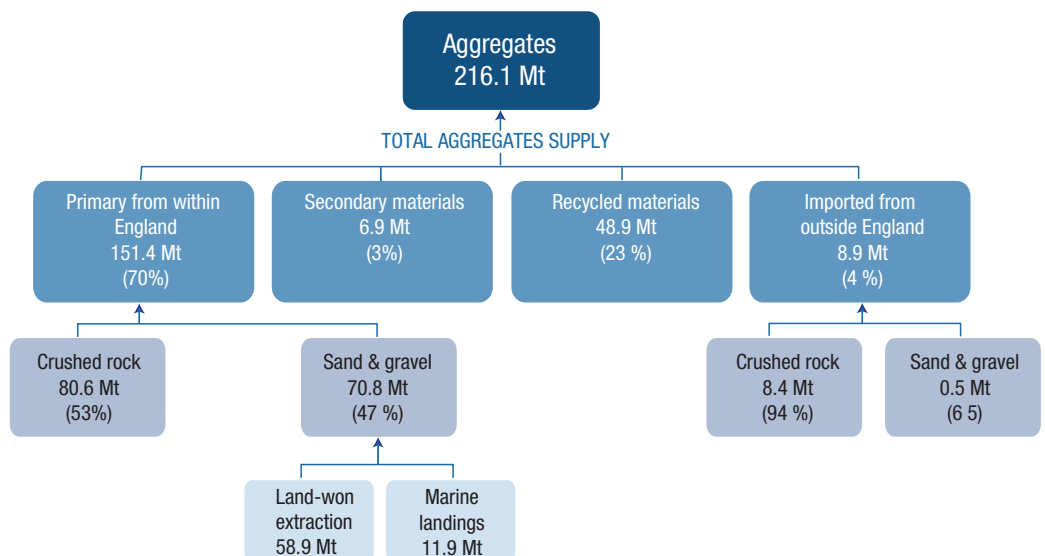


Figure 1 *Aggregates supply chain in England, 2005.*

Aggregates are fundamental to present-day construction. They are used on their own or combined with cement, lime or bituminous binders as concrete, building mortar, road asphalt and sub-bases, pipe work support, railway ballast, building foundations and as bulk fill in civil engineering. An adequate supply is essential for almost all building activity, while a reliable, steady supply is critical for modern 'just-in-time' construction practices.

Background

Aggregates, notably sand and gravel, are widely distributed (Figure 2). Although the average haul is only about 25 miles, traditional local supply, of whatever type, can no longer fully meet the pattern or scale of demand in all places, or meet some needs for higher quality aggregates, notably for road surfacing. Therefore, more distant resources also have to be used, notably crushed hard rock which for geological reasons is not generally available in the South East and East of England, not at all in London, and not in sufficient quantity in the North West (Figure 3). Total crushed rock sales have consistently exceeded land-won sand and gravel in England since the early 1980s (Figure 7).

Over the past century, and especially since the 1940s, a pattern of long-distance supplementary supply has emerged. Crushed rock is moved from 'surplus' regions such as the East Midlands and South West to 'deficit' regions — mainly London, the East of England, the South East and the North West (Figure 4). These regions, but especially London and the South East, also benefit from landings of marine sand and gravel dredged in English coastal waters.

Demand for aggregates was boosted by reconstruction after the Second World War, and successive decades of economic expansion - reflected in large programmes of housebuilding, road construction and national infrastructure. By the 1960s several problems were apparent. There was public concern about the environmental impacts and conditions at some quarries, and growing opposition to new or extended ones. On the other hand, there were also concerns about meeting strongly growing demand — up from 94 million tonnes in Britain in 1958 to 203 million tonnes in 1968.

These problems led to the establishment of regional working parties, starting with sand and gravel in the South East in 1969. Working parties for all aggregates (RAWPs) were set up in all English regions and Wales in the 1970s. They were convened by local planning authorities, and involved the aggregates industry, government departments and some

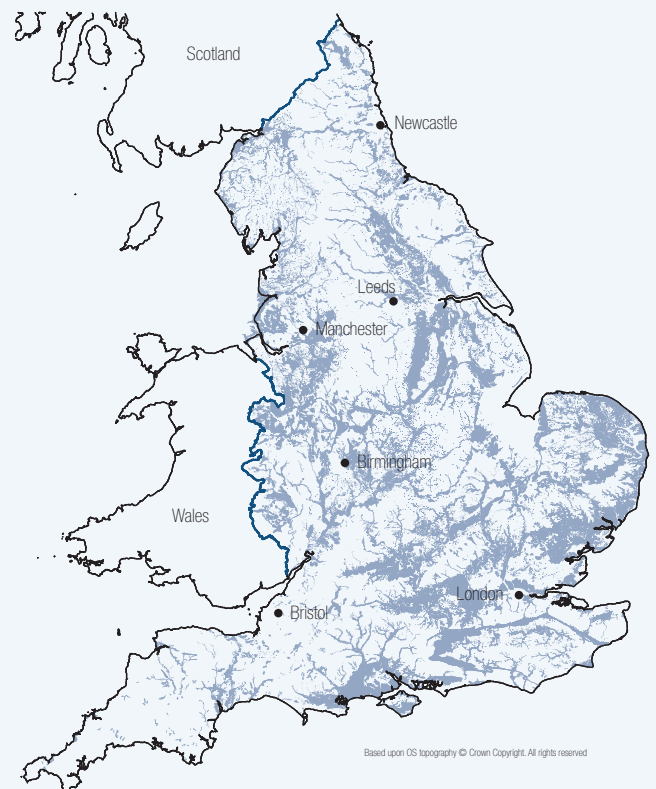


Figure 2 Sand and gravel resources are widely distributed in England.

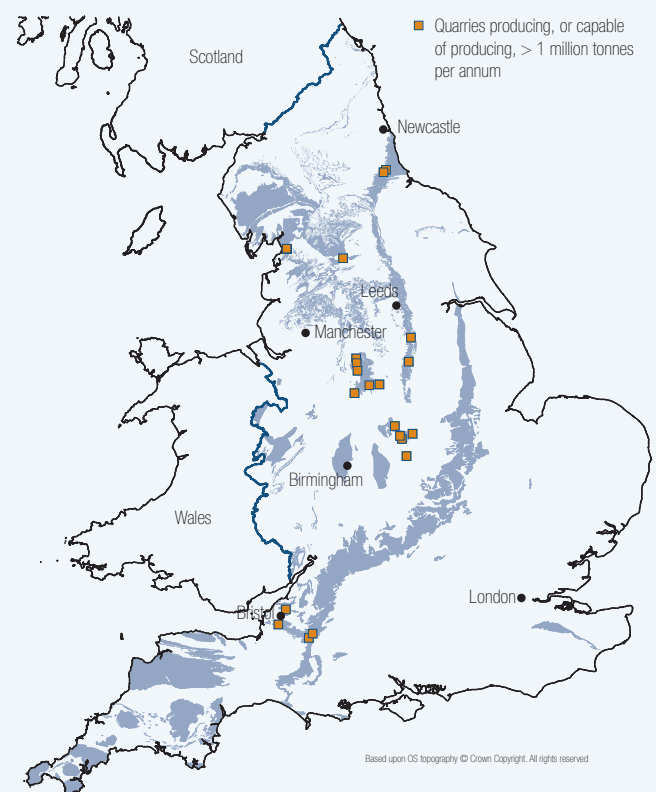


Figure 3 Crushed rock resources are unevenly distributed in England.

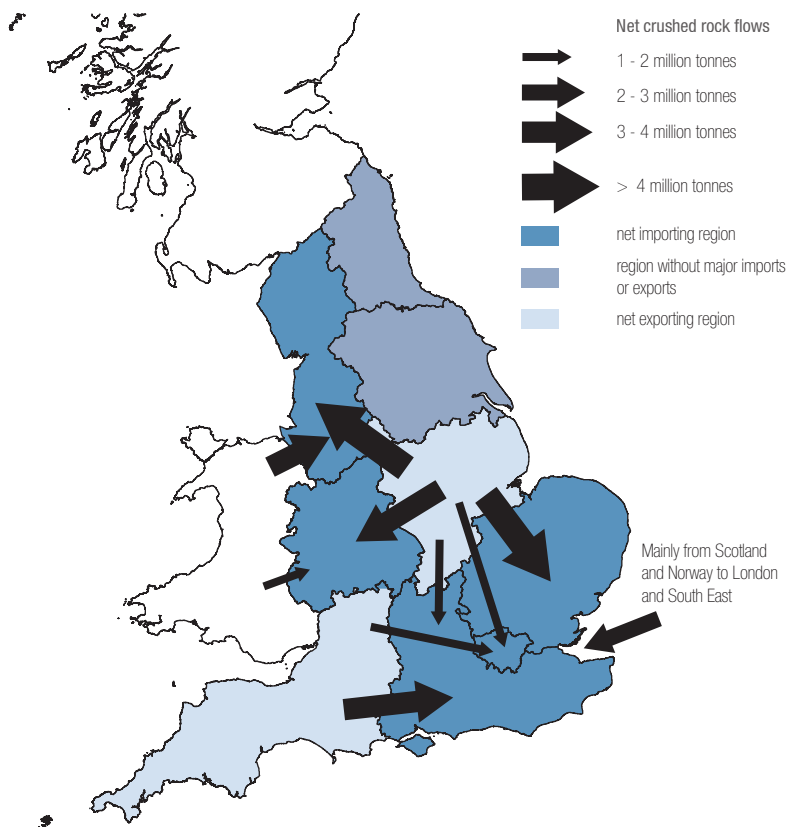


Figure 4 *The regional imbalances in supply and demand for aggregates in England requires the movement of large amounts of crushed rock from 'surplus' to 'deficit' regions. Inter-regional flows of sand and gravel are smaller and mostly over shorter distances.*

Verney made 76 recommendations, of which the NSC finds 55 have been implemented or carried through, and only 19 either not implemented (5) or where the outcome is unknown or unclear.

The NSC's remit was also to consider where further action might be needed to secure continued implementation of the Verney proposals and what other steps might now be appropriate 'in the spirit of Verney'.

Strategic issues and sources

Verney's principal concern was the provision of aggregates to South East England, which then included London and parts of East of England. However, only the North East is essentially self-sufficient today and large quantities are

amenity groups. As consumption passed 220 million tonnes in 1972, the government appointed an Advisory Committee under Sir Ralph Verney to look into the whole question of aggregates supply for construction in Great Britain. Its Report, published in 1976⁶, called for a systematic process for assessing resources and forecasting demand, ideally looking forward 10-15 years and keeping forecasts up to date. This was adopted in England and Wales, but not in Scotland.

The agenda set by the Verney Committee in 1976

The outcome of the Verney Committee's recommendations for improving the provision and use of aggregates, which endorsed and further stimulated existing moves to establish the English managed supply system, is examined by the National Stone Centre in *Verney— Still relevant after 30 years? Beyond 'The Way Ahead'*².



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transported to a number of 'deficit' regions, notably London, the South East and North West (Figure 4). The managed aggregates supply system that Verney supported has been effective in addressing these imbalances. However, the NSC study² finds it also tends to reinforce historic supply patterns, which may not always be the most sustainable. It recommends more local sourcing of aggregates, where feasible, with growth areas meeting more of their own demand. This could also bring transport carbon benefits, an issue not on anyone's agenda in the 1970s.

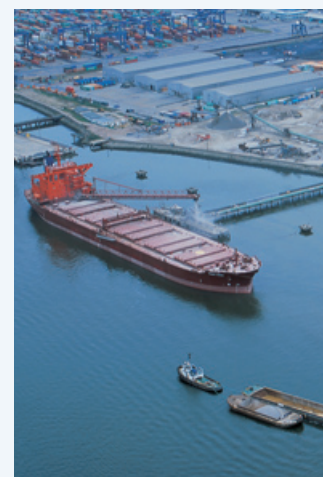
The Verney Report predicted dire consequences for supply to the South East within two decades. To secure supplies it proposed improving rail facilities, investigating underground mining and opening coastal superquarries at remote locations. Thirty years on, rail-borne imports have proved a supply lifeline for the South East. However, Glensanda in western Scotland is the only new coastal quarry to have been developed. It is likely to remain the sole such source in Britain, although there is potential for increased sea-borne supplies from Norway. Proposals for mining aggregates have so far made no significant progress.

In tabulating the Verney Report's predictions against later events, the NSC study² finds that it, in addition to over-optimism about large coastal quarries, it over-estimated strategic imports both from within England and elsewhere, and also the contribution from marine dredging. However, it under-estimated the contributions of alternative aggregates and from local production. Nevertheless, fewer companies now appear to be looking to develop new sand and gravel resources in the South East, and permitted reserves are declining as sales are not replenished. Future prospects for marine aggregates look good, if an appropriate balance between environmental and economic needs can be achieved in the new marine consenting arrangements. However, maintaining high levels of rock imports into Verney's 'South East' for more than 20 years will be environmentally and logistically challenging. Hence the NSC study² finds Verney's fears may be premature rather than inaccurate in the long term.

Other issues

The NSC study² also examines Verney's other issues and recommendations. Those with most bearing on present and future aggregates supply are:

- **Alternative materials and specifications**—Many of Verney's recommendations are now normal practice, in particular avoiding unnecessarily high standards and using locally available materials
- **Transport**—Verney's fear of an unacceptably high volume of aggregates delivered by road to the South East led it to support increased rail and sea imports. Both have expanded over the last 30 years. Verney also highlighted inadequate capacities at depots and wharves. Here the NSC study² finds that future supply is challenged by demand for other uses and inappropriate neighbouring development. Despite strong government policies favouring rail and water transport, reinforced in Minerals Policy Statement 1⁷ (MPS1), and on site safeguarding, competition for track access from increasing passenger traffic means that rail may not be able to continue delivering in the medium, let alone longer term. Marine imports are constrained by berth capacity and competition from higher value cargoes
- **Resources**—Verney recognised the importance of better aggregates resource information. It focused on sand and gravel in high demand areas. The NSC study² notes the extensive work since the 1970s on resources generally. However, it suggests that present and emerging constraints on future supply might require national-level action to identify and protect strategic resource areas and to plan strategic hard rock sites with large outputs.



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- **Environmental issues**—The NSC study² finds that even by the standards of the 1970s, the Verney Report's main concerns were limited to agricultural restoration and after-use rather than about environmental protection generally. Archaeology was briefly considered but landscape hardly at all, with no mention of National Parks and AONBs. Environmental awareness has increased markedly over the last 30 years, in parallel with expanding EU legislation. Landscape, water, soil, habitats and heritage all require specialised management and, together with established development, are spatially the main planning constraints to mineral working. NSC commends for further development the more pragmatic relationship that has developed between aggregates and agriculture since Verney, and the emerging mutually beneficial synergies with nature conservation
- **Statistics and forecasting**—The provision and use of regular, reliable and up-to-date data, which Verney advocated, has been one of the strongpoints of the managed aggregates supply system. Present day aggregates data is better than in many other comparable planning fields, e.g. housing, and much improved since the Verney Report. Its proposals that forecasts for primary aggregates should be revised annually, be projected forward 10–15 years, and not be based on over-sophisticated analysis have been broadly implemented though NSC notes the continuing concerns over forecasting.

The need for aggregates

In recent years, total aggregates consumption in England has been around 210-220 million tonnes a year—96% from English sources. About 55–60 million tonnes of this is from recycled and secondary material. This level of indigenous production contributes more than £1 billion to the English economy each year. In addition, it provides an essential raw material to the construction industry which itself makes a gross value added contribution of more than £50 billion per annum (7.5% of the English economy). The importance of aggregates to society and the economy is examined by BGS in *The need for indigenous aggregates production in England*.³



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It is difficult to determine what materials, and how much of them, will be needed by the construction industry in the future. However, in the absence of credible alternative bulk mass materials, it is prudent to assume that over the next 50+ years England, along with the rest of the world, will continue to rely on aggregates for its basic construction needs.

Over coming decades England must continue to meet the needs of the economy by extending and renewing its housing stock, renewing and diversifying its electricity generation capacity, replacing or maintaining much of its other infrastructure, and making a step change in flood and coastal defence in response to climate change. There will therefore be a need for a substantial as well as steady supply of aggregates for the foreseeable future.

The quantity of aggregates that will be needed in the longer term depends on the state of the economy and the resulting level of construction activity, as well as the future availability of resources for investment in infrastructure. The consequences of the sustainable construction agenda, the impact of climate change and the use of recycled material will also be relevant. In view of these uncertainties detailed long-term forecasting is not justified. However, a prudent expectation is that the forward total annual requirement for aggregates in England will continue to be broadly in the range 200–220 million tonnes.





Aggregate reserves and resources — the present position and future options

Given a substantial continuing demand for aggregates in England for the foreseeable future, the key issues for supply are:

- what is the present state of reserves of primary (i.e. 'new') aggregates in England, and what has been the trend in those reserves in recent years? This is examined by Capita Symonds in *Exploring the reasons for the decline in aggregate reserves in England*⁴
- what are the possible future constraints on supply, and alternative options if established sources cannot be maintained or renewed? This is examined by BGS in *Aggregate resource alternatives: options for future aggregate minerals supply in England*⁵.

Aggregate reserves

Current planning policy for aggregates in England, issued in 2006⁷, specifies that landbanks^a of permitted reserves should be maintained by each mineral planning authority (MPA — county councils or unitary authorities). The minimum periods below which new permissions are likely to be needed are set at 7 years supply for sand and gravel and 10 years for crushed rock.

Since the late 1970s, when the managed aggregates supply system was first developed, about 5 billion tonnes of land-won sand, gravel and crushed rock have been produced in England. Monitoring the size of England's permitted reserves of primary aggregates, and the reasons for changes in them, is therefore crucial to ensuring that adequate and steady supplies are maintained in the long term. Over the last 20–25 years there has been a modest decline in permitted reserves of crushed rock, but a more pronounced fall in reserves of sand and gravel (Figure 5). The Capita Symonds analysis⁴ of the national aggregates survey data shows a reduction of permitted reserves of sand and gravel of 29% between 1997 and 2005. The overall decline for crushed rock over this period was 13%.

The pattern of reserves for all types of primary aggregates varies considerably both between and within regions. For sand and gravel, regional reserves declined over this period by 74% in London, 55%



a An aggregates landbank is the tonnage of already permitted reserves within a specified local area. It is usually expressed in terms of number of years' supply at an average rate of output in recent years.



Million Tonnes

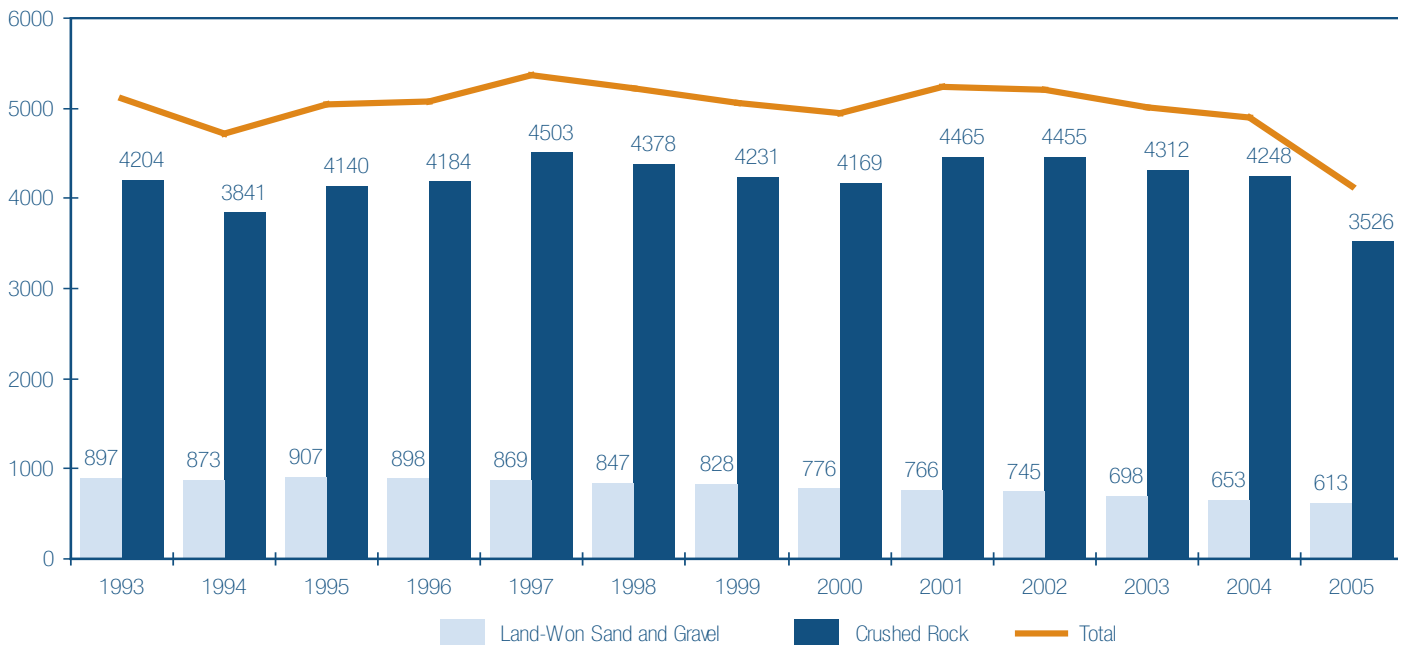


Figure 5 Permitted aggregates reserves in England 1993–2005. In 2005 'dormant' quarries were excluded thus removing some reserves present in previous years.

in the North East and 50% in the South East. Locally, reserves can also vary from year to year in individual areas as mineral is worked and sold, new permissions are granted and reserves are reassessed. Sales of primary aggregates are currently not being fully replenished by newly permitted reserves in most regions, with the position in London and the South East being particularly acute.

In relation to current sales, whilst total permitted reserves of crushed rock are notionally equivalent to about 40 years supply and 10 years for sand and gravel, the figures mask both regional and local shortages and surpluses. Furthermore, reserves do not give a complete picture of the ability of one area to supply another. There may be some scope for producers with larger reserves to increase output if reserves are used up at other sites. However, this is likely to be constrained for operational, logistical, economic and planning control reasons, and may not be sustainable over the longer term. Localities and regions in surplus might be able to assist those in shortage, but any change—even if appropriate—would be gradual and would involve environmentally undesirable increases in the distances over which aggregates are transported.

Nevertheless the managed supply system broadly seems to have been meeting its key objective of maintaining an adequate and steady supply of aggregates essential to the construction industry, within the framework set in planning policy for England. However, sand and gravel reserves are now becoming critical in some regions—notably in London and the South East. This is important because sand and gravel is typically produced relatively close to markets. London's own accessible supplies are naturally limited. While the South East remains a substantial producer, it is also, with London, a region of sustained high demand. It is already heavily dependent on supplies from other regions and marine-dredged aggregates, because its remaining resources are increasingly constrained.

For crushed rock, reserves still appear to be substantial. However, as with sand and gravel, the Capita Symonds report⁴ shows that sales since 1997 have not been fully replenished by newly permitted reserves. The principal reason for this has been insufficient planning applications rather than planning refusals. In the longer term, if the assumptions about future demand are correct, it will be necessary to encourage applications at existing or new sites.



Constraints on supply

The evidence of a long-term decline in permitted reserves of sand and gravel in some regions and localities means options for obtaining new aggregate reserves must be looked at. Currently, most new reserves come through extensions to existing sites rather than new operations. However, the underlying decline in reserves suggests new sites will also be required if production continues to exceed replenishment.



The research by BGS⁵ considers a range of constraints on future supply:

- areas subject to national countryside protection designations (National Parks and Areas of Outstanding Natural Beauty) where major new mineral development is normally contrary to stated government policy
- Special Areas of Conservation and Special Protection Areas designated under the European Union's Habitats and Birds Directives, and Ramsar Convention Sites for the protection of wetlands used by wildfowl. Development that would damage these sites will not be permitted unless there are reasons of overriding national importance
- UK-designated Sites of Special Scientific Interest (SSSIs) not already covered by the international designations. Mineral development will not normally be permitted where it is likely to have an adverse effect on the site's interest
- larger settlements where surface mineral extraction is no longer possible.



The BGS study was not required to assess the impact of the large number of other environmental, habitat and heritage designations which, along with smaller settlements and other existing development and land uses, are likely to constrain further the future availability of aggregate resources in England.



Applying the main national and international landscape and habitat designations to the present pattern of supply, BGS find that in 2005 they affected 41% of permitted reserves and 33% of sales. The impact by main aggregate type was as follows:

Aggregate type	% of reserves affected	% of sites affected	% of sales affected
Sand and gravel	12	25	10
Crushed rock	46	44	49
<i>of which limestone</i>	<i>42</i>	<i>52</i>	<i>42</i>
<i>of which igneous</i>	<i>69</i>	<i>68</i>	<i>80</i>



Despite the restrictions in the national and international designated areas, BGS report that some new permissions were granted in them in 2001–2005. Nationally the volume permitted fell by 32% compared to the previous 4-year period whereas in the designated areas the volume fell by only 2%. If that trend continues, it would slow the rate at which their reserves are depleted.

Replacement of the aggregate sales from designated areas by alternative sources of supply will become increasingly important. Of the 102 currently active quarries in National Parks and AONBs, only 53 will remain in production in 2020, and only 40 have permissions that run to 2042—the statutory end-date set in 1982 for all mineral permissions of indeterminate length at that time. To operate beyond this, a permission with a later end-date is required. The effect of 2042 is not limited to the designated areas of constraint, but adds generally to the long term need for new supplies to meet future demand.

Alternative sources of aggregates

The BGS study of constraints and alternatives⁵ examines a range of options for replacing supplies from National Parks and AONBs as future production in those areas declines gradually. It assesses the potential for other sources to replace sales from these areas, which were 22.6 million tonnes in 2005. It finds:

- the 30 quarries in England outside National Parks and AONBs with the highest current output have potential to increase production above present levels by 10–12 million tonnes per annum without extra capital investment. However, without new permissions this would hasten the reduction in reserves measured in the Capita Symonds study⁴
- the use of recycled materials and industrial and mineral waste as aggregates has increased steadily in recent years. In 2005 almost 56 million tonnes of England's aggregates sales came from these sources—26% of total supply. This is already the highest proportion of total aggregates consumption in Europe. Scope for further increase is probably limited by the availability of suitable material, but could rise to around 30% by 2011—an extra 7 million tonnes a year
- marine-dredged sand and gravel supplied 9% of total aggregates sales in England in 2005 and 19% of all sand and gravel. It is a particularly important source for London (41% of total primary consumption) and the South East (27%). There would be a boost to domestic supplies if the 6.5 million tonnes exported to Europe in 2005 was diverted to English ports. This depends on relative prices and operators' market strategies. Larger increases would require certainty about future marine consents and substantial investment in renewing and expanding the dredging fleet
- imports to England from a range of sources supplied 10.7 million tonnes of primary aggregates in 2005. The main sources were Wales (6 million tonnes, 34% of Welsh sales), Scotland (1.5 million tonnes, almost all by sea to London and the South East from the Glensanda coastal quarry), Norway (1.8 million tonnes, largely crushed rock to



the eastern regions) and Northern Ireland (1 million tonnes of high quality roadstone). Given appropriate investment and the right market conditions, supplies from these sources could be increased

However, the BGS alternatives study⁵ estimates that current numbers of wharves and existing port infrastructure would allow at most only an extra 2–3 million tonnes of crushed rock landings a year. Substantial investment in port capacity would therefore be required if the 22–23 million tonnes of aggregates currently provided by the National Parks and AONBs were all to be imported instead. There would be a need for more deepwater berths equipped to handle bulk dry minerals, extensive berth-side stockpile areas, improved road and rail links to inland destinations and sufficient local distribution depots to deliver aggregates to their widely dispersed markets

- underground mining of aggregates does not at present take place in England. However, it might have potential if constraints on supply were to drive up prices to offset the increased costs — perhaps 20% above conventional quarrying. However, since there is only limited past experience in the UK, its potential for significant production would need to be tested.

The BGS alternatives study⁵ concludes that there are limits to the contributions from other sources of supply and consequently a large proportion of the aggregates consumed in England will have to continue to be produced indigenously. Long-term planning to meet future demand is needed to give the certainty essential for the required investment to underpin maintenance of adequate and steady supply.





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Managing aggregates supply in England – the current system and possible alternative approaches

The provision of an adequate and steady supply of aggregates to meet the needs of construction, while taking into account the increasingly complex and defined interests of environment, countryside and heritage protection, has for about 30 years been governed by a set of administrative arrangements loosely known as the ‘managed aggregates supply system’.

The working of this system and options for its future are examined by BGS in its report on: *Managing aggregates supply in England: a review of the current system and future options*¹. This looks at the following issues:

- the present system — its origins, features and costs
- mechanisms elsewhere in Europe
- possible alternative future management scenarios
- the way forward.



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The current system

Managed aggregates supply developed over a long period commencing in 1943 with post-war reconstruction planning. The RAWPs were established in all regions in 1972–1977. The report of the Verney Advisory Committee on Aggregates in 1976⁶ made important recommendations for further developing the system which were accepted by the government of the day. These included periodic collation and analysis of the RAWPs’ findings as the basis for national policy guidelines and national integration of the work of the RAWPs by a National Co-ordinating Group (NCG), established in 1979. This led to the first national supply *Guidelines*⁶ for aggregate provision in England and Wales in 1982.

Since then the fundamentals of the system have largely remained intact, though there have been some changes in the formal documentation. National planning policy and the *Guidelines* were moved into *Mineral Planning Guidance Note 6: Aggregates* (MPG6) in 1989, and updated in 1994⁸. The *Guidelines* were detached as a separate document in 2003. Finally, the rest of MPG6 was replaced by *Minerals Policy Statement 17*, in 2006.

^b The *Guidelines* forecast demand for land-won primary aggregates at national and regional level, for a forward period of 15 years. They are based on data from the 4 yearly Aggregate Minerals Surveys, and econometric modelling of the future requirements of the construction industry. Regions are expected to test their forecasts and make sub-regional apportionments to their MPAs. These should in turn be tested in drawing up development plan allocation documents for public consultation, examination and approval. Subject to these processes, the forecast provision in the *Guidelines* is reflected in appropriate policies and allocations in regional and local plans, and taken into account in subsequent decisions on applications to extract aggregates.

The present managed aggregates supply system consists of the following elements:

- a national planning policy framework, set out by CLG in *Minerals Policy Statement 1: Planning and Minerals, Annex 1: Aggregates, 2006*⁷
- 9 English RAWPs, one for each region, including London
- 2 Welsh RAWPs. Since devolution, these are in a looser relationship with England, participating in data analysis and discussions on cross-border supply issues, but subject to Welsh Assembly Government planning policy
- a National Co-ordinating Group (NCG) comprising the RAWP Chairs, and representatives of the MPAs, aggregates industry, government departments and statutory national environmental and heritage organisations. It is chaired by CLG
- a Technical Sub-Group (TSG) of NCG, also chaired by CLG
- structured data-gathering commissioned and overseen by CLG, informing national demand forecasts from an econometric model to relate aggregates consumption to construction activity
- national and regional supply *Guidelines*, issued at intervals by the Government following consultation
- incorporation of regional guidelines into Regional Spatial Strategies after testing and consultation
- sub-regional apportionment of the *Guidelines* to individual MPAs
- local testing and incorporation of apportionments into MPAs' spatial plans
- consideration by MPAs of planning applications for new or extended working of aggregates against the requirements of national planning policy, their shares of the sub-regional apportionment, relevant policies in their minerals development plan documents, and other relevant factors.

Figure 6 Government periodically issues Guidelines for aggregates provision in England. The proposed revised national and regional Guidelines for 2005–2020 were issued for consultation in April 2008⁹. The forecast contributions from the different sources of supply over this period are shown below.

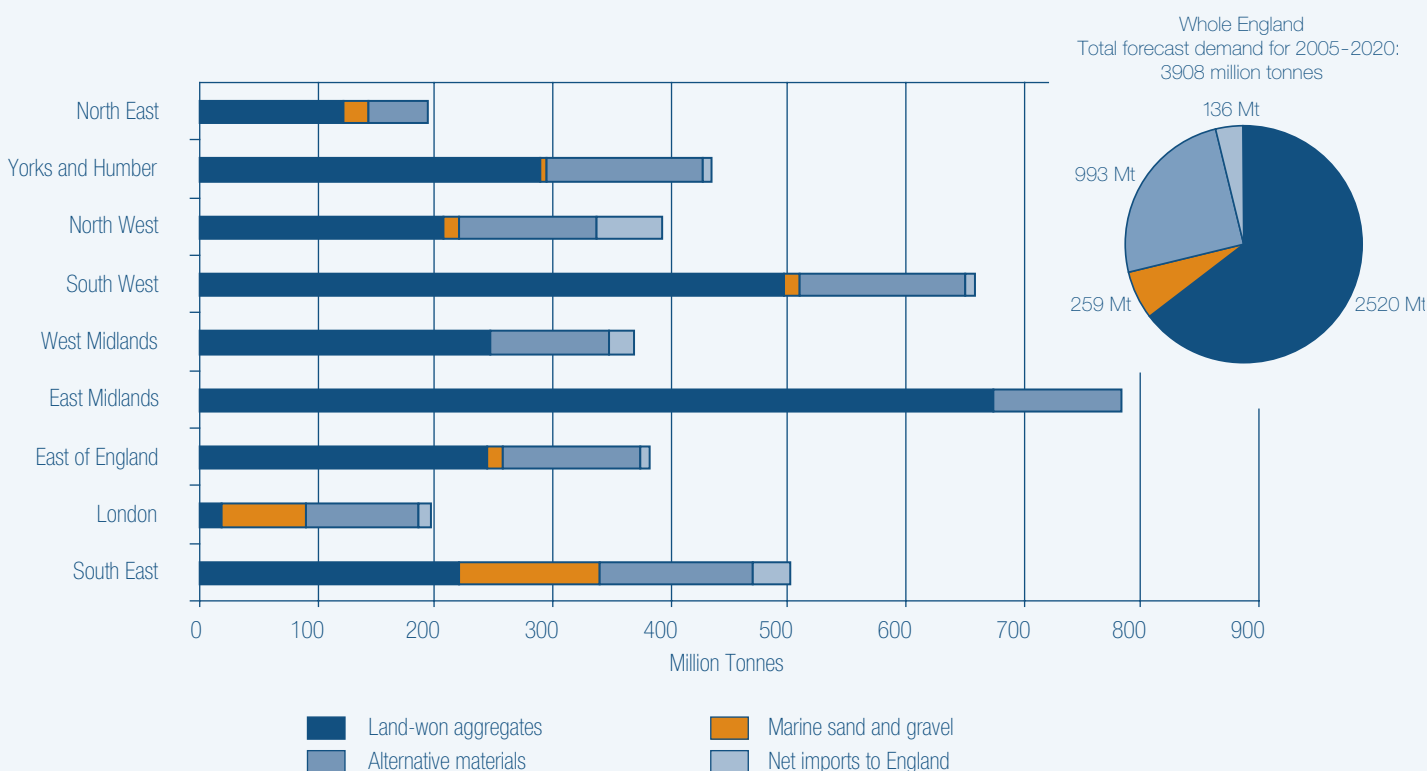
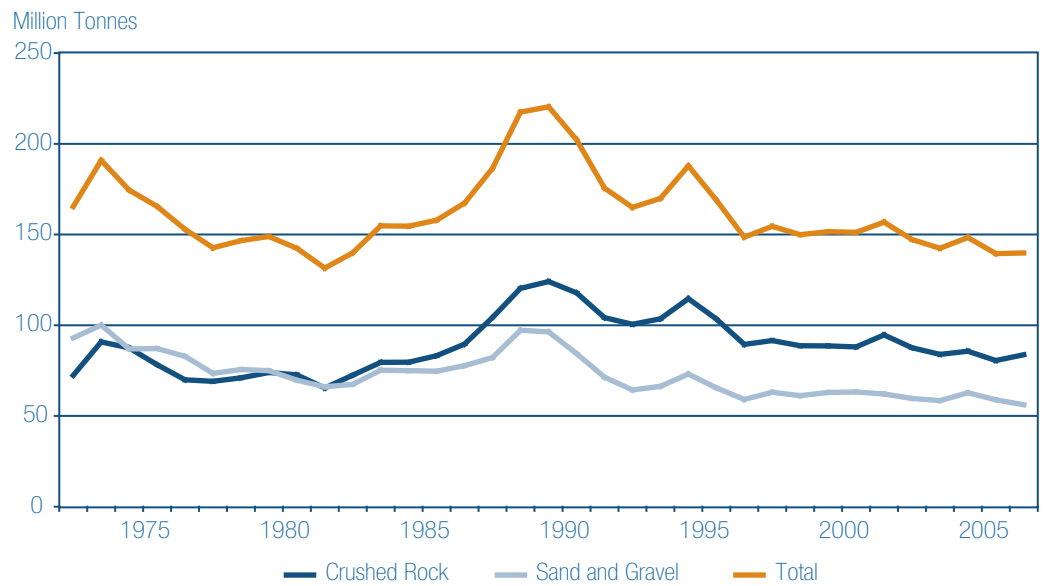


Figure 7 Sales of land-won primary aggregates in England, 1972–2006. Regular collection of information underpins the current managed aggregates supply system.



Cost of the current system

The BGS study¹ estimates the indicative total annual costs of the managed supply system to the main participants in the standing processes are:

- Communities and Local Government: £450 000
- Mineral Planning Authorities: £220 000
- The aggregates industry: £275 000
- **Estimated total for England: £945 000**

Based on sales of primary land-won aggregates of 140 million tonnes in 2005, this equates to less than one penny per tonne.

Strengths and weaknesses

To inform its analysis, BGS¹ surveyed a range of stakeholders in industry, the MPAs and the NGOs for their views on the strengths and weaknesses of the current system. In summary:

- the system's strengths are seen as:
 - origins endorsed by an independent review (Verney)
 - success over 30 years in maintaining adequate and steady supply
 - a strong and rational evidence base to inform planning decisions
 - visible 'sharing the burden' of necessary but unpopular development
 - integration into statutory land use (and now spatial) planning
 - transparency, e.g. in consultation on the *Guidelines* and in the regional and local plan-making processes

- structured arrangements for monitoring and review
 - removing the issue of 'need' from planning applications and appeals reducing costs and largely moving away from 'planning by appeal'
 - creating a level playing field and building shared interests between industry and planners.
- the system's weaknesses are seen as:
 - projecting past demand and supply patterns into the future and assuming demand should be met in full rather than reduced
 - using past supply patterns may restrict innovation in sites, technology and alternative materials
 - highly technical material taken through long and complex processes that can limit the scope for political judgments and the involvement of environmental NGOs and the general public
 - demand forecasts that can be unreliable
 - monitoring that may not measure activity and outcomes against the right objectives
 - supply shortfalls still occurring at some times and in some places
 - *Guidelines* and apportionments that are advisory, not mandatory
 - potentially favouring larger operators over smaller firms
 - regional variability in the application of environmental factors and unfair trade-offs between areas to deliver apportionments
 - mis-matches between the timetables for preparing and revising the *Guidelines* and preparing regional and local plans
 - not properly considering the relative merits of working crushed rock or sand and gravel in particular areas for particular markets.



Comparisons with aggregates supply mechanisms outside England

The BGS study¹ briefly examines practice in Germany, France, and the Republic of Ireland. It also looks at Scotland, where the Verney recommendations for formal adoption of the England and Wales managed supply system were never adopted.

It finds that none at present have a nationwide managed supply system comparable to England's, though some have systems at sub-national level and all at local level for planning and consenting mineral development. Because similar inter-regional considerations also affect aggregates supply in mainland Europe, as well as considerable movements between countries, there is some evidence of emerging interest at EU level in the concept of managed supply.

Comparison and evaluation of alternative scenarios for administering managed aggregates supply in England

At its core, the BGS report on Managing aggregates supply¹ identifies and evaluates alternative options for securing an adequate and steady supply, to test the merits of the present arrangements. Four alternatives were considered:

- **no management**—removal of the whole managed supply system
- **a regional management system**—retaining many of the features of the present system but without national Guidelines or co-ordination
- **extension of the new Infrastructure Planning Commission and major national infrastructure consenting arrangements being proposed in the current Planning Bill** to cover most aggregates extraction proposals. Based on 2002–2005 data this might lead to about 75 cases a year being considered by the Commission
- **a new national system of legislation and licensing**—comprising extensive permitted development rights for aggregates quarrying operating under a national policy statement and with formal compliance checks that do not go into the planning merits of cases.

Under all these options it is assumed that the present range of environmental, countryside and heritage protection policies would be maintained.

The report¹ compares each option with the current system by evaluating them against a number of criteria and by considering the consequences of making the change to each alternative. A range of other factors is also examined. The issues assessed are:



Evaluation criteria	Consequences	Other factors
Supply continuity/security	Extra legislation	Needs demand forecasts?
Adequate permission numbers	Transparent and accountable decisions	National data collection and collation?
Minimising environmental impacts	Scope for public involvement	Regional data collection and collation?
Resource efficiency	Public acceptability	Local data collection and collation?
Carbon footprint	Flexible response to demand	Regional apportionment?
Diversity of supply	Speed, efficiency and achievability	Sub-regional apportionment?
Costs to society/taxpayer/Government	Need for new guidance on plans	Manageable inter-regional flows?
Competition issues	Devolution of decisions	Clear inputs into plan documents?
Industry investment		Landbank calculations needed?
		Decisions that balance need against other planning considerations?
		Local democratic accountability?
		Resources and skills to manage the option?

A simple qualitative comparison is made of each option against the current system, leading to the following conclusions:

- **no management of aggregates supply**

this option offers no net advantages compared to the present system, and performs poorly on many of the evaluation factors. The strengths perceived in the present system in meeting the key objective of ensuring continuity of aggregates supply would be lost. Economic modelling commissioned to assess the effects of abandoning managed supply concludes that having no management would, by comparison with the present arrangements:

- reduce successful applications by about 7–8%
- as a result reduce permitted tonnages by 5–6%
- probably cut industry production levels by about 10%
- possibly increase application costs to industry by close to 60%

- **regional management of aggregates supply**

this option overall performs worse than the present system. Its single advantage of stronger local decision-taking is offset by the likelihood of fewer approvals in the absence of expressly stated national considerations, leading to reduced supply, increased prices and longer aggregate hauls;

- **extended use of the national Infrastructure Planning Commission**

- **a new national system of legislation and licensing**

these options could perform better than the current system in some respects; speed, flexibility, cost to participants and delivery of adequate and steady supply. However, they reduce the scope for local involvement in decisions, and risk lower public acceptability of potentially controversial developments. The national infrastructure planning option would still require a system of national data collection, demand forecasting and supply guidelines. While the national legislation and licensing option would not need that and could be more transparent than the present system, this would be at the expense of taking local factors into account.

The report's conclusion is that of the four examined, the no management and regional management options are clearly less satisfactory than the present system. While the national infrastructure and national legislation and licensing options have some potential advantages, they suffer from more potential disadvantages. These are serious enough to make them, too, inferior to the present system.

The conclusion that none of the alternatives is, overall, likely to be better than the present approach to managed aggregates supply, nevertheless poses one remaining and important question— **if they are to be maintained, how might the current arrangements be modified to address their perceived weaknesses?**



Managed aggregates supply in England — possible improvements to the present system

On the basis of a detailed analysis of the key issues, the BGS report on managed supply¹ makes the following recommendations for consideration by the Government. These include a series of measures which, if accepted and implemented, would be a first step in a programme of incremental improvement to the managed aggregates supply system:

1. *that a managed aggregates supply system should continue for the benefit of society and the economy*
2. *that the essential elements of the current system of managing aggregates supply in England are retained, albeit with some modernisation and improvements*
3. *that the Government should consider implementing the following measures, possibly through discussion with the NCG and the RAWPs, as a basis for improving the current managed aggregates supply system:*
 - *a study to investigate the factors affecting future demand, to inform national, regional and local policies for aggregates provision*
 - *as an interim measure, a simpler, more transparent approach to demand estimation, based on forward projection of average consumption over a number of years, should be developed and applied in parallel with the current method of econometric forecasting, and the results compared*
 - *informed by the results of the above work, identification of the most appropriate methodology for demand estimation*
 - *wider stakeholder participation in the NCG and, perhaps, RAWPs*
 - *more discussion at the political and public levels in the early stages of developing regional guidelines for, and sub-regional apportionments of, aggregates supply*
 - *a study into the capacity of quarries, particularly rail-linked quarries, to respond to market demands, taking into account landbanks of permitted reserves and the constraints of bringing them to market*
 - *preparation of a regular national assessment of the current extent of permitted reserves, the rate of depletion through sales, the rate of replacement through new permissions and the resultant length of landbanks*
 - *monitoring to determine that a consistent and flexible approach is being taken to the application of landbank policies, both for aggregates in general and, where appropriate, for specific qualities of aggregates, when planning applications for extraction are being determined, backed by stronger national planning advice and intervention if this proves not to be the case*
 - *an initiative to improve public awareness of how social and environmental equity of treatment are achieved when aggregates workings are planned and proposed in different regions and MPA areas.*



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