SUSTAINABILITY AND FUTURE AGGREGATES PROVISION IN WALES

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Abstract

Following devolution in 1998, Wales has taken an independent view of the likely need for future aggregates provision, breaking away from the 'National and Regional Guidelines' which once applied to both England and Wales, and which relied heavily on econometric projections of future construction activity. In 2004, the Welsh Assembly published Minerals Technical Advice Note 1 on aggregates (MTAN1) which made the bold assumption that future demand was likely to remain steady, at least in the short to medium term, and that any unexpected surges in demand would be accommodated - at least in part - by the increased use of secondary and recycled materials. It also announced, however, that the situation should be kept under scrutiny through the preparation and subsequent five-yearly reviews of Regional Technical Statements (RTS). The first of these, produced by the North Wales and South Wales Regional Aggregate Working Parties (RAWPs), respectively, were published in 2008 and the First Review of these (as a single document with regional appendices) was published in 2014. This paper highlights some aspects of the RTS First Review.

Each RTS provides a forward look at the likely requirements for future production, taking account of the latest available information regarding the balance of supply and demand, the distribution of resources and current notions of sustainability, including the proximity principle and environmental capacity. It provides a consistent 'top-down' strategic approach which guides the apportionments for each local authority and identifies the need or otherwise for allocations for future working in each area. This contrasts with the situation in England where National and 'sub-National' guidelines are still produced but where the 'regional' tier of policy and guidance has been removed and where much greater reliance is now placed, instead, on Local Aggregate Assessments.

Whereas the original RTS attempted to identify the spatial pattern of future demand on a 'per capita' basis (as an attempt to focus future production on areas closer to the centres of consumption, so as to minimise transport distances), the First Review has taken a more pragmatic approach which relies primarily on historical sales figures (taking an average over the previous 10 years), moderated where necessary to take account of proximity, environmental capacity and other factors. In view of the large existing landbanks in many parts of Wales, the pattern of supply will only be able to be changed very gradually, as existing permitted reserves are exhausted and as allocations for future working become justified. Future editions of the RTS will be able to monitor the situation and introduce changes where they are needed to improve overall sustainability. The First Review has sought to begin that process.

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Introduction

In contrast to the system now used in England, planning for the supply of construction aggregates in Wales deliberately retains a strategic, 'top-down' approach, in which the requirements for future provision are set out in Regional Technical Statements (RTS). This paper highlights some aspects of the RTS First Review, carried out by the author in 2013/14 on behalf of the Welsh Government and the North Wales and South Wales Regional Aggregate Working Parties. The paper focuses on the issue of sustainability, which lies at the heart of all aspects of land use planning in Wales, and in particular on the relationship between this and the fundamental distribution of geological resources in shaping current, and potential future patterns of supply.

In Wales, the concept of sustainable development is enshrined within National legislation (Government of Wales Act, 2006), as well as in land use planning policy (Planning Policy Wales, 2002 [First edition, para. 2.1.3]). More specifically, it is also central to mineral planning in general (Minerals Planning Policy Wales, 2000 [para. 7]) and is reflected in the overarching objective in planning for future aggregates provision. That objective, as set out in paragraph 7 of Minerals Technical Advice Note 1 - Aggregates (MTAN1) (2004), is "*to ensure supply is managed in a sustainable way so that the best balance*

between environmental, economic and social considerations is struck, while making sure that the environmental and amenity impacts of any necessary extraction are kept to a level that avoids causing demonstrable harm to interests of acknowledged importance".

In order to implement this objective, MTAN1 requires the preparation of RTSs which identify the apportionments for future aggregates provision to be made by each individual Mineral Planning Authority (MPA). The latest (1st Review) edition of the RTS (Cuesta Consulting Limited, 2014) comprises a single main document supported by more detailed regional appendices for the areas covered by the North Wales and South Wales RAWPs, respectively.

The RTS provides a mechanism for encouraging the national sustainability objectives to be met by the MPAs within each Region as they prepare their individual Local Development Plans (LDPs). This is achieved by identifying the levels of future provision likely to be required - sufficient to maintain minimum landbanks of 10 years for crushed rock and 7 years, for natural sand & gravel - throughout the full 15-year term of each LDP; and by examining whether or not existing supply patterns need to change in order to achieve greater sustainability. Where change is required, this can be reflected in the apportionments set for each individual MPA.

The RTS recommendations are of a strategic nature and are not intended to provide site-specific information or guidance. It is for the individual MPAs to determine how the strategic requirements identified in the RTS should be met within their areas. This includes identifying allocations for future working (where these are required by the RTS), and setting out corresponding policies within their LDPs to guide the Development Management process for future mineral extraction.

Achieving A More Sustainable Pattern Of Supply

In terms of its overall approach, the RTS concept represents an important modification of the more general Managed Aggregate Supply System (MASS) which had previously operated across both England & Wales for many years. The main difference is that the Welsh system explicitly questions whether or not the existing patterns of supply may need to change, in order to achieve greater sustainability. MTAN1 suggests that these patterns are largely a historical residual and '*…will need to gradually change to reflect current notions of sustainability*'. In order to examine this proposition, the RTS process seeks to incorporate two key principles of sustainability with respect to aggregates supply: the proximity principle and the notion of environmental capacity.

The Proximity Principle relates simply to the objective of minimising unnecessary transportation of bulk materials, particularly by road, by ensuring that sources of supply are located as closely as possible to the main centres of demand. The original RTS (North Wales RAWP, 2008; South Wales RAWP, 2008) aimed to accomplish this by providing 'per capita' apportionments for future aggregate provision (i.e. proportionate to the population within a given area, as a surrogate for the likely distribution of demand). That assumption was not widely supported, however, and in the First Review (hereafter referred to simply as RTS1) general consideration was given instead to the location of urban areas and variations in population density, as well as a range of other influences including access routes and transport distances. Figure 1 illustrates this information for part of South Wales, in relation to the outcrop of Carboniferous Limestone and the distribution of existing limestone quarries. It also shows the outlines of the Brecon Beacons National Park and two Areas of Outstanding Natural Beauty. The proximity information was used only qualitatively to examine whether or not the existing pattern of supply provided a reasonable solution to the likely pattern of demand. No attempt was made to calculate the spatial variations in demand, not least because of the complexities involved and to avoid the spurious precision associated with inappropriate quantitative analysis.

Both the original RTS and RTS1 recognised that the proximity principle must also be modified to take account of the fact that certain types of 'high specification aggregate' (HSA) can only be obtained from a limited number of geological sources within Wales and also serve more specific markets. They are therefore required for distribution over much greater distances. This applies especially to the skid-resistant aggregates derived from the Pennant Sandstones of South Wales (and to a lesser extent from a range of other formations within Powys and elsewhere in Wales), which are essential for road surfacing applications throughout England and Wales (Thompson, Greig and Shaw, 1993; Thompson et al., 2004). Separate consideration also needs to be given to the issue of high purity limestone production for use as a metallurgical flux, for chemical production and for the manufacture of cement. Whilst these are all non-aggregate end-uses, they are frequently produced from the same geological resources as crushed rock aggregates, but the quarry locations may be determined or justified primarily by the requirements for the higher value industrial products.

By comparison, the notion of environmental capacity is a more controversial issue. The basic principle is clear enough: i.e. that quarrying should be focused, as far as possible, on areas which have the greatest capacity to 'absorb' the environmental impacts that may be associated with quarrying activity and thus to contribute to future supply with a minimum of adverse impacts. The controversy derives from the lack of consensus in terms of how 'environmental capacity' should be defined, and from the way in which the concept was used in the original RTS.

In Wales, two previous research projects provided the evidence base for the system that is currently used (Arup, 2003; Enviros Consulting Ltd., 2005). These projects resulted in a set of 'traffic light' maps (as they are often referred to) being produced to indicate areas of relatively high (green), medium (amber) and relatively low (red) environmental capacity. The thresholds between these categories were arbitrarily set, but the differentiation between them provides at least a starting point for the consideration of environmental capacity and thereby enables nationally consistent strategic decisions to be made with respect to future aggregates provision. Figure 2

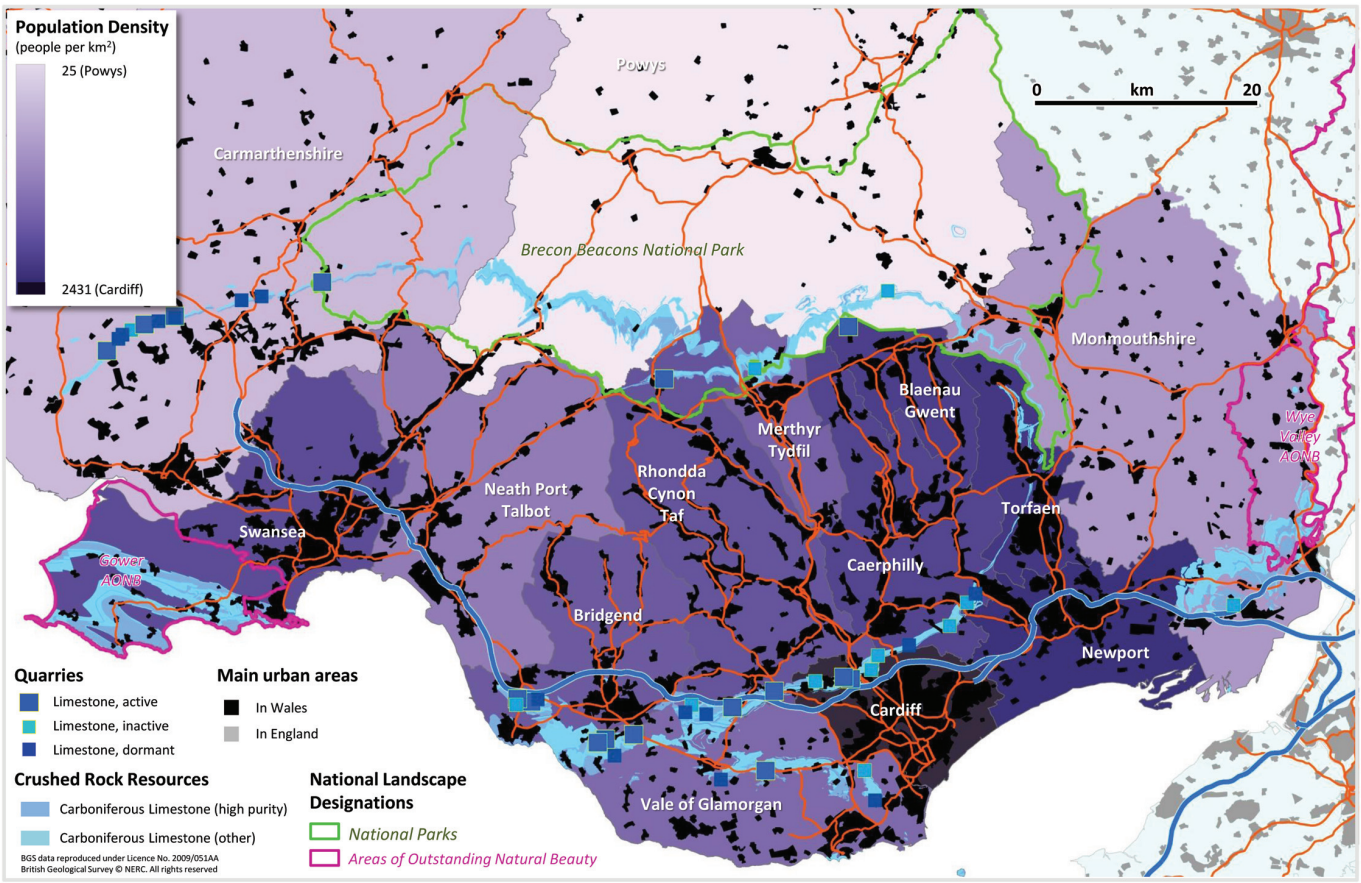

Figure 1. *South Wales: Limestone resources in relation to national landscape designations, population density, urban areas and major roads.*

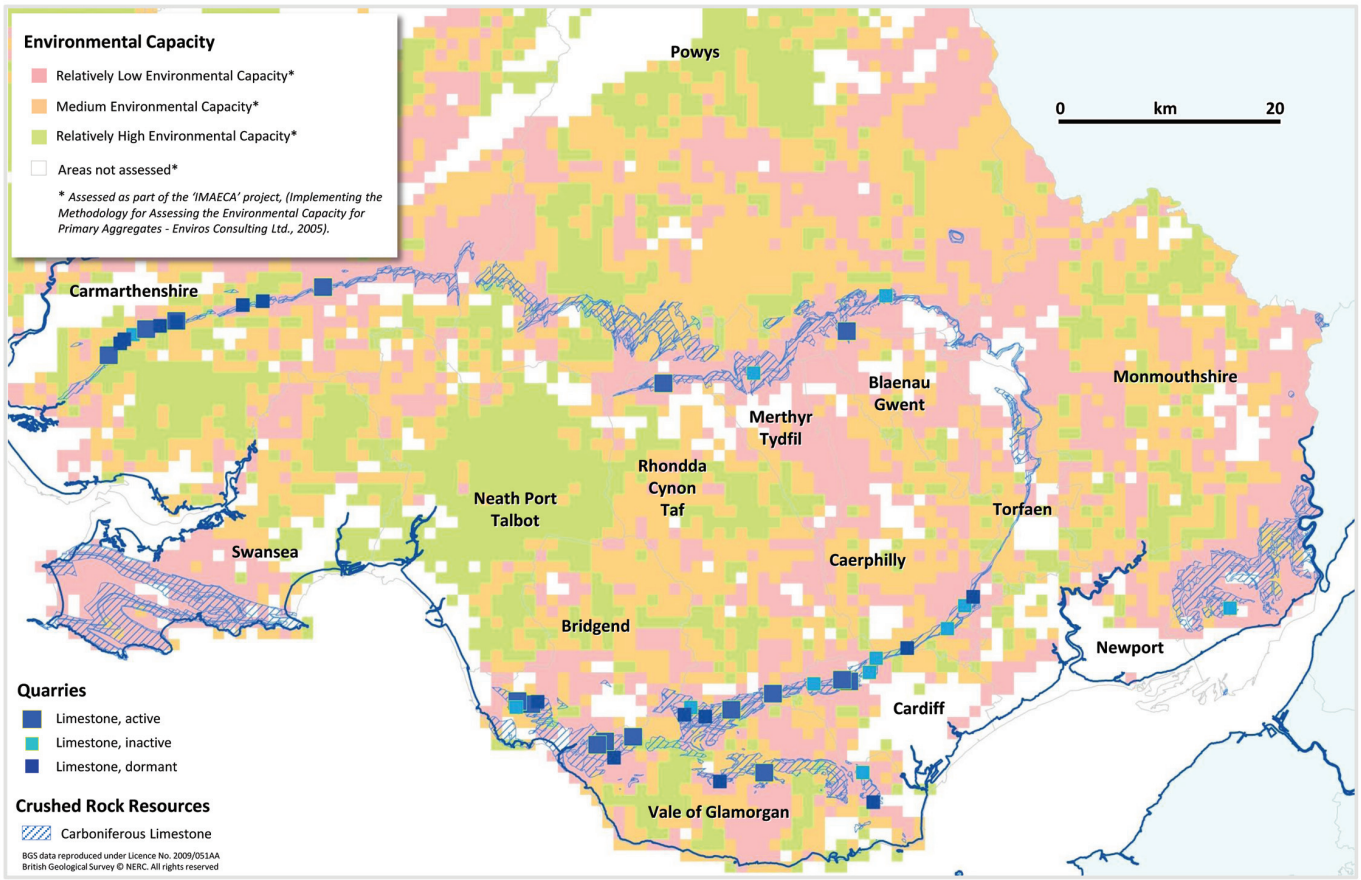

Figure 2. *South Wales: Limestone resources in relation to assessed Environmental Capacity for future quarrying.*

presents an example of this information for the same area of South Wales as used in Figure 1.

The environmental capacity 'scores' take account of a range of different factors from environmental, heritage and landscape designations to such things as settlements, roads, watercourses and existing workings. National Parks and Areas of Outstanding Natural Beauty (AONBs) are excluded from the scores, however. This is because MTAN1 specifically notes that landbanks do not need to be maintained in such areas, and that the RAWPs should take into account the need to protect these special landscapes from mineral extraction. For this reason, these designations are shown separately from the environmental capacity scores in the maps used within RTS (as on Figure 1).

The consideration of environmental capacity at this strategic level deliberately avoids the direct use of more detailed 'primary' environmental information such as the locations of individual designations. This is to avoid being site-specific and to avoid pre-judging issues which need to be addressed in more detail through LDP and Development Management processes at a local level. Examining the relationship between mineral resources and overall environmental capacity on a sub-regional basis enables consideration to be given to these important issues at a spatial scale which extends beyond the boundaries of an individual local authority. Whilst this was done, as part of the original RTS documents, the findings were not used to influence the apportionments or allocation requirements given to individual MPAs, and this was a source of criticism among both MPAs and industry. In RTS1, the environmental capacity data was used in a qualitative way and in conjunction with data on resource availability and proximity, to guide recommendations for those areas in which there was scope for potentially beneficial future shifts in the pattern of supply (see below for examples).

Whilst the proximity principle and environmental capacity are important drivers of potential change, they cannot be used as a basis for determining a new pattern of supply without first understanding the fundamental reasons for the patterns which already exist. Whilst these patterns may be largely a historical residual, as suggested by MTAN1, they nevertheless have much to commend them: they reflect the spatial distribution of available resources (which is of fundamental importance since minerals can only be worked where they are found) and the economic imperative of industry to establish quarries as close as possible to areas of demand (in order to minimise transport costs), albeit subject to a range of environmental designations, planning policies and other constraints. Over many decades, quarries which have become uneconomic because of changing demand or outdated transport networks and rising costs have naturally fallen into disuse. Those which remain are generally (though not always) well-placed to serve the current markets, although some remain in conflict with designations, environmental concerns or neighbouring land uses which, in many cases, post-date the mineral planning permissions involved.

Together, the implementation of the proximity principle and the notion of environmental capacity, as described above, may therefore gradually induce changes to the existing patterns of supply. But this would only be justified if it is found that, once all aspects of sustainability are taken into account, alternative patterns are seen to have clear advantages over those which currently exist. Even where changes are clearly justified, these cannot generally be implemented straight away, since existing quarries will be able to continue until their existing planning permissions expire and/or until they run out of permitted reserves (unless Prohibition Orders are issued, with corresponding liabilities for compensation). Nevertheless, the RTS can help to influence future changes in supply pattern, where this is found to be desirable, by adjusting the apportionments given to individual MPAs. This will then help to focus new allocations in the areas required, and should eventually result in a shift towards a more sustainable pattern of supply.

Quantifying The Requirements For Future Supply

Another key principle which underpins the overall approach within both the RTS and MTAN1 is the need to move away from the old, demand-led system of 'Predict and Provide' to the more modern concept of 'Plan, Monitor and Manage'. The latter is intended to encourage a shift towards the more prudent use of natural resources and to control the release of new permitted reserves of primary aggregate.

At the heart of MTAN1 is the aspiration that, once a reasonable estimate of demand has been obtained, any subsequent fluctuations above that level should be accommodated by increased supplies from secondary and recycled sources, rather than being seen as a justification for granting new planning permissions for primary aggregate extraction. Whilst that aspiration is widely supported, there is evidence to suggest that the percentage contribution available from secondary and recycled sources, having risen from around 10% of the total British aggregates market in the 1990s to around 29% in 2014, is now likely to have reached its maximum. In the 1st Review of the RTS it was therefore more reasonable to assume that secondary and recycled aggregates would continue to provide a high proportion of total aggregate production, but would not necessarily be able to be relied upon to fulfil any future peaks in demand on their own; there may also need to be increased contributions from primary aggregate sources. Equally, given that the supply of secondary and recycled materials is not likely to be able to increase in future as a proportion of total demand, it was considered that there will be an ongoing need to replenish existing permitted reserves of primary aggregates as and when these fall below the levels needed to provide an ongoing secure supply for the duration of each Local Development Plan.

The RTS process therefore investigates the likely continued availability of secondary and recycled aggregates from all available sources within each area, together with supplies from marine aggregates where these are relied upon, and takes these supply sources into account when assessing the residual demand for land-based primary aggregates. As noted above, in the original RTS documents this residual demand within individual MPAs was assumed to be proportional to their

populations. That proved to be unreliable however and in RTS1 both the overall regional demand for primary aggregates and the breakdown of this by MPA were based on an analysis of historical sales figures.

RTS1 identified the historical pattern of demand upon each individual MPA for the production of land-based primary aggregates based on average sales over a 10 year 'baseline' period (2001 to 2010, inclusive). This was a deliberate departure from MTAN1, which requires landbank calculations to be based on the average of the latest three years' production figures (implying that this provides a suitable measure of ongoing demand). The change to a 10-year average was recommended unanimously by the RTS Steering Group and was endorsed by the Welsh Government as a pragmatic means of avoiding the risk of under-provision, which would occur if reliance were placed on a three-year average which spanned the recent economic recession. Detailed cooperation by members of the Mineral Products Association and the British Aggregates Association was secured via the RAWPs and this enabled a comprehensive analysis of historical sales and landbanks to be established for each individual MPA.

The review of factors relating to the availability of alternative materials, imports, exports and economic growth was hampered by a lack of reliable quantitative information on many of these factors - notably the current levels of supply of secondary and recycled aggregates and figures relating to house building and major infrastructure completions. More general indicators, however, such as National economic growth forecasts and qualitative advice from the MPAs and RAWPs, suggested that the historical supply pattern over the baseline period should generally provide a reasonable guide for the determination of future apportionments, both in terms of overall quantities and in terms of broad geographical distribution. No evidence was found of socio-economic 'drivers' which would suggest otherwise.

This methodology for assessing future demand and the limitations involved proved to be very similar to that adopted by many local authorities in England in producing their individual 'Local Aggregate Assessments' (see below). The main difference being that the RTS Review benefitted from the close involvement of a Steering Group drawn from the Regional Aggregate Working Parties who provided both detailed information and careful scrutiny of the process.

RTS First Review: Key Outcomes

RTS1 identified a need for future provision (over a period of up to 25 years (for crushed rock) or 22 years, in the case of land-based sand & gravel) to be based on an overall level of demand for crushed rock of 5.8 million tonnes per annum (mtpa) in North Wales and 10.47 mtpa in South Wales; together with a total of 1.08 mtpa of land-won sand & gravel in North Wales and 0.33 mtpa in South Wales. The latter figure is low because of the heavy reliance in South-East Wales, in particular, on marine-dredged sand & gravel.

The review found that, in most areas, the existing pattern of supply is sensibly balanced in terms of proximity and environmental capacity, within the restrictions imposed by the distribution of workable resources and the requirements of economic and commercial viability. Where this was found to be the case the individual recommended apportionments for each MPA were guided purely by the historical sales data. However, the review also identified some areas where it was considered that there might be merits in adjusting the apportionments and allocations and thereby slightly modifying the future supply patterns in order to improve sustainability and/or to avoid perpetuating unjustified inequities in the historical balance of supply between neighbouring authorities which share similar resources.

One example of these adjustments is that land-based sand & gravel apportionments in North Wales were increased in Denbighshire and Gwynedd and correspondingly reduced in Flintshire (by comparison with the historical baseline figures) in order to encourage an improved balance of supply overall. Specifically, it was considered that this should help to reduce the dominance of supplies from north-east Wales allowing those in Wrexham, in particular, to remain focused on the markets within that area and in adjoining parts of North West England. It should also help to encourage the development of new resources within Gwynedd and North Denbighshire, which in turn should allow the markets in those areas to be supplied from more local sources. This, however, was acknowledged to be dependent upon suitable resources being found in that area; specifically, resources which include an appropriate balance between fine aggregate (sand) and coarse aggregate (gravel).

A second example, in west Wales is that the apportionments and allocations for land-based sand & gravel within Pembrokeshire, the Pembrokeshire Coast National Park, Ceredigion and Carmarthenshire were deliberately combined. This was primarily in order to encourage cooperation between these authorities in finding a longer-term solution to the aspiration of reducing future production within the National Park once existing permitted reserves in that area have been exhausted. The present supply pattern in this part of Wales is (quite understandably) focused on the areas which have the main concentrations of high quality glacio-fluvial sand & gravel deposits to the east and south west of Cardigan. A large proportion of these deposits fall within the National Park but some of them extend into adjoining parts of Pembrokeshire and Ceredigion. Other Quaternary deposits do exist, however, which may well contain useable sand & gravel, and further collaborative working between all four MPAs is needed to investigate those possibilities in more detail.

A more tentative example in South Wales was the suggestion that there might be some merit in reducing future output of high PSV sandstone from Neath Port Talbot and increasing that from other MPAs further east (e.g. within the Pennant Sandstone outcrops in Rhondda Cynon Taf, Caerphilly, Torfaen or Blaenau Gwent) in order to reduce the road transportation distances of HSA exports to England. It was noted, however, that a high proportion of the resource outcrop within Neath Port Talbot coincides with areas of high environmental capacity whereas such areas are more limited within the outcrops further east. It must also be recognised that the proximity issue is distorted by the fact that a high proportion of the exports from Neath Port Talbot are

transported to England by rail, whereas most of those from the quarries further east are exported by road. RTS1 noted, however, that if such a shift in supply pattern were considered beneficial, in the light of more detailed and balanced considerations of proximity, environmental capacity and other aspects of sustainability at some future date, this could be encouraged by reducing the requirement for any further new allocations or permissions within Neath Port Talbot and transferring part of the apportionment to one or more of the MPAs further east, subject to agreements between the MPAs involved. This, however, was considered to be a matter for future revisions of the RTS.

More generally, allocations for future working were identified for areas where the existing landbanks (as of the baseline date of 31st December 2010) were found to be insufficient to maintain the required apportionment over the whole of the Plan period and for 10 years beyond (in the case of crushed rock) or for 7 years beyond (in the case of sand & gravel), in accordance with MTAN1. In making these calculations, the reserves at dormant sites, and at one site where planning permission had been suspended, were excluded from the landbank figures although they were identified separately. This was a second departure from MTAN1, but again was deliberate. It was supported by a large majority of Steering Group members and was endorsed as a pragmatic clarification of MTAN1 by the Welsh Government. In the few authorities where permitted reserves still remain at dormant or suspended sites, RTS1 recommended that these should be kept under review by the relevant MPA and, where deemed appropriate by them, could be used to offset any RTS requirements for new allocations.

Comparison With England

In England, the 'top-down' apportionment process for determining future levels of aggregates provision was dispensed with as part of the 'Localism' agenda, which saw the end of regional planning. Additional drivers for this change included assertions that the apportionment process frequently identified levels of 'demand' significantly higher than those subsequently demonstrated by actual sales.

Local Aggregate Assessments (LAAs) were introduced in England by the National Planning Policy Framework (NPPF) in 2012 and the former Regional Aggregate Working Parties became simply Aggregate Working Parties (AWPs). These no longer had responsibility for dictating sub-regional apportionments, although they did retain responsibility for reviewing, commenting on and collating the results of individual LAAs within each of the former regions.

In terms of methodology, paragraph 145 of the NPPF requires LAAs to be "*based on a rolling average of 10 years sales data and other relevant local information, and an assessment of all supply options (including marine-dredged, secondary and recycled sources)*". Paragraph 064 of the online Planning Practice Guidance (PPG) emphasises that "*Local Aggregate Assessments must also consider other relevant local information*" and that "*Such information may include, for example, levels of planned construction and housebuilding in their area and throughout the country*".

Despite this clarification, there are considerable differences in the way in which LAAs have been carried out to date. Research carried out in December 2014 by the author, in conjunction with Ben Miller (formerly of Land Use Consultants - LUC), investigated the different approaches taken by all 19 MPAs in South East and South West England.

The research revealed that all MPAs liaised with neighbouring authorities in terms of imports, exports and shared markets and all LAAs were scrutinised by the relevant AWP (Thompson & Miller, 2015). Over half of these focused exclusively on the 10-year average sales figure. Of those that did not, one applied an adjustment to reflect local market distortions during the recession; one applied a 10% contingency to the 10-year sales average to reflect expectations of growth following the long recession; two retained the previous apportionment figures; one used the 10-year sales average for sand and gravel but retained the former apportionment figure for crushed rock; two used figures from their recently adopted plans, which were higher than the corresponding 10-year sales averages; and one used a 3-year average sales figure.

All of the LAAs considered '*other relevant local information*' as part of the assessment, in accordance with NPPF, including (to varying degrees) the likely influence of National and Local Infrastructure Plans and the potential influence of local housing forecasts. Ten LAAs explicitly considered the likely contributions of local supply factors, including imports, exports, production capacity, resource availability, environmental constraints, and secondary and recycled aggregates. Only three considered national economic forecasts (e.g. GDP growth) as a general indicator of future trends and only two considered other (local) economic growth forecasts or indicators, other than as suggested by the most recent three year sales.

Crucially, however, only two of the LAAs applied any specific quantitative adjustment to the 10 year sales average in order to derive their assessment of future demand. None of the others attempted to quantify these effects. As in Wales, this was largely due to the lack of reliable quantitative data on local economic activity which would allow comparisons to be made between the historical baseline and forecasts of future demand. In most LAAs there was found to be a recognition of growing demand, certainly by comparison with the recent period of recession, but there was also found to be a reluctance to quantify this anticipated growth and a preference for continued monitoring instead. Whilst this helps to avoid over-provision, it potentially invites the risk of shortages in future years.

Another important observation regarding the new 'freedom' to derive their own figures is that almost all LAAs in southern England were found to be advising lower levels of future provision than those indicated by former sub-regional 'top-down' apportionments (Thompson & Miller, 2015). Thus, although there is a 'Duty to Co-operate' and although AWPs are involved in scrutinising draft LAAs, no attempt is being made to ensure that a reduced level of provision in one area is compensated for by increased provision elsewhere, such that overall totals are maintained in line with

Government guidelines. The system has certainly become more in line with the ethos of 'plan, monitor and manage' but at the risk of becoming more of a 'reactive' mechanism rather than being a strategic planning tool. It remains to be seen how much influence the AWPs will have in rebalancing the supply patterns within England, if and when this becomes necessary, in order to maintain or enhance sustainability.

Conclusions

The Welsh RTS system retains an important advantage over the localised 'bottom-up' system now used within England; it ensures that the overall level of provision required for each Region is maintained, subject to 5-yearly reviews of the RTS, and avoids the risks of a downward spiral of under-provision and market distortions which could well occur in the absence of regional guidance. The Welsh system also provides a mechanism to modify the geographical pattern of supply, albeit incrementally, as and when existing permitted reserves are depleted, thus giving the opportunity to seek gradual improvements in overall sustainability. At present, there is no such explicit opportunity within the system in England.

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