ALSF 2008-11 Evaluation

Final report

Suzie Daykin

26 May 2010
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## Glossary of Acronyms

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<tr>
<td>ACRE</td>
<td>Action with Communities in Rural England</td>
</tr>
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<td>AI</td>
<td>Aggregate Industries</td>
</tr>
<tr>
<td>ALGAO</td>
<td>Association of Local Government Archaeological Officers</td>
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<td>ALSF</td>
<td>Aggregates Levy Sustainability Fund</td>
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<tr>
<td>AONB</td>
<td>Area of Outstanding Natural Beauty</td>
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<tr>
<td>ARA</td>
<td>Aggregates Resource Assessment</td>
</tr>
<tr>
<td>ASRP</td>
<td>Aggregates Strategic Research Programme</td>
</tr>
<tr>
<td>BAA</td>
<td>British Aggregates Association</td>
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<tr>
<td>BAP</td>
<td>Biodiversity Action Plan</td>
</tr>
<tr>
<td>BCG</td>
<td>Boston Consulting Group</td>
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<tr>
<td>BGS</td>
<td>British Geological Survey</td>
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<tr>
<td>BIS</td>
<td>Department for Business, Innovation and Skills</td>
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<tr>
<td>BMAPA</td>
<td>British Marine Aggregate Producers Association</td>
</tr>
<tr>
<td>CDEW</td>
<td>Construction, demolition and excavation waste</td>
</tr>
<tr>
<td>CEFAS</td>
<td>Centre for Environment, Fisheries and Aquaculture Science</td>
</tr>
<tr>
<td>CLG</td>
<td>Department for Communities and Local Government</td>
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<tr>
<td>CMEE</td>
<td>Carbon Management and Energy Efficiency</td>
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<tr>
<td>CNP</td>
<td>Campaign for National Parks</td>
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<tr>
<td>CO₂</td>
<td>Carbon dioxide</td>
</tr>
<tr>
<td>CPRE</td>
<td>Campaign to Protect Rural England</td>
</tr>
<tr>
<td>CWMET</td>
<td>Cumbria Waste Management Environmental Trust</td>
</tr>
<tr>
<td>DALGS</td>
<td>Derbyshire Aggregates Levy Grant Scheme</td>
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<tr>
<td>DCMS</td>
<td>Department for Culture, Media and Sport</td>
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<tr>
<td>DECC</td>
<td>Department for Energy and Climate Change</td>
</tr>
<tr>
<td>DET</td>
<td>Derbyshire Environmental Trust</td>
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<tr>
<td>DfT</td>
<td>Department for Transport</td>
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<tr>
<td>DP</td>
<td>Delivery Partner</td>
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<tr>
<td>DSO</td>
<td>Departmental Strategic Objective</td>
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<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>EO</td>
<td>Environment Officer</td>
</tr>
<tr>
<td>EOI</td>
<td>Expression of Interest</td>
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<td>EPOW</td>
<td>European Pathway to Zero Waste</td>
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<td>EU</td>
<td>European Union</td>
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<td>FoPD</td>
<td>Friends of the Peak District</td>
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<td>GAP</td>
<td>Geodiversity Action Plan</td>
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<td>GHG</td>
<td>Greenhouse gases</td>
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<td>GIS</td>
<td>Geographical Information Systems</td>
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<td>HSC</td>
<td>Heritage Seascapes Characterisation</td>
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<tr>
<td>KPI</td>
<td>Key Performance Indicator</td>
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<td>LAA</td>
<td>Local Area Agreement</td>
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<td>LTCS</td>
<td>Landfill Tax Credit Scheme</td>
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<td>MALSF</td>
<td>Managed Aggregates Levy Sustainability Fund</td>
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<td>MAA</td>
<td>Marine Aggregate Levy Association</td>
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<td>MPA</td>
<td>Marine Products Association</td>
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<tr>
<td>MPS1</td>
<td>Minerals Policy Statement 1</td>
</tr>
<tr>
<td>MRP</td>
<td>Minerals Restoration Potential project</td>
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<tr>
<td>MSRS</td>
<td>Mode Shift Revenue Support scheme</td>
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<tr>
<td>MUP</td>
<td>Multi-User Path</td>
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<tr>
<td>NAM</td>
<td>Nature After Minerals project</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organisation</td>
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<tr>
<td>NIC</td>
<td>National Insurance Contributions</td>
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<td>NoCAM</td>
<td>Non Coal Abandoned Mines project</td>
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<td>POS</td>
<td>Planning Officers' Society</td>
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<tr>
<td>PSA</td>
<td>Public Service Agreement</td>
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<td>PTZW</td>
<td>Pathway to Zero Waste</td>
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<tr>
<td>QP</td>
<td>Quality Protocol (for end-of-waste products)</td>
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<tr>
<td>QPA</td>
<td>Quarry Products Association (now MPA)</td>
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<tr>
<td>RCAN</td>
<td>Rural Community Action Network</td>
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<tr>
<td>REC</td>
<td>Regional Environmental Characterisation</td>
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<td>REPS</td>
<td>Rail Environmental Benefit Procurement Scheme</td>
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<tr>
<td>RSA</td>
<td>Recycled and secondary aggregates</td>
</tr>
<tr>
<td>SA</td>
<td>Sustainability Appraisal</td>
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<tr>
<td>SAFED</td>
<td>Safer and more Fuel Efficient Driving programme</td>
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<tr>
<td>SD</td>
<td>Sustainable Development</td>
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<tr>
<td>SEA</td>
<td>Strategic Environmental Assessment</td>
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<tr>
<td>SME</td>
<td>Small and medium sized enterprise</td>
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<td>vfm</td>
<td>value for money</td>
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<td>WRAP</td>
<td>Waste and Resources Action Programme</td>
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2 OVERVIEW OF KEY POINTS

2.1 This report provides an independent evaluation of the Aggregates Levy Sustainability Fund (ALSF) undertaken for Defra by the In House Policy Resource (IHPR) during the period January – May 2010. The evaluation’s purpose was twofold. First, to assess the performance of the Fund for the three years 2008-11, quantifying its impact where possible, and accompanied by a brief overview of ALSF activity in 2007/08 which had not previously been evaluated. Second, to provide an evidence base to inform future Government spending decisions.

2.2 A summary table to support this overview is set out in figure 3 at the end of the section.

2.3 Key statistics for the aggregates sector are set out in figure 1 below.

Figure 1 – Key statistics for the aggregates sector

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<th>Aggregates production (GB, 2008)</th>
<th>174.5m tonnes land-won aggregates</th>
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<tr>
<td></td>
<td>21.2m tonnes marine dredged aggregates</td>
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<td></td>
<td>64m tonnes recycled and secondary aggregates (RSAs) – around 28 per cent market share</td>
</tr>
<tr>
<td>Proportion of land / sea area affected (UK, 2008)</td>
<td>0.13 per cent land area quarried</td>
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<tr>
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<td>0.01 per cent of UK continental shelf actively dredged</td>
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<tr>
<td>Proportion of aggregates transported using different modes (UK, 2008)</td>
<td>Road – 90 per cent, average journey length 38km</td>
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<td>Rail - &lt;7 per cent, average journey length 126km</td>
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<tr>
<td></td>
<td>Inland waterways - &lt;0.5 per cent</td>
</tr>
<tr>
<td>Aggregates sector carbon emissions (UK, 2008)</td>
<td>0.49 per cent UK carbon emissions</td>
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<td>Largest sources of sector emissions are transport (35 per cent) and asphalt production (25 per cent)</td>
</tr>
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<td>Structure of sector</td>
<td>80 per cent of market held by five largest aggregate producers.</td>
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<td>Remainder comprises over 200 smaller companies.</td>
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<td>Sector severely affected by economic downturn: in last quarter of 2008, demand down by 30 per cent by comparison with same period in 2007</td>
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2.4 The aggregates levy was introduced in the UK in April 2002 and now stands at £2.00 per tonne. Its purpose is to recognise the significant environmental impacts of extracting aggregates and encourage the use of alternative materials. The ALSF, introduced concurrently, complements the levy’s aims by targeting a proportion of its income to maximise the reduction of, and compensation for, the environmental externalities of aggregates extraction.

2.5 The ALSF is administered by Defra and delivered through 28 Delivery Partners including 18 local authorities. Delivery in 2008-11 is focused on five themes:

i) To reduce the environmental footprint of quarries and to take advantage of the opportunities they offer;
ii) To reduce the environmental footprint of marine extraction;
iii) To deliver more sustainable use of aggregates;
iv) To reduce the environmental footprint of the transport of aggregates;
v) To deliver benefits to communities affected by extraction.

2.6 Over the period 2008-11 a total of around £65m is expected to be disbursed through the ALSF, i.e. just under £24m in each of the first two years, and just under £18m in 2010/11.

2.7 Types of activity supported include:

- Technical, practical and strategic research and development resulting in tangible, usable products for the industry;
- Outreach, engagement, collaboration and dissemination within the industry, the wider community of interest, and with the public;
- Site-based projects and surveys to deliver energy conservation, habitats and species conservation, pollution reduction and heritage conservation benefits;
- Capital and revenue grants to encourage aggregates transport by rail and water and to provide additional aggregates re-processing capacity;
- Practical projects delivering benefits to communities affected by aggregates extraction.

2.8 Research and dissemination account for half of total spend since April 2008. This encompasses everything from seabed mapping and studies of archaeological sites, to technical studies on carbon reduction and uses for recycled and secondary aggregates (RSAs). The second largest category of spend is site-based natural environment projects, which account for one fifth of spend to date.

2.9 The 2008-11 ALSF programme is expected to meet the over-arching objective to reduce the environmental impact of aggregates quarrying, although many of its impacts will only be felt over the longer term. It is working to secure a diverse range of outcomes. While some of these may be quantified and monetised, many may not; in these cases, the assessment of impact and performance against objectives is based on a qualitative judgement.

2.10 Key quantifiable benefits include: a 6 per cent reduction in the aggregates sector’s carbon emissions by 2011/12; a one third contribution to diverting 3m tonnes of construction, demolition and excavation waste (CDEW) from landfill per annum from 2011/12; an additional 350,000 tonnes in aggregates re-processing capacity; £8.7m fuel savings from more fuel efficient driving training for aggregates hauliers, and a £2.7m mode shift benefit from transferring aggregates haulage from road to rail.

2.11 Other key benefits include: significant advances in seabed mapping and provision of historic environment Aggregates Resource Assessments (ARAs); contributions to national Biodiversity Action Plan (BAP) targets and local Geodiversity Action Plan (GAP) targets; biodiversity improvements to over 3,000 ha; 11.25km of new or upgraded footpaths, and site visits by over 4,300 children in 2008/09 alone; several hundred projects delivering benefits to local communities; significant advances across the range of research
programmes and wide dissemination to expert and lay communities; a number of nationally significant heritage assets physically conserved or preserved by record; direct, practical, site-based expert engagement for the aggregates industry and supply chain.

2.12 The value for money assessment is good and many areas offer evidence of excellent potential vfm, particularly in the medium to long term. However the scope and robustness of the vfm assessment at this stage in the programme is limited by some gaps in evidence, by the difficulties in quantifying the impact of some areas of the programme, because some projects and programmes are not sufficiently advanced to enable an assessment to be made, and because some impacts will only be measurable once work has been completed, disseminated and embedded.

2.13 Delivery Partners’ programmes have been well targeted and project selection arrangements are generally robust. Financial leverage is good (excellent in some cases), with the latest data showing an additional £47.2m levered into projects to supplement the £42.7m in ALSF investment so far recorded on the database. There is a good degree of consistency in cost effectiveness where this can be measured, averaging a little over £7 per tonne of CDEW diverted from landfill or per tonne of carbon savings. The present value (in 2010) of the elements of ALSF expenditure for which benefits can be monetised is £20m; the present value (in 2010) of those benefits is £195.1m, giving a cost: benefit ratio of 1: 9.8. In some areas, there is evidence of unexpected added value or spin offs for other sectors and internationally. There are a few pockets of poorer value for money work within programmes performing well overall, and notable difficulties under the Communities theme, where the absence of a ring fence on local authority ALSF expenditure has led to the diversion of around one third of the available budget to non-ALSF priorities.

2.14 Delivery Partners and stakeholders are, in general, strongly supportive of the ALSF, particularly for its ability to generate partnership and collaboration, and for its role as a catalyst, where the Fund’s robust processes and guaranteed investment have levered significant third party funding. Many interviewees felt that the Communities theme was the strongest aspect of the Fund, because of its ability to reach out directly to communities affected by aggregates extraction, although significant concern was expressed at the lack of a ring fence on local authority expenditure. There was greater challenge to activities which did not address the immediate effects of aggregates quarrying and their mitigation, for example work on carbon savings in asphalt production and work to promote greater use of RSAs.

2.15 There is a strong case for future investment in the five areas set out in figure 2.
Figure 2 – Areas which merit future support

1. **Knowledge and data management and dissemination** – in many areas, further funding would help consolidate and fully realise the potential of ALSF investment 2002-11, including by maintaining and updating existing resources, providing effective web-based access to project outputs and datasets, and ensuring optimal awareness of these among the stakeholder communities who could benefit.

   Priorities include: rolling out the carbon reduction technology accelerator programme; completion of historic environment Aggregates Resource Assessments (ARA) programme; knowledge and data management and dissemination of terrestrial and marine historic environment and technical research and marine RECs, and RSA standards, guidance and advice.

2. **Targeted, practically applicable research to enable the sector to continue to perform optimally and to innovate** – this would respond to technological developments, improved understanding of threats, and changes to the external operating environment.

   Priorities include targeted research relevant to the terrestrial and marine historic environment, the environmental footprint of extraction activity.

3. **Targeted practical or site-based assistance contributing to achievement of national priorities**

   Priorities include: further support for modal shift from road to rail and water, conservation (by record or physically) of significant archaeological and historic resources, biodiversity and geodiversity projects contributing to BAP and GAP targets.

4. **Delivering benefits to communities affected by aggregates extraction**

   The focus could be on contributing to national priorities e.g. for community capacity building, improved health and wellbeing, carbon reduction, with better integration with work relating to the historic and natural environment.

5. **Facilitation of further-improved co-ordination and collaboration** within and between Government, the industry, NGOs and experts, and further behavioural change in the industry to optimise the sector’s performance.

   Priorities include: embedding industry collaboration on carbon reduction; encouraging and enabling aggregates companies to supply product from the most sustainable source depending on individual circumstances.

2.16 If future support were available, **best value for money** could be achieved through making the most of opportunities for **more cost effective administration**, **better joined up delivery** and analysis of what constitutes the **right balance between sector-specific and more general investment** to meet wider national goals e.g. for carbon reduction.

Measures worth considering would include:

- Where the aggregates sector or supply chain is one of many target sectors, embed action more fully within wider work programmes (e.g. WRAP, Environment Agency, Carbon Trust, Dept for Transport);
- Ensure that funding which remains aggregates-specific does contribute to the sector’s goals by distributing it through Delivery Partners whose budgets can be ring-fenced (although this could damage momentum if crucial links between experienced Delivery Partners and grant applicants were lost);
- Explore the potential to concentrate administration and programme management of remaining aggregates-specific funding into fewer bodies, appropriately advised by technical and local experts, and perhaps mirroring the approach of the successful MALSF steering group by developing a parallel high-level terrestrial steering group. This could also include joining up the expertise of Delivery Partners from the Communities theme with Natural England, English Heritage and possibly the Carbon Trust to ensure that communities funding makes the optimal contribution to a wide range of national goals.
### Figure 3 – Summary of the ALSF programme 2008-11

<table>
<thead>
<tr>
<th>Theme</th>
<th>Workstream</th>
<th>Delivery Partner</th>
<th>Allocation 2008-11 (£m)</th>
<th>Activity type</th>
<th>Key outputs</th>
<th>Outcomes</th>
<th>Performance against objectives</th>
<th>Vfm assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To reduce the environmental footprint of quarries and take advantage of the opportunities they offer.</td>
<td>a) Encourage reduction in CO₂ emissions</td>
<td>Carbon Trust</td>
<td>4.6</td>
<td>R&amp;D, surveying, outreach</td>
<td>Better understanding of opportunities for carbon reduction; tactical delivery including “Big 5” interventions; change programme; improved sector-wide collaboration; rollout of new technologies.</td>
<td>Cut aggregates sector’s carbon emissions over 2008 baseline by estimated 1 per cent by March 2010; good degree of confidence of 6 per cent reduction by 2011/12; moderate confidence of total reduction of 22 per cent (subject to additional investment in 2011/12) in 2015-20 timeframe.</td>
<td>Good progress although slower than originally planned so will need funding for “year 4”. Expect to achieve objective.</td>
<td>Very well focused; should deliver good value for money in the short to medium term; potentially much more significant gains in the longer term subject to further funding in 2011/12. Cost effectiveness broadly in line with other areas of Carbon Trust’s work, particularly if transfer benefits to other sectors taken into account.</td>
</tr>
<tr>
<td></td>
<td>b) Deliver benefits to the natural environment around quarries.</td>
<td>Natural England</td>
<td>11.9</td>
<td>Quarry site projects, R&amp;D</td>
<td>Highlights from 2008/09 – biodiversity improvements to 2,823ha; 11.25km of new or upgraded footpaths; 4,367 children involved in site visits; 86 events held to promote understanding; contributions to national BAP and local GAP targets.</td>
<td>Conservation of / improvements to / improved understanding of landscape, biodiversity, geodiversity, contributing to BAP and GAP commitments. Improved access to natural environment, securing green space benefits. Improved evidence on impacts of aggregates quarrying on natural environment / better data to inform mitigation and management.</td>
<td>Achieving objective, although key evidence not well marshalled.</td>
<td>Difficult to reach a robust judgement on vfm in the absence of contextual information without a detailed case study approach not possible within the time constraints of this project. However it is clear that the vfm picture is largely very positive.</td>
</tr>
<tr>
<td>c) Address research gaps with potential to significantly improve sector’s environmental performance.</td>
<td>MIRO</td>
<td>1.8 R&amp;D, dissemination</td>
<td>Good progress in addressing research priorities identified in benchmark reports (e.g. dust, noise and vibration; sustainable utilisation of quarry by-products). 12 new historic environment Aggregates Resource Assessments completed, against a target of 9, taking total coverage to 60 per cent of the counties where an ARA is recommended. More efficient / safer aggregates quarrying with reduced environmental impact. Outputs of ALSF research reach target audience. Better understood and optimally managed impact on historic landscape results from improved strategic landscape planning, improved and well-disseminated mapping techniques, monitoring and assessment systems. Good progress, expect to meet or exceed most objectives. EH aim to develop approach to integrate historic environment, landscape and biodiversity data not successful. Good to excellent potential vfm. Targeted to evidence-based research priorities, projects are awarded through a robust process (in the case of MIST with financial or in-kind industry support). Some concern that one-year funding window has hampered vfm and perception, largely based on work pre-2008, of over-emphasis on theoretical outputs. Will take some years to demonstrate actual vfm.</td>
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<tr>
<td>d) Undertake strategic research to underpin long-term planning of sustainable aggregates supply.</td>
<td>MIRO</td>
<td>1.2 R&amp;D, dissemination</td>
<td>Seven projects funded, including horizon scan for aggregates production, evaluation of environmental impacts of aggregates within designated sites, develop ecosystems approach to decision-making in planning / restoration of aggregates quarries. Early days but largely positive feedback on the value of emerging findings. Potential high impact possibilities identified in underground mining and pipelines. Project assessing the design of lorries and quarries for aggregates transport has provided new insights. Making progress towards achievement of longer-term objective. In the main, value for money has been safeguarded in process terms; the long term value of outputs cannot yet be determined.</td>
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<tr>
<td>e) Repair, conserve and record historic and archaeological assets impacted by aggregates extraction.</td>
<td>English Heritage</td>
<td>1.5 Recording and analysis, conservation and repair</td>
<td>3 monuments directly impacted by aggregates extraction conserved. Preservation by record of 16 nationally important archaeological discoveries which would not otherwise have been preserved. Conservation of vulnerable historic assets and preservation by record of nationally important discoveries; realisation of management and community dividend from legacy rescue recording of nationally important sites undertaken prior to past quarrying. Will meet or exceed objectives, except for conservation of monuments, where insufficient eligible monuments identified. English Heritage has worked to optimise vfm from the projects funded under these two themes through tightly drawn eligibility criteria which aim to deliver outputs of the widest possible significance; without a more detailed case study approach it is not possible to quantify or assess vfm further.</td>
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<tr>
<td>f) Research options for remediating pollution at abandoned mines.</td>
<td>Environmen t Agency</td>
<td>0.5 R&amp;D</td>
<td>Reports will recommend further work (either additional investigations or proposed remedial works). Projects have identified additional previously unknown risks at two locations. Improved understanding / eventual treatment of minewater pollution, helping deliver good ecological status in impacted rivers, with consequent benefits to local economy. Will meet objective, although its contribution to core ALSF goals is minimal. Will deliver vfm against project objectives and wider policy aims, but represents very poor vfm in terms of contribution to ALSF objectives.</td>
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</tr>
<tr>
<td>Theme</td>
<td>Workstream</td>
<td>Delivery Partner</td>
<td>Allocation 2008-11 (£m)</td>
<td>Activity type</td>
<td>Key outputs</td>
<td>Outcomes</td>
<td>Performance against objectives</td>
<td>Vfm assessment</td>
</tr>
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<tr>
<td>2. To reduce the environmental footprint of marine aggregates extraction.</td>
<td>a) Promote environmentally friendly practices for extraction of marine aggregates, undertake strategic research into environmental consequences of, and reduce local effects of, marine aggregate extraction, reduce environmental impacts of using marine aggregate in coastal protection schemes.</td>
<td>CEFAS</td>
<td>11.5</td>
<td>R&amp;D, surveying, outreach</td>
<td>By 2011, RECs will cover over 31,000km²; all aggregates dredging zones will be covered by HSCs. Good understanding of impacts at dredging sites, and related monitoring and mitigation techniques. Range of practical / useful historic environment R&amp;D. Good legacy provision for data and wider knowledge management.</td>
<td>Improved evidence base on marine environmental and archaeological resources; better understanding of effects and significance of dredging, giving greater certainty in marine spatial planning. New and improved monitoring, mitigation and management techniques to reduce impacts of dredging.</td>
<td>Very significant progress from a low baseline, some work of international significance. High level of confidence that over-arching objective to reduce environmental footprint will be achieved in longer term.</td>
<td>Excellent potential vfm. Exemplary governance model has enhanced vfm; greatest vfm and legacy from seabed mapping which has direct / ongoing influence on policy development and on quality, ease and speed of the licensing process, increasing confidence and certainty for regulator, regulatory advisor and industry.</td>
</tr>
<tr>
<td></td>
<td>b) Understand the distribution of, and effects of economic activity on, resources of historic or archaeological significance.</td>
<td>English Heritage</td>
<td>1.4</td>
<td>R&amp;D and dissemination</td>
<td></td>
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<tr>
<td>Theme</td>
<td>Workstream</td>
<td>Delivery Partner</td>
<td>Allocation 2008-11 (£m)</td>
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<td>Key outputs</td>
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<td>Performance against objectives</td>
<td>Vfm assessment</td>
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<tr>
<td>3. To deliver more sustainable use of aggregates.</td>
<td>a) Promote more sustainable use of aggregate resources.</td>
<td>WRAP</td>
<td>12.1</td>
<td>R&amp;D, dissemination, capital grants</td>
<td>Provision of 350,000 tonnes additional CDEW reprocessing capacity. Engagement throughout aggregates supply chain / waste management sector to reduce waste to landfill and stimulate demand for RSAs, design out waste and promote associated business opportunities. Technical work to improve potential to recycle CDEW.</td>
<td>2008-11: divert 3.5m tonnes of CDEW from landfill, avoiding 0.75m tonnes of carbon emissions. Embed practices to deliver ongoing annual diversion from landfill of 3m tonnes, with 0.5m tonnes associated carbon savings. Successful SE regional pilot will divert 1.9m tonnes of CDEW from landfill (75 per cent of total CDEW landfilled in SE) by March 2011 (0.47m tonnes through direct influence; 1.4m tonnes through indirect influence). Measurable contribution to elevating the success of the Aggregates Quality Protocol (QP) and progressing the potential for new QPs.</td>
<td>Will achieve or exceed set targets.</td>
<td>Delivery Partners have worked hard to maximise potential vfm, building on earlier work and contributing to a wider goal to reduce CDEW going to landfill. Range of freely accessible products developed and, through targeted interventions and dissemination, appetite stimulated to use the products to contribute to overall goals.</td>
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<tr>
<td>Theme</td>
<td>Workstream</td>
<td>Delivery Partner</td>
<td>Allocation 2008-11 (£m)</td>
<td>Activity type</td>
<td>Key outputs</td>
<td>Outcomes</td>
<td>Performance against objectives</td>
<td>Vfm objectives</td>
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<tr>
<td>4. To reduce the environmental footprint of aggregates transport.</td>
<td>a) Encourage further diversion from road to rail and water transport.</td>
<td>British Waterways</td>
<td>2.4</td>
<td>Capital grants</td>
<td>3 new or improved lock facilities providing optimal conditions for diversion of aggregates transport from road to water. 2.3m annual aggregate tonne miles diverted from road to rail.</td>
<td>Reduction in environmental impacts of aggregates transport. 2008-10: Quantified Mode Shift Benefit for transfer of aggregate transport from road to rail totals £2.722m, with around 1,500 tonnes Carbon savings per annum. ALSF contribution to Three Mills Lock expected to deliver quantified Mode Shift Benefit for transfer of aggregate transport from road to water totalling £0.67m over 15 years from 2012.</td>
<td>Will achieve objective for diversion from road to rail; conditions in place to achieve diversion from road to water over the longer term.</td>
<td>DfT programmes offer good vfm although in 2008-11 period may be lower than previously since SAFED could have been taken on sooner by industry, and because the aggregates element of REPS has struggled to secure take-up thanks to the economic downturn. Economic downturn has also seriously impacted short-term vfm of British Waterways investment, although potentially significant vfm in longer term.</td>
</tr>
<tr>
<td></td>
<td>b) Promote more efficient driving through Safe and Fuel-Efficient Drivers Programme and encourage the commercial take-up of SAFED approach.</td>
<td>DfT</td>
<td>2.2</td>
<td>Revenue grants</td>
<td>2008-10: 58 trainers and 2,641 drivers trained (estimated to be ¼ to 1/5 of target audience). Responsibility transferred to industry from April 2010.</td>
<td>Drivers of aggregates lorries drive more safely and economically, reducing fuel costs by £8.7m, generating carbon savings of around 5,700 tonnes, reducing risk of accidents.</td>
<td>Has achieved objective.</td>
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</table>

Policy projects for CLG, DfT, DECC and Defra
<table>
<thead>
<tr>
<th>Theme</th>
<th>Workstream</th>
<th>Delivery Partner</th>
<th>Allocation 2008-11 (£m)</th>
<th>Activity type</th>
<th>Key outputs</th>
<th>Outcomes</th>
<th>Performance against objectives</th>
<th>Vfm objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. To deliver benefits to communitie s affected by aggregates extraction.</td>
<td>a) Support local community projects of demonstrable public benefit in areas that suffer environmental impacts of aggregates extraction.</td>
<td>ACRE working in 23 counties</td>
<td>1.6</td>
<td>Community projects</td>
<td>Improvements to community buildings, to local natural environment, and to local sports, recreational and other visitor amenities. Contributions to local economy including by providing employment opportunities and enhancing individuals’ skills / possibly employment prospects. Energy usage / running costs reduced.</td>
<td>Social: increasing number of people / range of groups in local community who can use local facilities, with consequent benefits. Economic: increasing employment opportunities, enhancing individuals’ skills and bringing money into local areas. Environmental: improving habitats, landscape and visual outlook, improving sustainability of energy consumption.</td>
<td>Will meet objective.</td>
<td>Currently delivering good vfm although some process concerns – one third of the allocation delivers no ALSF-related benefits; improved sharing of good practice would secure worthwhile benefits; anecdotal evidence suggests that some communities may benefit much more than others which suffer similarly from aggregates extraction.</td>
</tr>
<tr>
<td>18 local authorities</td>
<td>9</td>
<td>Community projects</td>
<td></td>
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</tbody>
</table>

Total 65
3 EXECUTIVE SUMMARY

3.1 Purpose and scope of evaluation

IHPR was invited to undertake an independent evaluation of the ALSF to fulfil two aims:

- To assess the performance of the Fund for the three years 2008-11, quantifying its impact where possible, accompanied by a brief overview of ALSF activity in 2007/08, which had not previously been evaluated, and
- To provide an evidence base to inform future Government spending decisions.

The bulk of the evaluation was undertaken over the last quarter of 2009/10, part way through the spending period, in order to ensure that a robust evidence base would be in place in time for the Spending Review anticipated for 2010/11. As a consequence, many funded projects were not yet complete – or even started – at the time of evaluation. Therefore, while this study has used the best available evidence, it is plainly unable to provide a full assessment of performance and value for money over the period 2008-11.

The evaluation was largely a desk-based exercise with evidence from a large range of sources including Defra’s ALSF database, annual reports, research reports and other written information provided by Delivery Partners. This was supplemented by a series of interviews with Delivery Partners, industry representatives, other Government departments and Non-Governmental Organisations (NGOs).

This report provides background material on the aggregates levy and the introduction of the ALSF, the dimensions of the industry and the rationale for intervention, and then provides an overview of spend accompanied by detailed analysis of activity over the period 2008-11, impact and performance against objectives, and an assessment of value for money. This is supplemented by a brief overview of activity in 2007/08, and an exploration of the likely impact and value for money of future funding opportunities that would further reduce the environmental footprint of the aggregates industry. The Executive Summary follows the same structure.

3.2 The aggregates industry

In 2008, Great Britain produced 174.5m tonnes of land-won aggregates and 21.2m tonnes of marine dredged aggregates, supplemented by a further 64m of RSAs. RSAs, sourced mainly from CDEW, held a market share of around 28 per cent.

A very small proportion of the land and sea area is actively used for extraction. In 2008, around 0.13 per cent of the UK’s land area was being quarried and 138km$^2$ (0.01 per cent) of the UK continental shelf was actively dredged.

The vast majority of aggregates (around 90 per cent) are transported by road, over an average journey length of 38km. Less than 7 per cent travels by rail, over an average journey length of 126km. Very little aggregate (less than 0.5 per cent) travels on inland waterways.
The aggregates sector accounts for around 0.49 per cent of UK carbon emissions; the largest sources of emissions for the sector are transport (35 per cent) and asphalt production (25 per cent).

The five largest aggregate producers account for 80 per cent of the market, with over 200 smaller companies making up the remaining 20 per cent. The industry has been, and will continue to be, severely affected by the economic downturn: in the last quarter of 2008, demand was down by 30 per cent by comparison with the same period in the previous year.

3.3 The aggregates levy, ALSF and the rationale for intervention

The aggregates levy was introduced in the UK in April 2002 at a rate of £1.60 per tonne; since 2009 it has stood at £2.00 per tonne. Its aim was to recognise the significant environmental impacts of extracting aggregates and encourage the use of alternative materials. The levy has been described as a blunt instrument as it is not differentiated by location or material. Therein lies the rationale for the ALSF, which was introduced concurrently with the levy. By targeting a proportion of the levy at the sources and impacts of aggregates extraction, the Fund maximises the reduction of, and compensation for, its environmental externalities.

The ALSF has targeted its efforts in the following areas:

- Terrestrial quarrying activity has a direct impact on the environment and communities in the immediate vicinity. Direct impacts of extraction include changes to surface and ground water and the creation of dust, noise and vibration; haulage gives rise to a range of impacts including dust, congestion and increased wear and tear to roads. There has been scope better to understand the impacts and improve mitigation, promote safer and more fuel efficient driving and divert more haulage to the rail network, and to compensate local communities for the adverse impacts they suffer.

- Quarrying can damage bio- and geodiversity, and changes the landscape, but restoration offers opportunities for improvements. There has been scope to help research, identify and plan for threats and make the most of opportunities, supplementing quarry operators’ existing obligations.

- English Heritage describes the impact of quarrying on archaeology as being generally destructive but recognises that it also reveals evidence of hitherto unknown human activity. There has been an opportunity to provide tools and information to decision-makers to help ensure that archaeological damage is minimised and that the best use is made of opportunities to increase knowledge.

- There are significant opportunities to reduce the aggregates sector’s carbon emissions but a number of barriers to doing so. There has been scope to encourage the sector as a whole to tackle barriers to change and make the most of the business opportunities in carbon reduction.
• Government is committed to halve CDEW to landfill by 2012. Achieving this means players across the supply chain using materials efficiently in construction, optimising recycling opportunities and making the best use of RSAs. One of the most significant barriers to increasing use of RSAs has been in determining when a product ceases to be waste. There has been a need to promote the business opportunities offered by RSAs and to tackle barriers to their use, including by speeding up the provision of re-processing capacity and providing knowledge and tools to support companies committed to reducing waste. There is a separate challenge to increase the efficiency of quarrying processes to minimise waste and find sustainable uses for by-products that cannot be avoided.

• Improved marine spatial mapping and techniques are needed to inform development of the new marine spatial planning system. Prior to the ALSF, little was known about marine dredging’s impacts on the physical landscape of the sea bed, on habitats and faunal communities, submerged historic and archaeological assets, and its wider socio-economic and ecosystem impacts. There has been scope to address these gaps as well as to drive technological improvements to support greater efficiency and effectiveness in dredging and dredging monitoring.

The ALSF is administered by Defra and delivered through 28 Delivery Partners including 18 local authorities. Over the years, its objectives have been refined and there have been some changes in Delivery Partners. In line with wider Departmental policy which has seen the introduction of a “policy cycle” with a clearer divide between policy making and delivery, since 2008 Defra has adopted lighter touch management of the Fund.

Delivery in 2008-11 is focused on five themes, following a public consultation exercise:

i) To reduce the environmental footprint of quarries and to take advantage of the opportunities they offer;
ii) To reduce the environmental footprint of marine extraction;
iii) To deliver more sustainable use of aggregates;
iv) To reduce the environmental footprint of the transport of aggregates;
v) To deliver benefits to communities affected by extraction.

These are further disaggregated into a total of twelve workstreams.

The ALSF is clearly aligned with Defra’s purpose (“We deal with environmental risks and work towards securing a sustainable society and a healthy environment.”) and contributes to a range of wider Government environment and sustainability goals from tackling climate change and building more active communities, to providing a more sustainable transport system and delivering the conditions for business success. Particular policies relevant to the aggregates sector include minerals planning, marine spatial planning, landscape

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\[\text{1 DTI and CLG are former Delivery Partners; the Countryside Agency and English Nature’s ALSF programmes were combined on the formation of Natural England.}\]

\[\text{2 See figure 3, column 2.}\]
3.4 Funding allocation and project activity

Over the period 2008-11 a total of around £65m is expected to be disbursed through the ALSF, i.e. just under £24m in each of the first two years, and just under £18m in 2010/11. The 3-year allocation by theme and Delivery Partner is set out in figure 4 below.

Figure 4 – 2008-11 funding allocation, by Theme and Delivery Partner

<table>
<thead>
<tr>
<th>Theme</th>
<th>Delivery Partner</th>
<th>Total funding allocation (£m)</th>
<th>Theme total (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Quarries</td>
<td>Carbon Trust</td>
<td>4.6</td>
<td>23.7</td>
</tr>
<tr>
<td></td>
<td>Natural England</td>
<td>11.9</td>
<td></td>
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<tr>
<td></td>
<td>MIRO</td>
<td>3.0</td>
<td></td>
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<tr>
<td></td>
<td>English Heritage</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Environment Agency</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>2: Marine</td>
<td>CEFAS</td>
<td>11.5</td>
<td>12.9</td>
</tr>
<tr>
<td></td>
<td>English Heritage</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>3: Sustainable resource use</td>
<td>WRAP</td>
<td>12.1</td>
<td>13.4</td>
</tr>
<tr>
<td></td>
<td>Environment Agency</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>4. Transport</td>
<td>Dept for Transport</td>
<td>2.2</td>
<td>4.6</td>
</tr>
<tr>
<td></td>
<td>British Waterways</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>5. Communities</td>
<td>ACRE working in 23 counties</td>
<td>1.6</td>
<td>10.6</td>
</tr>
<tr>
<td></td>
<td>18 local authorities most affected by aggregates extraction[^3]</td>
<td>9</td>
<td></td>
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</tbody>
</table>

Projects are recorded under seven main categories on the Defra database: research, dissemination, capital grants for re-processing, local community, quarry site, transport, and carbon business solutions. Figure 5 illustrates the distribution of funding by activity type, for projects entered to the Defra database. The largest proportion of the Fund is spent on research and dissemination (encompassing everything from seabed mapping and studies of archaeological sites, to technical studies on carbon reduction and uses for RSAs),

[^3]: Local authorities known to invest all or part of their ALSF allocation in relevant projects are: Cornwall, Cumbria, Derbyshire, South Gloucestershire, Lancashire, Leicestershire, Lincolnshire, Nottinghamshire, Shropshire, Somerset, Staffordshire and North Yorkshire. Other local authorities, about whom no information is available, are Devon, Doncaster, Durham, Essex, Gloucestershire and North Somerset.
together accounting for half of total spend to date since April 2008. Research, capital grants for reprocessing and transport tend to comprise smaller numbers of larger projects; at the other end of the spectrum, local community projects account for only 10 per cent of spend to date, but 50 per cent of projects.

Figure 5 – Proportion of funding for each type of activity, for 2008-11 projects on the database

Figure 6 shows that regional distribution of funding has so far been broadly in proportion to the regional impact of extraction, although imbalances are evident in the South West (where investment has been higher than might have been expected) and the East Midlands (where spend has been lower than expected).

Figure 6 – Number of projects, by region, compared with aggregates sales

The ALSF has been successful in leveraging significant third party funding for its projects, generating an additional £47.2m over and above the £42.7m in ALSF funding so far
registered in Defra's database for the period 2008-11. This represents an average leverage factor of 2.1.

3.5 Overview of performance and value for money

Overall, the 2008-11 ALSF programme is expected to meet the over-arching objective to reduce the environmental impact of aggregates quarrying, although delivery of longer term benefits cannot yet be observed and in some cases is uncertain. It is working to secure a diverse range of outcomes. While some of these may be quantified and monetised, many may not; in these cases, the assessment of impact and performance against objectives is based on a qualitative judgement.

Key benefits – including quantifiable benefits - include:

- Through the Carbon Trust’s work, a reduction in the aggregates sector’s carbon emissions of 160,000 tonnes, or 6 per cent, by 2011/12, with potential for a total reduction of 560,000 tonnes during the 2015-2020 timeframe. The monetary value of these savings over the period to 2020, in 2010 terms, is estimated to be £58.4m;
- Through WRAP’s work, a one third contribution to diverting an additional 3.0m tonnes of CDEW from landfill per annum from 2011/12, with attendant annual carbon savings of 500,000 tonnes, and an additional 0.35m tonnes in aggregates re-processing capacity;
- Through the Environment Agency’s Waste Protocols programme, increased use of RSAs from pulverised fuel ash (PFA) and steel slag leading to diversion of 7.8m tonnes of waste from landfill and carbon savings of 580,000 tonnes over ten years;
- Through Pathway to Zero Waste (PTZW), a one third contribution to directly influenced diversion of 0.47 tonnes of CDEW from landfill in the south east region by March 2011, and indirect influence leading to a further 1.4m tonnes of CDEW diverted from landfill, equating in total to 75 per cent of the regional amount of CDEW landfilled (associated carbon reduction figures are 14,600 tonnes and 42,500 tonnes respectively);
- The monetary value of the WRAP, Waste Protocols programme and PTZW savings over the period to 2020, in 2010 terms, is estimated to be £123m;
- 8.5m reduction in litres of fuel used, and carbon savings of 5,700 tonnes, resulting from more fuel efficient driving training for aggregates hauliers. The monetary value of these savings over the period to 2020, in 2010 terms, is estimated to be £10.5m;
- £2.7m mode shift benefit from transferring aggregates haulage from road to rail, with annual carbon savings of around 1,500 tonnes, equivalent to a saving of £0.08m;
- Significant advances in seabed mapping – every major aggregates dredging area covered by a Regional Environmental Characterisation (REC) study and a Heritage Seascape Characterisation (HSC);
- 60 per cent of counties that need an historic environment Aggregates Resource Assessment (ARA) will have one;
- Contributions to national BAP targets and local GAP targets;
- Biodiversity improvements to over 3,000 ha; 11.25km of new or upgraded footpaths, and site visits by over 4,300 children in 2008/09 alone;
- Several hundred projects delivering benefits to local communities;
• Significant advances across the range of research programmes and wide dissemination to expert and lay communities;
• A number of nationally significant heritage assets physically conserved or preserved by record;
• Direct, practical, site-based expert engagement for the aggregates industry and supply chain.

The assessment of value for money sought to quantify benefits where possible and used comparative measures where feasible to give an idea of the significance of achievements. Value for money was assessed taking into account the available evidence in the following areas: project planning, targeting and the base case; project and contractor selection, and distributional issues; quantitative and qualitative evidence of project benefits, and stakeholder and Delivery Partner views.

Overall, the value for money assessment is good and many areas offer evidence of excellent potential vfm, particularly in the medium to long term although the scope and robustness of the assessment of vfm at this stage in the programme is limited by some gaps in evidence, by the difficulties in quantifying the impact of some areas of the programme, because some projects and programmes are not sufficiently advanced to enable an assessment to be made, and because some impacts will only be measurable once work has been completed, disseminated and embedded.

Defra has taken steps to ensure that appropriate evaluation is integral to the programme. Effective targeting and project selection are generally observed to have safeguarded value for money. Cost effectiveness measures used as part of project selection included: required investment per tonne of carbon savings or per tonne of additional aggregates re-processing capacity provided, and quantified environmental benefits purchased per £1 grant for mode shift from road to rail or water. Delivery Partners’ success in leveraging third party funding has varied across the programme, with an average leverage factor of 2.1, although this conceals considerably greater leverage in some individual programmes.

It is possible to monetise the benefits of about a third of the total ALSF expenditure for the 2008-11 period, covering work funded by the Carbon Trust, WRAP, the Environment Agency, Dept for Transport and British Waterways. The principal monetised measures are:

• Monetary value of carbon savings;
• Monetary value of mode shift benefits, and
• Cost effectiveness measured in terms of grant per tonne of CDEW diverted or per tonne of carbon saved.

The present value (in 2010) of the elements of ALSF expenditure for which benefits can be monetised is £20m; the present value (in 2010) of those benefits is £195.1m, giving a cost: benefit ratio of 1 : 9.8. It is difficult to compare cost effectiveness across different parts of the ALSF because, even where the measure is the same (e.g. grant per tonne of carbon savings), the contributing activities are different. However in most cases, cost
effectiveness is around £7 grant per tonne of carbon savings or material diverted from landfill.

Quantification is not possible in other areas of the programme because of the absence of a direct link between information gain and actual outcomes (for example in relation to research and dissemination), and because of the variety of outcomes within a single programme (for example in relation to natural environment and communities projects), and the lack of contextual information to apply value transfer, which prevents their being added together.

In addition to project-specific qualitative measures of vfm, the analysis identified a number of wider benefits, including increased certainty in the licensing process, benefits for the UK’s European and international influence and reputation, and tools, data sets and methodologies that may be of relevance to, or transferred to, other sectors.

Notwithstanding the generally good vfm picture, the evaluation identified a handful of areas where there may be scope to improve value for money, namely:

- Establish a comprehensive knowledge management system allied to more, targeted, dissemination and communication to a wider audience to ensure that ALSF outputs are widely known and used to best effect;
- Increase transparency around in-year re-allocation of funding and encourage all Delivery Partners to engage in that process;
- Ensure that, where decision making is devolved to existing delivery bodies, it makes the most of synergies but does not allow investment to be driven by individual Delivery Partners at the expense of the ALSF’s objectives; at the same time consider whether better value is obtained through targeted measures for the aggregates sector, as compared with allowing funding to be directed to where the greatest benefits can be secured;
- Address the fact that, because local authorities are at liberty to spend their ALSF allocations on local priorities through the Local Area Agreement (LAA), around one third of their allocation is diverted away from ALSF objectives;
- Do more to identify at the outset key performance indicators appropriate to the scale of investment, and ensure data are collected systematically against these, and
- Institute a high level steering group on terrestrial ALSF issues, to focus on strategic direction and co-ordination.

There were also some financial considerations that had hindered delivery, including: the economic downturn which has hindered industry appetite and capacity to engage; increased pressure on delivery teams resulting from the challenges of managing a declining baseline with an administration overhead set at a fixed proportion of total budget, and the annual funding cycle and lack of year end flexibility, which have made it more difficult to deliver certain types of project (e.g. longer and weather-dependent projects).

Given the uncertainty over future funding, it is imperative that Delivery Partners work in 2010/11 to consolidate and disseminate ALSF outputs and build on the knowledge management system in place to safeguard the ALSF’s legacy.
3.6 Quarries theme – performance and value for money

The Quarries theme is delivered through five Delivery Partners working across six workstreams. Its total funding allocation for the three year period is £23.7m.

The Carbon Trust’s ALSF budget is £4.6m in support of work with industry to reduce carbon emissions using current technologies and work to accelerate development of new technologies. Over three years, it will have established a robust evidence base for carbon savings in the aggregates sector and made good progress towards achieving a culture shift so that the industry drives change itself, for example through targeted work with the five largest aggregates companies and through a change programme. Although the work on collaboration, and the programme to accelerate new technologies, have had a longer lead time than expected, and as a result investment will be needed in 2011/12 fully to realise the benefits of the overall programme, the programme is expected to meet its objective with a 6 per cent reduction in carbon emissions (160,000 tonnes) over baseline by 2011/12, with potential for overall savings of 22 per cent (560,000 tonnes) in the 2015-2020 timeframe subject to the further investment indicated. This represents good value for money in the short to medium term, and even better vfm if the longer-term savings are delivered. At £7.28 per tonne of savings, the programme’s cost effectiveness is broadly in line with other areas of the Carbon Trust’s work. The present value of the benefits it will deliver over the period to 2020 are estimated at £58.4m.

Natural England’s ALSF budget is £11.9m over three years, invested in quarry site projects and research and development to deliver benefits to the natural environment around quarries. Overall, the programme will achieve its objectives through conservation of landscape, biodiversity and geodiversity, improved access to the natural environment, securing “green space” benefits, and providing better evidence on the impacts of aggregates quarrying on the natural environment as well as better data to inform mitigation and management. Highlights from 2008/09 include biodiversity improvements to 2,823 hectares, 11.25km of new or upgraded footpaths, over 4,300 children involved in site visits, 86 events held to promote understanding, and contributions to BAP and GAP targets. The available case studies indicate how Natural England’s investment is helping deliver less tangible benefits including those relating to health and wellbeing. That said, the programme could do more to evidence the story of its achievements in e.g. contributing to national BAP targets and wider “green space” benefits. While the wide variety of outputs and lack of contextual information made it difficult to quantify and judge the programme’s vfm, there was sufficient evidence to support the conclusion that the vfm picture was largely very positive.

English Heritage and MIRO are working to address identified research gaps relating to archaeological and historic assets, and to the environmental impact of quarrying, respectively, with a total budget of £4m. Over three years, the two organisations will have made good progress in addressing the research priorities identified in the 2007/08 benchmark reports. There is clear potential practical applicability of research outputs, supported by positive responses from stakeholders. MIRO’s research includes work on improved quarrying methods (relating e.g. to dust, noise and vibration), and the
sustainable use of quarry by-products and is expected to lead to more efficient and safer aggregates quarrying with reduced environmental impact. English Heritage will have made particularly notable progress on historic environment ARAs, with 12 new Assessments completed against a target of nine, taking total coverage to 60 per cent of the counties where an ARA is recommended; other impacts will include improved mapping techniques and monitoring systems. So, while the scope to assess the actual impact of the programmes is limited because many projects are not complete, let alone disseminated, it is clear that most objectives will be met or exceeded. The research programmes represented good to excellent potential value for money, with research targeted towards evidence-based priorities, projects awarded through robust selection processes and (in the case of MIST) industry buy-in is demonstrated through an average 50 per cent financial or in-kind contribution.

**MIRO** is also delivering a programme of strategic research to underpin long-term planning for a sustainable aggregates supply, with a budget of £1.2m. The seven projects funded to date include a horizon scan for aggregates production, an evaluation of environmental impacts of aggregates within designated sites, the development of an ecosystems approach to decision making in the planning and restoration of aggregates quarries. The programme has made progress towards its long-term objective, with the first set of reports delivered at the end of 2009/10. Feedback on emerging findings has been largely positive, with some potential high impact possibilities identified, although some of the more "blue skies" work has been greeted with greater scepticism. In the main, value for money has been safeguarded in process terms; the long term significance of outputs cannot yet be determined.

**English Heritage**'s programme to conserve and record historic and archaeological assets impacted by aggregates extraction is backed by a budget of £1.5m. Its achievements will include conservation of three monuments (half the target number, owing to the tightness with which eligibility criteria were drawn); the targets for the remainder of the programme will be met, including preservation by record of 16 nationally important archaeological discoveries which would not otherwise have been preserved. English Heritage has worked hard to optimise vfm from the projects funded, by ensuring that funded projects deliver outputs of the widest possible significance. A more detailed case study approach would enable a better quantified assessment.

The **Environment Agency** received £0.5m in 2009/10 for work to inform remediation schemes to manage water pollution from abandoned mines. The projects are expected to meet their objectives, recommending either additional investigations or proposed remedial works, and have additionally identified previously unknown risks. In the longer term, the reduction in minewater pollution will help improve the ecological status of affected rivers, with consequent benefits to the local economy. While the projects were awarded funding by Defra for understandable wider policy reasons, and will deliver vfm in this context, they are not directly relevant to the core aims of the ALSF.
3.7 Theme 2: Marine – performance and value for money

The Marine theme is managed by two Delivery Partners – CEFAS, which administers the Marine Environment Protection Fund (MEPF), with a budget of £11.5m, and English Heritage with a budget of £1.4m. The Marine ALSF is overseen by a steering group whose membership includes landowner, regulator, regulatory advisor, policy lead and industry interests. The Marine theme comprises two workstreams; the first focused on the environmental impact of marine aggregate extraction; the second focused on understanding the distribution of, and impact of extraction on, the historic seascape.

The Delivery Partners have made very significant progress from a low baseline, delivering some work of international significance. Key achievements of the Marine theme include REC and HSC coverage of all main aggregates dredging zones by 2011. A range of practical and useful historic environment research and development has been undertaken and, thanks to the ALSF, understanding of impacts at dredging sites, and related monitoring and mitigation techniques, is now good. There is good legacy provision for data sets and for wider knowledge management.

The Delivery Partners provided evidence to support a high level of confidence that the over-arching objective to reduce marine dredging’s environmental footprint will be achieved in the longer term. Likewise, there is potential to deliver excellent value for money – some added value can already be seen; more will be proven in the longer term. The theme is exemplary in terms of its governance model which has undoubtedly enhanced value for money through the steering group’s focus on shared identification of outcome-focused priorities that support policy developments.

3.8 Theme 3: Sustainable resource use – performance and value for money

The Sustainable Resource Use theme is managed by two Delivery Partners – WRAP (with a budget of £12.1m) and the Environment Agency (whose budget is £1.3m). It has one workstream is focused on promoting more sustainable use of aggregate resources. Within the theme, activity is concentrated in three areas: input to WRAP’s larger Construction Programme and, as part of WRAP’s Materials Recycling Programme, a programme of capital grants to support construction of additional aggregate re-processing capacity; a contribution to the South East region’s Pathway To Zero Waste (PTZW) pilot, in which WRAP and the Environment Agency work alongside other project partners, and a contribution to WRAP and the Environment Agency’s joint Waste Protocols programme.

The Delivery Partners expect their ALSF work to meet or exceed set targets. Over the period 2008-11, the ALSF will be responsible for the achievement of around one third of the target to divert 3.5m tonnes of CDEW from landfill, thereby avoiding 0.75m tonnes of carbon emissions, and will have helped to embed practices that will deliver ongoing annual diversion of 3m tonnes of CDEW from landfill (with associated carbon savings of 0.5m tonnes). Through capital grants, the ALSF will also have supported the provision of an additional 0.35m tonnes of aggregates re-processing capacity. Other activity includes engagement throughout the aggregates supply chain and waste management sector to encourage companies to commit to minimising waste, reducing waste to landfill and to
using RSAs where possible, and promoting the associated RSA business opportunities. The highly regarded PTZW project will complement national efforts, diverting 1.9m tonnes of CDEW from landfill by 2011. The ALSF contribution to the Waste Protocols programme will have made a measurable contribution to elevating the success of the Aggregates Quality Protocol and will have progressed the potential for new Quality Protocols. The Environment Agency estimates that the resulting increase in sales for businesses producing RSAs from PFA and steel slag could reach £99.1m over ten years.

Activity under this theme has worked hard to maximise potential vfm, and if the predicted benefits are delivered the investment will represent excellent value. It has built on earlier work, responding to an identified need to use aggregates more sustainably, and has contributed to the wider goal to reduce CDEW going to landfill. It has developed a range of freely accessible products and, through targeted interventions and dissemination, has stimulated appetite to use the products to achieve measurable outcomes that contribute to the overall goals. The present value of benefits delivered under theme 3 is estimated to be £123m for the period to 2020.

3.9 Theme 4: Transport – performance and value for money

The Transport theme is investing resources through Dept for Transport and through British Waterways, with additional co-ordinated input to a handful of relevant MIRO and Carbon Trust projects. DfT’s budget for the three year period is £2.2m; British Waterways’ budget for 2008-10 was £2.4m, of which £2m contributed to a £24m project to reconstruct the water control structure and lock at Three Mills Lock. Both Delivery Partners have contributed to the workstream aimed at securing further diversion from road to rail and water haulage of aggregates – DfT through revenue support for rail haulage, and British Waterways through capital grant contributions to three lock replacement and improvement projects in East London. DfT has also provided training to improve aggregates lorry drivers’ skills in safe driving and fuel efficiency (the industry will run this scheme commercially from April 2010).

The theme will achieve its objective for mode shift from road to rail, securing a quantified Mode Shift Benefit for this transfer totalling £2.7m and around 1,500 tonnes in carbon savings per annum. The ALSF has helped British Waterways to put the right conditions in place to achieve greater diversion from road to water over the longer term: the ALSF’s 8 per cent contribution could bring a quantified Mode Shift Benefit of £0.5m over the period 2012-2020 for the Three Mills Lock project. DfT’s SAFED (Safe and Fuel Efficient Drivers) programme will have reached around 11 per cent of the target audience over the period 2008-10, securing an estimated 8.5m litre reduction in fuel use and a carbon saving of around 5,700 tonnes. Over the lifetime of the ALSF-sponsored SAFED programme (2005-10), it is estimated to have reached one third of aggregates drivers. The combined present value of benefits delivered under theme 4 is estimated to be £13.7m for the period to 2020.

Department for Transport’s SAFED and Rail Environmental Benefits Procurement Scheme (REPS) programmes offer good value for money given the amount invested, although vfm in the 2008-11 period may be lower than in previous years. This is principally because it
might have been possible to get SAFED adopted by the industry at an earlier stage, releasing that part of the ALSF for investment elsewhere, and because, in the economic downturn, the aggregates element of REPS has struggled to secure take-up (although that should not detract from the vfm of what has been funded). The British Waterways projects have secured excellent leverage and the Three Mills Lock project has delivered a worthwhile spin-off in the form of improved water quality in the Olympic Park. The vfm for the immediate future has been dramatically limited by the economic downturn, but there is potential for significant value for money in the longer term.

3.10 Theme 5: Communities – performance and value for money

The budget for the Communities theme totals £10.6m over three years, shared between 18 local authorities and ACRE. While ACRE’s budget is ring-fenced, the local authority allocations are distributed through Local Area Agreements (LAAs) and local authorities are free to direct them to locally-agreed priorities. While 12 of the participating local authorities invest all or part of their ALSF allocation in relevant projects, over the three year period around a third of the total Communities budget will be spent elsewhere. Each Delivery Partner has its own arrangements for project selection in line with the goal to benefit communities affected by aggregates extraction, but most projects fall into one of five categories:

- Improvements to community buildings (e.g. village halls, churches and meeting facilities);
- Improvements to the local environment and landscape (e.g. opening up green space for public use, improving biodiversity);
- Installing or upgrading children’s play facilities;
- Improving sports and other recreational amenities, and
- Arts or heritage-related initiatives.

The smallest recorded project grant is £625; and the largest is £50,000; the median grant for the theme as a whole is £7,000.

The participating Delivery Partners have ensured that investment under the Communities theme will meet its objective by delivering hundreds of projects in the categories described above, often with significant financial leverage (the average leverage factor for the theme is 4.1). As well as contributing to community capacity, cohesion and vibrance, the ALSF is making measurable improvements to the local built and natural environment and contributing to the health of the local economy including by providing employment and enhancing individuals’ skills.

Although much of the available evidence derives from examination of individual cases rather than a comprehensive statistical analysis, there is evidence that projects funded are of great value to communities, and the value for money where ALSF funding is invested in relevant projects is judged to be good. However the overall vfm of investment under this objective is significantly reduced by the fact that one third of the budget has no impact at all on ALSF objectives. This is a major source of concern for industry and other stakeholders.
3.11 ALSF activity in 2007/08

ALSF 2007/08 was a continuation of the programme from the previous year to fit in with the revised timetable for the Comprehensive Spending Review. A total of £20.3m was spent over the year by 25 Delivery Partners working across four objectives covering broadly the same ground as the five themes adopted for 2008-11.

The scope of the 2007/08 ALSF was narrower than in 2008-11: the most notable difference was the absence of a specific focus on carbon reduction; British Waterways and the Environment Agency also played no role, so there was no contribution to mode shift from road to water, nor any input to the Waste Protocols programme helping to support the development of a high quality and high quantity market for RSAs.

The shape of the 2007/08 programme was similar to the 2008-11 period but certain emphases reflected the fact that the ALSF was at an earlier, less mature stage in its development. In general terms, there was a greater emphasis on theoretical work, and on establishing the baseline. Investment in the the historic and archaeological assets workstreams and on improvements to the natural environment around quarries has generally declined over time, and CEFAS and WRAP’s allocations have increased.

These areas excepted, the range of activities supported were broadly similar to those seen in the 2008-11 programme. One notable innovation which has shaped the subsequent development of the ALSF was the MIRO-English Heritage Dissemination Project which published twelve benchmark reports reviewing and providing an overview of the research projects funded to that date by the ALSF and developed the Sustainable Aggregates website, to ensure that key information was disseminated more widely among its target audience and to inform the development of future research agendas.

3.12 Future opportunities for funding

The assessment of future opportunities for funding took into account Delivery Partners’ recommendations; stakeholder views; quantitative and qualitative evidence on remaining knowledge gaps, ongoing requirements for maintenance and updating of the existing ALSF resource and likely future developments in the sector, and evidence of potential diminishing returns.

It is suggested that consideration of future funding opportunities is based on the question: what further Government support is needed to enable the aggregates supply chain to operate sustainably?

There is a strong case for future Government support in the five areas set out in figure 7.
Figure 7 – Areas which merit future support

<table>
<thead>
<tr>
<th>1. Knowledge and data management and dissemination – in many areas, further funding would help consolidate and fully realise the potential of ALSF investment 2002-11, including by maintaining and updating existing resources, providing effective web-based access to project outputs and datasets, and ensuring optimal awareness of these among the stakeholder communities who could benefit.</th>
</tr>
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<tbody>
<tr>
<td>Priorities include: rolling out the carbon reduction technology accelerator programme; completion of historic environment Aggregates Resource Assessments (ARA) programme; knowledge and data management and dissemination of terrestrial and marine historic environment and technical research and marine RECs, and RSA standards, guidance and advice.</td>
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<tr>
<th>2. Targeted, practically applicable research to enable the sector to continue to perform optimally and to innovate – this would respond to technological developments, improved understanding of threats, and changes to the external operating environment.</th>
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<tr>
<td>Priorities include targeted research relevant to the terrestrial and marine historic environment, the environmental footprint of extraction activity.</td>
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<th>3. Targeted practical or site-based assistance contributing to achievement of national priorities</th>
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<tr>
<td>Priorities include: further support for modal shift from road to rail and water, conservation (by record or physically) of significant archaeological and historic resources, biodiversity and geodiversity projects contributing to BAP and GAP targets.</td>
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<th>4. Delivering benefits to communities affected by aggregates extraction</th>
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<tr>
<td>The focus could be on contributing to national priorities e.g. for community capacity building, improved health and wellbeing, Carbon reduction, with better integration with work relating to the historic and natural environment.</td>
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<tr>
<th>5. Facilitation of further-improved co-ordination and collaboration within and between Government, the industry, NGOs and experts, and further behavioural change in the industry to optimise the sector’s performance.</th>
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<tr>
<td>Priorities include: embedding industry collaboration on Carbon reduction; encouraging and enabling aggregates companies to supply product from the most sustainable source depending on individual circumstances.</td>
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If future support were available, **best value for money** could be achieved through making the most of opportunities for **more cost effective administration, better joined up delivery** and analysis of what constitutes the **right balance between sector-specific and more general investment** to meet wider national goals e.g. for carbon reduction. Measures worth considering would include:

- Where the aggregates sector or supply chain is one of many target sectors, embed action more fully within wider work programmes (e.g. WRAP, Environment Agency, Carbon Trust, DfT);
- Ensure that funding which remains aggregates-specific does contribute to the sector’s goals by distributing it through Delivery Partners whose budgets can be ring-fenced (although this could damage momentum if crucial links between experienced Delivery Partners and grant applicants were lost);
- Explore the potential to concentrate administration and programme management of remaining aggregates-specific funding into fewer bodies, appropriately advised by technical and local experts, and perhaps mirroring the approach of the successful Marine ALSF (MALSF) steering group by developing a parallel high-level terrestrial steering group. This could also include joining up the expertise of Delivery Partners from the Communities theme with Natural England, English Heritage and possibly the Carbon Trust to ensure that communities funding makes the optimal contribution to a wide range of national goals.
3.13 Conclusions

Over the period 2008-11 the ALSF stands to make an important contribution to its overarching objective to reduce the environmental footprint of aggregates extraction, and make measurable progress under each of the five themes. The Fund will generally deliver good value for money with potentially more significant gains in the longer term.

The ALSF is now a mature programme with considerable momentum behind it, a good reputation and a wide community of interest. In some areas it has an influential European and international profile. The 2008-11 period has further contributed to the huge body of research, data sets, tools, advice and guidance which will be a valuable legacy to the programme if properly maintained and updated. It has also enabled direct improvements to the natural landscape, to biodiversity and geodiversity, to the historic environment, and to the amenities available to local communities affected by aggregates extraction. And it has helped to influence more sustainable patterns of behaviour in the aggregates supply chain and waste management industry.

Notwithstanding the ALSF’s significant achievements to date, there remains a strong case for further funding for knowledge and data management; targeted research and practical or site-based assistance to address national priorities; facilitation of further-improved co-ordination, collaboration and behavioural change, and to deliver further benefits to local communities.

If there were appetite for a more robust assessment of actual (as opposed to potential) value for money for the 2008-11 period, this would be possible in 2011/12 or later, by which time the majority of the programme’s impacts should be felt. This could incorporate a range of case studies in the areas where quantification is difficult, tackle areas of current weakness as set out in section 8.3.1, and would benefit from specialist economist input to make the most of opportunities to quantify benefits (for example the potential to use value transfer methodologies to quantify the benefits of the outputs of Natural England’s work) and explore the extent to which estimated benefits have been realised.

Whether or not a further vfm assessment is undertaken, to ensure evidence-based decisions on future funding, it would help to undertake further assessment of: the impact and significance of the research programmes; the benefits of quarry site and local community projects; whether continued targeted support for the aggregates sector within wider programmes will secure best value for money, and likely support needs for policy development and implementation, and licensing decisions.

To prepare for the possible eventuality that the ALSF as a programme ceases in March 2011, all Delivery Partners should be encouraged to use 2010/11 to put arrangements in place to safeguard its legacy.
4 INTRODUCTION

4.1 Overview of the aggregates sector

In 2008, Great Britain produced 174.5m tonnes of land-won aggregates and 21.24m tonnes of marine dredged aggregates, supplemented by a further 64m tonnes of RSAs.

The aggregates industry has been severely affected by the economic downturn. In the fourth quarter of 2008, demand was down by 30 per cent by comparison with the same period in 2007; in early 2010 the Mineral Products Association (MPA) noted little prospect of meaningful growth in the next three to five years. Some quarries have reduced activity (e.g. two blasts per week rather than one every day); others have been mothballed. This has led to job losses, with headcount down by 30-40 per cent, and has had knock-on impacts on aggregates transport, with hauliers spending a smaller proportion of their time transporting aggregates, reduced demand for support for transfer from road to rail, and lower than expected transport by water.

These factors present both an opportunity and a threat to achievement of the objectives of the ALSF. A threat, because quarry operators and processors have limited appetite to engage with new initiatives and struggle to find the resource to invest in technological improvements. An opportunity (particularly on the energy saving side), because energy savings will be a greater proportion of the profit margin and the case for change is therefore more attractive.

The Boston Consulting Group (BCG) study for the Carbon Trust observed that, beyond the economic downturn, there was an "underlying shift" away from aggregates, with use of substitute materials such as timber and steel growing faster.

The five largest aggregates producers (Hanson, Lafarge, Cemex, Tarmac, Aggregate Industries) hold a combined 80 per cent share in the market, with over 200 smaller companies making up the remaining 20 per cent. The marine dredging sector contains a small number of players, operating around 25 dredging vessels nationally.

Only a small proportion of the land and sea area is actively used for extraction. In 2008, 0.13 per cent of the UK’s land area was being quarried, with around 1,000 rock, sand and gravel extraction sites in England. Around 90 per cent of new reserves come from extensions to old quarries.

Just under a third of all active aggregates quarries in England lie within a National Park or Area of Outstanding Natural Beauty (AONB), or are within 500 metres of a Special Area of Conservation / Special Protection Area / Site of Special Scientific Interest.

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4 Figures from MPA and BMAPA Sustainable Development reports 2009. 13.12m tonnes of the marine dredged aggregates went into the GB aggregates market.
5 BCG Aggregates Sector Strategy Review, 2009
6 Ibid.
7 Aggregate Minerals Survey 2007 as reported in BCG study
Hard rock quarries are mainly located in the West and North; sand and gravel comes predominantly from the South East, and there are “super quarries” in the East Midlands. Given that demand is concentrated in large conurbations, particularly London, the result is net outflow of aggregates from the East Midlands, to Greater London, Manchester, Leeds and Birmingham.

Of the 0.12 per cent of the UK continental shelf\(^8\) licensed for extraction, only 11 per cent, or 138 km\(^2\), was actively dredged during 2008. The Crown Estate divides the dredged area into seven regions: Humber, East Coast, Thames Estuary, East English Channel, South Coast, South West and North West. In 2008, just over 70 per cent of the area dredged was concentrated off the East Coast, South Coast and Humber. A considerably smaller volume is produced from the North West region\(^9\).

Most of the 64m tonnes of RSAs produced in 2008 were derived from CDEW; the remainder being asphalt planings, and secondary sources (e.g. spent rail ballast, colliery spoil). RSAs held a market share of around 28 per cent in 2008. There is limited capacity for this to grow further, estimated at around 5 percentage points in the current market. During the period 2000-2010, the market for RSAs has grown and matured, with a clear shift towards higher value, better quality products.

Figures 8 and 9 below summarise key statistics on primary aggregates and RSAs.

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\(^8\) The size of the UK continental shelf is 867,000 km\(^2\) (source: BMAPA).
### Figure 8 – Dimensions of the primary aggregates industry

<table>
<thead>
<tr>
<th>Area</th>
<th>Detail</th>
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<tbody>
<tr>
<td><strong>Definition of aggregates</strong></td>
<td>Sand, gravel and crushed rock for construction purposes. Steady supply needed to maintain country’s infrastructure.</td>
</tr>
</tbody>
</table>
| **Primary aggregates production**              | Crushed rock – 115 m tonnes  
Sand and gravel (land-won) – 59.5 m tonnes  
(Source: MPA SD Report 2009; all GB 2008)  
Total GB marine aggregates production (2008) – 21.24 m tonnes, of which:  
13.12 m tonnes to GB aggregates market  
6.21 m tonnes to European aggregates market  
2.21 m tonnes to beach replenishment  
(Source: BMAPA SD Report 2009)  
Around 21 per cent of sand and gravel used in England and Wales is marine-dug.  
(Source: The Crown Estate website) |
| **Number of quarries / extent of marine extraction; geographical distribution** | Around 500 active sand and gravel extraction sites (England)  
Around 500 rock quarries (England)  
(Source: Sustainable Aggregates – A Review of ALSF Research Projects, 2008)  
Rock mainly available in the West and North; predominantly sand and gravel in the South East, super quarries in East Midlands. This results in large net outflow of primary aggregates from East Midlands to Greater London, Manchester, Leeds, Birmingham.  
(Source: BCG Aggregates Sector Strategy Review, 2009)  
79 marine aggregates production licences cover about 0.12 per cent of the UK continental shelf; of this about 11 per cent was actively dredged during 2008, equating to 138 sq km.  
The main dredging areas in 2008 were the East Coast, South Coast and Humber, accounting for 35, 19 and 17 per cent respectively of the area dredged.  
(Source: The Crown Estate website) |
| **Geographical distribution of quarries / extraction sites** | In 2008, 0.13 per cent of the UK’s land area was being quarried.  
(Source: MPA SD Report 2009) |
Figure 9 – Dimensions of the Recycled and Secondary Aggregates Sector

<table>
<thead>
<tr>
<th>Area</th>
<th>Detail</th>
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<tbody>
<tr>
<td>Production</td>
<td>Recycled and secondary aggregates, GB 2008 – 64m tonnes (Source: MPA SD Report 2009) Throughput and sales of recycled aggregates in GB in 2008/09: 60.9m tonnes, of which: 45.6m tonnes construction and demolition waste, 6.0m tonnes asphalt planings 9.37m tonnes from major secondary resources (e.g. spent rail ballast, china clay aggregates), against total potential secondary resources of 21.68m tonnes. (Source: John Barritt/WRAP)</td>
</tr>
<tr>
<td>Proportion of market</td>
<td>GB use of RSA in aggregates markets grew from 10 per cent in 1990 to around 25 per cent in 2005. (Source: MPA SD Report 2009) Since 2005, RSAs have continued to increase market share, to around 28 per cent. (Source: interim CapitaSymonds CDEW England survey 2008)</td>
</tr>
<tr>
<td>RSA current and potential capacity</td>
<td>Processed through 645 sites. (Source: interim CapitaSymonds CDEW England survey 2008) Maximum actual capacity in 2008/09 was: 74m tonnes (crushing and screening plants) 2.3m tonnes (washing plants) Actual sales of RSAs 2008/09 were 60.9m tonnes against maximum notional production capacity of 86.32m tonnes if site numbers increase to meet demand and resource availability. This implies that an increase of 6 percentage points in RSAs’ share of the current market is notionally possible. (All JB/WRAP)</td>
</tr>
<tr>
<td>RSA use</td>
<td>RSA may be used in a range of construction materials, including concrete, in bituminous materials used for road construction base and surface layers, in hydraulically bound materials and in unbound materials for a variety of base purposes. (Source: AggRegain website.) Between 2005 and 2008/09, a clear switch seen from processing of ungraded RSA to graded RSA. (Source: interim CapitaSymonds CDEW England survey 2008)</td>
</tr>
</tbody>
</table>

Figure 10 below shows that the vast majority (around 90 per cent) of aggregates are transported by road, over a relatively short average distance of 38km. A much smaller proportion travels by rail, but over a much greater distance. Few quarries have direct access to rail or water, and the BCG Study found that rail was “only economically attractive to supply centres of stable high demand”, for example integrated downstream operations, and large conurbations such as London. BCG also found that barge transport was “particularly attractive” to supply marine aggregates into London.
Figure 10 - Transport of primary aggregates, UK 2008

<table>
<thead>
<tr>
<th>Mode</th>
<th>Total volume transported (m tonnes)</th>
<th>Average delivery distance (km)</th>
<th>Volume per load (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road</td>
<td>180</td>
<td>38</td>
<td>20.9</td>
</tr>
<tr>
<td>Rail</td>
<td>13</td>
<td>126</td>
<td>1,471</td>
</tr>
<tr>
<td>Ship</td>
<td>Around 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inland waterways</td>
<td>Up to 1</td>
<td>37</td>
<td>499</td>
</tr>
<tr>
<td>Marine dredged aggregates</td>
<td>12.6</td>
<td></td>
<td>1,000-8,800</td>
</tr>
</tbody>
</table>

The aggregates sector accounts for around 0.49 per cent (2.6m tonnes) of UK carbon emissions. The BCG Study showed clearly that the largest sources of carbon emissions for the sector are transport (around 35 per cent) and asphalt production (around 25 per cent). A further breakdown is illustrated by the figure 11 below.

Figure 11 – Aggregates sector carbon footprint

10 MPA Sustainable Development Report, 2009
11 MPA Sustainable Development Report, 2009
4.2 Background to the Aggregates Levy and ALSF

4.2.1 Introduction of the Aggregates Levy

The following is based on the equivalent section in London Economics’ 2006 ALSF study for Defra12.

The introduction of the aggregates levy involved:

- Initial research on externalities caused by aggregate extraction and transport;
- A proposal by the Quarry Products Association (QPA, now Mineral Products Association, MPA) for a fund but no levy, and
- The Government’s implementation of a levy and fund in April 2002.

Following announcement in the 1997 Budget Report, London Economics conducted two pieces of research on the environmental cost of aggregate extraction. These found that significant environmental costs were associated with quarrying, such as noise, dust, visual intrusion, loss of amenity and damage to biodiversity13. In response, the Government urged the industry to remedy such damages.

The QPA responded with a proposed package of ‘30 green commitments’ on producers’ part to reduce the environmental costs of aggregate extraction without the implementation of a tax, including a proposal for an industry-funded Sustainability Fund of £30m per year to fund projects linked to aggregates extraction.

The Government considered that this and a later revised industry package fell short of what was necessary to match the overall environmental and economic effects of quarrying14, and in the 2000 Budget Report, the Government announced that it would implement an aggregates levy in April 2002 at a rate of £1.60 per tonne of aggregate used in the UK; it also announced the concurrent implementation of the ALSF. The levy was raised to £1.95 per tonne in April 2008, and £2.00 per tonne in April 2009.

The levy was designed to recognise the significant environmental impacts of extracting aggregates and encourage the use of alternative materials, while channelling some of the proceeds through the new ALSF.

At the time of introduction it was estimated that the levy would raise around £380m per year with no net gain to the Exchequer, as it would all be returned to business through a 0.1 per cent point cut in employer National Insurance contributions (NICs) and the new ALSF.

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14 Pre-Budget Report, November 1999
4.2.2 Introduction and development of the ALSF

When the ALSF was introduced in April 2002 its overarching purpose was to complement the objectives of the levy and to deliver environmental benefits to areas subject to the environmental costs of aggregates extraction. Since 2002 the Fund has been administered by Defra and delivered through a number of Delivery Partners.

It originally had three objectives, focused on minimising demand for primary aggregates, promoting environmentally friendly extraction and transport, and reducing local effects of aggregates extraction. These were broadly similar to those suggested during HM Treasury’s 2000 consultation.

A first – largely management and objectives focused - review of the ALSF was undertaken internally by Defra economists in 2003, and in April 2004 the Fund’s objectives were amended slightly and expanded to include a specific objective to compensate local communities for the impact of aggregates extraction.

In 2006, London Economics were invited to assess funding in 2004-2007 and make recommendations for future spending. The programme was rolled forward for a further year to align with the Comprehensive Spending Review, and a Defra consultation was undertaken in early 2008 on the shape and delivery of the Fund for the period 2008-11. Defra stated clearly in the consultation document that “A further three years of ALSF funding brings with it a significant opportunity to align more fully with Defra’s objectives, achieving gains in the environmental performance of the aggregates sector and, at the same time, informing practice more widely across the economy.”. As well as ensuring this strategic alignment with Defra’s objectives, the consultation resulted in the introduction of specific objectives for transport and marine extraction.

The rationale for intervention is multiple and is explored more fully in sections 6.1-6.2 below. Key elements can be summarised as follows:

- Compensate communities for the adverse impact of quarrying;
- Provide regulators, regulatory advisors, the industry and experts with the evidence base, knowledge and techniques needed to inform sustainable planning policy and planning decisions, and at site level to minimise environmental damage and maximise opportunities;
- Increase the pace of change in the industry, in line with emphases in Government policy, for example to promote modal shift in transport, stimulate demand for, and supply of high quality RSAs, secure energy and carbon savings, and improve the efficiency of quarrying operations more generally.
5 EVALUATION PURPOSE AND METHODOLOGY

5.1 Purpose of evaluation

The aims of this evaluation are twofold:

a) To assess the performance of the Fund for the three years from 2008-11, quantifying its impact where possible, with a brief overview of 2007/08 (not covered by any previous review), and

b) To provide an evidence base to inform future Government spending decisions.

The evaluation was conducted in three phases.

5.2 Evidence gathering

The purpose of the evidence gathering phase was to map activity supported by the Fund, collect and collate data on performance and value for money, and explore opportunities for future spending. It was pursued through desk-based review of available sources, backed by interviews.

Annex A contains a bibliography, and a summary of interviewees and other contacts is at Annex B. The main sources were:

- Defra’s ALSF project database in a downloaded version correct to end February 2010;
- Annual reports and equivalent documents from Delivery Partners and key stakeholders;
- Project outputs and published review documents: a range of documentation at project and theme level;
- Case studies of a range of projects, most notably for local community projects;
- Information on project management and project selection from Delivery Partners;
- 17 interviews with Delivery Partners, industry representatives, other Government Departments and non-Governmental Organisations;
- Questionnaire to a further set of stakeholders;
- Meeting with 9 Delivery Partners under the Communities theme (8 local authorities and ACRE);
- Factfinding trip to Derbyshire to see projects in action and to meet a number of funding beneficiaries;
- Attendance at ALSF Event bringing together Delivery Partners and stakeholders in March 2010.

IHPR is very grateful to all contributors for their input to the evaluation.

5.3 Analysis

Analysis of the ALSF has been broken down by theme and key workstream as per figure
In section 7.3.2. Where appropriate, key workstreams have been further disaggregated by objective, target or programme.

The analysis falls into four parts:

- First, compilation of a **factual record of investment** in completed, ongoing and planned activity.
- Second, comprehensive **analysis of impact, outputs and outcomes to determine how far objectives have been, or are likely to be, achieved**. While it was difficult to ensure consistency in analysis owing to the lack of consistency in available evidence, in all cases the framework included consideration of: objectives or targets set; how performance would ideally be measured; the extent of available evidence and therefore the degree of confidence in delivery;
- Third, a thorough **assessment of value for money** on the basis of available evidence, quantifying benefits where possible and using comparative measures where feasible to give an idea of the significance of achievements. Analysis was structured to cover: project planning, targeting and the base case; project / contractor selection and distribution issues; quantitative and qualitative evidence of project benefits, and stakeholder and Delivery Partner views; and
- Fourth, an exploration of **future opportunities for funding** taking into account: Delivery Partners’ recommendations; stakeholder views; quantitative and qualitative evidence on remaining knowledge gaps, ongoing requirements for maintenance and updating of the existing ALSF resource and likely future developments in the sector, and evidence of potential diminishing returns.

### 5.4 Preparation of report

Preparation of the written interim and final reports was an iterative process drawing in examples and case study material from Delivery Partners and stakeholders and working to refine specific sections with them to ensure factual accuracy and appropriate challenge.
6 CONTEXT

6.1 The impact of terrestrial aggregates extraction and the ALSF challenge\textsuperscript{15}

This section sets out the impact, both negative and potentially beneficial, of land- and marine-based aggregates extraction and their transport, and the challenges associated with sustainable use of aggregates.

6.1.1 Local terrestrial environmental impact and mitigation

Quarrying activity has a direct impact on the environment and communities in the immediate vicinity; haulage routes impact across a wider area. The nature of the impact varies depending on the type of material being extracted and the mode of off-quarry transport. Disturbance, and perception of impact, also varies depending on population density. Impacts have generally reduced over time in response to regulatory requirements, technological improvements and increased commitment to mitigation. Figure 12 below illustrates the proportion of external costs attributable to local impacts, and shows that dirt or damage to roads, loss of recreational facilities, and adverse effects on nature account for nearly two thirds of external costs.

Figure 12 – Proportion of external costs attributable to different local impacts\textsuperscript{16}

| Impact                        | Proportion of costs (%) | Fixed or variable?
|-------------------------------|-------------------------|-----------------
| Volume of traffic             | 15                      | variable       
| Dirt or damage to roads       | 22.4                    | variable       
| Noise                         | 6.4                     | variable       
| Dust                          | 9.6                     | variable       
| Water pollution               | 0.8                     | variable       
| Adverse effects on nature     | 16.8                    | fixed          
| Loss of existing recreational facilities | 20                | fixed          
| Eyesore                       | 3.2                     | fixed          
| Danger for children           | 5.6                     | fixed          

Quarrying affects surface water, potentially increasing downstream flood risk and changing water quality. It can also impact on the quality, levels and flow patterns of ground water. On the positive side, the risk of downstream flood risk may be reduced, and

\textsuperscript{15} The main sources for this section were: Sustainable Aggregates: an overview of design and management approaches to reducing the environmental footprint of the supply chain for land-won aggregates; Defra consultation document April 2008; Goodquarry.com website; interviewees.

\textsuperscript{16} Eftec report for the QPA The economic benefits of Environmental awareness and training programmes in the aggregates sector, 1999
restoration can provide the opportunity to improve local biodiversity through new wetland environments.

Blasting and on-site vehicles and machinery create dust, noise and vibration which can affect local communities. One interviewee who had worked in quarries near Sterndale Moor in the mid 1970s said that at that time, local residents were unable to open their windows owing to the amount of dust.

Off-quarry transport, especially by road, gives rise to impacts including visual intrusion, noise, pollution, dust, vibration, congestion, perceived intimidation to other road and footpath users, potential local building damage, more dirt on roads, increased wear and tear to (often rural) roadways, and may increase the risk of accidents.

But the impact on local communities is not all negative. Local quarries and aggregates haulage can make a strong contribution to the local economy, providing employment and increasing spending power. Traditionally, quarrying companies have done much more, providing accommodation and services for employees, and contributing charitable-type support to local communities. The latter continues, with companies e.g. repairing dry stone walls, donating stone and supporting local events.

Local communities in rural areas (although not just those affected by aggregates quarrying) can struggle to maintain basic local amenities that are integral to the community, and to enhance / improve access to their local environment. In particular there is a high degree of competition for funding to undertake more substantial projects. For example, ACRE’s 2009 Rural Community Buildings Survey showed that 10 per cent of village halls and equivalent in England need urgent repairs to stay open; only 3 per cent get regular funding from local authorities; 27 per cent receive some financial contribution from the local Parish Council.

The role for the ALSF has been to:

- Support research and practical projects to better understand the impacts and make technological improvements to mitigate local environmental impacts of extraction;
- Promote safer and more fuel efficient driving, where road transport cannot be avoided, and enable a greater proportion of aggregates to travel by rail;
- Compensate local communities for the impacts of extraction and haulage through grant funding of community projects.

6.1.2 Local landscape impacts and opportunities

Quarrying can have an adverse impact on habitats and biodiversity, but also presents significant opportunities to enhance these at the restoration stage, at the same time as benefiting communities affected by aggregate extraction. The Nature After Minerals (NAM) project has found that restoration schemes can make a significant contribution to

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17 The Nature After Minerals (NAM) project is a partnership between Natural England and the RSPB, with support from the MPA, with ALSF funding 2009-11.
UK Biodiversity Action Plan (BAP) targets. Restoration can have both site-specific and wider landscape benefits.

Likewise, quarrying can damage important features of geodiversity, but excavation also reveals new features however, these features can be lost or damaged unless they are properly protected and the importance of the features realised through a wider understanding and appreciation of the features.

Quarrying can also be unpopular with the local community and visitors, particularly in National Parks and equivalent areas, because of its impact on landscape character and the visual intrusion during and after extraction.

The challenge is to plan to avoid and manage biodiversity and geodiversity impacts, to make the most of opportunities provided by restoration, and to maximise research, local amenity, recreational and education benefits. If visual intrusion and landscape change cannot be designed out, then mitigation must be planned. There can be additional difficulties for quarry operators where the landowner’s goals for restoration differ from local planning policy and requirements.

The role for the ALSF has been to:

- Help research, identify and plan for biodiversity and geodiversity threats and opportunities;
- Support quarry site projects (outwith quarry operators’ obligations) to make the most of biodiversity, geodiversity and other restoration opportunities.

6.1.3 Historic environment impacts and opportunities of land-won aggregates extraction

English Heritage confirmed that the impact of aggregates quarrying on archaeology is “almost always” entirely destructive. But on the positive side, a significant proportion of evidence of past human activity is discovered before or during extraction. The challenge is to strike a balance, permitting sufficient development with optimal management to maximise conservation.

Before the ALSF started, baseline knowledge was poor about the nature and character of materials likely to be found in a given area, with knowledge based on accidents of history and based on point data. There had also been only limited research into surveying and monitoring techniques.

The role for the ALSF has been to:

- Provide tools and information to decision-makers to help ensure that the damage caused by extraction is minimised, and the benefits are maximised.
6.1.4 Wider environmental impact and challenge – Carbon emissions, transport and sustainable resource use

Carbon emissions

The UK’s carbon challenge is to drive a 26 per cent reduction by 2020, and an 80 per cent reduction by 2050 relative to the 1990 baseline. The aggregates sector is responsible for 0.49 per cent (2.6m tonnes per annum) of UK carbon emissions.

The BCG Study found that savings of 3-5 per cent of total costs were achievable through a 3-10 per cent reduction in energy cost (excluding transport) and a 5-15 per cent reduction in transport cost. The study also identified considerable variation in the energy cost of quarrying technology, with up to 200 and 400 per cent difference between quarries within the same group in rock, and sand and gravel, respectively.

Over and above the current economic downturn, there are a number of potential barriers to change, including:

- The business driver for product differentiation. The Carbon Trust's view was that, in the absence of further policy drivers, this would continue to outplay the drivers for carbon and energy savings;
- The ageing workforce, which was brought up on the philosophy of “production at all costs” which did not give weight to energy consumption or wastage;
- Reduced R&D functions in the larger companies, and limited capital to invest;
- Conservatism in the industry, combined with the fact that equipment suppliers are mostly based overseas. New technologies tend to be trialled elsewhere and the UK is slow to adopt;
- The need for companies to collaborate to capitalise on major opportunities for carbon reduction such as transport logistics, e.g. by ensuring product is sourced as close as possible to demand, and by transporting return loads, and
- The need for changes further down the supply chain, for example in the demand for smaller numbers of asphalt ‘recipes’.

The role for the ALSF has been to:

- Encourage the sector to work as a whole to tackle the barriers to change, and to consider the implications of carbon reduction for products and marketing;
- Persuade aggregates companies to recognise the benefits of carbon savings to the sector, and equipment suppliers to recognise the opportunities in this country;
- Promote behaviour shift at quarry sites, and
- Catalyse technological step change.

Transport

The vast majority of aggregates travel by road, with the potential for mode shift to rail or water limited by access to railheads and to navigable waterways.
This has **local environmental impacts** on haulage routes as described above, and a **wider carbon impact** through fuel consumption – transport accounts for around 35 per cent of the aggregates sector’s carbon footprint, or around 1m tonnes of carbon emissions.

The role for the ALSF on transport has been to:

- Support mode shift from road to rail and water transport. While most rail-hauled aggregates are not subsidised, there is potential to support the transfer of marginal flows which do not quite make economic sense to go by rail. Over time, as rail has become more cost efficient, the subsidy can be removed from flows which are no longer marginal, and the slack taken up by newly marginal flows. On the waterways, the challenge is to improve infrastructure to create the right conditions for their greater use for freight transport;
- Promote safer and more fuel efficient on- and off-quarry driving and general best practice;
- Research and enable the introduction of more carbon efficient on- and off-quarry vehicles, and
- Explore how industry collaboration might facilitate optimisation of transport.

**Sustainable resource use**

The UK construction sector consumes some 400 million tonnes of materials each year and generates about 120 million tonnes per year of waste. Much of this is reused or recycled but there is still more than 20 million tonnes of waste disposed of in landfill. The 2008 Strategy for Sustainable Construction contained a key target to halve CDEW going to landfill by 2012. Industry has made a voluntary commitment to “play its part” in achieving that target, but delivery is reliant on commitments from individual companies across all parts of the supply chain to use materials efficiently in construction, to optimise opportunities to recycle aggregates, and to make best use of RSAs.

The biggest barrier to increasing use of RSAs has been in determining when a product ceases to be waste. In the past, reasons for not using RSAs included health and safety concerns, regulatory uncertainty, and negative perceptions of having “waste in your foundations”.

To promote optimal use of high quality RSAs, the challenges have been to:

- Develop Quality Protocols for aggregates to enable their recovery from waste to products. This requires a full understanding of the chemical constituents of RSAs, to demonstrate that their impact is no greater than the impact of the virgin materials they replace, and to ensure their production is fully compliant with British/European Standards for Aggregates.
- Promote understanding in the industry of the need for RSAs to meet standards. A product with standards can be marketed and “bought blind”;
- Ensure sufficient aggregates reprocessing capacity in the waste management sector;
- Shift the focus of reprocessing from basic to higher end processes, to produce high quality material able to compete with virgin aggregates across a wide range of products;
- Promote collection of waste materials in ways that optimise the quantity and quality of RSAs produced;
- Promote the business opportunities offered by RSAs.

The role for the ALSF has been to:

- Tackle the barriers to generating demand for RSAs and speeding up the provision of reprocessing capacity, with a focus on ensuring quality inputs and outputs;
- Increase the pace of development and implementation of Quality Protocols for end of waste products through effective collaboration;
- Promote and enable take-up of the voluntary industry commitment and provide knowledge and tools to facilitate its implementation, and
- Support a regional waste minimisation pilot.

There is a separate challenge to reduce and find sustainable uses for quarry wastes, in the interests of resource efficiency, environmental protection, and optimisation of quarrying processes. Quarrying generates generally inert, non-hazardous waste and by-products for which there is no market. Waste material is removed from above and between saleable aggregates, and during the washing process. Unwanted material has to be stockpiled or removed, with consequent noise, dust, visual and pollution impacts, and energy and transport issues.

The role for the ALSF has been to:

- Support research and practical projects to reduce quarry wastes and to find uses for what is produced.

6.2 The impact of marine aggregates extraction and the associated ALSF challenge

Geographical knowledge

Prior to the ALSF, there had been no regional marine mapping since the early 1980s and significant limitations in known techniques and approaches to mapping and monitoring. There was a strong need for improved knowledge, to reduce levels of uncertainty in policy, planning and development decisions for the industry, regulator and regulatory advisors, and mineral rights owners. These data are now vital to inform development of the new marine spatial planning system.
Physical changes to sea bed and habitats

Dredging causes the removal of a layer of sediment, plumes of sediment in the water following dredging, and the subsequent deposition of these.

This impacts on the **physical landscape** of the sea bed, as dredging leaves a depression that does not usually fill in. There are opportunities for restoration and enhancement of sites post dredging, and evidence that some marine flora and fauna benefit locally from the disturbance caused by dredging. There are also perceptions – although no evidence – of an increased risk of coastal erosion\(^1\). \footnote{The Crown Estate website states that it “knows of no evidence whatsoever that links licensed marine aggregate dredging to enhanced coastal erosion or loss of material from beaches. There is good evidence for the lack of impact.”.}

It also impacts on seabed **habitats and faunal communities**, although because there is a requirement to leave a layer of material similar to that which has been dredged on the top, the modified habitat will be similar. Before the ALSF, there was little knowledge of the impact on habitats and faunal communities at dredge sites.

Finally, dredging and monitoring activity can change the character of the **historic seascape, and damage submerged palaeolandscapes, archaeological and historic resources**. However it can also reveal artefacts that would not otherwise have been discovered, improve understanding of the location of heritage assets and help map areas of potential archaeological interest. Before the ALSF, little was known about seascape character, submerged land-surfaces and historical resources. There was also no process for recording wharf-side finds of archaeological and historic artefacts.

The combined impact of this lack of knowledge, pre-ALSF, was to generate considerable uncertainty for regulators, the industry, and for environmental and heritage interests, on the potential impact of dredging and how impacts could be mitigated.

**Wider ecosystem function and food chain impacts**

As well as disturbing seabed habitats and biological communities, dredging has **direct and indirect impacts on the wider ecosystem**, potentially affecting marine mammals, fish, and sea birds. There are also potential implications for gas and climate regulation, if dredging were to reduce marine biomass. Little is known about such impacts.

**Sustainable energy use / efficient operation**

Energy is used to operate dredging vessels and to process aggregates, resulting in Carbon emissions. Prior to the ALSF, there was **scope to improve the efficiency and effectiveness of dredging and dredging monitoring through technological improvements**.
Socio-economic impacts

Pressure on the marine environment is increasing and there is a strong need for comprehensive socio-economic assessment of the effects of dredging. This will inform robust, evidence-based decision making on wider policy and in site-specific cases. Policy recommendations have been limited by lack of sufficient information to make valid comparisons between land-won and marine aggregate supplies on a national scale.

Role for the ALSF

The role for the ALSF has been to improve knowledge and reduce uncertainty in marine aggregates extraction through:

- Marine mapping and characterisation;
- Research to improve knowledge, and development of practical techniques, relating to impact and impact mitigation concerning: habitats and fauna; historic submerged landscapes and resources; wider ecosystem, food chain and socio-economic impacts;
- Research and development of practical techniques for more effective and efficient dredging operations.
6.3 Programme aims and objectives

The aim of the ALSF is to:

- Complement the objectives of the Aggregates Levy and deliver environmental benefits to areas subject to the environmental costs of aggregate extraction, and
- Reduce the environmental footprint of aggregates production and deliver benefits in areas of extraction.

For the period 2008-11, the ALSF’s objectives have been more closely aligned to Defra’s over-arching objectives to “tackle the causes and consequences of climate change” and “secure a healthy natural environment”.

ALSF activity 2008-11 is marshalled under five objectives, or “themes”:

i) To reduce the environmental footprint of quarries and to take advantage of the opportunities they offer.

ii) To reduce the environmental footprint of marine extraction.

iii) To deliver more sustainable use of aggregates.

iv) To reduce the environmental footprint of the transport of aggregates.

v) To deliver benefits to communities affected by extraction.

Figure 13 below shows how the ALSF’s objectives have developed and been refined over time.

Figure 13 - Development of ALSF objectives since inception in 2002

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2. To promote environmentally friendly extraction and transport.</td>
<td>1. To reduce the environmental footprint of quarries and to take advantage of the opportunities they offer.</td>
<td>1. To reduce the environmental footprint of quarries and to take advantage of the opportunities they offer.</td>
</tr>
<tr>
<td>3. To reduce the local effects of aggregate extraction.</td>
<td>3. To address the environmental impacts of past aggregates extraction.</td>
<td>2. To reduce the environmental footprint of marine extraction.</td>
</tr>
<tr>
<td>1. To minimise the demand for primary aggregates.</td>
<td></td>
<td>4. To reduce the environmental footprint of the transport of aggregates.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. To deliver more sustainable use of aggregates.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. To deliver benefits to communities affected by extraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. To compensate local communities for the impacts of aggregates extraction.</td>
</tr>
</tbody>
</table>
6.4 Programme management and Delivery Partners

6.4.1 Programme management

Defra is responsible for management of the ALSF programme, namely for:

- Development of the ALSF programme in consultation with Delivery Partners and other stakeholders;
- Financial management of the Fund;
- Developing and agreeing Memoranda of Understanding with Delivery Partners, who are then responsible for delivery, with supervision as necessary;
- Monitoring outputs, principally through the online ALSF database;
- Ensuring a robust evidence base for Fund activities.

Defra also has ALSF policy and policy co-ordination responsibilities:

- Taking the lead on development and steering of MIRO’s ALSF strategic research programme, and
- Co-ordinating policy input to the ALSF from across Defra and with other Government departments.

The Department has taken steps to build evaluation into the programme by:

- Working with Delivery Partners to identify indicators to best reflect the impact of funding and incorporate these into the Defra database, and identifying other relevant sources / case studies to provide supplementary evidence;
- Requiring annual reports to provide a wider range of information on achievements.

This is managed by the equivalent of just over half a full time equivalent post\(^{20}\).

6.4.2 Delivery Partners

ALSF funding is distributed through 28 Delivery Partners, listed in figure 14 below. Each Delivery Partner’s ALSF obligations are set out in a Memorandum of Understanding or contract. Local authorities’ share of the Fund is distributed through the LAA to be spent according to locally set priorities which may or may not accord with the aims of the ALSF. Some Partners distribute the ALSF through a separate funding stream; others manage it as part of a larger programme.

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\(^{20}\) Defra resource devoted to ALSF programme management and policy co-ordination comprises: 25% consultant economist, around 20% Senior Executive Officer, and around 10% Executive Officer.
6.4.3 Delivery Partners’ administration costs

Each Delivery Partner is entitled to spend up to 7 per cent of its total allocation on administrative overheads, unless otherwise agreed. MIRO, the Carbon Trust and ACRE are the only Partners to have an agreed administration cost exceeding 7 per cent.
6.5 Key stakeholders and the policy context

This section identifies key stakeholders and their interests in the ALSF, noting wider Government policies towards which the Fund contributes, where relevant.

**Aggregates sector**

The industry is responsible for paying the aggregates levy at £2.00 per tonne, and is keen to see tangible benefits from the ALSF. These would include site-based advice on energy and cost savings; applicable research into improved quarrying operations; subsidies to enable aggregates to be transported by rail rather than road; guidance providing clarity as to likely archaeological requirements before quarrying, PR benefits and improved local relations resulting from local projects. Many quarry operators contribute in cash or kind to ALSF projects.

This evaluation included interviews with the MPA, the British Marine Aggregates Producers Association (BMAPA) and the BAA.

**Waste management and re-processing sector**

The waste management and processing sector, including RSA trade associations, is engaged in the ALSF programme under theme 3: Sustainable resource use. The overall benefit will have been to help the sector to grow and mature, increasing demand for its products; specific benefits have included guidance on improved operations, and capital grants for additional re-processing capacity.

**Construction supply chain**

The construction supply chain has benefited from a range of interventions under theme 3: Sustainable resource use.

**Professional bodies**

Relevant professional bodies consulted during the course of this study were:

- the Planning Officers’ Society (POS) Minerals Planning Advisory Group, which provided input from the perspective of Minerals Planning Authorities. Their main interest was in ensuring that the proportion of the Fund meant to compensate local communities actually reached those communities; they were also interested in how the ALSF might in future help to support the operation of the Managed Aggregate Supply System (MASS);
- The Association of Local Government Archaeological Officers (ALGAO), the national body representing local government historic environment services. ALGAO’s members have been recipients of funding to support specific projects, including the significant Aggregates Resource Assessments, and have benefited more generally from outputs from English Heritage projects.
**Government policy leads**

The ALSF contributes to achievement of the objectives of a number of Government Departments and their Agencies, principally Defra, Dept for Communities and Local Government (CLG), Dept for Transport (DfT), Dept for Energy and Climate Change (DECC), Dept for Culture, Media and Sport (DCMS) and the Dept for Business, Innovation and Skills (BIS). The key links are summarised in figure 15 below, and a selection of key related policies are set out in figure 16 (an exhaustive list of policies would be much longer, including for example environmental permitting, the aggregates levy and the landfill tax).

**Figure 15 – ALSF contribution to wider Government policy goals**

<table>
<thead>
<tr>
<th>Department</th>
<th>Policy goal / target</th>
</tr>
</thead>
</table>
| **Defra**  | Over-arching Departmental objectives: tackle the causes and consequences of climate change and secure a healthy natural environment.  
UK SD Strategy 2005: SD pursued in an integrated way to provide a society that promotes sustainable communities, protection and enhancement of the physical and natural environment, effective use of resources and energy.  
PSA 28: Secure, healthy natural environment for everyone’s wellbeing, health and prosperity, now and in the future.  
DSO: Promote sustainable, low carbon and resource efficient patterns of consumption and production.  
DSO: Secure a socially and economically sustainable rural economy. |
| **DECC**   | Over-arching Departmental objective: 80 per cent reduction in Carbon emissions by 2050.  
PSA 27: Lead the global effort to avoid dangerous climate change.  
DSO: Reduce GHG emissions in UK. |
| **CLG**    | PSA20: Increase long-term housing supply and affordability  
PSA 21: Build more cohesive, empowered and active communities.  
DSO: To provide a more efficient, effective and transparent planning system that supports and facilitates sustainable development...  
MPS1: To secure adequate and steady supplies of minerals needed by society and the economy within the limits set by the environment, assessed through sustainability appraisal, without irreversible damage. |
| **DfT**    | DSO: Reduce transport’s emissions of CO₂ and other GHG, with desired outcome of avoiding dangerous climate change. |
| **DCMS**   | “We are responsible for identification, recording, protection, conservation, enhancement and interpretation of heritage assets and for their promotion as part of contemporary culture.” |
| **BIS**    | PSA 6: Deliver the conditions for business success in the UK.  
DSO: Increase innovation, enterprise and the growth of business, with a focus on new industrial opportunities and bringing benefits to all regions. |
### Figure 16 – Key Government policies relevant to the ALSF

<table>
<thead>
<tr>
<th>Policy</th>
<th>Lead Dep’t(s)</th>
<th>Detail</th>
<th>Relevance to ALSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minerals planning, supply and use</td>
<td>CLG</td>
<td>At present, terrestrial and marine aggregates extraction in England are managed under two different systems, although there are plans to align them more closely. As summarised by London Economics in their 2006 study, “The overall goals of the [terrestrial] minerals planning system are to secure the adequate supply of primary aggregates and to minimise the environmental costs of the extraction of primary aggregates. Thus, the planning system places various restrictions on how quarry operators may behave during the course of extraction … [and] on how operators must leave sites after extraction has finished”. In the mid 1970s a Managed Aggregate Supply System (MASS) was put in place. This was designed to ensure that national aggregates need would be met, to address the uneven geographical distribution of primary resources and to take account of the fact that many aggregate resources are located in designated areas or on land facing other pressures. National and Regional Guidelines forecast likely provision of aggregates over a 15 year period based on construction activity. This subtracts predicted RSA and marine provision from total need; requirement for land extraction is what is left. The Guidelines are underpinned by Regional Aggregates Working Parties (RAWPs) which collect annual data on aggregates supply and reserves; and by four-yearly surveys to gather data on transport and inter-regional distribution and consumption of aggregates. Minerals Planning Policy is set out at a national level in Minerals Policy Statement 1: Planning and Minerals, and implemented through regional and local planning documents. London Economics drew attention to concerns (expressed by parties including the Campaign for National Parks and Friends of the Peak District), which remain current, that many planning permissions for aggregates extraction were granted some time ago, when requirements on quarry operators were less strict. Up until now, the UK Government has overseen a marine aggregates licensing system which requires applicants to prepare and submit to public scrutiny an Environmental Impact Assessment of the proposed dredging activity before seeking Government consent. Once consent has been granted, the applicant can secure permission to undertake dredging from The Crown Estate as landowner and mineral rights owner. Licences relate to the volume that may be extracted, the location and period of extraction, and include conditions including for environmental monitoring. The Marine and Coastal Access Act 2009 provides the legislative basis for a new system of marine spatial planning. Long term objectives will be set out in a national Marine Policy Statement, and more detailed spatial planning policy will be set at a local level. The new system is intended to result in more sustainable and better informed licensing decisions.</td>
<td>The ALSF, and particularly the research fits funds, plays an important role in informing the development of future policy on planning for terrestrial aggregates extraction (including the upcoming minerals planning policy review). Practical projects can help to improve sites and landscapes beyond what is legally required of quarry operators. On the marine side, the knowledge generated through ALSF research has informed the setting of conditions on dredging licences; development of the new marine spatial planning system is expected to draw in particular on the Regional Environmental Characterisations (RECs).</td>
</tr>
</tbody>
</table>

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22 CLG, 2006.
| Landfill Tax Credit Scheme | Defra | The Landfill Tax Credit Scheme (LTCS) was introduced alongside the Landfill Tax in 1996. It encourages landfill operators to support qualifying public projects by giving them a 90 per cent tax credit against their donations to these projects. Donations are capped at 6 per cent of the landfill operator’s Landfill Tax liability. | There is potential for some overlap between projects funded by the LTCS and by the ALSF; for example to provide or maintain public amenities or parks; improve village halls, and improve biodiversity to help meet Biodiversity Action Plan targets. In some areas, the LTCS is managed by the same body as the ALSF – e.g. the Derbyshire Environmental Trust (DET) and the Cumbrian Waste Management and Environmental Trust (CWMET). |
| Biodiversity Action Plan targets | Defra | The UK’s Biodiversity Action Plan (BAP) describes the biological resources of the UK and provides detailed plans for their conservation at national and local levels. Action plans are in place for the most threatened species and habitats to aid their recovery. There are now 1,150 priority species and 65 priority habitats. | The ALSF-funded Nature After Minerals project has found that habitat restoration on minerals sites has the potential to be the “single biggest delivery mechanism” for threatened UK BAP habitats and associated species. |
| European Landscape Convention | Defra, DCMS | Created by the Council of Europe and signed in 2006, the European Landscape Convention promotes landscape protection, management and planning, and European co-operation on landscape issues. | In its response to Defra’s 2008 ALSF consultation, ALGAO said that the ALSF provided “an opportunity to demonstrate implementation of the European Landscape Convention through a detailed and quantifiable programme of landscape management, protection and planning projects promoting sustainability and delivering integrated community benefits.” English Heritage’s guidance on priorities for ALSF funding state that “We will especially welcome proposals which demonstrate understanding and advance the aims of the European Landscape Convention.” |

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23 The UK BAP is the UK’s response to the Convention on Biological Diversity signed in 1992.
Non-Governmental Organisations (NGOs)

Relevant NGOs include national and local nature conservation bodies, and local archaeological and geology bodies.

The Campaign for National Parks (CNP), Friends of the Peak District (FoPD) and the RSPB were all interviewed. The Wildlife Trusts also provided input. All had benefited from ALSF project funding and were therefore themselves active contributors to the Fund’s outputs. Both the RSPB and the individual Wildlife Trusts contacted acknowledged that the ALSF’s objectives were aligned closely with their own objectives where relevant, and that ALSF funding had helped them to further their own goals.

By contrast CNP and FoPD were keen contributors at a strategic level and their main focus was on influencing ALSF spend to ensure outputs from MIRO’s Aggregates Strategic Research Programme (ASRP) which would help inform their engagement with Government on the development of future minerals planning policy. They were also interested in the ALSF’s potential to help in a few cases where long-standing permissions posed a specific local threat.

GeoConservationUK’s members are Local GeoConservation Groups, and the organisation exists to promote local “Geo” sites for education and public benefit. In its written contribution, the organisation noted that “For members of GeoConservationUK whose applications were successful, ALSF funding has had a dramatic effect in raising the profile of aggregates, the aggregates industry and geoconservation generally.” and that “Geodiversity currently receives no core funding from Defra or Natural England and has been reliant principally on ALSF project funding for local GAP24 delivery.”.

National cross-sector fora

The CBI Minerals Group and the UK National Minerals Forum, both of which have cross-sector membership, have published a number of documents which provided background and specific information for the review.

Landowners

The Crown Estate, as landowner and mineral rights owner for the aggregates resources on the sea bed, has a strong interest in ALSF work under the Marine theme and is a member of the MALSF Steering Group. The ALSF is aligned with the Estate’s core values of stewardship, sustainability and responsible management. The Crown Estate contributed to the evaluation through an interview and a range of published material.

The evaluation did not provide the scope to engage with other landowners.

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24 The UK Geodiversity Action Plan (GAP) sets out a framework for geodiversity action across the UK.
Other sectors of industry

Again, although the evaluation did not provide the scope to engage directly with other industry sectors, the relevance, particularly, on the marine side, for energy and renewable energy generation and the fishing industry, was clear.

European and international interests

ALSF work is contributing to EU goals in particular in assistance towards implementing the European Landscape Convention, and BAP and GAP targets. European bodies have shown a particular interest in theme 3: sustainable resource use, investing significant funding in the regional CDEW minimisation project Pathway To Zero Waste and adopting wholesale ALSF-funded work on Waste Protocols and related testing techniques.

The MALSF is widely regarded to have not just European but international significance; for example CEFAS is working with colleagues in Australia where there is zero knowledge or experience of marine mapping and dredging impacts.
7 OVERVIEW OF ALSF FUNDING DISTRIBUTION AND ACTIVITY

7.1 Overview of allocation and spend

Defra’s funding baseline following Spending Review 2002 (i.e. from 2002/03) included £29.3m per annum for the ALSF. As figure 17 below shows, actual spend never reached this level, for reasons including Delivery Partners’ inability fully to utilise their allocations. In Comprehensive Spending Review 2007, in recognition of Defra’s need to meet increased commitments to protect the natural environment and tackle climate change, HM Treasury agreed with Defra that a minimum of £24m per annum could be spent on ALSF from 2008/09. Defra has discretion to allocate more than this during the period 2008-11, subject to other competing priorities, but has not done so.

A table setting out allocations for the 2008-11 period, by theme, priority, Delivery Partner and activity type is at Annex C.

In response to a recent Freedom of Information request, Defra explained that “The monies from the fund have been apportioned across the various delivery partners by assessing priority needs and potential outcome benefits associated with each work/research area to help minimise the environmental footprint of aggregate production – this was achieved following full public consultations.”.

Figure 17 below compares allocation to Delivery Partners against actual spend in each financial year since the Fund’s inception. The unusually high allocation in 2005/06 reflects over-programming in an effort to address underspending. Defra notes that more recently – notably in 2010/11 when the allocation is only £18m - “…the pressure on other Defra expenditure areas has been such that it has not been possible to allocate the full amount to work that is directly aggregates-related given other spending pressures and the tight public finance position.”.

Figure 17 – Comparison between allocation and actual spend, 2002/03 – 2008/09, allocation 2009-11

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount allocated to Delivery Partners (£m)</td>
<td>27.6</td>
<td>25.8</td>
<td>20</td>
<td>32.1</td>
<td>22.3</td>
<td>20.4</td>
<td>24</td>
<td>24</td>
<td>18</td>
</tr>
<tr>
<td>Actual expenditure (£m)</td>
<td>17.9</td>
<td>19.2</td>
<td>19.5</td>
<td>25.4</td>
<td>19.6</td>
<td>19.7</td>
<td>24.0</td>
<td>24.0</td>
<td>n/a</td>
</tr>
</tbody>
</table>

25 Defra ref. 2687, response dated 22 June 2009.
26 Ibid.
7.2 Distribution of funding allocations by Delivery Partner

Figure 18 below tracks funding allocation by Delivery Partner throughout the Fund’s operation. It illustrates the increasing number of Delivery Partners over time, from only 5 in 2002/03, to 10 national bodies plus 18 local authorities27 for the period 2008-1128. This helps to explain the general decline in individual Delivery Partners’ baselines over time although, of the longer-term Delivery Partners, CEFAS has notably bucked the trend, and the amount invested in direct community benefits increased in 2007/08 and has remained broadly stable ever since.

Figure 18 – Funding allocation by Delivery Partner, 2002/03 – 2010/11

Figure 19 below sets out more clearly the funding allocation by Delivery Partner for the period 2008-11; total ALSF expenditure over this period is expected to be £65m.

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27 The Communities allocation is shared between 19 Delivery Partners: the 18 local authority areas with the greatest aggregates production (with individual allocations ranging from just over £0.3m over three years, e.g. Gloucestershire, Shropshire, to just under £1m over three years, e.g. Derbyshire, Leicestershire), and ACRE with just over £1.5m over three years distributed across 23 counties less affected by aggregates production.

28 This table does not fully represent former Delivery Partners, namely DTI, CLG, English Nature and the Countryside Agency, whose allocations have been redirected to replacement or alternative Partners.
Figure 19 – ALSF allocated spend 2008-11 by Delivery Partner
7.3 Focus of activity and project distribution

7.3.1 Allocated spend by theme

Allocated spend by theme is set out in figure 20 below. This shows that, over the 2008-11 period, the Quarries theme has been allocated just over a third of the total available budget. The Marine, Sustainable resource use and Communities themes each have roughly one fifth, and the Transport theme has the least, with under one tenth of the total budget.

*Figure 20 – ALSF allocated spend 2008-11, £m, by theme*

In an attempt to gauge how closely ALSF spend reflects the actual impacts of aggregates quarrying, budgets for the relevant workstreams were mapped against the proportion of external costs attributable to different local impacts (set out in full in figure 12 in section 6.1.1). The findings are summarised in figure 21 below. It shows that there is a broad positive correlation between the importance of local impacts, and the proportion of the ALSF budget which is working to tackle those impacts. The biggest discrepancy was between the local transport impacts, and the proportion of ALSF spend being invested in diverting aggregates haulage from road to rail and water and in compensating local communities.

*Figure 21 – Comparison of local impacts with available budget*

<table>
<thead>
<tr>
<th>Impact</th>
<th>Proportion of attributable external costs (%)</th>
<th>Relevant ALSF theme / workstream(s)</th>
<th>Proportion of ALSF funding over 2008-11 period (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adverse effects on nature, loss of recreational facilities, eyesore, danger for children</td>
<td>45.6</td>
<td>Communities theme and Natural England programme</td>
<td>35</td>
</tr>
<tr>
<td>Volume of traffic; dirt or damage to roads</td>
<td>37.4</td>
<td>Transport and Communities themes</td>
<td>23.4</td>
</tr>
<tr>
<td>Noise, dust, water pollution</td>
<td>16.8</td>
<td>MIST research programme, Communities theme</td>
<td>19</td>
</tr>
</tbody>
</table>
7.3.2 Key workstreams

The key workstreams pursued by Delivery Partners under each theme are set out in figure 22 below. Each workstream generally has several strands. While most Delivery Partners work discretely and under only one theme, there are some exceptions. Looking from the other end of the telescope, in a given locality the community may benefit from site-based projects funded separately under several workstreams led by English Heritage, Natural England and ACRE or the relevant local authority.

Figure 22 – Key workstreams under each theme

<table>
<thead>
<tr>
<th>Theme</th>
<th>Workstream</th>
<th>Delivery Partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To reduce the environmental footprint of quarries and to take advantage of the opportunities they offer.</td>
<td>a) Encourage a reduction in CO\textsubscript{2} emissions.</td>
<td>Carbon Trust</td>
</tr>
<tr>
<td></td>
<td>b) Address research gaps with potential to significantly improve sector's environmental performance.</td>
<td>MIRO, English Heritage</td>
</tr>
<tr>
<td></td>
<td>c) Undertake strategic research to underpin long-term planning of sustainable aggregates supply.</td>
<td>MIRO</td>
</tr>
<tr>
<td></td>
<td>d) Deliver benefits to the natural environment around quarries.</td>
<td>Natural England</td>
</tr>
<tr>
<td></td>
<td>e) Repair, conserve and record historic and archaeological assets impacted by aggregates extraction.</td>
<td>English Heritage</td>
</tr>
<tr>
<td></td>
<td>f) Research options for remediating pollution at abandoned mines.</td>
<td>Environment Agency</td>
</tr>
<tr>
<td>2. To reduce the environmental footprint of marine extraction.</td>
<td>a) Promote environmentally friendly practices for extraction of marine aggregates, undertake strategic research into environmental consequences of, and reduce local effects of, marine aggregate extraction, reduce environmental impacts of using marine aggregate in coastal protection schemes.</td>
<td>CEFAS</td>
</tr>
<tr>
<td></td>
<td>b) Understanding the distribution of, and effects of economic activity on, resources of historic or archaeological significance.</td>
<td>English Heritage</td>
</tr>
<tr>
<td>3. To deliver more sustainable use of aggregates.</td>
<td>a) Promote more sustainable use of aggregate resources.</td>
<td>WRAP, Environment Agency</td>
</tr>
<tr>
<td>4. To reduce the environmental footprint of the transport of aggregates.</td>
<td>a) Encourage further diversion from road to rail and water transport.</td>
<td>DfT, British Waterways</td>
</tr>
<tr>
<td></td>
<td>b) Promote more efficient driving through Safe and Fuel-Efficient Drivers Programme and encourage the commercial take-up of SAFED approach.</td>
<td>DfT</td>
</tr>
<tr>
<td>5. To deliver benefits to communities affected by extraction.</td>
<td>a) Support local community projects of demonstrable public benefit in areas that suffer environmental impacts of aggregates extraction.</td>
<td>ACRE, local authorities</td>
</tr>
</tbody>
</table>

29 For example English Heritage works across the terrestrial and marine extraction themes; there is cross-theme working by DfT, MIRO and the Carbon Trust on a handful of transport projects.
7.3.3 Project distribution

The Defra ALSF database contained 744 projects for the period 2008-11 at the end of February 2010 when it was downloaded for the purposes of this project. These projects account for 70 per cent of the total three-year funding allocation. The main reason for the remainder not yet having been entered is that projects have not yet been completed (or even started, in the case of those Delivery Partners running programmes on an annual basis). While general trends may be observed, more detailed consideration is not appropriate. The analysis is intended to illustrate the distribution of projects by theme and activity type, as well as by region.

Project distribution by activity type

The database categorises spend according to seven project types, represented in the pie charts below.

Although the exact emphasis may change as more projects are added to the database, it is clear that the largest proportion (currently over 40 per cent) of the Fund has been invested in research projects – a category which encompasses everything from seabed mapping and studies of archaeological sites, to technical studies on carbon reduction and uses for RSAs. Research and dissemination combined account for half of total spend. Quarry site projects have absorbed around one fifth of spend. Capital grants, transport and local community projects have a broadly equal share, at around one tenth each.

In terms of project numbers, half of the projects so far entered to the database are local community projects. Research and quarry site projects each account for around a fifth of projects. The remaining ten per cent of projects are dissemination, transport, capital grants and carbon business solutions.

These data are illustrated in figures 23 and 24 below.

Project size also varies considerably depending on the type of activity. For example Theme 5: Communities supports a large number of small projects, whereas the work on transport and sustainable resource use is largely concentrated in a small number of high value projects.
Figure 23 – Proportion of funding for each type of activity, for projects on the database

![Pie chart showing distribution of funding by type of activity.]

- Research: 20%
- Dissemination: 10%
- Capital grants for reprocessing: 9%
- Local community project: 9%
- Quarry site project: 7%
- Transport: 7%
- Carbon business solutions: 43%

Figure 24 – Number of projects on the database, by type of activity

![Pie chart showing distribution of projects by type of activity.]

- Research: 50%
- Dissemination: 6%
- Capital grants for reprocessing: 1%
- Local community project: 19%
- Quarry site project: 1%
- Transport: 1%
- Carbon business solutions: 21%

Project distribution by region

Of the 744 projects entered to the database, most (617) were assigned to an English region. Of the remainder, 57 were national, 22 transregional, and 48 marine. Figure 25 below compares the proportion of projects by region with the most recent data for aggregate sales from producers by region as a proxy for the impact of extraction, to ascertain the extent to which ALSF funding is being distributed in line with the impact of aggregates quarrying. Regional funding distribution for the projects so far entered to the database has been broadly in proportion with the regional impact of quarrying. The biggest discrepancies are seen in the South West, where ALSF investment has been higher than might have been expected, and in the East Midlands, where ALSF spend has been lower than might have been expected. These discrepancies matter in terms of ensuring fair distribution of funding to compensate for the adverse effects of aggregates extraction, but will not always be relevant – for example the aggregates extraction areas in
some regions may have an unusually high concentration of nationally significant archaeological sites or opportunities to contribute to BAP targets.

Figure 25 – Number of projects, by region, compared with aggregates sales

![Bar chart showing number of projects by region compared to aggregates sales](image)

English region

- South West
- South East
- London
- East of England
- East Midlands
- West Midlands
- Yorkshire and Humberside
- North West
- North East

Legend:
- □ Percentage of projects on database
- ■ Percentage of aggregates sales, 2005

Sources: Defra ALSF database; Collation of the results of the 2005 Aggregate Minerals Survey for England and Wales, CLG 2007
7.4 Leverage of third party funding and in-kind contributions

7.4.1 Financial leverage

This analysis is, again, based on the current database. In addition to the fact that many projects have not yet been entered at all, it is possible that some Delivery Partners have not included information regarding additional project funding and that, therefore, this assessment under-reports ALSF leverage.

15 of the 28 Delivery Partners have reported some additional funding levered, totalling an additional £46.17m over and above the £42.67m in ALSF funding in the database, representing an overall leverage factor\(^{31}\) of 2.1. For the Delivery Partners who reported having levered additional funding, the average leverage factor is 2.7. Full details are set out in figure 26. This disguises considerable variation between the leverage factors achieved by individual Delivery Partners, which themselves are significantly influenced by individual projects. Notable among these are:

- The British Waterways contribution to Three Mills lock – a £2m contribution to a project costing nearly £24m in total, and
- Original Environment Agency ALSF contribution to the Pathway To Zero Waste project generated an additional £3.2m in European funding.

Delivery Partners under theme 5: Communities have often been well placed to make small catalytic contributions to much larger projects, resulting in a leverage factor as high as 6.0. For example Lancashire has made a £27,000 contribution to a £650,000 project; Cumbria has made small contributions to four projects each worth in excess of £200,000; Somerset made small contributions to four projects worth £100-300,000.

In some cases, particularly for larger and more ambitious projects such as PTZW and the larger Communities projects, it is clear that the ALSF has been pivotal in galvanising funding and that activity would not have gone ahead in its absence. In the case of smaller projects, it is possible that work would have gone ahead without ALSF funding, by securing funds from alternative sources or by reducing the scale of activity.

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\(^{31}\) Leverage factor is calculated by dividing the total project value by the ALSF contribution.


Figure 26 – Additional funding levered by ALSF for 2008-11 projects already entered to Defra database

<table>
<thead>
<tr>
<th>Delivery partner</th>
<th>Total funding on database (£m)</th>
<th>Additional funding levered (£m)</th>
<th>Total project value (£m)</th>
<th>Leverage factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACRE</td>
<td>0.6</td>
<td>2.2</td>
<td>2.7</td>
<td>4.8</td>
</tr>
<tr>
<td>British Waterways</td>
<td>2.4</td>
<td>21.5</td>
<td>23.9</td>
<td>9.9</td>
</tr>
<tr>
<td>Cornwall</td>
<td>0.1</td>
<td>0.1</td>
<td>0.2</td>
<td>2.0</td>
</tr>
<tr>
<td>Cumbria</td>
<td>0.3</td>
<td>1.6</td>
<td>1.8</td>
<td>6.6</td>
</tr>
<tr>
<td>Derbyshire</td>
<td>0.4</td>
<td>1.0</td>
<td>1.4</td>
<td>3.3</td>
</tr>
<tr>
<td>English Heritage (theme 1: quarries)</td>
<td>3.7</td>
<td>0.5</td>
<td>4.2</td>
<td>1.1</td>
</tr>
<tr>
<td>Environment Agency (theme 3: sustainable resource use)</td>
<td>1.3</td>
<td>2.6</td>
<td>3.9</td>
<td>3.0</td>
</tr>
<tr>
<td>Lancashire</td>
<td>0.2</td>
<td>1.2</td>
<td>1.4</td>
<td>6.2</td>
</tr>
<tr>
<td>Leicestershire</td>
<td>0.6</td>
<td>0.7</td>
<td>1.4</td>
<td>2.2</td>
</tr>
<tr>
<td>Natural England</td>
<td>11.0</td>
<td>5.9</td>
<td>16.9</td>
<td>1.5</td>
</tr>
<tr>
<td>Nottinghamshire</td>
<td>0.2</td>
<td>0.7</td>
<td>1.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Shropshire</td>
<td>0.2</td>
<td>0.2</td>
<td>0.4</td>
<td>2.1</td>
</tr>
<tr>
<td>Somerset</td>
<td>0.3</td>
<td>1.7</td>
<td>2.0</td>
<td>5.9</td>
</tr>
<tr>
<td>North Yorkshire</td>
<td>0.05</td>
<td>0.03</td>
<td>0.08</td>
<td>1.5</td>
</tr>
<tr>
<td>WRAP</td>
<td>5.1</td>
<td>6.3</td>
<td>11.4</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td><strong>26.6</strong></td>
<td><strong>46.2</strong></td>
<td><strong>72.7</strong></td>
<td><strong>2.7</strong></td>
</tr>
<tr>
<td><strong>Other delivery partners</strong></td>
<td><strong>16.1</strong></td>
<td><strong>0.00</strong></td>
<td><strong>16.1</strong></td>
<td><strong>1.0</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>42.7</strong></td>
<td><strong>46.2</strong></td>
<td><strong>88.8</strong></td>
<td><strong>2.1</strong></td>
</tr>
</tbody>
</table>

7.4.2 In-kind contributions and wider participation

This evaluation does not provide the scope to gain a comprehensive overview of wider in-kind contributions to, and participation in, projects as the data have not been gathered systematically. However the database does show us (see figure 27 below) that of the 486 projects not originating from one of the Delivery Partner local authorities, over a fifth involve the relevant local authority. A similar proportion of projects involved the minerals industry. This seems fairly low given the direct relevance to the minerals industry of much of the work – but may simply reflect under-reporting on the database.
### Figure 27 – projects entered to database involving local authority / minerals industry

<table>
<thead>
<tr>
<th>Delivery partner</th>
<th>No. of projects involving local authority</th>
<th>No. of projects involving minerals industry</th>
<th>Total projects on database</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACRE</td>
<td>0</td>
<td>0</td>
<td>109</td>
</tr>
<tr>
<td>Carbon Trust</td>
<td>2</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>CEFAS</td>
<td>0</td>
<td>0</td>
<td>43</td>
</tr>
<tr>
<td>Dept for Transport</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>English Heritage</td>
<td>42</td>
<td>38</td>
<td>72</td>
</tr>
<tr>
<td>Local authorities</td>
<td>N/A</td>
<td>18</td>
<td>258</td>
</tr>
<tr>
<td>MIRO</td>
<td>3</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>Natural England</td>
<td>58</td>
<td>70</td>
<td>192</td>
</tr>
<tr>
<td>WRAP</td>
<td>1</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>106</strong></td>
<td><strong>160</strong></td>
<td><strong>744</strong></td>
</tr>
</tbody>
</table>
8 DESCRIPTION OF ALSF ACTIVITY 2008-11

8.1 Introduction

This section provides a factual report, by ALSF theme, on how funding has been allocated and spent over the period 2008-11. The Defra database is a key, but incomplete, information source. This has been supplemented by the series of interviews with Delivery Partners and others, annual reports, and other readily available published material.

It is structured according to the five ALSF themes, further broken down by the key workstreams identified in figure 22. An overview table summarising activity types under these key workstreams, including information on Delivery Partners and funding allocations, is at Annex C.

8.2 Theme 1: Quarries

8.2.1 Quarries theme overview

Theme 1: reducing the environmental footprint of quarries and taking advantage of the opportunities they offer is delivered through five delivery partners working across six overarching workstreams. Over three years £23.7m is being invested in the theme. Natural England is disbursing over half the total amount; the remaining Delivery Partners have allocations of between £0.5m and £4.6m. About 50 per cent more money is available in 2009/10 as compared with the year before and the year after.

The Carbon Trust’s efforts are focused on working with industry to reduce carbon emissions now using current technologies, and working to reduce future carbon emissions by accelerating development of new technologies.

Natural England works through quarry site projects and R&D to deliver benefits to the natural environment around quarries.

English Heritage and MIRO are both working to address identified research gaps relating to archaeological and historic resources, and to the environmental impact of quarrying, respectively.

Additionally, MIRO is delivering a programme of strategic research to underpin long-term planning for a sustainable aggregates supply, and English Heritage supports a programme to repair, conserve and record historic and archaeological assets affected by aggregates extraction.

The Environment Agency is funding work to inform remediation schemes to manage water pollution from abandoned mines.

Figure 28 below summarises workstreams, activity types and funding for the period. It shows that about half of total funding is supporting site-based projects, the other half is invested in research and development and dissemination.
Figure 28 – Overview of Quarries theme workstreams, spend and activities

<table>
<thead>
<tr>
<th>Workstream</th>
<th>Delivery Partner</th>
<th>Allocation 2008-11 (£m)</th>
<th>Activity type</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Encourage reduction in CO(_2) emissions</td>
<td>Carbon Trust</td>
<td>4.6</td>
<td>R&amp;D, surveying, outreach</td>
</tr>
<tr>
<td>b) Deliver benefits to the natural environment around quarries.</td>
<td>Natural England</td>
<td>11.9</td>
<td>Quarry site projects, R&amp;D</td>
</tr>
<tr>
<td>c) Address research gaps with potential to significantly improve sector's environmental performance.</td>
<td>MIRO</td>
<td>1.8</td>
<td>R&amp;D, dissemination</td>
</tr>
<tr>
<td></td>
<td>English Heritage</td>
<td>2.2</td>
<td>R&amp;D, outreach</td>
</tr>
<tr>
<td>d) Undertake strategic research to underpin long-term planning of sustainable aggregates supply.</td>
<td>MIRO</td>
<td>1.2</td>
<td>R&amp;D, dissemination</td>
</tr>
<tr>
<td>e) Repair, conserve and record historic and archaeological assets impacted by aggregates extraction.</td>
<td>English Heritage</td>
<td>1.5</td>
<td>Recording and analysis, conservation and repair</td>
</tr>
<tr>
<td>f) Research options for remediating pollution at abandoned mines.</td>
<td>Environment Agency</td>
<td>0.5</td>
<td>R&amp;D</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>23.7</strong></td>
<td></td>
</tr>
</tbody>
</table>

8.2.2 Reduction in Carbon emissions

The Carbon Trust joined ALSF as a new delivery partner in April 2008, working to encourage a reduction in carbon emissions. Their work programme has two strands:

Solutions working with industry to reduce carbon emissions now using current technologies, and
Innovations working to reduce future carbon emissions by accelerating development of new technologies.

Solutions work dominated in 2008/09 and 2009/10, largely because of the necessarily slower pace possible with innovations, but there is expected to be a swing in emphasis towards innovations in 2010/11.

The Carbon Trust liaises with other delivery partners including WRAP, MIRO and DfT to avoid duplication and ensure that shared goals are met. The Trust felt that its relationship with industry representative bodies was “generally very good”; it had put considerable effort into developing the relationship and had become a regular attendee at the MPA’s Sustainability Committee, which had come to act as an industry steering group for this element of the programme.

A summary breakdown of funding is included at figure 29 below to show how the Carbon Trust’s programme has developed over the period; full details are provided at Annex D.
The solutions focus in 2008/09 was on **quantifying potential carbon savings**, and **getting to understand the sector**. The largest piece of work was the Aggregates Sector Strategy Review undertaken by Boston Consulting Group. This was a strategic assessment of the aggregates industry and its operations, identifying opportunities for carbon reduction and recommending operational strategies and change initiatives to achieve this. The Strategy Review was accompanied by development of a Carbon Reduction Toolbox and the production of a DVD film showing how to save energy and carbon emissions in the aggregates sector. The Carbon Trust also secured some quick wins through the **tactical delivery** work, undertaking carbon surveys for 12 SMEs and pursuing Carbon Management and Energy Efficiency projects with a further 9 companies.

On the innovations side, the Carbon Trust used 2008/09 to **assess the viability of new technologies** in the aggregates industry that could make a positive carbon saving (through an Aggregates Sector Technology Review undertaken by Enviros Consulting), and in 2009/10 issued four “challenges” to the sector looking for companies to take forward trials of the shortlisted technologies.

In 2009/10 the solutions effort has been directed towards **implementation of the Strategy and “winning hearts and minds”**. The main focus has been delivery of the Change Programme. This is providing tactical support to around 300 sites run by the “big five” aggregate companies (AI, Cemex, Hanson, Lafarge, Tarmac\(^{32}\)), with a companion programme for six medium-sized companies, working to achieve behaviour change, and by mobilising industry stakeholders is taking the first steps towards encouraging collaboration across the aggregates industry to promote carbon saving.

\(^{32}\) Work is under way with AI, Lafarge, Hanson and Tarmac; discussions with Cemex are ongoing.
The carbon survey programme has continued alongside, allowing for surveys of up to a further 25 SMEs, and the Carbon Management and Energy Efficiency (CMEE) project worked with one large company to integrate metering and a performance reporting system with current business reporting, culminating in the development of energy display certificates.

Further projects have focused on:
- A short study to identify carbon savings in off-quarry aggregates transport;
- A pilot for mobile plant driver training to promote more fuel efficient driving.

And to support the programme, there are projects to:
- Assure implemented carbon;
- Promote knowledge management through a database to access industry carbon saving opportunities and a website portal to disseminate all the materials from the programme and enable stakeholder information exchange;
- Redefine KPIs for the industry and determining best practice for major industry operations.

2010/11 will see continued roll-out and consolidation:
- The Innovations workstream will deliver industry-led projects on the five shortlisted low carbon technologies;
- The Solutions workstream will continue with the Change Programme and focus more on developing industry collaboration; continue with the off-quarry transport work, and roll out mobile plant training.

The Carbon Trust has put forward a plan for “year 4” (2011/12) with a budget of up to £1m. This will focus on embedding collaboration effort and rolling out new technologies to the sector.
8.2.3 Benefits to the natural environment around quarries

Natural England’s predecessor bodies, the Countryside Agency and English Nature, were both ALSF Delivery Partners, so Natural England’s ALSF programme stems from an amalgamation and refinement of the two. While the focus of the work has remained broadly constant, the financial allocation has diminished over time, from over £10m in 2002/03, to just over £3m in 2010/11.

Natural England seeks to fund a range of projects under five themes set out in figure 30 below. Projects address the impact of aggregates extraction on wildlife habitats, species, geology and landscape, and on the potential access to green space for the health and wellbeing of local populations, as well as on the environment. During the period 2008-11, its relative priorities are the Health and Wellbeing theme, incorporating ecosystem goods and services\(^{33}\), and the role of and impacts of soils in mineral extraction and in the restoration of aggregates sites.

Figure 30 – Natural England’s ALSF themes and example 2008/09 projects

<table>
<thead>
<tr>
<th>1. Landscape and Nature Conservation</th>
<th>The Ouse Fen Nature Reserve received a £17,000 contribution to the larger project to create a 700ha wetland on the site of a Hanson sand and gravel quarry, to be managed by the RSPB. Will include the biggest reed bed in the UK.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide and promote practical conservation and improvement of the Landscape, Biodiversity and Geodiversity elements of the natural environment by supporting projects which address or prevent damage arising from aggregates extraction in areas of high nature conservation or landscape value or which consolidate the positive effects of aggregate extraction.</td>
<td></td>
</tr>
<tr>
<td>2. Access &amp; Informal Recreation</td>
<td>ALSF funded the £50,000 phase 2 of development of the Adrenaline Gateway Mountain Bike Trail in a former quarry in Lancashire. This included 700m of new trails, and is part of the long-term Adrenaline Gateway project to transform Pennine Lancashire into the adventure sports capital of the north.</td>
</tr>
<tr>
<td>To provide and improve peoples’ access to the natural environment on or near sites affected by aggregates extraction.</td>
<td></td>
</tr>
<tr>
<td>3. Health and Wellbeing</td>
<td>The £19,000 pilot Willow Lantern Community Pageant was a pilot project bringing young people, families and communities together for the only community event in the Cotswold Water Park.</td>
</tr>
<tr>
<td>To address the direct effects that aggregates extraction has on communities thereby improving their health &amp; well being, through building capacity within communities and those organisations providing and delivering benefits to them.</td>
<td></td>
</tr>
<tr>
<td>4. Education &amp; Understanding</td>
<td>The £70,000 Darwin Memorial Garden created a GeoGarden in Shrewsbury themed on Darwin, evolution and geology, presenting Darwin's ideas to the public in an accessible and innovative way. Part of a larger scheme creating a major new public open space by the River Severn.</td>
</tr>
<tr>
<td>To provide educational and interpretive opportunities relating to the Landscape, Biodiversity and Geodiversity elements of the natural environment on and near sites affected by aggregates extraction.</td>
<td></td>
</tr>
<tr>
<td>5. Evidence Gathering</td>
<td>The £29,000 River Lamprey Survey was part of a long-term research programme into the life cycle and population dynamics of the lamprey fish in the Humber/Ouse river system. The lamprey is an eel-like fish protected under the Habitats Directive and of local, national and European BAP importance.</td>
</tr>
<tr>
<td>To provide opportunities to gather evidence in support of Themes 1 to 4. To gather evidence about the effects of aggregate extraction on the natural environment and affected communities and to provide data informing longer term mitigation, management and conservation issues for Themes 1 to 4.</td>
<td></td>
</tr>
</tbody>
</table>

\(^{33}\) Natural England explains: “Ecosystem Goods (such as food) and services (such as waste assimilation) represent the benefits human populations derive, directly or indirectly, from ecosystem functions. In the context of ecosystem services, a benefit is any component of nature, directly enjoyed, consumed or contributing to human well-being.”

Policy projects for CLG, DfT, DECC and Defra

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Each year around one hundred projects are funded across the five themes. The examples given above show that they are often part of larger initiatives (a fuller case study for each of these projects is at Annex E). About half the projects have industry involvement, and for every pound Natural England contributes to a project, it levers a further £0.50 in third party funding; further non-financial contributions are made, including volunteering and in-kind.

8.2.4 Address research gaps with potential significantly to improve sector’s environmental performance

Projects under this workstream are run by MIRO and by English Heritage, responding to the priorities for funding identified in the ALSF-supported benchmarking reviews carried out in 2007/08. MIRO’s Mineral Industry Sustainable Technology (MIST) programme was established in 2002. Its overarching purpose has remained constant over time, with a developing focus in response to shifting priorities. The 2008-11 programme has delivered two functions, namely facilitation of:

- Applied research projects to develop, implement and support application of new technologies at a site scale, and
- Maintenance and updating of the Sustainable Aggregates website — a major portal providing access to results of ALSF work on reducing effects of aggregates extraction, sustainable provision of aggregates, environmental improvements and heritage.

On the basis of the benchmarking reviews, MIRO identified seven research themes, each containing several specified priorities:

i) Impact of quarrying on the water environment
ii) Dust, noise and vibration
iii) Transport
iv) Planning and assessment of quarrying
v) Optimising efficiency of primary aggregate production
vi) Sustainable utilisation of quarry by-products
vii) Creating environmental improvements

Some of these will have carbon reduction benefits; all are about improving the way quarry operators work and many benefit neighbouring communities. 13 of 47 applications have been funded across the seven themes, ranging from a quantification of the beneficial effects of quarry voids in reducing flood risk, and an investigation into the origins of air overpressure from quarry blasting, to innovative uses for quarry dust and an evidence based approach to sampling sand and gravel deposits. In 2010/11, MIST will fund phase

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35 Ibid.
2 of two feasibility studies undertaken since 2008, on quarry voids / flooding and Mine to Mill technology.

Most projects are collaborative ventures involving partnerships between industry, academia, the public sector and private agencies. MIRO considers itself to be well-connected to the industry – holding a consultation meeting in 2008, pursuing ongoing dialogue, and benefiting from feedback from MIRO’s Council, which has industry membership.

English Heritage’s projects under this workstream have supported two objectives:

- identification and characterisation of the historic environment in key existing or potential areas of terrestrial extraction, and
- research and development of practical new techniques.

The main focus of the identification and characterisation objective has been a continuation of the process which has been running since 2002 to produce ARAs, at a cost per area of £70-120,000. These provide strategic information for key aggregates-producing areas to enhance the evidence base for sustainable planning and risk assessment.

English Heritage also planned to pursue projects developing integrated approaches to natural and historic environments but this was unsuccessful for reasons discussed later so funding was re-allocated to other English Heritage ALSF objectives.

The research and development objective has supported projects in four priority areas: remote sensing R&D and application, monitoring and assessment systems, solutions development, and guidance.

Examples include:

- the monitoring and assessment systems project “Mapping the Probability of Encountering Archaeology in Aggregates Landscapes”, which has assessed ability to predict or infer the likelihood of encountering archaeological remains within sites and areas not yet subjected to evaluation, based on characteristics of the landform and interpolation from known sites and discoveries;
- the solutions project “Quarrying, caves and mines review of evaluation and mitigation techniques” assessing current heritage identification and protection measures in areas of hard rock aggregates extraction where subterranean features containing potentially very significant remains can be missed by standard surface-based evaluation techniques, and
- guidance to ensure that the large and complex digital data sets being produced by individual archaeological projects can be used in the future.
8.2.5 Repair, conserve and record historic and archaeological assets impacted by aggregates extraction

This English Heritage workstream has pursued objectives in two areas:

- conservation and repair of vulnerable historic assets directly impacted by aggregates extraction, or directly associated with historical extraction, and
- emergency funding for the recording, analysis and publication of nationally significant archaeological remains discovered during aggregates extraction.

The first of these has funded direct conservation and repairs to three nationally significant historic assets which have been directly impacted by extraction - two projects designed to conserve features from the stone aggregate industry on Portland (Lano’s Tunnel and Lano’s Gulley) and to help the local council improve access to the hidden industrial landscape of the island ahead of the Olympics, and a project to stabilise the walls of the chancel and bell tower of Christ Church, Kings Sterndale, Derbyshire.

Emergency funding for recording, analysis and publication may be provided in cases where discoveries of national importance are made at aggregate extraction sites with long-lived permissions and therefore little or no provision for historic environment work, and at sites within the modern planning process but where unexpected significant discoveries are made which require archaeological mitigation beyond the conditions in the planning permission. To date in the 2008-11 period, approaching 30 projects have been funded, including support enabling completion of the assessment of excavations which uncovered part of the nationally important prehistoric landscapes around Heathrow airport prior to sand and gravel extraction, and publication of a report on fieldwork carried out with earlier ALSF support at Town Quarry, Devon, which found an important collection of Iron Age water features, Bronze Age burnt mounds, and a rare Iron Age shoe in an area previously thought to be devoid of features.

8.2.6 Strategic research to underpin long-term planning of sustainable aggregates supply

MIRO’s Aggregates Strategic Research Programme (ASRP) was a new development for the 2008-11 ALSF round. The programme is overseen and specified by Defra in liaison with other Government policy leads and MIRO, and its aim is to enhance the evidence base to support sustainable supply of aggregates. Seven projects were funded for completion in March 2010:

1. To develop an horizon scan for the production of aggregates.
2. Evaluate the environmental impacts of aggregates within designated sites.
3. Develop an ecosystems approach to decision-making in the planning and restoration of aggregate quarries.
4. Scoping study for assessing decisions on when to build new rather than adapting old.
5. Assess the feasibility of using pipelines to transport aggregates.
6. Assess the design of lorries and quarries for aggregates transport.
7. Assess the feasibility of underground mining of aggregates.
A further suite of projects will be commissioned for 2010/11.

8.2.7 Research options for remediating pollution at abandoned mines

In 2009/10, the ALSF provided £0.475m for Environment Agency-led monitoring investigations to support the design of remediation schemes to manage pollution from abandoned mines where there has been aggregates extraction.

The driver for the work is the inadequacy of available data for the design of remediation schemes, and the focus is priority sites identified in the earlier Non-Coal Abandoned Mines (NoCAM) prioritisation and identification project[^36].

The NoCAM priority sites identified for ALSF support were all ones at which work could reasonably be expected to be progressed. All are metal mines with a significant environmental footprint as they are a significant national source of pollution particularly of priority and hazardous substances: cadmium, lead, zinc, iron and copper.

Monitoring investigations will identify the main pollution sources and allow management options to be developed to identify the most cost efficient way to improve water and ecological quality. The work comprises:

- Catchment investigations in two areas (North Pennines and North West), and
- Constructing a borehole at Saltburn Gill to test the feasibility of capturing discharge.

[^36]: NoCAM was a two year project to identify water bodies polluted by abandoned metal and industrial mineral mines and the sites causing that pollution.
8.3 Theme 2: Marine

8.3.1 Marine theme overview

*Theme 2: reducing the environmental impact of marine extraction* is managed by 2 Delivery Partners – CEFAS, which administers the Marine Environment Protection Fund (MEPF), and English Heritage.

The MEPF provides the secretariat for the ALSF Marine theme steering group, which is chaired by Defra. For these steering group activities, as well as joint MEPF and English Heritage publications and events, the ALSF Marine Theme is often referred to as the "Marine ALSF" or MALSF. Its membership comprises:

- Defra Marine Strategy and Evidence; Rural Policy
- BMAPA
- CEFAS
- CLG
- HR Wallingford
- Joint Nature Conservation Committee
- Marine Management Organisation (formerly the Marine and Fisheries Agency
- Natural England
- The Crown Estate
- English Heritage (in its role as the Government’s statutory advisor on the historic environment)
- Marine ALSF Science Co-ordinator

The steering group oversees the direction of the MEPF, develops the commissioning strategy for research and dissemination activities, and oversees delivery arrangements. The focus, practicality and drive of the Marine theme has benefitted hugely from the way in which its co-ordination arrangements bring all the key stakeholders together.

As set out in figure 31 below, the theme is supported by a total of £12.9m over three years directed across two over-arching workstreams, the first focused on the environmental impact of marine aggregate extraction and its mitigation (the MEPF); the second focused on understanding the distribution of, and impact of extraction on, the historic landscape. Most of the allocation (£11.5m) is spent through the MEPF, and the spending trajectory for the theme as a whole is broadly level, reflecting the fact that the programme’s work is in full flow but not yet complete.
The ALSF Marine theme was established to reduce environmental impact of marine aggregate extraction while recognising the important contribution that marine aggregates play in provision of raw materials required for the well being of society.

The programme has five strategic aims “designed to ensure that the outputs of projects met the policy needs of Defra while at the same time maximising the value for money of the fund”. The MEPF contributes to delivery of all five strategic aims; English Heritage to numbers 1, 2, 3 and 5, identifying its work under three priorities. These aims and priorities are set out in figure 32 below.

**Figure 32 – ALSF Marine theme strategic aims**

<table>
<thead>
<tr>
<th>Marine theme aims</th>
<th>English Heritage priorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To develop and use seabed-mapping techniques to improve the evidence base of the nature, distribution and sensitivity of marine environmental and archaeological resources relevant to marine aggregate activities.</td>
<td>1. Identification and characterisation of the historic environment in key existing or potential areas of aggregate extraction.</td>
</tr>
<tr>
<td>2. To increase understand of the effects and the significance of aggregate dredging activities</td>
<td>2. Research and development of practical new techniques to locate seabed historic environment assets; to improve our understanding of direct and indirect impacts of extraction on such assets; conservation and management of the resource.</td>
</tr>
<tr>
<td>3. To develop monitoring, mitigation and management techniques where applicable, underpinned by scientific research</td>
<td>-</td>
</tr>
<tr>
<td>4. To research and understand the socio-economic issues associated with aggregate dredging activities</td>
<td>-</td>
</tr>
<tr>
<td>5. To promote co-ordination and establishment of sustainable archives for the dissemination of research related to these aims to a wide range of stakeholders.</td>
<td>3. Marine historic environment training, dissemination and communication.</td>
</tr>
</tbody>
</table>

Figure 33 below reproduces a chart in the Marine ALSF’s March 2010 publication *Achievements and Challenges for the Future* setting out the proportion of the total budget...
allocated to each of the five Marine theme aims, to English Heritage's priorities, and to management and co-ordination. This reveals that nearly half of total Marine theme spend for the period is being invested in seabed mapping; the other two areas of substantial investment have been on the effects of aggregate dredging, and the mitigation of these.

*Figure 33 – ALSF Marine theme funding allocation 2008-11*

It is important to understand the programme in context. At the outset, in 2004/05, very little was known about the seabed environment or about the impact of marine aggregate extraction. The first task was to establish baseline data and develop techniques for more effective data gathering. Over the current three year period, the emphasis is shifting from establishing the baseline, to focusing on how it can be used by the regulator, regulatory advisors and by the aggregates industry better to manage the impact of dredging.

The more detailed exploration of activities below is based on the five Marine theme aims and maps English Heritage activity against these.

**8.3.2 Seabed mapping**

Two new REC surveys covering the Outer Humber (11,000 km²) and coast of East Anglia (3,600km²) have been commissioned, alongside follow-up interpretation work on the South Coast (5,670km²) and Outer Thames Estuary (3,800km²) surveys which were conducted during Round 2 2007/08. These aim to define the regional environmental seabed resources surrounding aggregate extraction sites in English coastal waters. They include detailed studies of the seabed geology, archaeology, historical assets, biotopes and species of conservation significance. All the data are stored in a GIS secure data repository to which third parties have access free of charge.

English Heritage has also overseen complementary work on Historic Seascape Characterisation, commissioning a practical demonstration of the new method’s operation and capabilities by implementing the HSC methodology across a substantial area of England's north east coast, seas and adjacent UK Controlled Waters, and then expanding this, thereby increasing sector capacity to use this new method to cover all priority marine
aggregate extraction areas. As a result of ALSF marine funding, by end FY 2010-11 HSC will cover around 60 per cent of England’s waters to the median line.

Other English Heritage projects have included:

- The West Coast Palaeolandscapes Survey, which investigates the potential for submerged landscapes within the Irish Sea and Bristol Channel, and
- Desk based studies on three classes of historic asset commonly encountered in the course of marine aggregate licensing, namely vessels from the periods 1860-1913; 1914-1938; and 1939-1950. Relatively little archaeological research and synthesis had been carried out on the national stock of vessels from these periods.

8.3.3 Effects of aggregates extraction

MEPF projects in this area have focused on improving understanding of:

- The positive and negative impacts of extraction on resources of conservation significance inside and outside the boundaries of dredge sites, and
- The wider implications of marine aggregate extraction in the marine environment in the context of other pressures such as trawling;
- The potential impact and measurement of noise. The Crown Estate drew attention to a recently commenced “groundbreaking” study involving three top-class bodies – the National Physical Laboratory, the Institute of Sound and Vibration Research, and the University of Loughborough. This should produce recommendations on how best to measure ambient noise and dredging noise, enabling judgements to be made as to the significance of impacts on organisms;
- Impacts on ecosystem function and the marine food web;
- The significance of site specific and cumulative impacts of extraction at a regional scale.

8.3.4 Monitoring, mitigation and management of the marine aggregate industry

MEPF projects include:

- Developing new grab sampling and video recording equipment for analysis of seabed resources;
- Updated guidelines for the conduct of benthic (seabed community) studies at marine aggregate sites – this is a key management document incorporating best practice guidelines into work related to the aggregates industry and is relevant to environmental impact studies for other infrastructure and development projects, and
- Assessment of how changes in hull design and operating methods may help reduce the carbon footprint of dredgers.

The English Heritage workstream covering effects and mitigation has focused on improving remote-sensing technologies to map aggregates priority seabed areas (e.g. a literature review on the use of magnetometers in marine archaeological surveys), developing solutions with industry (e.g. extension for a further three years of the
BMAPA/English Heritage protocol for reporting finds of archaeological interest), and creating guidance documents and other resources (e.g. a set of guidance notes on assessing the archaeological potential of the marine environment during the licensing process).

8.3.5 Socio-economic issues

This is a relatively new area of research – prior to the ALSF, little information was available on the subject. MEPF projects have included:

- A feasibility study for assessing the relative impacts of land and marine sand and gravel extraction, and
- A review of the economic and societal costs and benefits of marine aggregate extraction, including its impacts on ecosystem goods and services.

8.3.6 Co-ordination and dissemination

MEPF projects have been pursued in a number of areas:

- Work to support secure archives for Marine theme data;
- Annual work in progress conference and science review;
- MSc bursary scheme;
- Improving public awareness of marine biodiversity – museum displays, outreach projects including Derek the Dredger;
- Final technical conference planned for February 2011.

English Heritage has developed a series of maritime archaeology access and learning workshops which promote the expansion of knowledge of the seabed and submerged historic environment through educational initiatives and activities related to maritime archaeology and marine aggregates. It is also funding a series of capacity-building learning placements in Coastal and Marine Geophysics at Wessex Archaeology.
8.4 Theme 3: Sustainable resource use

8.4.1 Sustainable resource use overview

Theme 3: to deliver more sustainable use of aggregates is managed by two Delivery Partners – WRAP and the Environment Agency – with combined resources over three years of £13.4m and a single workstream focus of “promoting more sustainable use of aggregate resources”. The vast majority (£12.1m) is being spent by WRAP, and the spending trajectory for the theme is steadily downward, reflecting the maturity of the work programme. The leverage factor for projects on the database is above average, at 2.4. Figure 34 below provides a summary.

Figure 34 – Overview of Sustainable resource use theme workstreams, spend and activities

<table>
<thead>
<tr>
<th>Workstream</th>
<th>Delivery Partner</th>
<th>Allocation 2008-11 (£m)</th>
<th>Activity type</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Promote more sustainable use of aggregate resources.</td>
<td>WRAP</td>
<td>12.1&lt;sup&gt;37&lt;/sup&gt;</td>
<td>R&amp;D, dissemination, capital grants</td>
</tr>
<tr>
<td></td>
<td>Environment Agency</td>
<td>1.3</td>
<td>R&amp;D, outreach</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>13.4</strong></td>
<td></td>
</tr>
</tbody>
</table>

Within the theme, activity is concentrated in three areas:

- Input to WRAP’s larger Construction Programme and the integrated construction element to WRAP’s Materials Recycling Programme;
- A contribution to the South East’s Pathway To Zero Waste pilot, in which WRAP and the Environment Agency work alongside other project partners, and

WRAP activity comprises research and development, dissemination and capital grants; Environment Agency funded work may be categorised as research and development and outreach.

8.4.2 WRAP Programmes

Although there is a nominal separation between the WRAP Construction Programme and the construction elements of the Materials Recycling Programme, because the two are so intrinsically linked, they are being treated as one for the purposes of this analysis.

<sup>37</sup> This report’s analysis of WRAP activity relates to £5.5m-worth of projects entered to the Defra database to date, set out in full at Annex E. The remaining sum attributed to the ALSF in 2008/09 and 2009/10 is a contribution to wider activity under WRAP’s Construction Programme.
The **research and development** element has pursued three strands of activity, namely:

- optimising collection, sorting and processing arrangements for construction, demolition and excavation waste (CDEW), with a view to optimising the quality and quantity of RSAs, producing a range of reports and guidance available on WRAP’s website;
- establishing the baseline for measuring performance against the objective to halve CDEW going to landfill by 2012, and
- developing a range of tools for the construction design and procurement part of the supply chain, including a “designing out waste” tool for civil engineers and client guidance for civil engineering projects.

The **dissemination** element has had two strands focused on achievement of the voluntary commitment to halve construction waste to landfill by 2012 working, including through series of workshops, with:

- the construction design and procurement sector promoting the benefits of reducing waste to landfill and encouraging them to set and implement requirements for reducing CDEW in their corporate policies and in procurement, and
- the waste management sector on improving their quality of service (encouraging a culture change from skip operator to waste management consultant) and to encourage commitment to reducing waste to landfill, including by promoting the related marketing opportunities.

The challenge in 2010/11 will be to encourage those companies which have committed to reduce CDEW to landfill to deliver on their commitments, through ongoing advocacy and workshops, and promoting uptake of the new Reporting Portal which will include quarterly progress reports against targets and evidence on improved quality.

Updates to **AggRegain** – the ALSF-funded resource on Recycled and Secondary Aggregates (RSAs) - during the period have included a module on use of geosystems to enable on-site re-use. Improvements during 2010/11 will include an "opportunity to use" module which works across one or several construction sites, for use at the design stage to show where RSAs could be used.

The final element of 2008-11 WRAP ALSF work is funding for two rounds of **capital grants** to stimulate investment in additional capacity to recycle CDEW from construction sites into re-usable materials. This continues an existing ALSF-funded capital grants programme responding to feedback from construction contractors that insufficient re-processing capacity was available to support achievement of the Government’s target to halve CDEW to landfill by 2012.

In the first round, 2008-10, grants were available towards the cost of plant, equipment and infrastructure, and six companies are being funded. The ALSF funding has aimed to speed up provision of additional capacity with an emphasis on re-processing to create higher-value products. Six companies are being supported.
The second round, 2010/11, will focus on dealing with mixed wastes, which is where WRAP has identified the biggest current challenges.

8.4.3 Pathway To Zero Waste (PTZW)

PTZW was set up to improve South East England’s economic and environmental performance and relieve pressure on shrinking landfill capacity by:

- reducing the amount of surplus and waste material generated by commercial and industrial activities;
- increasing the amount that is reused, recycled or converted to energy instead of being sent to landfill.

The programme is supported by nine partners and is receiving £600,000 from ALSF split equally between the three financial years 2008-11. The total project value to March 2011 is £1.933m. PTZW describes its approach as “catalytic”, and expands as follows:

“it is working to change behaviour by creating widespread appreciation of the value of material currently thought of as “waste”, while simultaneously taking proactive action to ensure that all the elements needed to underpin a culture of resource efficiency are in place … PTZW's strategy is to broker quick wins of significant and lasting impact which create a “catalytic effect” and build momentum to increase the pace of change…”

There are six concurrent workstreams which work together to:

- Create demand for materials;
- Market development to improve and increase trading in materials;
- More extensive and diverse network of recycling facilities processing increased volumes of material;
- Improve quality, timeliness and availability of data on waste flows in the region;
- Ensure the right policy and legal framework is in place;
- Sharing best practice.

8.4.4 Waste Protocols programme

The ALSF contributes to a wider project developing end of waste guidance for waste-derived aggregates with potential to replace virgin aggregate. The project works with industry to encourage production of quality recycled aggregate and sustainable use of resources. It drives uptake and compliance and assesses innovative aggregate replacements. The total project value in 2008/09 and 2009/10 is £1.9m, of which the ALSF is contributing £0.7m. The project is jointly managed by the Environment Agency and WRAP through a high level steering group. The added value in joint oversight is in

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38 PTZW partners are Defra, Government Office for the South East, South East England Development Agency, Environment Agency, WRAP, Improvement and Efficiency South East, National Industrial Symbiosis Programme, South East Centre for the Built Environment and EnviroBusiness.

39 PTZW ALSF report, January 2010
ensuring effective dissemination to all the right sectors, and in having the regulator as a partner. The relationship with the industry is one of critical friend.

The Environment Agency ALSF funding element is being used in three ways:

1. To build confidence in the Aggregates Protocol (originally developed by WRAP in 2004), including by establishing who is using it, and how it could be improved, and then implementing changes.
2. To explore the potential to develop end of waste criteria for marine-dredged materials.
3. To collect data to inform development of end of waste quality protocols for other waste derived aggregates.

WRAP’s role (for which no specific ALSF funding is available) is to facilitate production of, and then disseminate, quality protocols.
8.5 Theme 4: Transport

8.5.1 Transport theme overview

Projects which have featured in Theme 4: reducing the environmental footprint of aggregates transport have been led by two principle Delivery Partners – Department for Transport and British Waterways. A small number of MIRO and Carbon Trust projects discussed under the Quarries theme are also relevant to the Transport theme.

The Transport theme receives the smallest share of the ALSF programme, totalling £4.6m over three years with a sharply declining baseline. This decline reflects the economic downturn (which has reduced the volumes of aggregates being transported) and the successful embedding of DfT’s safer and more fuel efficient driving initiative in an industry-led scheme. Allocations are summarised in figure 35 below.

Figure 35 – Overview of Transport theme workstreams, spend and activities

<table>
<thead>
<tr>
<th>Workstream</th>
<th>Delivery Partner</th>
<th>Allocation 2008-11 (£m)</th>
<th>Activity type</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Encourage further diversion from road to rail and water transport.</td>
<td>British Waterways</td>
<td>2.4</td>
<td>Capital grants</td>
</tr>
<tr>
<td>b) Promote more efficient driving through Safe and Fuel-Efficient Drivers Programme and encourage the commercial take-up of SAFED approach.</td>
<td>DfT</td>
<td>2.2</td>
<td>Revenue grants</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DfT efforts have focused in two areas:

- Training to improve efficiency and safety of aggregates lorry drivers (known as SAFED). This scheme will be industry-funded from April 2010, and
- Revenue grants for modal shift from road to rail / water.

The decline in demand for DfT’s use of the ALSF could be reversed in future, especially if the other main source of revenue support for mode shift, DfT’s Sustainable Distribution Fund, comes under pressure. The Department has worked closely with MIRO on the transport elements of MIRO’s ALSF research streams, and has recently engaged with the Carbon Trust on its transport-related work.

The aim of the three capital projects for which British Waterways has received ALSF funding in the period 2008-10, all based in East London, has been to create optimal conditions for the transfer of road (and potentially rail) freight to water.
8.5.2 Safe and Fuel Efficient Driving scheme (SAFED)

DfT has run the SAFED aggregates scheme since 2005 (although there was a break in 2007/08), with investment of £0.6m entered to the Defra database at the time of writing for the period 2008-10. It sets a single standard aimed at improving safe and fuel efficient driving techniques used by drivers of aggregates haulage vehicles. SAFED provides a day of training and development for existing drivers through instruction relating to vehicle and road craft, as well as training for trainers.

The qualification requirement for access to the training has been reduced from 50 down to 30 per cent of driving time to reflect the fact that the recession has forced drivers to take on a greater proportion of non-aggregates work. SAFED is being taken on by the industry from April 2010 and will receive no further ALSF funding.

8.5.3 Rail Environmental Benefit Procurement Scheme (REPS)

DfT’s Rail Environmental Benefit Procurement Scheme (REPS) which ran until March 2010 assisted companies with the operating costs associated with running rail freight transport instead of road, where rail is more expensive than road. The ALSF makes a contribution to cover the aggregates element of the scheme (totalling £0.7m entered to the Defra database at the time of writing); haulage of other materials is covered through DfT’s Sustainable Distribution Fund. It acts as a subsidy to account for the environmental externalities of road haulage which are not paid in full; the subsidy was calculated using an approach known as “Sensitive Lorry Miles” which assesses the external benefits of mode shift across a number of categories, netting off road taxation and rail costs. A contract is put in place with each haulier, with a maximum agreed tonnage per time period for which a grant per tonne is given. Performance is evaluated every quarter, to take account of peaks and troughs in haulage – if a haulier is not delivering his tonnage, unused funding is re-allocated to another haulier to maximise value. The database includes details of six haulier / rail company / aggregates firm partnerships who have received grants during the period, with total grant ranging from just over £39,000, to over £230,000.

From April 2010, REPS will be subsumed into the new Mode Shift Revenue Support scheme (MSRS). The content of the scheme as it relates to bulk rail transport will be unchanged; MSRS will also enable grants for inland water freight. As part of the updating, the old Sensitive Lorry Mile calculation is replaced by Mode Shift Benefit Values. These take into account the same range of “marginal external costs” to arrive at a simple assessment of the net social benefit of transfer, however the methods have been fully updated and the latest evidence available in 2008 was used.

8.5.4 British Waterways projects

During the period 2008-10 the ALSF is contributing to three British Waterways projects:

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40 A full report on the methods used is available at http://www.dft.gov.uk/adobepdf/165226/443908/msbtechpaper.pdf
• Reconstruction of the water control structure and lock at Three Mills Lock (formerly known as Prescott Lock), thereby restoring the Prescott Channel in the Lower Lee Valley (near the Olympics site) to usable navigations for the first time in 60 years. The lock takes two 350 tonne barges, each of which saves 17 lorry journeys. Typical loads would include aggregates, sand, steel and waste during the Olympics construction phase, and construction materials, waste and recyclates post-Games. The lock opened to freight in June 2009. The ALSF contribution was £2m of a total project cost of around £24m.

• Refurbishment and automation of City Mill Lock also linked to the River Lee. This will connect the larger waterway to the River Lee Navigation to which there was no access beforehand. Smaller 120 tonne barges can be moved on the River Lee. The ALSF contribution was £0.25m.

• Improvements to Old Ford Lock, Lee Locks and infrastructure to ensure free access at all times for water freight. The ALSF contribution was £0.15m.
8.6 Theme 5: Communities

8.6.1 Communities theme overview

Theme 5: delivering benefits to communities affected by aggregates extraction is managed by 19 Delivery Partners – ACRE and 18 local authorities. The 18 local authorities represent the areas of England most affected by aggregates quarrying. ACRE distributes ALSF funding in a further 23 counties less affected by quarrying. The Communities theme has been supported since the inception of the ALSF in 2002. For the first three years, three “pilot” counties – Derbyshire, Leicestershire and Somerset – were involved; the remaining local authorities joined the programme in 2005/06, and ACRE has participated since 2007/08.

The Communities theme is supported by a total of £10.5m over three years. Funding allocation is related to the degree of impact of quarrying in a Delivery Partner’s area; allocations are spread evenly over the three years. Local Authority Partners are permitted to spend up to 7 per cent of the total on administration costs; ACRE is permitted to spend up to 12.5 per cent.

The ACRE allocation is ring-fenced; local authority allocations are made via the Local Area Agreement to be invested in priority issues identified locally. Up until 2009/10, 12 local authorities have chosen to spend all or part of their ALSF allocation on relevant projects. Each Delivery Partner operates separately and has set its own eligibility criteria. Some local authorities (e.g. Cumbria, Derbyshire) distribute their ALSF allocation via an Environmental Trust originally established to administer the Landfill Tax Credit Scheme, which has similar (and occasionally overlapping) aims to the ALSF.

Figure 36 below summarises key information about the Communities theme. It shows that:

- Around two thirds of the total ALSF Communities theme allocation will be invested in ALSF-related work (so one third will not);
- Delivery Partners secure excellent leverage by comparison with other ALSF themes (although this can be heavily skewed by an individual small contribution to a large-scale project);
- The way in which funding is allocated varies significantly between Delivery Partners, with minimum grants ranging from £625 to £5,000 and maximum grants ranging from £8,000 to £50,000. The median grant for the theme as a whole is around £7,000. Most require no match funding for smaller projects; Cornwall is unique in allocating a fixed annual sum to affected parishes;
- All Delivery Partners have clear eligibility criteria but attach as few strings as possible, some (not all) with requirements relating to LAA targets and national indicators, and some stipulating local political support. Geographical eligibility varies

quite widely. Some local authorities designate eligible parishes, others include a radius of between 2 and 10km from a quarry or restrict areas judged to have suffered the impacts of aggregate extraction; some additionally include the area around haulage routes;

• The funding decisions taken by most Delivery Partners are approved by a Panel or Steering Group including the relevant portfolio holder and sometimes interested third parties.
### Figure 36 – Communities theme overview

<table>
<thead>
<tr>
<th>DP</th>
<th>Total 2008-11 funding (£m)</th>
<th>Proportion spent on ALSF</th>
<th>Leverage factor for projects in database</th>
<th>Min. grant (£)</th>
<th>Max. grant (£)</th>
<th>Median grant (£) to nearest ,000</th>
<th>Types of project funded</th>
<th>Eligibility / selection process</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACRE</td>
<td>1.55</td>
<td>All</td>
<td>4.8</td>
<td>3,000</td>
<td>20,000</td>
<td>7,000</td>
<td>Emphasis on community buildings, but full range funded.</td>
<td>Applying communities must be / have been affected by aggregates extraction or transport, be within 10km of an extraction site, and their project must be supported by their local Rural Community Action Network member.</td>
</tr>
<tr>
<td>Cornwall</td>
<td>0.3</td>
<td>All</td>
<td>2.0</td>
<td>5,000</td>
<td>8,000</td>
<td>5,000</td>
<td>Community buildings / improvements. Parish plans.</td>
<td>17 affected parishes receive £5k each; remaining funding used for guides on e.g. stone, surveys.</td>
</tr>
<tr>
<td>Cumbria</td>
<td>0.5</td>
<td>All</td>
<td>6.6</td>
<td>625</td>
<td>25,000</td>
<td>9,000</td>
<td>Mostly community buildings.</td>
<td></td>
</tr>
<tr>
<td>Derbs</td>
<td>1</td>
<td>2/3rds</td>
<td>3.3</td>
<td>2,500</td>
<td>50,000</td>
<td>9,000</td>
<td>Wide range of community and environmental projects funded.</td>
<td>5 designated priority areas but applications from other more isolated sites of extraction will also be considered. must have demonstrable public benefits, involve or have support of third sector. Particularly welcome projects addressing climate change / contributing to thriving voluntary sector.</td>
</tr>
<tr>
<td>South Glos</td>
<td>0.3</td>
<td>All</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>No restrictions placed, but a more environmental focus has resulted than elsewhere.</td>
<td>2 types project within 6km of one of 4 quarry sites: community grants up to £2.5k, accountable to LA strategic objectives / LAA targets; larger community-led projects with council team input.</td>
</tr>
<tr>
<td>Lancs</td>
<td>0.4</td>
<td>Virtually all</td>
<td>6.2</td>
<td>800</td>
<td>35,000</td>
<td>10,000</td>
<td>Typical range; also Tramper vehicles for disabled groups; community events.</td>
<td>Main goal is compensating communities. Decisions by officers using scoring matrix.</td>
</tr>
<tr>
<td>Leics</td>
<td>1</td>
<td>All</td>
<td>2.2</td>
<td>317</td>
<td>50,000</td>
<td>15,000</td>
<td>Mostly community buildings / environmental schemes.</td>
<td>Main goal is compensating communities : List of affected parishes; decisions by officers using scoring matrix including LAA national indicator criteria and local political support.</td>
</tr>
<tr>
<td>Lincs</td>
<td>0.3</td>
<td>All</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Many community buildings and similar.</td>
<td>Within 5km of quarry site, demonstrable community benefit. Haulage routes not included. Evaluation panel includes MPA.</td>
</tr>
<tr>
<td>Notts</td>
<td>0.3</td>
<td>All</td>
<td>2.8</td>
<td>1,000</td>
<td>45,000</td>
<td>4,000</td>
<td>Typical range; match funds existing community conservation projects fund.</td>
<td>Concentrate on communities within 2km of quarry. Projects endorsed by county councillors and approved by portfolio holder.</td>
</tr>
<tr>
<td>Shrops</td>
<td>0.3</td>
<td>All</td>
<td>2.1</td>
<td>650</td>
<td>20,000</td>
<td>3,000</td>
<td>Mostly environmental / access; community buildings; behaviour-influencing.</td>
<td>Within 1 mile of quarry / 250m of haulage route. Awards to £3k with no match-funding; up to £20k with 40% match-funding. Decisions by Board which includes Shrops Wildlife Trust.</td>
</tr>
<tr>
<td>Somerset</td>
<td>1</td>
<td>See note.</td>
<td>5.9</td>
<td>845</td>
<td>30,000</td>
<td>4,000</td>
<td>-</td>
<td>Note – all spent on ALSF to 2010; none in 2010/11.</td>
</tr>
<tr>
<td>Staffs</td>
<td>0.6</td>
<td>All</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Emphasis on climate change / biodiversity projects.</td>
<td>Based on LAA national indicators; within 2km of quarry; haulage routes not included; steering group takes decisions.</td>
</tr>
<tr>
<td>N Yorks</td>
<td>0.9</td>
<td>1 proj</td>
<td>1.6</td>
<td>36,000</td>
<td>36,000</td>
<td>36,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other*</td>
<td>2</td>
<td>See note.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Note – not spent on ALSF / no information.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10.5</strong></td>
<td></td>
<td><strong>43</strong></td>
<td><strong>4.1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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* Devon, Doncaster, Durham, Essex, Glos, N Somerset.

* Taking into account that very little of the N Yorkshire allocation is for ALSF, that 1/3 of Derbyshire and Somerset’s 2008-11 are not spent on ALSF.
8.6.2 Project types

For the purposes of this study, ACRE’s list of project types has been adapted to provide the basis for analysis of how funding has been spent. The full list of categories used for this evaluation is set out in figure 37 below, with a brief summary of the typical help the ALSF provides in each category. This illustrates the diversity of projects supported.

Figure 37 – Typical activities funded under the Communities theme

<table>
<thead>
<tr>
<th>Project category</th>
<th>Typical activities funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts / heritage / other community events</td>
<td>Publication of local history material; collection and publication of stories and material relating to local quarrying heritage; improving stage / drama facilities in community buildings; restoration of church organ; support to preserved steam railways; local history trail.</td>
</tr>
<tr>
<td>Car parks / access roads / footpaths</td>
<td>Extension to car parks; footpath refurbishment; improved access to sports facilities / local green space; bridleway restoration.</td>
</tr>
<tr>
<td>Children’s play / pre-school</td>
<td>Refurbishment of children’s play areas.</td>
</tr>
<tr>
<td>Community buildings</td>
<td>Replacement of heating system; improving ceiling and floor insulation; entrance and toilet refurbishment; room refurbishment; energy audits.</td>
</tr>
<tr>
<td>Disabled facilities</td>
<td>Improving accessibility of community buildings, recreational facilities, children’s playgrounds, wildlife areas.</td>
</tr>
<tr>
<td>Environmental / landscape</td>
<td>Improving access to / understanding of geodiversity; creating / enhancing habitats at nature reserves; improving landscaping; clearing and creating green space; restoration of stone walls; creation of nature trails; re-use and recycling.</td>
</tr>
<tr>
<td>Landmark / amenities</td>
<td>Restoration of historic buildings and churches; enhancements to allotments; improved facilities at local visitor attractions.</td>
</tr>
<tr>
<td>Sports</td>
<td>Improvements to recreation grounds and playing fields; improvements to sports club facilities; creation of and improvements to cycleways / mountain bike trails.</td>
</tr>
<tr>
<td>Transport</td>
<td>Provision of community transport / specialist vehicles to enable access to nature reserves / for community use; provision of recycling collection vehicle.</td>
</tr>
<tr>
<td>Youth facilities</td>
<td>Enhancements to adventure play facilities; BMX track renovation; youth centre refurbishment.</td>
</tr>
<tr>
<td>Community improvements</td>
<td>Range of small improvements within a single community, e.g. village sign repair, new fencing, Parish notice boards, war memorial cleaning, equipment for use at community events, printer for parish magazine.</td>
</tr>
<tr>
<td>Advice and guidance</td>
<td>Sustainable building guide.</td>
</tr>
<tr>
<td>Power generation</td>
<td>Installation of hydro-power turbine; solar thermal hot water system.</td>
</tr>
<tr>
<td>Rescue equipment</td>
<td>Equipment provided to local Search and Rescue team.</td>
</tr>
</tbody>
</table>

Details for well over 200 projects have been entered to the Defra database. Figure 38 shows the proportion of these projects whose principal aim falls into each category. Many projects have outputs contributing to more than one category. It
shows clearly that “community buildings” is the most popular, with over 80 projects. “Environment / landscape” (53 projects), “Children’s play” (32 projects), “Sports” (24 projects) and “Arts / heritage” (20 projects) are the other major project types. Annex G explores eleven case studies in more detail. Case study material was gathered during a meeting with Delivery Partners, from their annual reports and other bespoke material, and on a visit to the Buxton area in Derbyshire.

Figure 38 – Community theme projects on the database, by type
9 ASSESSMENT OF IMPACT, PERFORMANCE AGAINST OBJECTIVES AND VALUE FOR MONEY

9.1 Introduction

This section marshals the available evidence on impact and performance, analyses the extent to which the ALSF’s five over-arching objectives have been met, where sufficient evidence is available, and assesses value for money, quantifying this where possible. Analysis is undertaken by theme and by key workstream.

For each workstream, analysis of impact, outputs and outcomes is used to determine how far objectives have been, or are likely to be, achieved. While it was difficult to ensure consistency in analysis owing to the lack of consistency in available evidence, in all cases, analysis included consideration of: objectives or targets set; how performance would ideally be measured; available baseline evidence and evidence of performance against objectives, and the degree of confidence in actual delivery.

For each workstream, value for money is assessed, where the available evidence allows, according to four sets of criteria set out in figure 39 below. For some of the smaller workstreams, a less detailed approach has been adopted. An overall assessment of vfm is developed based on this analysis, nuanced according to the quality and robustness of available data, and the level of confidence that predicted benefits will be delivered (and how these will be measured).

Figure 39 – Criteria used to assess ALSF value for money

<table>
<thead>
<tr>
<th>Criterion</th>
<th>What is measured?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project planning, targeting and the base case</td>
<td>What is the process for designing the scheme / programme? How are experts / stakeholders involved? What is the evidence base and how is it used? What steps are taken to ensure resources are targeted to where they will have most effect? How successful is the Delivery Partner in pitching objectives to be both stretching, but also achievable?</td>
</tr>
<tr>
<td>Project / contractor selection and distributional issues</td>
<td>What is the project selection process and how does it act to safeguard vfm? What are the eligibility criteria and how are these applied? Is there any external challenge?</td>
</tr>
<tr>
<td>Quantitative and qualitative measures</td>
<td>These differ depending on the area of the programme. Quantitative measures include: financial leverage and in-kind contributions, cost effectiveness, carbon savings, tonnage diverted from landfill, mode shift benefits, landscape and biodiversity improvements, area mapped. These are monetised where possible. Qualitative measures include: transferability to other sectors, social, environmental and economic benefits to communities; achievements of research programmes; conservation of monuments, sites and records; expert engagement with the industry; dissemination of project outputs.</td>
</tr>
<tr>
<td>Stakeholder and Delivery Partner views</td>
<td>Allows organisations’ views on vfm / specific aspects of performance to be taken into account.</td>
</tr>
</tbody>
</table>
9.2 Impact and performance overview

9.2.1 Overview of impact

The impact of the ALSF in 2008-11, building on earlier work, may be summarised as follows:

- The ALSF is driving behavioural change in the aggregates sector and across the aggregates supply chain, especially on energy efficiency and in the take-up of business opportunities offered by RSAs.

- Development of the evidence base has in turn improved knowledge across all areas supported by the Fund, resulting in e.g. improved planning, reduced damage, greater protection for the most sensitive areas, better mitigation of impacts on biodiversity and the historic landscape; also facilitating knowledge transfer to other industries, especially the marine renewables industry, and enhancing the evidence base for assessing climate change impacts and improving ecosystems understanding.

- Diversion of aggregates transport away from roads, more fuel efficient driving, increased use of RSAs and improved on-site practices has reduced carbon emissions and in some cases increased profit margins with greater potential in the medium to long term through industry collaboration and technological innovation.

- More, and more higher-end, CDEW recycling is driving a shift towards the optimal balance of use between primary aggregates and RSAs, and reducing the amount of CDEW going to landfill.

- Site-based work and research and development is contributing to greater knowledge and conservation of the historic environment, improved landscapes benefiting biodiversity and geodiversity and enhancing and widening recreational access, in turn delivering health and wellbeing benefits.

- Communities are being compensated for the adverse impacts of aggregates extraction and transport, delivering a range of local social and environmental benefits as well as some economic benefits.

- Public awareness of the issues associated with aggregates extraction has improved, leading to greater understanding of the reasons why aggregates extraction is, and will continue to be, necessary.

- Improved practices and technological innovation are driving more efficient production, reducing waste, reducing the physical impact on the surrounding landscape and local communities and maximising restoration potential to the benefit both of biodiversity and local communities.

- The ALSF has enabled collaboration and partnership building which in turn has optimised use of funding:
MPA: “ALSF has been significantly helpful in improving understanding between the industry, Government and NGOs.”

English Heritage: “The ALSF is a scheme which creates partnerships, builds trust and delivers knowledge transfer. The value of this aspect of the scheme is difficult to assess but has been, certainly within the historic environment sector, extraordinary.”

9.2.2 Overview of performance against objectives

Figure 40 summarises the overall assessment of the ALSF’s performance against its objectives and highlights key project outputs and benefits, where possible quantified. Overall, it is evident that the 2008-11 ALSF programme will meet the over-arching objective to reduce the environmental impact of aggregates quarrying although the impact of many – even completed - projects and programmes is only just starting to take effect. It is working to secure a diverse range of outcomes. While some of these may be quantified and monetised, many may not; in these cases, the assessment of impact and performance against objectives is based on a qualitative judgement.
### Theme: Quarries
#### a) Encourage reduction in CO\textsubscript{2} emissions
- **Key outputs:** Better understanding of opportunities for carbon reduction; tactical delivery including “Big 5” interventions; change programme; improved sector-wide collaboration; roll-out of new technologies.
- **Outcomes:** Cut aggregates sector’s carbon emissions over 2008 baseline by estimated 1 per cent by March 2010; good degree of confidence of 6 per cent reduction by 2011/12; moderate confidence of total reduction of 22 per cent (subject to additional investment in 2011/12) in 2015-20 timeframe.
- **Performance against objectives:** Good progress although slower than originally planned so will need funding for “year 4”. Expect to achieve objective.

#### b) Deliver benefits to the natural environment around quarries.
- **Key outputs:** Highlights from 2008/09 – biodiversity improvements to 2,823ha; 11.25km of new or upgraded footpaths; 4,367 children involved in site visits; 86 events held to promote understanding; contributions to national BAP and local GAP targets.
- **Outcomes:** Conservation of / improvements to / improved understanding of landscape, biodiversity, geodiversity, contributing to BAP and GAP commitments. Improved access to natural environment, securing green space benefits. Improved evidence on impacts of aggregates quarrying on natural environment / better data to inform mitigation and management.
- **Performance against objectives:** Achieving objective, although key evidence not well marshalled.

#### c) Address research gaps with potential to significantly improve sector’s environmental performance.
- **Key outputs:** Good progress in addressing research priorities identified in benchmark reports (e.g. dust, noise and vibration; sustainable utilisation of quarry by-products). 12 new historic environment Aggregates Resource Assessments completed, against a target of 9, taking total coverage to 60 per cent of the counties where an ARA is recommended.
- **Outcomes:** More efficient / safer aggregates quarrying with reduced environmental impact. Outputs of ALSF research reach target audience. Better understood and optimally managed impact on historic landscape results from improved strategic landscape planning, improved and well-disseminated mapping techniques, monitoring and assessment systems.
- **Performance against objectives:** Good progress, expect to meet or exceed most objectives. EH aim to develop approach to integrate historic environment, landscape and biodiversity data not successful.

#### d) Undertake strategic research to underpin long-term planning of sustainable aggregates supply.
- **Key outputs:** Seven projects funded, including horizon scan for aggregates production, evaluation of environmental impacts of aggregates within designated sites, develop ecosystems approach to decision-making in planning / restoration of aggregates quarries.
- **Outcomes:** Early days but largely positive feedback on the value of emerging findings. Potential high impact possibilities identified in underground mining and pipelines. Project assessing the design of lorries and quarries for aggregates transport has provided new insights.
- **Performance against objectives:** Making progress towards achievement of longer-term objective.

#### e) Repair, conserve and record historic and archaeological assets impacted by aggregates extraction.
- **Key outputs:** 3 monuments directly impacted by aggregates extraction conserved. Preservation by record of 16 nationally important archaeological discoveries which would not otherwise have been preserved.
- **Outcomes:** Conservation of vulnerable historic assets and preservation by record of nationally important discoveries; realisation of management and community dividend from legacy rescue recording of nationally important sites undertaken prior to past quarrying.
- **Performance against objectives:** Will meet or exceed objectives, except for conservation of monuments, where insufficient eligible monuments identified.

#### f) Research options for remediating pollution at abandoned mines.
- **Key outputs:** Reports will recommend further work (either additional investigations or proposed remedial works). Projects have identified additional previously unknown risks at two locations.
- **Outcomes:** Improved understanding / eventual treatment of mine-water pollution, helping deliver good ecological status in impacted rivers, with consequent benefits to local economy.
- **Performance against objectives:** Will meet objective, although its contribution to core ALSF goals is minimal.
<table>
<thead>
<tr>
<th>Theme</th>
<th>Workstream</th>
<th>Key outputs</th>
<th>Outcomes</th>
<th>Performance against objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Marine</td>
<td>a) Promote environmentally friendly practices for extraction of marine aggregates, undertake strategic research into environmental consequences of, and reduce local effects of, marine aggregate extraction, reduce environmental impacts of using marine aggregate in coastal protection schemes.</td>
<td>By 2011, RECs will cover over 31,000km²; all aggregates dredging zones will be covered by HSCs. Good understanding of impacts at dredging sites, and related monitoring and mitigation techniques. Range of practical / useful historic environment R&amp;D. Good legacy provision for data and wider knowledge management.</td>
<td>Improved evidence base on marine environmental and archaeological resources; better understanding of effects and significance of dredging, giving greater certainty in marine spatial planning. New and improved monitoring, mitigation and management techniques to reduce impacts of dredging.</td>
<td>Very significant progress from a low baseline, some work of international significance. High level of confidence that overarching objective to reduce environmental footprint will be achieved in longer term.</td>
</tr>
<tr>
<td></td>
<td>b) Understand the distribution of, and effects of economic activity on, resources of historic or archaeological significance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Sustainable resource use</td>
<td>a) Promote more sustainable use of aggregate resources.</td>
<td>Provision of 350,000 tonnes additional CDEW reprocessing capacity. Engagement throughout aggregates supply chain / waste management sector to reduce waste to landfill and stimulate demand for RSAs, design out waste and promote associated business opportunities. Technical work to improve potential to recycle CDEW.</td>
<td>2008-11: divert 3.5m tonnes of CDEW from landfill, avoiding 0.75m tonnes of carbon emissions. Embed practices to deliver ongoing annual diversion from landfill of 3m tonnes, with 0.5m tonnes associated carbon savings. Successful SE regional pilot will divert 1.9m tonnes of CDEW from landfill (75 per cent of total CDEW landfilled in SE) by March 2011 (0.47m tonnes through direct influence; 1.4m tonnes through indirect influence). Measurable contribution to elevating the success of the Aggregates QP and progressing the potential for new QPs.</td>
<td>Will achieve or exceed set targets.</td>
</tr>
<tr>
<td></td>
<td>b) Understand the distribution of, and effects of economic activity on, resources of historic or archaeological significance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Transport</td>
<td>a) Encourage further diversion from road to rail and water transport.</td>
<td>3 new or improved lock facilities providing optimal conditions for diversion of aggregates transport from road to water. 2.3m annual aggregate tonne miles diverted from road to rail.</td>
<td>Reduction in environmental impacts of aggregates transport. 2008-10: Quantified Mode Shift Benefit for transfer of aggregate transport from road to rail totals £2.722m, with around 1,590 tonnes Carbon savings per annum. ALSF contribution to Three Mills Lock expected to deliver quantified Mode Shift Benefit for transfer of aggregate transport from road to water totalling £0.67m over 15 years from 2012.</td>
<td>Will achieve objective for diversion from road to rail; conditions in place to achieve diversion from road to water over the longer term.</td>
</tr>
<tr>
<td></td>
<td>b) Promote more efficient driving through Safe and Fuel-Efficient Drivers Programme and encourage the commercial take-up of SAFED approach.</td>
<td>2008-10: 58 trainers and 2,841 drivers trained (estimated to be ¼ to 1/5 of target audience). Responsibility transferred to industry from April 2010.</td>
<td>Drivers of aggregates lorries drive more safely and economically, reducing fuel costs by £8.7m, generating carbon savings of around 5,700 tonnes, reducing risk of accidents.</td>
<td>Has achieved objective.</td>
</tr>
<tr>
<td>5. Communities</td>
<td>a) Support local community projects of demonstrable public benefit in areas that suffer environmental impacts of aggregates extraction.</td>
<td>Improvements to community buildings, to local natural environment, and to local sports, recreational and other visitor amenities. Contributions to local economy including by providing employment opportunities and enhancing individuals’ skills / possibly employment prospects. Energy usage / running costs reduced.</td>
<td>Social: increasing number of people / range of groups in local community who can use local facilities, with consequent benefits. Economic: increasing employment opportunities, enhancing individuals’ skills and bringing money into local areas. Environmental: improving habitats, landscape and visual outlook, improving sustainability of energy consumption.</td>
<td>Will meet objective.</td>
</tr>
</tbody>
</table>
There is a strong story to tell on the key outputs and benefits of the ALSF over the period 2008-11.

Quantified benefits include:

- The Carbon Trust’s work is likely to cut the aggregates sector’s emissions by around 6 per cent by 2011/12 as compared with the 2008 baseline, with good potential for total reduction of around 22 per cent over baseline during the 2015 -2020 timeframe;
- Cost savings accruing to the industry from implemented carbon savings will be calculable on an annual basis from 2009/10 once all the data for the relevant year have been collated;
- The ALSF’s contribution to WRAP’s Construction Programme will help to divert 3.5m tonnes of CDEW from landfill over the period 2008-11, accompanied by carbon savings of 0.75m tonnes, and will embed practices that are expected to divert 3m tonnes of CDEW from landfill every year thereafter, accompanied by carbon savings of 0.5m tonnes;
- An additional 0.35m tonnes of aggregates re-processing capacity funded by WRAP;
- PTZW’s predicted diversion from landfill of 1.9m tonnes of CDEW in the south east region by March 2011 (75 per cent of the total tonnage of CDEW landfilled) is indicative of what can be achieved through collaboration and focus at a regional level;
- Potential increased sales for businesses producing RSAs from PFA and steel slag totalling up to £99.1m over ten years, with attendant diversion of waste from landfill (7.8m tonnes), raw material savings (9.1m tonnes), wider cost savings to business (£107.9m), and carbon savings (580,000 tonnes);
- Dept for Transport’s fuel savings of 8.5m litres from the Safer and more Fuel Efficient Driving programme 2008-10, and a quantified Mode Shift Benefit of £2.7m from grant paid to transfer aggregates haulage from road to rail; together the two programmes also secure carbon savings of 7,200 tonnes over the period;
- By 2011, seabed mapping will have made great advances - thanks to the MEPF and English Heritage, every major aggregates dredging area will be covered by a REC study and HSC. And on land, by 2011, English Heritage’s historic environment ARAs will cover 60 per cent of the counties that need one. These mapping achievements will make a huge contribution to certainty in future licensing and permitting;
- Natural England’s ALSF programme will have delivered a range of biodiversity, geodiversity, landscape, amenity, access and health and wellbeing benefits – in 2008/09, for example, biodiversity improvements were funded to nearly 3,000 hectares, there were 11.25km of new or upgraded footpaths, and over 4,300 children went on ALSF-supported site visits.

The extent of qualitative achievements is no less impressive, although harder to summarise owing to the wide variety of activities supported:

- A large number of communities affected by aggregates extraction and haulage will have benefitted socially, environmentally and economically from several hundred separate projects;
• Significant advances will have been made across the range of research programmes, from MIRO’s MIST and ASRP programmes and English Heritage’s research into non-invasive mapping techniques and monitoring and assessment systems, to the Marine ALSF;
• A number of nationally significant heritage assets will have been physically conserved, or preserved by record;
• A huge range of research outputs, datasets, advice and guidance will have been widely disseminated to expert and lay communities;
• The aggregates industry and supply chain will have benefited from direct, practical site-based expert engagement on matters including energy saving and aggregates re-processing.
9.3 Value for money overview

9.3.1 Scope of assessment

Defra has taken steps to ensure that appropriate evaluation is integral to the programme. In general, this has meant that the evidence that is available to support an assessment of vfm is robust and of good quality. Where the type of work undertaken allows, Delivery Partners have developed systematic processes to capture and validate performance, for example the Carbon Trust’s approach to calculating carbon savings, WRAP’s approach to capturing companies’ efforts to divert CDEW from landfill and Dept for Transport’s approach to calculating mode shift benefits. The Marine ALSF’s objective-by-objective assessment of the impact of its work and what remains to be done demonstrates the scope to base a robust assessment of performance and vfm on substantially qualitative data.

However there are some areas where there is weaker, or less certain, evidence, or evidence gaps. For example there is a lack of systematic evidence on the actual impact of communities funding (e.g. how many additional people are using village halls, for what additional purposes) because local authorities could not be required to provide quantified implementation benefits of their community projects, nor would it necessarily be cost effective to collect such data. There is also a lack of available baseline evidence to contextualise the degree of impact of the Natural England programme e.g. in improving habitats; information on projects’ contribution to achieving BAP targets is not collected or collated systematically, and there was very limited evidence on “wellbeing” and “green space” benefits. Finally, at this stage some of the most significant achievements (carbon savings, diversion of CDEW from landfill) are reliant on companies fulfilling commitments they have made, and the evidence base will depend to a large extent on those companies contributing to the web-based reporting portals currently being introduced.

The scope and robustness of the assessment of vfm that is possible at this stage are limited partly by these evidence gaps, partly because of the difficulties in quantifying the impact of some areas of the programme, but also because:

- Some programmes and projects are not sufficiently far advanced to reach a judgement on their vfm, e.g. Nature After Minerals programme, MIRO’s Aggregates Strategic Research Programme, second round of capital grants for aggregates re-processing capacity;
- It is too soon to assess impacts that will be measurable only after March 2011 when the current ALSF programme is completed (e.g. when the Carbon Trust has completed its work on industry collaboration with the MPA), disseminated (e.g. measuring the impact of MIRO and English Heritage’s research programmes, and take-up of WRAP tools and resources) and embedded (e.g. measuring the impact of the ALSF on planning policy and planning decisions).

Much of the assessment is therefore based on qualitative evidence and / or refers to potential benefits. No earlier than 2011/12, it would be possible to build on this assessment to develop a more robust assessment of value for money for the 2008-11
Such a study should take steps to address the current areas of weakness identified above. This would include setting aside sufficient time to undertake a range of case studies in those areas where quantification is difficult. The study would benefit from specialist economist input to make the most of opportunities to quantify benefits (for example the potential to use value transfer methodologies to quantify the benefits of the outputs of Natural England’s work) and explore the extent to which estimated benefits have been realised.

Whatever happens, all Delivery Partners need to be working in 2010/11 to safeguard the ALSF’s legacy, to ensure that vfm of existing spend is maximised in the event that no further support is available after that year.

9.3.2 Overview of vfm by theme and workstream

Figure 41 summarises conclusions on vfm by theme and key workstream. Notwithstanding the comments in the previous section, it is clear that the vfm picture is largely very positive.

Section 7.4 above noted that the ALSF has secured good financial leverage, with an average leverage factor of 2.1 for projects on the database.

Programmes of activity are generally well targeted to where they will have greatest impact, and project selection arrangements are robust.
Figure 41 – Vfm assessment by theme and key workstream

<table>
<thead>
<tr>
<th>Theme</th>
<th>Workstream</th>
<th>Vfm assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quarries</td>
<td>a) Encourage a reduction in CO₂ emissions.</td>
<td>Very well focused; should deliver good value for money in the short to medium term; potentially much more significant gains in the longer term subject to further funding in 2011/12. Cost effectiveness broadly in line with other areas of Carbon Trust’s work, particularly if transfer benefits to other sectors taken into account.</td>
</tr>
<tr>
<td></td>
<td>b) Address (technical and historic environment) research gaps with potential to significantly improve sector’s environmental performance.</td>
<td>Difficult to reach a robust judgement on vfm, especially in the absence of numerical targets, without a detailed case study approach not possible within the time constraints of this project. However it is clear that the vfm picture is largely very positive.</td>
</tr>
<tr>
<td></td>
<td>c) Undertake strategic research to underpin long-term planning of sustainable aggregates supply.</td>
<td>Good to excellent potential vfm. Targeted to evidence-based research priorities, projects are awarded through a robust process (in the case of MIST with financial or in-kind industry support). Some concern that one-year funding window has hampered vfm and perception, largely based on work pre-2008, of over-emphasis on theoretical outputs. Will take some years to demonstrate actual vfm.</td>
</tr>
<tr>
<td></td>
<td>d) Deliver benefits to the natural environment around quarries.</td>
<td>Difficult to reach a robust judgement on vfm, especially in the absence of numerical targets, without a detailed case study approach not possible within the time constraints of this project. However it is clear that the vfm picture is largely very positive.</td>
</tr>
<tr>
<td></td>
<td>e) Repair, conserve and record historic and archaeological assets impacted by aggregates extraction.</td>
<td>In the main, value for money has been safeguarded in process terms; the long term value of outputs cannot yet be determined.</td>
</tr>
<tr>
<td></td>
<td>f) Research options for remediating pollution at abandoned mines.</td>
<td>English Heritage has worked to optimise vfm from the projects funded under these two themes through tightly drawn eligibility criteria which aim to deliver outputs of the widest possible significance; without a more detailed case study approach it is not possible to quantify or assess vfm further.</td>
</tr>
<tr>
<td>2. Marine</td>
<td>a) Promote environmentally friendly practices for extraction of marine aggregates, undertake strategic research into environmental consequences of, and reduce local effects of, marine aggregate extraction, reduce environmental impacts of using marine aggregate in coastal protection schemes.</td>
<td>Excellent potential vfm. Exemplary governance model has enhanced vfm; greatest vfm and legacy from seabed mapping which has direct / ongoing influence on policy development and on quality, ease and speed of the licensing process, increasing confidence and certainty for regulator, regulatory advisor and industry.</td>
</tr>
<tr>
<td></td>
<td>b) Understanding the distribution of, and effects of economic activity on, resources of historic or archaeological significance.</td>
<td></td>
</tr>
<tr>
<td>3. Sustainable resource use</td>
<td>a) Promote more sustainable use of aggregate resources.</td>
<td>Delivery Partners have worked hard to maximise potential vfm, building on earlier work and contributing to a wider goal to reduce CDEW going to landfill. Range of freely accessible products developed and, through targeted interventions and dissemination, appetite stimulated to use the products to contribute to overall goals.</td>
</tr>
<tr>
<td>4. Transport</td>
<td>a) Encourage further diversion from road to rail and water transport.</td>
<td>DfT programmes offer good vfm although in 2008-11 period may be lower than previously since SAFED could have been taken on sooner by industry, and because the aggregates element of REPS has struggled to secure take-up thanks to the economic downturn. Economic downturn has also seriously impacted short-term vfm of British Waterways investment, although potentially significant vfm in longer term.</td>
</tr>
<tr>
<td></td>
<td>b) Promote more efficient driving through Safe and Fuel-Efficient Drivers Programme and encourage the commercial take-up of SAFED approach.</td>
<td></td>
</tr>
<tr>
<td>5. Communities</td>
<td>a) Support local community projects of demonstrable public benefit in areas that suffer environmental impacts of aggregates extraction.</td>
<td>Currently delivering good vfm although some process concerns – one third of the allocation delivers no ALSF-related benefits; improved sharing of good practice would secure worthwhile benefits; anecdotal evidence suggests that some communities may benefit much more than others which suffer similarly from aggregates extraction.</td>
</tr>
</tbody>
</table>
As figures 42 and 43 show, it is possible to monetise the benefits of just under a third of the total ALSF expenditure for the 2008-11 period, covering work funded by the Carbon Trust, WRAP, the Environment Agency, Dept for Transport and British Waterways. The principal monetised measures are:

- Monetary value of carbon savings;
- Monetary value of mode shift benefits, and
- Cost effectiveness measured in terms of grant per tonne of CDEW diverted or per tonne of carbon saved.

The present value (in 2010) of the elements of ALSF expenditure against which benefits can be monetised is £20m; the present value (in 2010) of those benefits is £195.1m, giving a cost: benefit ratio of 1 : 9.8. It is difficult to compare cost effectiveness across different parts of the ALSF because, even where the measure is the same (e.g. grant per tonne of carbon savings), the contributing activities are different. However in most cases, cost effectiveness is around £7 grant per tonne of carbon savings or material diverted from landfill. Details of how monetised benefits were calculated are provided at Annex H.

Even where benefits cannot be monetised, some ALSF workstreams offer quantitative or qualitative evidence of excellent potential value for money, particularly in the medium to long term. These include MEPF and English Heritage work under the Marine theme, the Carbon Trust’s Carbon reduction work, and WRAP and the Environment Agency’s programmes to improve sustainable use of aggregates resources.

In most other areas, the vfm looks strong but it is difficult to be certain at this stage and / or without a much more detailed case study approach, for example in relation to Natural England and English Heritage’s work, MIRO’s MIST programme, and the Communities theme.

In some specific cases, the generally good vfm offered by a programme should be seen in the context of some question marks over particular aspects of vfm. These would include local authorities’ discretion to use their ALSF allocation for whatever purpose under the LAA they choose (which could, objectively, increase vfm while undermining the achievement of ALSF objectives), and whether Dept for Transport’s SAFED Aggregates programme really needed continuing Government sponsorship in 2008-10 (see section 9.7.3 for a fuller explanation).
### Figure 42 – Summary of ALSF 2008-11 quantified benefits

<table>
<thead>
<tr>
<th>Theme</th>
<th>Delivery Partner</th>
<th>Workstream / activity</th>
<th>ALSF allocation 2008-11 (£m)</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quarries</td>
<td>Carbon Trust</td>
<td>Reduction in carbon emissions</td>
<td>4.6&lt;sup&gt;45&lt;/sup&gt;</td>
<td>Annual carbon savings: 0.03m tonnes by March 2010; 0.16m tonnes by March 2012; 0.56m tonnes in 2015-20 timeframe.</td>
</tr>
<tr>
<td>3. Sustainable resource use</td>
<td>WRAP</td>
<td>More sustainable use of aggregates (capital grant)</td>
<td>2.4</td>
<td>Additional CDEW re-processing capacity: 0.35m tonnes by 2015.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More sustainable use of aggregates (Construction Programme)</td>
<td>7.4&lt;sup&gt;46&lt;/sup&gt;</td>
<td>1m tonnes CDEW diverted from landfill / 0.17m tonnes carbon savings per annum from 2011/12 (one third of total Programme benefits attributed to ALSF investment).</td>
</tr>
<tr>
<td>Environment Agency</td>
<td>Pathway to Zero Waste (south east region only)</td>
<td>0.6</td>
<td>0.15m tonnes CDEW diverted from landfill / 0.005m tonnes carbon savings over two years to March 2011 (just under one third total Programme benefits attributed to ALSF; this is directly influenced tonnage).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Waste Protocols programme</td>
<td></td>
<td>0.7</td>
<td>7.8m tonnes PFA and steel slag diverted from landfill / 0.58m tonnes carbon savings over ten years.</td>
</tr>
<tr>
<td>4. Transport</td>
<td>DfT</td>
<td>Reduce environmental footprint of aggregates transport (mode shift grant)</td>
<td>0.7</td>
<td>2.3m annual tonne miles diverted from road to rail / 0.0015m tonnes annual carbon savings (data for April 2008 onwards entered to Defra database by March 2010).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reduce environmental footprint of aggregates transport (SAFED)</td>
<td>0.6</td>
<td>8.5m litres fuel savings / 0.0057m tonnes carbon savings (data for April 2008 onwards entered to Defra database by March 2010).</td>
</tr>
<tr>
<td></td>
<td>British Waterways</td>
<td>Reduce environmental footprint of aggregates transport (Three Mills Lock)</td>
<td>2</td>
<td>1,453 fewer lorry journeys per annum from 2012 (8.3 per cent of total Programme benefits attributed to ALSF).</td>
</tr>
</tbody>
</table>

£m quantified 19.2  Proportion of total budget (%) 29.6

<sup>45</sup> This does not include the £0.95m Carbon Trust estimates is needed in 2011/12 fully to capitalise the benefits of 2008-11 investment and deliver in full the estimated 0.56m tonnes of carbon savings in the 2015-20 timeframe.

<sup>46</sup> The allocation of £7.4m does not include the ALSF contribution to wider activity under WRAP’s Construction Programme in 2008-10 (see figure 34 and footnote 36 in section 8.4.1).
### Figure 43 – ALSF 2008-11: summary of monetised benefits and cost effectiveness measures

<table>
<thead>
<tr>
<th>Theme and workstream</th>
<th>Activity</th>
<th>ALSF allocation 2008-11 (£m, 2010 values)</th>
<th>Monetised benefit (£m, 2010 values)</th>
<th>Other cost effectiveness measure(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme 1: Quarries - Reduction in carbon emissions</td>
<td>Carbon Trust ALSF programme</td>
<td>4.6</td>
<td>58.4</td>
<td>Cumulative cost effectiveness by 2011/12 £7.28 grant per tonne of carbon savings.</td>
</tr>
<tr>
<td>Theme 3: Sustainable resource use – More sustainable use of aggregates</td>
<td>WRAP Construction Programme, WRAP capital grants, Environment Agency Waste Protocols programme, PTZW</td>
<td>11.1</td>
<td>123</td>
<td>WRAP Construction Programme: average £7.40 grant per tonne CDEW diverted from landfill. WRAP capital grants: average £6.86 grant per tonne CDEW diverted from landfill. PTZW: average £4 grant per tonne CDEW diverted from landfill.</td>
</tr>
<tr>
<td>Theme 4: Transport – Reduction in environmental footprint of aggregates transport</td>
<td>DfT Mode Shift Grant, DfT SAFED, British Waterways Three Mills Lock project</td>
<td>4.3</td>
<td>13.7</td>
<td>DfT Mode Shift Grant: average £3.40 benefits for each £1 grant.</td>
</tr>
</tbody>
</table>

| Totals | 20 | 195.1 |
| Overall cost benefit ratio | 1 : 9.8 |
9.3.3 Cross-cutting vfm issues

This section discusses vfm issues relevant across the whole ALSF programme in the context of the generally good vfm picture, summed up by the MPA’s view that the ALSF was “in general, pretty cost effective”.

There was appetite across the board for more, or more targeted, dissemination and communication to a wider audience, to ensure that websites and other published ALSF materials were widely known and used to best effect. CNP described the Fund as generally being “on the far horizon” and said it “trundles along but doesn’t keep us updated”. Brian Marker\(^\text{47}\) thought that “Results have generally been taken up well by key stakeholders but greater penetration could be achieved with additional dissemination”.

To maximise value for money from investment to date, work needs to be consolidated (perhaps through a further round of benchmarking reports), and a comprehensive knowledge management system (what CNP termed an “effective, administratively light mechanism to share knowledge”) put in place to ensure that all material is easily accessible, kept up to date as relevant, and its availability is well known by the full range of relevant stakeholders. The Sustainable Aggregates website could potentially become a one-stop shop for ALSF, although it would be important to ensure that ALSF materials were equally available to stakeholders with a purely aggregates interest (e.g. aggregates extraction companies), and to those with specific areas of expertise that touch in part on the aggregates sector (e.g. nature conservation bodies, heritage professionals).

Although not unique to the ALSF, lack of year-end flexibility and in-year re-allocation of spend may have reduced vfm in some areas (especially weather-dependent projects, where the “funding window” is limited). While Defra appeared to have a robust approach to in-year re-allocation, there may have been scope to increase the transparency of these arrangements and to encourage all Delivery Partners to be proactive in exploiting opportunities for in-year additional funding, perhaps following the Environment Agency’s model in 2010/11 of submitting a list of “contingency projects” on different scales and with varied timing, to inform Defra’s decisions on any re-allocation.

The relatively devolved approach to decision making and use of existing grant delivery mechanisms may promote value for money by enabling Delivery Partners to focus funding where it will make the greatest difference, making the most of synergies with existing activity and keeping administration costs to a minimum. On the other hand, this approach may risk diluting the ALSF’s strategic focus and allowing investment to be driven by the priorities of individual Delivery Partners at the expense of the ALSF’s objectives.

\(^{47}\) Brian Marker worked for 31 years in minerals planning in the Department of the Environment and its successor Departments involving work on planning, specification and management of research projects, and membership of research evaluation panels for Government and industry, including work on the Aggregates Levy and the early stages of establishing the ALSF.
This may reduce confidence that the allocation of ALSF funding is really being prioritised to meet national needs. It also allows for different standards and approaches in prioritisation and project selection - spending power has not always coincided with spending priorities, at least in the view of some stakeholders. The fact that ALSF is delivered by existing bodies as part of wider programmes, especially DfT, Carbon Trust and WRAP, has highlighted the potential oddity of favouring the aggregates industry for support over other sectors where greater gains could be made (e.g. in sustainable resource use, reduction in carbon emissions, improved fuel efficiency, transport mode shift). This reflects the trade off between achieving a high degree of success through closely targeted sectoral measures, against the potential opportunity to make larger gains for the same funding elsewhere.

The degree of sophistication of output and outcome monitoring varies significantly, due mainly, but not exclusively, to the wide range of work undertaken and the variation in project cost. The Carbon Trust and Dept for Transport have sophisticated systems in place to quantify the benefits of their work. In some other areas, more could have been done, within the bounds of what is reasonable given the scale of individual projects, to ensure that key performance indicators were identified at the outset, and for data to have been collected systematically against these (e.g. community buildings with new heating systems / improved insulation to report back after 1-2 years on reduced heating bills\(^48\); impact on BAP target achievement to be collated as a matter of course).

There is scope for more strategic direction, co-ordination and management of the Fund. The MPA felt the Fund lacked strategic direction, especially on the terrestrial side, owing to the dispersed delivery model, the number of Government departments with a policy interest, and the large number of interested parties making a focus harder to achieve. Both the industry and NGOs drew attention to their limited capacity to engage with the Fund, especially to sit on steering groups and evaluation panels, and encouraged a more strategic approach to their involvement, especially at senior levels. In future a steering group could help provide ongoing strategic input.

Finally, some financial issues have hindered delivery, namely:

- The economic downturn has reduced demand for aggregates and therefore reduced quarrying activity and industry appetite for / capacity to engage with / scope to invest in improved working practices, and reduced the availability of third-party financing for projects at all scales. This has slowed progress in some areas and increased reliance on the ALSF in others;
- A declining baseline in some Fund areas has increased the challenge to manage programmes on a 7 per cent administration overhead as some overheads are irreducible. This has created pressure on delivery teams which may have adversely impacted the running of programmes;

\(^48\) However the mode of local authority grant delivery through LAAs does not allow Defra to impose data requirements, and the Department has intentionally kept voluntary reporting to a minimum, not least given the very limited Delivery Partner administration budget.
• The annual funding cycle and lack of year-end flexibility has made it more difficult to deliver projects, limited the types of project that can be delivered, and potentially reduced value for money.
9.4 Theme 1: Quarries

9.4.1 Reduction in Carbon emissions

Overview

The objective of the Carbon Trust’s ALSF work is to secure a reduction in the aggregates sector’s Carbon emissions. The main real-world impacts of the programme are behavioural change, more effective use of existing technology and uptake of new technologies resulting in more efficient operation, in turn leading to reduced energy consumption, generating Carbon savings and cost savings to the industry.

Ultimate success will be measured in terms of carbon savings; with their significance assessed against total national carbon emissions and in the context of potential maximum savings in the aggregates industry and in other parts of the Carbon Trust’s programme. Interim progress can be measured through the outputs of different stages of the Carbon Trust’s ALSF programme – including the baseline studies and the site-based engagement to date.

The Carbon Trust’s ALSF programme only started in 2008/09, so most of the effort to date has been focused on establishing the carbon baseline, identifying the potential savings and designing targeted work to achieve these. This means that achievements to date must be measured mainly in terms of outputs (reviews, reports, engagement), although some carbon savings are now starting to come through. The rate of progress has undoubtedly been adversely affected by the economic downturn.

Tactical and strategic delivery through site-based interventions and the Change Programme, accounting for around half of potential savings, are furthest advanced. While the Carbon Trust advised that it was difficult, and of limited value, to make predictions about the proportion of potential savings that would actually be delivered over the next 2-3 years, there can be fairly high confidence about achievement in these areas.

The collaborative and new technology activities are still at a very early stage; much will depend on progress in 2010/11 and the availability of funding in 2011/12, so while the Carbon Trust has clearly worked hard to lay the groundwork, achievement of this half of the programme is at this stage much less certain.

Figure 44 records all potential identified carbon savings that could be achieved by each workstream, as well as actual savings in 2009/10.
Figure 44 – Total identified and implemented carbon savings, 2009/10

<table>
<thead>
<tr>
<th>Work focus</th>
<th>Activity</th>
<th>Total (£m)</th>
<th>Annual identified CO₂ savings (tonnes)</th>
<th>Lifetime potential CO₂ savings (tonnes)</th>
<th>Annual implem’d CO₂ savings 2009/10 (tonnes)</th>
<th>Lifetime implem’d CO₂ savings (tonnes)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solutions</td>
<td>Understanding the opportunity (strategic review, transport review)</td>
<td>0.475</td>
<td>124,800</td>
<td>499,200</td>
<td>N/A</td>
<td>N/A</td>
<td>BCG Review identified much of Carbon to be delivered through other activities below.</td>
</tr>
<tr>
<td>Tactical delivery (SME site surveys, Big 5 interventions, mobile plant training)</td>
<td>0.670</td>
<td>181,635</td>
<td>726,540</td>
<td>TBC</td>
<td>TBC</td>
<td>TBC</td>
<td>SME site survey savings 2009/10 TBC after year end. Other and future savings implemented through Change Programme.</td>
</tr>
<tr>
<td>Strategic delivery (change programme)</td>
<td>1.209</td>
<td>30,000</td>
<td>120,000</td>
<td>30,000</td>
<td>120,000</td>
<td></td>
<td>These savings mainly delivered through Big 5 interventions.</td>
</tr>
<tr>
<td>Collaborative / sector-wide delivery (DVD, joint working with MPA etc.)</td>
<td>0.360</td>
<td>143,000</td>
<td>572,000</td>
<td></td>
<td></td>
<td></td>
<td>DVD Carbon savings implemented through Change Programme; rest of implementation 2010-12.</td>
</tr>
<tr>
<td>Innovations</td>
<td>Technology review</td>
<td>0.044</td>
<td>304,500</td>
<td>1,218,000</td>
<td></td>
<td></td>
<td>Implementation 2011/12 and further into future.</td>
</tr>
<tr>
<td>Delivery</td>
<td>0.652</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals (includes sum for programme management)</td>
<td></td>
<td>3.634</td>
<td>753,935</td>
<td>3,015,740</td>
<td>30,000</td>
<td>120,000</td>
<td></td>
</tr>
</tbody>
</table>

The Carbon Trust’s ALSF work is very well focused and stands to deliver good value for money in the short to medium term with potentially much more significant gains in the longer term subject to further funding in 2011/12.

While its overall impact on the UK’s carbon savings is small (the sector accounts for 0.49 per cent of total emissions), potential benefits within the sector are significant, and in the context of the national target to reduce overall emissions by 80 per cent, the emissions of any individual slice become more significant as a proportion, if they are not reduced. The ALSF is therefore helping to ensure that the aggregates sector makes its contribution to the national reduction. Activity to date has secured estimated implemented carbon savings which cut the sector’s emissions by around 1 per cent49. There is a good degree of confidence that a total reduction over baseline of 6 per cent will be achieved by 2011/12, with a more moderate degree of confidence of a total reduction of around 22 per cent during the 2015 to 2020 timeframe (subject to additional investment in 2011/12 and further into future).

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49 Reductions are actual or predicted savings calculated against the BCG study’s 2008 baseline of 2.6m tonnes of Carbon emissions.
beyond), with potential for more in the long term. The Carbon Trust has commissioned work to establish actual and potential carbon savings on a sector by sector basis; once this is available later in 2010 it will be possible to compare carbon reduction performance in the aggregates sector with other sectors.

The Carbon Trust’s self assessment was that their ALSF programme’s cost effectiveness is broadly in line with the cost effectiveness of other areas of the Trust’s work, particularly if the transferability of tools and approaches that has been achieved through a sector-based approach is taken into account.

**Impact and performance against objectives**

The Carbon Trust has established a **robust evidence base** for carbon savings in the aggregates industry through the *Aggregates Sector Strategy Review* undertaken by BCG, the Technology Review and the Transport Review. The BCG study identified potential for around 850,000 tonnes in annual carbon savings and concluded that the effort needed to achieve Carbon savings fell into three groups: changes to behaviour and processes, achievable with limited up-front investment; making technological change by piloting and rolling out established technology, and preparing for major longer-term structural change. This has shaped design of the subsequent implementation programme.

The implementation programme has included a sharp focus on **changing behaviour** through the tactical delivery workstream and Change Programme, working to achieve a culture shift so that the industry drives change itself rather than simply responding to strenuous efforts from the Carbon Trust. By March 2011, the Carbon Trust expects to have:

- Made the “big five” companies self-sufficient by giving them the tools and skills needed to identify carbon savings opportunities and convincing senior teams of the benefits of continuing the programme. Figure 45 describes the programme of site-based interventions with the “big five” and some of the savings they have identified. Figure 46 shows evidence gathered from one company that progress is being made. Carbon Trust are confident that their goal is achievable on the basis of an earlier initiative to embed best practice on health and safety in the industry;
- Established standards and best practice, with the potential to set minimum standards (e.g. KPIs, display energy certificate) adopted by the whole industry and maintained by an industry body. The Carbon Trust has so far worked with two of the “big five” on the display energy certificate which is now visible on their sites and actively being used as a tool; the industry is likely to adopt it as a standard in 2011, and
- Improved industry knowledge of how carbon savings can be made, and provided the tools and information needed. Early evidence of this was through the well-received *Carbon Sector Strategy Toolbox*; the Trust is now working to make tools and guidance widely available, building them into the Change Programme so that they become part of management practice, and is developing an industry portal that will out-live the programme.
The Carbon Trust’s ALSF Change Programme has been designed to combine a focus on behavioural change with technical operating improvements. The goal is to deliver long lasting behavioural change and operational improvement, without which adoption and implementation of new practices cannot be successfully achieved.

The Programme involves working closely with companies to deliver change through a ‘field and forum’ approach. There are a series of core engagement workshops (‘forum’) which set out a change process for sites (from recognition of the need for change through to how to embed and sustain change). These workshops are underpinned by site visits (‘field’) which reinforce the key messages and desired behaviours on the ground. The aim is to transfer skills to nominated ‘champions’ within each company so that the programme becomes self-sustaining.

Areas where savings are identified include:
- water reduction of asphalt feed stock – with a concerted effort saving £50,000 per site;
- base load reduction*, i.e. reducing early start up and equipment left running can save £6-10,000
- insulation and lagging asphalt dryer drums can save £5000;
- situating most-used stock next to where it will be used;
- turning lights off during the day.

Specific examples of savings include:
- a potential saving of £100,000 at one asphalt plant when the quarry worked hand in hand with the asphalt plant to deliver dry sand “just in time” thereby reducing drying times;
- savings of £4000 at one site where heaters were not on timers.

Wider benefits from the workshop and site visit programme include:
- different sites owned by the same company talking to each other and sharing best practice;
- ownership and responsibility shift down into lower levels of workforce in an approach very different to traditional command and control, which gives staff a feeling of being involved in running the business;
- individuals are making energy savings at home too.

The work on collaboration has, by the Carbon Trust’s admission, suffered from the availability of insufficient resource in the industry. The Trust has had to work hard and really push itself into over-stretched industry bodies to make progress. The majority of work has therefore actively been rescheduled to 2010/11 to allow for a breathing space. While the Trust is well placed to bring stakeholders together, it cannot be the long-term owner, so the focus will be on a jointly designed programme with the MPA, with the MPA taking over the lead in due course.

The innovation programme has necessarily had a long lead-in time and progress to date has been slower than hoped, but the Carbon Trust is confident that it still stands to deliver “substantial benefits” by March 2015 with the contracted projects set to complete in 2011/12. Its aim is to deliver a step change reduction in CO₂ from industrial processes by accelerating innovation in process control and the uptake of low-carbon technologies. The Technology Review identified four challenges which were issued to the industry:
1. Accelerating the development of a market for lower temperature mixed asphalt.
2. Implementation of heat recovery for pre-heating combustion air.
3. Implementation of advanced burner control.

The Carbon Trust is approaching contract signing for five projects as set out in figure 47. This shows that the Trust will be investing nearly £1m, with a potential annual carbon saving of over 300,000 tonnes, depending on the success of the technology, once implemented.

**Figure 47 – Innovations projects to be funded**

<table>
<thead>
<tr>
<th>Lead company</th>
<th>Challenge</th>
<th>ALSF funding (£m)</th>
<th>Estimated annual Carbon saving (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Asphalt</td>
<td>Low temperature asphalt</td>
<td>238,171</td>
<td>62,500</td>
</tr>
<tr>
<td>Tarmac</td>
<td>Low temperature asphalt</td>
<td>276,815</td>
<td>100,000</td>
</tr>
<tr>
<td>Aggregate Industries</td>
<td>Heat recovery</td>
<td>195,540</td>
<td>33,000</td>
</tr>
<tr>
<td>Hanson</td>
<td>Advanced burner control</td>
<td>78,135</td>
<td>30,000</td>
</tr>
<tr>
<td>Aeristech</td>
<td>Low carbon vehicles</td>
<td>183,373</td>
<td>150,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>972,034</strong></td>
<td><strong>375,500</strong></td>
</tr>
</tbody>
</table>

**Value for money assessment**

**Project planning, targeting and the base case**

The Carbon Trust has invested time, effort and over £0.5m in three reviews to establish the base case for action and to ensure that action is appropriately targeted.

On the basis of the BCG *Aggregates Sector Strategy Review*, the Carbon Trust is directing its efforts on the basis of where most savings can be made (although actual savings will depend on their accessibility in a given area). Thus a significant proportion of available resources has been targeted to downstream asphalt processing. The current economic climate has also been taken into account, with initial efforts focused on ‘quick wins’ that will bring significant savings to the industry without the need for major up-front capital investment. As explained in figure 48, in making investment decisions, the Trust has also taken into account the “persistence” of carbon savings.
Carbon savings can be measured in two ways - annual savings, and lifetime savings. “Lifetime” refers to the overall carbon impact of a project on the UK’s 2050 carbon reduction target and is the more meaningful number to use. Lifetime savings are calculated by multiplying annual savings by a “persistence factor” developed by expert technical consultants, to account for the fact that the impact of an action will decay over time. Activities such as awareness training have a very low persistence (approx. 1.6) whereas building best practice into management systems and KPIs can have a much higher persistence (approx. 3.8) and investment in new technologies can achieve persistence in the order of 6.

There is potential for some degree of overlap with work by other ALSF Delivery Partners, especially Dept for Transport and MIRO on transport work. The Partners are aware of this and have sought to make the most of opportunities for synergy as well as avoiding duplication, working to ensure clear and consistent sign-posting so that companies understand what support is on offer.

In response to questioning as to whether in the context of Carbon Trust’s overall aims, investment on this scale in the aggregates sector represented the best use of available funding, the Trust commented that the sector offered potential, although the exact distribution of funding might have been different if not ring fenced – for example the biggest aggregates-related carbon savings are those associated with cement, outside the scope of the ALSF.

The main risk to delivery flows from the slower than expected rate of progress. This was caused in part by the economic downturn reducing industry appetite and capacity to engage, but also by over-confident assumptions at the outset as to how quickly a programme of this size working with a conservative and resource-constrained industry could get under way. In particular, a rigorous evaluation procedure was needed to ensure value for money from the large-scale investment in Innovations projects; this necessarily took time to complete.

As a result, the work on collaboration, and the Innovations projects, are not expected to deliver in full by the end of the current funding period. The Carbon Trust concluded that it was worth starting them anyway, as substantial benefits will accrue by March 2011, and the expectation with any programme is that capital investment will take longer for companies to implement. If the estimated £1m needed in 2011/12 cannot be funded by the ALSF or supported by the Carbon Trust’s baseline, there is a significant risk that some of the potential value of investment to date will be lost, particularly on the innovations side where a managed roll-out will be essential to benefits realisation.

*Project / contractor selection and distributional issues*

The Carbon Trust has used existing Trust processes to ensure rigorous challenge in *project and contractor selection*. All technical work has been undertaken by accredited consultants. The Trust was conscious that a significant amount of work on tactical delivery had been undertaken by Enviros (albeit on the basis of fair and open processes) and was keen to broaden the contractor base in 2010/11 to ensure continued cross-fertilisation of

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50 Explanation provided by the Carbon Trust.
ideas and technical expertise within the sector, although they made clear that existing relationships between companies and consultants would always be supported if the consultant had the correct skill set.

Owing to the industry’s lack of experience in establishing large-scale collaborative projects, the selection process for the five Innovations projects required extra time, and much greater levels of clarification, support and mentoring than would normally be expected, to ensure high quality and value for money.

Carbon Trust has designed its programme to try to secure appropriate distribution of support between the “big five”, which account for 80 per cent of the sector’s carbon emissions, and the two hundred or more SMEs who make up the remaining 20 per cent. This has the trade-off that support for SMEs has been more expensive per tonne of carbon saved; to maximise vfm in this area, the Carbon Trust has worked to tailor the advice it can offer (for example, by grouping companies for shared workshops), and has worked with the MPA who are best equipped to help disseminate it widely.

**Quantitative and qualitative measures**

The achievements and value for money of the Carbon Trust’s ALSF programme can be measured in three key ways: carbon savings, cost savings, and leverage. Where insufficient quantitative data is currently available, a qualitative approach indicates the scope of further benefits.

The latest available figures show that the aggregates sector accounts for around 2.6m tonnes of carbon emissions per annum, or around 0.49 per cent of total UK Carbon emissions. To put this in context, the retail sector’s annual carbon emissions are 4.2m tonnes and the hotels and catering sector accounts for 2.9m tonnes of annual Carbon emissions. The Carbon Trust’s overall mission is to accelerate the move to a low carbon economy and thus support the Government’s target to reduce UK emissions.

The BCG study identified potential annual savings in the aggregates sector from short to medium term quick wins totalling 0.71m tonnes per annum, and another 0.3m tonnes per annum was identified from the Innovations workstream from 2015. Actual implementation will depend on the level at which the industry can be encouraged to invest.

The process for calculating and assuring carbon savings generated by the Trust's ALSF programme is described in figure 49.

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51 BCG study identified total UK aggregates sector Carbon emissions at 2.6m in 2008; DECC identified net UK CO₂ emissions at 532.8m tonnes in 2008.
Potential Carbon savings are assessed by an accredited consultant during surveys of specific sites; they may then be extrapolated for other sites. Once completed, a 25 per cent sample of all consultant reports are sent for technical review where they are double checked for accuracy and any assumptions made are tested, before being reviewed by the responsible account manager.

The Carbon assurance process assures the process rather than the numbers itself and is managed through a ‘closeout’ database. It is designed to ensure that any carbon savings are additional and can be attributed to the Trust’s work. Follow-up is generally undertaken by telephone to check whether the company has implemented the recommended actions. In the case of the larger projects, follow-up has involved technical consultants visiting companies. The dual benefits of this extra effort where large amounts of carbon savings are at stake are more accurate accounting, plus an opportunity to look for further future savings. The Carbon Trust employs an independent assurer who reviews the process and numbers, sample checks the database and does an outlier check on large savings, and interviews staff and customers.

The first carbon savings generated by the programme are being seen in 2009/10, estimated to be 30,000 tonnes annual savings or 120,000 lifetime savings, generated through Change Programme activities (mainly through the work with the “Big Five”). This represents a one per cent cut in the sector’s total emissions.

While the main benefits will be seen beyond the life of the current three-year programme, the Carbon Trust estimates that by the end of 2011/12 (i.e. “year 4”), its activities could be delivering 160,000 tonnes annual savings or 630,000 lifetime savings in short to medium term gains (although this assumes investment by the industry, so will be influenced by the economic situation). This would represent a six per cent cut in the sector’s total emissions.

The collaboration (100,000 tonnes annual / 400,000 lifetime savings) and innovation work (300,000 tonnes annual / 1.2m lifetime savings) have the potential to deliver further significant gains in the 2015 – 2020 time frame. However this will be partially dependent on additional investment of up to £1m by the Carbon Trust / Defra in 2011/12, which is beyond the current three-year funded programme, and will also require significant investment from the industry. If these additional savings were achieved, the total impact of the Carbon Trust’s ALSF work would be a 22 per cent reduction in the aggregates sector’s carbon emissions, representing nearly 80 per cent of the short to medium term Carbon savings identified by the BCG study.

In addition, the behavioural changes being driven by the current three-year programme will open the industry to the potential for further major technical innovation beyond the Innovations work already planned, by generating funding for further investment through accrued savings, reducing the barriers to bigger investments, and by building competence and confidence.

The cost savings accruing to the industry from implemented efficiencies have not yet been calculated but this will be possible on an annual basis from 2009/10 once all the data for a given year have been collated after year end.

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52 Explanation provided by the Carbon Trust.
53 These figures are still being verified.
The Carbon Trust is securing major additional investment and contributions in kind to supplement the £3.6m in ALSF funding for the period 2008-11. The Trust is contributing between 25 and 60 per cent to each of the five Innovations projects; additional financial contributions by the project consortia total nearly £1.2m, representing a leverage factor of more than 2.2.

The Solutions workstreams have not required matchfunding because significant resource is contributed in kind during workshops and site visits, and through the capital investment needed to realise carbon savings. Data on capital investment are being collected but are not yet available. Carbon Trust provided an example of in kind contribution as follows – a “big five” company with 13 sites in the workshop / site visit programme would expect to invest 135 person days through workshops, site visits and leadership and management time; this would be multiplied seven or eight times to get the resource cost of roll-out across 100 sites.

This level of industry contribution compares favourably with that seen in other parts of the ALSF programme.

There is some limited scope to assess the cost effectiveness of the Carbon Trust’s ALSF work. The Trust has assessed the cumulative cost effectiveness of lifetime carbon savings implemented up to 2011/12, to be £7.28 per tonne of carbon savings\(^{54}\). This includes very little of the potential Innovations savings as these will be delivered mainly from 2015 onwards and because they require further investment in 2011/12 fully to capitalise the benefits.

While the grant per tonne of CO2 saved is slightly higher than other Carbon Trust “business as usual” programmes, in their view the cost effectiveness of the ALSF work “compares favourably” overall because:

- The initial research and set-up costs of a Carbon Trust service would usually support a much longer delivery period to a wider audience. The ALSF’s three-year funding cycle means that all of the initial research and set up were amortised over a very short delivery period working with a very limited customer base, and
- The programme has been used as an opportunity to create an approach that is being applied to other sectors and so will create additional savings that cannot be directly offset against the ALSF investment made. The BCG study has now been adapted to create a template for a five-day consultant-led review applicable to other sectors. Tools such as the industry portal may be re-used elsewhere, and the ‘how to’ guides and ‘toolbox talks’ are ideas that will be propagated in other sectors. Wider potential cross-fertilisation is evident from recent Carbon Trust meetings with BIS and DECC. This means that a simple grant per tonne calculation does not fully capture the impact of the programme.

\(^{54}\) Figures for the Carbon Trust’s overall cost effectiveness for the past few years are: 2005/06: £5-7t/CO₂; 2006/07: £4-7t/CO₂; 2007/08: £4-6t/CO₂.
The present value in monetary terms of the carbon saving benefits secured by the Carbon Trust’s ALSF programme up to 2020 is estimated to be £58.4m (see Annex H for more details).

While the Carbon Trust makes a number of references to the need to ensure that tools and guidance are widely known about and available to potential users, it is certain that more could be done to ensure appropriate knowledge management, perhaps working more closely with other ALSF-run websites. For example while the BCG study is available on the Carbon Trust’s website, if it were available on the Sustainable Aggregates website it would be higher profile and more accessible to the wider aggregates community.

**Stakeholder and delivery partner views**

Stakeholders are generally positive about the potential for the Carbon Trust’s work to deliver benefits; comments from the industry reflect the challenges the Trust has encountered in trying to engage, particularly on the collaboration work. The MPA’s view was that its members were “behind the principle”, and felt that it was in the nature of new work that it would take time to build support. The MPA did however express concern that the current Trust emphasis was too far towards strategy, with too little on the ground (although this view may pre-date much of the work on the Change Programme undertaken during the second half of 2009/10).

A number of other Delivery Partners, although commending the quality of the BCG study, expressed surprise at the level of investment involved by comparison with the scale of funding available elsewhere, and wondered whether it could have been done more cost effectively. The Carbon Trust was clear that due process had been followed, the industry had been involved (including MPA involvement in the selection process) and that they had received good feedback. They felt that the study had been “groundbreaking” by comparison with equivalent work undertaken for other sectors, because of the way it pulled the evidence base together and has acted as the foundation for all subsequent work; it contained new material that has moved industry learning forward; it represented good vfm by comparison with undertaking carbon management individually with lots of companies, or developing the evidence base piecemeal. As noted above, the approach is now being applied (in-house) in other sectors – for example, studies of retail and warehousing have already led to industry initiatives and five other sectors are in various stages of study and delivery.

These comments seem to be a reflection on organisational culture and aspirations as much as anything else – two other stakeholders also commented that the Trust needed to accept that there might be limits to what could be achieved rather than re-opening work already done. The Carbon Trust responded that it “believes that the things that the industry feel it has already done or are impossible are the very things it ought to be challenging”. The Trust evidenced this comment with two examples. First, there are studies dating back to the 1980s that show that cold-cure asphalt is entirely workable, but it is not in use. Second, there were a number of instances of site-based visits in the current ALSF programme where the manager declared that they had done everything, but
9.4.2 Benefits to the natural environment around quarries

Overview

The objective of Natural England’s ALSF programme is to deliver benefits to the natural environment around quarries, with a focus on five themes. The main real-world impacts of the programme in areas around aggregates quarries are:

- Conservation of and improvements to, as well as improved understanding of, the landscape, biodiversity and geodiversity, contributing to BAP and GAP commitments;
- Improved access to the natural environment securing “green space” benefits to visitors;
- Benefits delivered to, and capacity built in, communities affected by extraction;
- Improved evidence on the impacts of aggregates quarrying on the natural environment and better data to inform mitigation and management.

Although the absence of quantified targets makes it difficult to determine whether the objective has been met, there are many project outputs that can be quantified to give an impression of the difference made by the programme. These include: footpath length renewed or installed, hectarage in which the landscape has been improved, number of volunteers involved\(^55\). One aspect of the programme’s performance considered in detail below is the extent to which it can contribute to achievement of local, regional and national BAP targets. More qualitative aspects of the programme’s achievements can be assessed through a number of case studies provided by Natural England.

The most detailed information is available about 2008/09 projects; less evidence is available on 2009/10 and 2010/11 projects\(^56\).

The wealth of output-based measures of performance demonstrate the strong positive impact Natural England’s ALSF programme is having on the landscape, biodiversity and geodiversity in and around quarry sites, and the extent to which it is improving access to such sites. The case studies available for this evaluation provide an indication of the less tangible benefits, including those for the health and wellbeing theme, and evidence gathering. These point clearly to the conclusion that the programme is achieving its objective to improve the natural environment around quarries, including through excellent partnership working with industry.

There are two areas where a better story could be told. First, despite the significant potential contribution the programme can make to achieving BAP and GAP targets, there

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\(^55\) This evaluation considered the possibility of applying value transfer to these metrics to give indicative monetised benefits, but insufficient contextual information was available for this purpose.

\(^56\) Output information for 2009/10 is being collected; 2010/11 projects are ongoing.
was no off-the-shelf material enumerating the actual contribution being made\textsuperscript{57}, and the case studies provided were themselves inconsistent, some providing information on the percentage contribution to BAP targets and others not. Second, there was no available collated evidence on the wider “green space” benefits derived from improved access and recreational opportunities, and the significance of these e.g. in terms of their impact on public health. A much more detailed case study approach would be needed to improve the evidence base in both areas.

It is difficult to reach a judgement on the vfm offered by the programme in the absence of a detailed case study approach (this was not possible within the time constraints of this project). Although Defra and Natural England made a conscious decision not to set numerical targets\textsuperscript{58}, it would have helped to have more baseline and contextual information to provide some indication as to whether the scale of actual achievements represents vfm. Moreover, because Natural England has not devoted the same level of resource to “telling the story” as some other Delivery Partners who also work in areas where impacts and vfm are harder to quantify, this analysis starts from a lower baseline, which makes it harder to deliver a fair comparison.

Natural England’s programme has delivered a huge quantity and breadth of outputs – but then it has also received a significant amount of funding. However it is clear that the vfm picture is largely very positive:

- A robust selection process is in place to ensure the vfm of projects funded, although it is not clear that the open application process is the best way to ensure fair distribution of funding either regionally (see “future funding opportunities” section) or between potential recipients.
- Vfm is in some cases constrained by the annual funding arrangements (over which Natural England has no control) and by the risk that the progress achieved by some projects may not be sustainable in the long term in the absence of further funding. Industry and nature conservation stakeholders are supportive of the programme, under which individual projects are evidently making a significant contribution to the five Natural England themes, and some are helping to achieve UK targets.
- The programme is achieving excellent financial and in-kind leverage, and although the value of many of the benefits (e.g. collaboration, health and wellbeing) is difficult to quantify, they do offer added and wider value.
- There is scope to get a better handle on vfm.

\textsuperscript{57} Natural England drew attention to the national database known as BARS (Biodiversity Action Reporting System) on which all projects with a biodiversity element are required to record outcomes. This information was received very late in the evaluation so it was not possible to explore if or how BARS could help to enumerate the ALSF’s contribution to biodiversity aims.

\textsuperscript{58} Numerical targets would have acted as a constraint on the Delivery Partner’s wish to achieve a wide range of outcomes. Natural England was also understandably reluctant to try to second guess what proposals might come forward through its open application grant scheme.
Impact and performance against objectives

Figure 50 demonstrates that many projects address more than one of the five themes, although most focus on just one. Theme 1: Landscape and nature conservation is the greatest beneficiary. While few projects have the priority area “Health and wellbeing” as their exclusive aim, Natural England says that most projects “contribute significantly” to this aim and project outputs demonstrate real benefits to communities. Natural England cited the following examples for the period 2006 – 2008: more than 74,000 metres of footpath or boardwalk constructed; more than 1,000 school or college visits made to projects involving over 50,000 students, and at least 1,900 new volunteers actively engaged in work on the natural environment. To date there have been few projects focusing on the new ecosystem services priority area within “Evidence gathering”, but Natural England expects that further applications will be forthcoming in future years should the ALSF continue.

The breakdown by theme for 2009/10 and 2010/11 projects is expected to be broadly comparable. 91 projects have been funded in 2009/10; Natural England provided details of a second year of funding in 2010/11 for 49 of these.

Figure 50 also lists the quantifiable impacts of Natural England projects, mainly covering improvements to the landscape and biodiversity; improvements to access and amenity, and on the extent and nature of outreach / education work.
### Figure 50 – Quantifiable project impacts

<table>
<thead>
<tr>
<th>Natural England theme</th>
<th>Number of projects which contributed to theme in 2008/09</th>
<th>Outputs of 2008/09 projects</th>
<th>Outputs recorded on the database</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape and nature conservation</td>
<td>38 (biodiversity); 15 (geodiversity)</td>
<td>41.7ha land purchased</td>
<td>30 projects / 2,823ha biodiversity improvements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,327.5ha habitat improvements</td>
<td>1 project / 2km watercourse improvements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 projects / 2,823ha biodiversity improvements</td>
<td>32 projects improving SSSI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 project / 2km watercourse improvements</td>
<td>3 projects improving SAC / NNR / SPA / Ramsar interest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 projects removing threat caused by current extraction to BAP target species or habitats</td>
<td>5 projects improving AONBs / National Parks / Heritage coast</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11 projects restoring a total of 16 monuments</td>
<td>5 projects providing interventions at sites containing regionally important specimens</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31 projects restoring biodiversity</td>
<td>No quantified data available.</td>
</tr>
<tr>
<td>Access and informal recreation</td>
<td>30</td>
<td>11.25km new/upgraded footpaths</td>
<td>9 projects / 348ha amenity improvements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 bridle link</td>
<td>41 projects making provision for disabled people</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,150m fencing</td>
<td>No quantified data available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 bird hides</td>
<td>No quantified data available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>22 steps</td>
<td>No quantified data available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11 gates</td>
<td>No quantified data available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.3m footbridge</td>
<td>No quantified data available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>22m stone wall</td>
<td>No quantified data available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60m new dry stone wall</td>
<td>No quantified data available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.075km improved access</td>
<td>No quantified data available.</td>
</tr>
<tr>
<td>Health and wellbeing</td>
<td>3</td>
<td>No quantified data available.</td>
<td>No quantified data available.</td>
</tr>
<tr>
<td>Education and understanding</td>
<td>27</td>
<td>2 visitor / education centres</td>
<td>39 projects using a total of 1,354 volunteers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>69 workshops / guided walks</td>
<td>9 projects running a total of 86 events to promote understanding</td>
</tr>
<tr>
<td></td>
<td></td>
<td>65 school visits</td>
<td>5 projects with events targeted at specific audiences, reaching 525 members of local communities and 4,247 school pupils</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4,367 children visiting site</td>
<td>No quantified information available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>419 volunteers</td>
<td>No quantified information available.</td>
</tr>
<tr>
<td>Evidence gathering</td>
<td>25</td>
<td>4,004 education packs</td>
<td>No quantified information available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80,600 guides, leaflets, newsletters produced (including GAPs)</td>
<td>No quantified information available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>84 interpretation panels / boards</td>
<td>No quantified information available.</td>
</tr>
</tbody>
</table>

One of the greatest potential areas for improvements to be delivered through Natural England’s ALSF programme is BAPs. The Minerals Restoration Potential Project (MRP)

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59 Data provided by Natural England or extrapolated from database.
Policy projects for CLG, DfT, DECC and Defra

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funded by an earlier ALSF round found that mineral sites across England could make a huge contribution to achieving UK BAP 2012 targets for habitat creation. Some of the priority habitats which could most benefit are listed in figure 51 below.

Figure 51 – Potential mineral site contributions to UK BAP targets

<table>
<thead>
<tr>
<th>Priority habitat</th>
<th>UK BAP target (ha)</th>
<th>Potential contribution made by England mineral sites to BAP target (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowland dry acid grassland</td>
<td>276</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Native woodland</td>
<td>53,000</td>
<td>95</td>
</tr>
<tr>
<td>Lowland wood-pasture and parkland</td>
<td>120</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Lowland calcareous grassland</td>
<td>8,426</td>
<td>44</td>
</tr>
<tr>
<td>Lowland heathland</td>
<td>7,600</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Purple moor grass and rush pastures</td>
<td>151</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Wet reedbeds</td>
<td>1,715</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Coastal and floodplain grazing marsh</td>
<td>1,250</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Saline lagoons</td>
<td>100</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Lowland meadows</td>
<td>256</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Upland hay meadows</td>
<td>72</td>
<td>&gt;100</td>
</tr>
</tbody>
</table>

Figure 52 shows how six 2008-11 projects are contributing to achievement of BAP targets, demonstrating the breadth of potential contributions and how single projects can benefit more than one priority habitat and numerous priority species. Some projects contribute in kind, developing the evidence base and providing guidance to enable wider practical support to habitats and species; others directly enable the creation of new habitat. Impacts are not quantified consistently, but specific examples demonstrate how an individual project can make a nationally significant contribution to targets.

Natural England’s ALSF programme is also supporting the successor to the MRP project – the national strategic partnership between RSPB and Natural England known as Nature After Minerals (NAM). NAM’s goals are:

1. To help deliver more priority UK BAP habitats on mineral sites in a way that is appropriate, high quality and sustainable.
2. To promote the huge benefits that high quality restoration on mineral sites can offer to people and wildlife.

The ALSF is providing £265,000 over 18 months which contributes 75 per cent of the total costs of a project enabling further development across the whole of England of an online

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60 Source: Nature After Minerals presentation.
GIS mapping tool showing the best restoration options for past, current and future aggregates quarries. It will also fund a national Planning Advisor and two Restoration Advisors who will focus in particular on Dorset and the East Midlands, where there is greatest scope to restore future, current and past aggregate quarry sites to UK BAP priority habitats. NAM’s impact will start to be seen in 2010, but many of its benefits, especially those relating to the planning system, will only be detected over the long term.

Figure 52 – Case studies of 2008-11 projects contributing to achievements of BAP targets

<table>
<thead>
<tr>
<th>ALSF project</th>
<th>ALSF funding 2008-11 (£)</th>
<th>Wider project (if relevant)</th>
<th>Beneficiary habitats / species</th>
<th>Activities undertaken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating Priority Ponds on Aggregate Sites</td>
<td>80,615</td>
<td>Million Ponds Project</td>
<td>Ponds, supporting up to 82 BAP species</td>
<td>Promote and support Priority Pond creation on aggregate sites through a dedicated Pond Officer for the mineral industry, enabling aggregate extraction sites to make a significantly greater contribution to national and local BAP targets for freshwater species and habitats.</td>
</tr>
<tr>
<td>Crayfish Arks for the Peak District and Derbyshire</td>
<td>23,231</td>
<td>N/A</td>
<td>White Clawed Crayfish LBAP and UK BAP targets</td>
<td>Outputs will include detailed reports on methodologies, practicalities and outcomes of Ark site selection, preparation and implementation, to be disseminated on a national basis.</td>
</tr>
<tr>
<td>Whin Grassland, Northumberland</td>
<td>128,300</td>
<td>N/A</td>
<td>Whin grassland</td>
<td>Establish Whin grassland as distinct classification within Northumberland LBAP; develop best practice guide for Whin grassland; practical site works to conserve and restore habitat; improve understanding of Whin grassland.</td>
</tr>
<tr>
<td>Ouse Fen, Cambridgeshire</td>
<td>56,680</td>
<td>Hanson-RSPB Wetland project</td>
<td>Reedbed (by 2030; 40% of 2010 target for reedbed creation in UK), floodplain grazing marsh, skylark, brown hare, linnet, yellowhammer</td>
<td>Contribution to habitat restoration; contribution to establishment of appropriate habitat management.</td>
</tr>
<tr>
<td>Lackford Lakes Farmland BAP project, Suffolk</td>
<td>56,362</td>
<td>Lackford Lakes nature reserve</td>
<td>Tree sparrow, other farmland BAP birds, common lizard, grass snake</td>
<td>Habitat creation to address critical factors thought to be limiting tree sparrow success with the aim of attracting them to Lackford Lakes nature reserve.</td>
</tr>
<tr>
<td>Langford Lowfields, Newark</td>
<td>40,600 (NB this was 2007/08)</td>
<td>N/A</td>
<td>Reedbed (nearly 3% of UK target, 10% of regional target, 33% of county target); bitterns (2% of UK target)</td>
<td>Restore Tarmac site to nature conservation area in partnership with the RSPB.</td>
</tr>
</tbody>
</table>

As well as contributing to achievement of BAPs, the ALSF has helped the delivery of Local GAPs. These include the Lincolnshire Geodiversity Audit and GAP for aggregates sites and the Greater Manchester Biodiversity and Geodiversity Action Plan for Quarries. GeoConservationUK also drew attention to the dramatic effect of ALSF-funded projects in raising the profile and understanding of aggregates, the aggregates industry and geoconservation generally.
Natural England’s projects also deliver a range of qualitative and wider benefits. Key among these are “green space” benefits\(^\text{61}\), including community cohesion and vibrancy, economic regeneration, and a positive impact on physical and mental health. These are not limited to projects in the health and wellbeing theme. For example GeoConservationUK had evidence that the conservation of geodiversity in the West Midlands helped “generate pride of place” and brought “added value … via the visitor economy and through education and lifelong learning”. Their projects had worked hard to give back to the community, for example through the creation of maps, walks, interpretations boards and quarry viewing areas.

A number of stakeholders drew attention to the way in which the ALSF had enabled **improved engagement and dialogue** between the industry and nature conservation bodies, including developing a new strategic level relationship to supplement existing site-level partnerships. This is supported by the statistics – over a third of the projects on the database include active industry partnership.

A flavour of these more qualitative benefits can be gained through the case studies set out in figure 30 in section 8.2.3, and enumerated below:

- The ALSF element of the **Ouse Fen Nature Reserve** project (landscape and nature conservation) will deliver a range of benefits through improving and managing new habitats, including improved cattle handling and grazing management to promote grassland establishment;
- The **Adrenaline Gateway Mountain Bike Trail** (access and informal recreation) is helping provide employment and income to Pennine Lancashire, developing the tourism offer and encouraging commercial opportunities;
- The **Willow Lanterns Community Event** (health and wellbeing) generated feedback from young people strongly supporting the sense of wellbeing the creative community process gave them;
- The **Darwin Memorial Garden** project (education and understanding) helps promote understanding of the relationship between geology and mineral working by exhibiting the different types of aggregate worked in Shropshire and the uses to which they are put;
- The **River Lamprey Survey** (evidence gathering) has increased understanding of the species and will ultimately help develop a population model and sustainable management and species conservation plan, as well as helping to protect the species when applied to mineral planning consents for future aggregate extraction.

**Value for money assessment**

**Project planning, targeting and the base case**

Natural England sets the framework for its ALSF programme through the five themes and priority areas; its programme is then entirely open so the targeting of work is partially

\(^61\) See for example Dr William Bird’s October 2004 report for the RSPB *Natural Fit: Can green space and biodiversity increase levels of physical activity?*
dependent on the types of application received. Beyond the current identified priorities, although there is no weighting between themes, the distribution of projects is not even. The landscape and nature conservation theme does particularly well, with over half of projects having a positive impact; at the other end of the spectrum, only 3 projects identify the health and wellbeing theme as their principle target. It may be, therefore, that project applications tend to target the easier / more accessible / better established natural environment projects, rather than pushing the boundaries of what can be achieved.

Because nearly all its projects are weather and season dependent, the Natural England programme has been more vulnerable than most others with the constraints placed on funding by the absence of year-end flexibility and delays to confirmation of funding. The RSPB had evidence that the fact that 2008/09 funding was not available until November 2008 had made it difficult to optimise value for money in that year because it was not possible to undertake some projects over the winter months. The same is true for the NAM project being funded in 2009-11: while the funding is available over a two-year period, only 18 months is available for delivery, and the 15-month contracts for planning and restoration advisor posts may not be long-enough term to attract a competitive range of candidates. Natural England accepted that this would affect the project’s outputs but contends that this risk would have been reduced had funding been announced earlier, had there been a longer funding period with guaranteed annual funding and end year flexibility.

Natural England also agreed that sustainability was a potential risk. While all projects should in theory have an exit strategy and be sustainable beyond the ALSF funding period, and while this was a point made regularly to projects by Natural England, there was circumstantial evidence of some (but by no means all) funded organisations viewing the ALSF as a continuous funding stream useful for ongoing habitat management. No evidence was available on the proportion of projects whose work might be undone (e.g. newly created habitat reverting in the absence of ongoing management) in the longer term in the absence of an exit strategy.

Project / contractor selection and distributional issues

To be eligible, projects normally have to be 10km or less from a quarry; to ensure that the ALSF was not funding quarry operators’ obligations, the relevant local authority is also asked to confirm that what is being funded is over and above the current planning requirement. However Natural England did say that the application of this boundary would vary, dependent on factors including the age of the planning consent and the area of the country covered by the project (some projects are either regional or national).

A robust selection process is in place, involving a sift assessment according to published criteria, with projects scoring over 60 per cent of the maximum being passed for decision either to the grants management team or, for projects worth over £50,000 per annum, to an independent Panel. Eligibility, quality and value for money are considered at the initial sift, with further consideration, accompanied by a risk assessment, by regional (and, if appropriate, national) Natural England experts prior to decision on projects successful at

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62 Panel membership comprises: Natural England (Chair), MPA, BAA, Countryside Management Association, Staffordshire County Council, Dudley Metropolitan Borough Council.
the first stage. Industry participation in the Panel acts as a further check on vfm, because the MPA and BAA are well placed to put individual projects in context and able to confirm the extent to which what is proposed will add value.

There seemed to be a tendency for repeat applicants by regular beneficiaries. Natural England agreed that the programme did tend to favour the sorts of groups well equipped to write project applications; there was limited scope to “drive in new business” given that funding was only confirmed on a year-by-year basis. This may affect the fairness of project distribution, and this risk may be compounded by the absence of systematic communication with the relevant Delivery Partners under theme 5: Communities. 49 2010/11 projects (of the 91 funded in the previous year) are scheduled to receive funding for a second year. While it would be entirely inappropriate for this evaluation to challenge it, this level of emphasis on repeat funding runs is inconsistent with the approach operated by many of the theme 5: Communities Delivery Partners, who stated that they would actively reject funding the same project for a second or third year in the interests of spreading benefits (including some natural environment benefits) as widely as possible.

Quantitative and qualitative measures

It is clear that the Natural England programme secures excellent leverage, as it normally funds up to a maximum of 75 per cent of project costs. The leverage factor for Natural England projects on the database was 1.5, bringing in a total of nearly £6m in just 2008/09 and 2009/10. This under-represents total leverage, as contributions in kind are widespread – for example the local quarry operator might contribute quarry stone, transportation or office space; the wider local community may contribute volunteers.

The section above describes the wealth of quantitative output measures. These all add value and some projects have conservation value of UK or European significance. The fact that this evaluation has not been able to quantify their vfm is no reflection on the value of their contribution.

The RSPB confirmed that it would be difficult objectively to measure the value for money of the outputs delivered because the unit cost of delivery (e.g. cost per hectare of restored habitat) will vary from site to site depending on specific conditions; in addition, many ALSF projects are part of a larger initiative so the ALSF contribution may not be separately identifiable. It may be worth a more detailed evaluation of the vfm of individual projects contributing to achievement of BAP targets to help inform how these may be met in the most cost effective way. Such a study should also be able to demonstrate what proportion of priority habitats and species were benefiting from the ALSF.

The NAM project has potentially high quantifiable vfm if the appointed advisors are able to engage and influence as intended, and if local authorities and quarry operators then make the most of identified opportunities. It will start to be possible to measure this from 2011, although some of the impact will be much longer term.

There would be some scope to quantify some of the “green space” benefits delivered by the ALSF, for example by investigating in detail some of the outcomes of community
capacity building, and the extent to which physical and mental health benefits contribute to a measurable reduction in public health costs. While the worth of such research would probably be limited by the difficulties in isolating the impact of ALSF funding from other local initiatives, if the results were positive it might strengthen the wider case for support for projects delivering “green space” benefits in certain (e.g. deprived) areas. The ALSF support prior to 2008/09 for the development of Rainham Marshes might be an example of this.

Stakeholder and delivery partner views

Industry representatives were supportive of Natural England’s programme, with particular enthusiasm for the biodiversity element. This is reflected in the large proportion of projects involving the industry in one way or another. The RSPB attributed the industry’s uptake of biodiversity work substantially to the NAM and its predecessor project, for providing the evidence for the benefits, and reported that (outwith the ALSF, but building on NAM) the Society was working in partnership with Cemex UK to develop a Biodiversity Strategy; this included the appointment of a dedicated Biodiversity Restoration Advisor to review restoration opportunities for wildlife across their UK sites. Other nature conservation bodies also felt that the NAM was helpful. One funding beneficiary felt that the combination of tight targeting and flexibility to the needs of individual projects was enabling Natural England to get best value from funding.

The CNP recognised the ALSF’s potential contribution to BAP targets, but suggested that this element of funding might achieve best value for money if focused on “legacy quarries” which have been left in a poor state, rather than providing further support where planning conditions already ensure a good level of aftercare. If further analysis were to be carried out, it might be worth exploring the information captured by Defra’s database on the types of quarry site at which projects are situated.

9.4.3 Address research gaps with potential significantly to improve the sector’s environmental performance

Overview

The objective of the MIRO-MIST and English Heritage research programmes is to fill pre-identified research gaps that enable site-level application of new technologies across identified priority themes, support a major information portal for the ALSF, and develop practical new techniques relevant to management of the historic environment and identify and characterise the historic environment in aggregates quarrying areas.

The main real-world impacts of the research programme are:

- Improved understanding and techniques leading to more efficient and safer aggregates quarrying with a reduced environmental impact;
- A well-designed and well-maintained web portal containing the best possible range of information to ensure that the outputs of ALSF-funded projects reach the target audience;
• A better understood and optimally managed impact on the historic landscape resulting from improved strategic landscape planning, and improved and well-disseminated non-invasive mapping techniques and monitoring and assessment systems.

Although the scope to quantify the impact of the research programme is limited (particularly at this stage, when many projects are not yet completed, let alone effectively dissemination), performance assessment may be informed by:

• The extent to which the programme is meeting previously identified research priorities and set targets;
• The range and significance of project outputs, and
• Whether project outputs have scope for practical application that will improve the sector’s environmental performance.

Figure 53 summarises research outputs and impacts against MIRO and English Heritage’s identified priorities. The subsequent section provides a fuller assessment of performance against each theme / priority. This shows that the research programme addresses the full range of research priorities at least to some extent. There has been particularly notable progress in some areas (e.g. Aggregate Resource Assessments). In other areas, less progress has been made than had been hoped – it is not clear how far this is due to resource constraints, and how far it can be attributed to a lack of take-up from the research community. It is really too early to look at actual impact on the ground, but there is clear potential practical applicability supported by positive responses from stakeholders.

The MIST and English Heritage research programme represents good to excellent potential value for money. It is targeted to evidence-based research priorities, projects are awarded through a robust process and (in the case of MIST) industry buy-in is indicated by an average 50 per cent financial or in-kind contribution. There is some concern from the Delivery Partner that funding constraints have hampered vfm. Stakeholders also feel that there has been an overemphasis on theoretical work, although this perception is largely a legacy of MIST prior to 2008 and was addressed by the benchmark reviews undertaken in 2007/08. The only obviously “theoretical” piece of work in the current period is the study quantifying the beneficial effects of quarry voids in reducing flood risk and optimising quarry design criteria for flood risk reduction. It will take some years to build substantial evidence of actual vfm; this will be maximised with appropriate future attention to knowledge management and dissemination.
## Figure 53 – Summary of performance against research priorities

<table>
<thead>
<tr>
<th>Theme</th>
<th>Priority / performance indicator</th>
<th>Outputs / impact of funded projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact of quarrying on the water environment</td>
<td>Understanding the water environment, planning and regulation, operational base activities, effects associated with the after-use of mineral workings</td>
<td>2 projects – beneficial effects of quarry voids in reducing flood risk; abstraction licensing case studies.</td>
</tr>
<tr>
<td>Dust, noise and vibration</td>
<td>9 specified areas of interest.</td>
<td>2 projects – origins of air overpressure from quarry blasting, protocol and guidance improvement for quarry dust.</td>
</tr>
<tr>
<td>Transport</td>
<td>3 specified areas of interest.</td>
<td>1 project – improve safety and efficiency through guidance for quarry operators and manufacturers of mobile plant.</td>
</tr>
<tr>
<td>Planning and assessment of quarrying</td>
<td>Aggregate resource information, sustainability consequences of aggregates provision, SEA, SA and EIA, training, guidance and tools.</td>
<td>1 full project and 1 output from 3-pronged project below – measuring potential reactivity of sulphides in aggregates, business strategy to help aggregate industry meet challenges of sustainable aggregate production.</td>
</tr>
<tr>
<td>Optimising efficiency of primary aggregate production</td>
<td>Deposit evaluation, blasting, comminution plant optimisation, use of Mine-to-Mill technology to optimise crushed stone production, future use of dry/reduced water extraction and processing technologies.</td>
<td>2 projects – evidence-based approach to sampling of sand and gravel deposits. 3-pronged project, 2 relevant here: addressing optimisation of crushed stone production, energy consumption.</td>
</tr>
<tr>
<td>Sustainable utilisation of quarry by-products</td>
<td>4 specified areas of interest.</td>
<td>2 full projects plus one element of three-pronged project above – quarry dust in road foundation materials, in reactive barriers to remediate contaminated soils and water, and new high volume outlet for surplus dust and fillers.</td>
</tr>
<tr>
<td>Creating environmental improvements</td>
<td>Biodiversity, geodiversity, restoration.</td>
<td>2 projects – improve dissemination of info on geodiversity to communities affected by quarrying, help 12 SMEs to promote geodiversity. Plus the by-products project on use of quarry dust in reactive barriers for remediation purposes will contribute.</td>
</tr>
<tr>
<td>Identification and characterisation of the historic environment in key existing or potential areas of terrestrial extraction</td>
<td>Initiate and deliver 9 further historic environment strategic resource assessments for significant and prioritised aggregates extraction, to inform strategic landscape planning.</td>
<td>Exceed: 12 new projects anticipated complete by 2011; a total of 23 nationally via ALSF.</td>
</tr>
<tr>
<td>Identification and characterisation of the historic environment in key existing or potential areas of terrestrial extraction</td>
<td>Initiate and deliver 6 methodological/pilot projects delivering systems for integrating historic environment, landscape and/or biodiversity data to provide a holistic basis for management.</td>
<td>Not meet: no uptake. One anticipated major project did not start owing to staff reductions in a local authority.</td>
</tr>
<tr>
<td>R&amp;D on strategic identification and mitigation of impacts</td>
<td>R&amp;D to: - improve remote-sensing technologies for non-invasive mapping of aggregates landscape to reduce environmental impact; - improve monitoring and assessment systems to increase understanding of impacts and threats to aggregates-rich landscape; - developing with industry solutions to risks identified; - creating guidance documents and resources for effective knowledge transfer within industry and to planners / curators.</td>
<td>Meet: relevant projects complete in all areas by 2011.</td>
</tr>
</tbody>
</table>
Impact and performance against objectives

MIRO has ensured that each of its seven MIST priority research themes has been addressed to some extent, but it is clear that the Organisation’s budget over the three year period has not enabled all the priorities to be addressed.

If successful, the three areas of work improving utilisation of quarry by-products look as if they will materially expand the potential to re-use quarry dust; likewise the projects funded under the dust, noise and vibration theme appear to address a significant proportion of MIRO’s identified priorities – notably the air overpressure project should enable design of a blast that will stay within required air overpressure limits. Less progress will be made on the water environment theme, under which several research priorities do not appear to be being addressed at all. Although it does not seem that any of the areas of interest under the Transport theme are being addressed, the planned industry-wide approach to the assessment of mobile plant should lead to a reduced level of accidents and improved efficiency in maintenance and operation.

Of the broader-based themes, particularly good progress is being made towards addressing the research priorities under optimising efficiency. MIRO drew attention to the best practice guide on sampling sand and gravel deposits which will improve ability to characterise deposit quality and simultaneously assess archaeological and mineral potential. The business strategy to help the aggregates industry meet challenges of sustainable aggregate production will make a positive contribution to the planning and assessment theme although many areas of interest will not be addressed.

The environmental improvements theme is being address through two geodiversity projects; one of the quarrying by-products projects will contribute to the restoration research priority.

As the MIST research programme is still work in progress, there is limited evidence so far of the benefits accruing to industry. The MPA said that “many of the MIRO/MIST projects have been significant”, and the BAA was positive about the outputs of a number of projects in the current round, including the Protocol and guidance on quarry dust project, which was expected to help the industry, planners and local authorities identify what could be done cost-effectively to address dust pollution. The project had the benefit of buy-in from universities and noise experts. MIRO was confident that most work would deliver usable products for industry; there was evidence that the guidance and systems generated by previous work was now being used; MIRO planned to improve the evidence base in 2010 through case studies looking at where past research projects had benefited the industry.

English Heritage considers that the “greatest impacts” of its programme will have been through the continuation of the Aggregates Resource Assessments (ARA) programme. It expects to exceed the objective to deliver 9 further ARAs, completing a total of 12 over the period. This will take the total number of counties partly or fully covered to 23, representing over 60 per cent of the counties where an ARA is recommended. ALGAO cited the specific example of the Derbyshire ARA, which was expected to “have a significant impact on the way we assess and can respond to applications for new
extraction sites" by giving archaeology staff the tools and information needed to manage change, enabling more rapid and better informed decisions. The ARA was also expected to benefit industry's desktop work, giving them a better idea of the areas in which extraction would be most problematic.

The proposed approach to integrating historic environment, landscape and biodiversity data to provide an holistic basis for management has not been successful. English Heritage believes that it would need a “broader front” than aggregates to be workable.

The programme of R&D on strategic identification and mitigation of impacts has pursued a wide range of projects across the four priority areas and will deliver a range of outputs that will inform identification and mitigation in specific areas as well as delivering nationally transferable benefits. Potential products include:

- Transferable method and approach for categorising landscape-scale data on aggregates extraction and providing access to meaningful results via web portals;
- Toolkit for measuring impacts of extraction and abstraction of water on buried archaeological resources in sand and gravel extraction areas;
- A novel technique for predicting or inferring the likelihood of archaeological remains in un-evaluated sites and areas which could increase efficiency of risk management for new extraction areas;
- New ways to undertake rapid recording and sampling in areas of very heavy overburden where standard archaeological investigation is nearly impossible;
- Guidance on cost-effective solutions for data handling, storage and access for digital aerial photography, aerial remote sensing and geophysics.

Overall, English Heritage felt that its research programme has had a positive impact on developing expertise in the sector. There was evidence that archaeological units have shifted their focus from commercially-funded pre-construction rescue, to strategic research, which has had major positive impact on the sector's confidence.

BAA commented that English Heritage had provided fewer opportunities for industry to engage with its ALSF work than other Delivery Partners (for example through steering groups), although where it did, collaboration was good. The Association drew attention in particular to the good practice guide. ALGAO also drew attention to the Derbyshire Lead Legacy project, which had led to greater co-operation with the industry including the main fluor spar company committing not to work in certain areas of particular historical significance.

There was however some suggestion that the enthusiasm generated within the archaeological sector by the research programme was not fully shared by the industry at quarry operator level, where operators are concerned by the extent of the impact of archaeological investigations on quarrying activity in specific instances, by the perception that research projects might result in greater controls on quarrying, or that ALSF research was leading to more archaeological work that increased the financial risk to companies at the R&D stage.
English Heritage was confident that it was addressing the majority of recommendations in the 2007/08 benchmark reviews. One notable gap was outreach, where previous ALSF funding provision was withdrawn from 2008. English Heritage considered that, prior to 2008, the ALSF had been “transformative in linking Government and planning with community outreach”.

Value for money assessment

Project planning, targeting and the base case

MIRO-MIST has sought projects on an open call basis, inviting applications to address a range of evidence-based specific research needs. English Heritage sets out its research priorities and in the main operates a “responsive” process whereby applicants can submit proposals for assessment at any time. Like the Natural England programme, this means that the resulting programme of research is dependent on the range of applications received.

Like some other Delivery Partners, MIRO felt that funding constraints potentially threatened achievement of optimal vfm. MIRO suggested that research needed to be funded over a three year period to enable innovation. While the current ALSF round had provided three-year funding, the lack of end-year flexibility had made it difficult to award funding to single projects running over the full period.

In response to the MPA’s criticism at the ALSF Event in March 2010 that the emphasis on research was too great and the focus on practical measures “lower than is desirable”, MIRO pointed to the practical pieces of equipment designed to improve environmental performance that are being explored and developed in the current round. However MIRO did agree that much theoretical work had been undertaken in the past; this was partly owing to the difficulties in planning for and funding practical projects, which require a longer time frame and are more expensive. This argument is borne out by the Carbon Trust’s experience in its new technologies work, where preparation has taken longer than expected, and funding in year 4 will be required to secure the full benefits.

Project / contractor selection and distributional issues

Both MIRO and English Heritage operate a robust project selection process. MIST programme bids are evaluated against a number of published criteria including vfm by a proposal evaluation panel incorporating industry and WRAP membership.

The English Heritage project selection process follows the model operated elsewhere in the organisation whereby speculative proposals are given initial consideration and, if they have potential, the applicant is invited to work up a design for consideration and approval by a flexible peer review college within English Heritage. Measures to ensure vfm include:

- Overheads are limited to 25 per cent of project cost;
• R&D projects required to include basic literature survey of similar techniques or research to demonstrate the additional potential value they represent;
• Preference for projects providing clear mechanism for knowledge take-up and transfer.

English Heritage commented that some projects had excelled; with hindsight, more stringent outcome requirements would have benefited others.

**Quantitative and qualitative measures, including stakeholder and delivery partner views**

A range of projects is being funded across research priorities, there is support for the expected outputs and the available evidence illustrates their potential contribution to improving environmental performance / reducing the impact on the historic environment. This suggests that vfm is potentially high; most evidence of actual vfm will not be available until the current programme is completed and embedded.

A number of pieces of evidence support the assessment of potentially high vfm:

• MIRO-MIST projects are generally 50 per cent co-funded by the industry in cash or in kind. A leverage factor of 2 is well above the average for the ALSF programme as a whole, and indicates the industry’s confidence in the value of outputs;
• The English Heritage Aggregates Resource Assessments are strongly supported by industry and expert stakeholders. English Heritage considers they represent “exceptionally good” vfm; a key benefit for the industry will be to help them prepare for risks before submitting planning applications;
• Agreement from all sides on the value of collaboration between the heritage sector and industry;
• Individual research projects cited by industry bodies as being particularly significant.

More evidence of actual benefits to the industry from the MIRO-MIST programme will be available in future through the planned development of case studies; MIRO thought it would be possible to measure take-up of practical techniques, e.g. adoption of dust monitoring mechanisms over the next couple of years; evidence of impacts on the planning system will take longer to emerge.

Effective knowledge management will help to maximise delivery of potential vfm. The Sustainable Aggregates website managed by MIRO as part of the MIST programme, developed earlier in the ALSF and with continued support in 2008-11 is highly regarded and well used – with nearly 23,000 visits recorded in the last quarter of 2009, averaging 1,600 per week. However not all stakeholders who might benefit from the website were aware of it. At a broader scale, ALGAO felt that English Heritage could do more to flag up and join up relevant work within the community of interest – for example ensuring that transferable techniques developed through very specific projects were highlighted.
9.4.4 Repair, conserve and record historic and archaeological assets impacted by aggregates extraction

Overview

The objectives of this part of English Heritage’s ALSF work are to conserve and repair vulnerable historic assets impacted by aggregates extraction and to provide emergency funding for recording, analysis and publication of nationally significant archaeological remains discovered during aggregates extraction.

The main real-world impacts of this work are:

- Conservation of vulnerable historic assets, and
- Preservation by record of nationally important discoveries, and realisation of the management and community dividend from legacy rescue recording of nationally important sites undertaken prior to past quarrying.

Performance can be measured according to:

- Number and types of projects funded, against target performance;
- Stakeholder support, if known, and
- Significance of project outputs, including their wider relevance / applicability.

Impact and performance against objectives

Figure 54 summarises English Heritage’s self assessment of performance against the set indicators.

English Heritage has struggled to identify monuments directly impacted by aggregate extraction that are eligible for assistance and will only conserve three monuments against the target of six. Value for money is assured during the project selection process through the requirement for the work to present a public benefit, to include a maintenance plan subsequent to the funded repairs, and have an outreach strategy. Given the requirement for a direct link with aggregates extraction, unless the eligibility criteria were changed in some way, this work strand appears to have run its course.

Work under the emergency funding theme has been much more successful – two targets will be met; the third will be exceeded. Over three years, this funding stream will support preservation by record of 16 nationally important discoveries which would not otherwise have been preserved. The eligibility of projects relating to unforeseeable discoveries under formal planning agreements is confirmed by the relevant local authority archaeological officer, who can demonstrate that best practice has been followed in implementation of planning requirements, and that their discovery was therefore unforeseeable.
Work under this theme will also deliver archaeological assessments to enable
development of a strategy for realising the research dividend of previous emergency
discoveries.

Nationally important discoveries – some dating back 20-30 years - which have been
preserved or assessed include:

- Prehistoric landscapes around Heathrow Airport;
- Iron Age water features and a rare Iron Age shoe from a quarry in Devon;
- A collection of Palaeolithic artefacts from quarries in Hampshire, and
- Excavation of a deserted mediaeval village in Derbyshire.
<table>
<thead>
<tr>
<th>Theme</th>
<th>Performance indicator</th>
<th>Self-assessment of performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation and repair of vulnerable historic assets directly impacted by aggregates extraction or directly associated with historical extraction</td>
<td>Repair and conserve six such monuments.</td>
<td>Will not meet: identified and are conserving three such monuments that met the criteria of the scheme; had to reject other applications on grounds of ineligibility.</td>
</tr>
<tr>
<td>Emergency funding for recording, analysis and publication of nationally significant archaeological remains discovered during aggregates extraction</td>
<td>Preservation by record and publication of c. six nationally important discoveries outside the current planning process.</td>
<td>Exceed: 8 projects anticipated complete by 2011.</td>
</tr>
<tr>
<td></td>
<td>Preservation by record of around 10 nationally important and unanticipated, unforeseeable discoveries revealed by extraction under formal planning agreements.</td>
<td>Meet: 8 projects anticipated complete by 2011.</td>
</tr>
<tr>
<td></td>
<td>Initiate and deliver archaeological assessments of the scale and importance of previous emergency discoveries made under inappropriate planning regimes, in order to establish a strategy for realising their research dividend.</td>
<td>Meet: 5 key surveys in N England, E Midlands and S England, and 5 projects addressing specific sites.</td>
</tr>
</tbody>
</table>

**Value for money assessment**

English Heritage has worked to **optimise vfm** from the projects funded under these two themes through tightly drawn eligibility criteria which aim to deliver outputs of the widest possible significance; without a more detailed case study approach it is not possible to quantify or assess vfm further.

9.4.5 **Strategic research to underpin long-term planning of sustainable aggregates supply**

**Overview**

The objective of MIRO’s Aggregates Strategic Research Programme (ASRP) is to enhance the evidence base to support the sustainable supply of aggregates. Its focus is on key strategic issues that could lead to significant changes in the longer term. If fully successful, its main real-world impact will be to improve the sustainability of aggregates supply by enhancing knowledge on the biggest sustainability issues, including transport, and extraction in designated areas, and enabling the introduction of alternative, lower impact, processes.

At this stage, the seven funded projects are not yet complete, and so it is difficult to gauge performance against the objective and vfm, but measures include:

- The extent to which projects support identified policy needs;
- The extent of broader stakeholder support, and
- Evidence from interim findings on the likely longer-term impacts of projects.

In summary, taking into account that the ASRP to date has focused on preliminary research, and that achievement of the ultimate goal of step change improvements is, as
Defra said, “a long term and uncertain process”, the programme is making as much progress as could be expected towards meeting its objective. In the main, value for money has been safeguarded in process terms; the long term value of outputs cannot yet be determined and depend on the findings of the research and consequent policy and investment decisions.

**Detail**

Defra provided evidence that funding priorities were identified through a systematic and robust process. This involved listing ideas from all the available information sources, including consultation responses, previous research, and industry submissions to various national fora; shortlisting with policy leads from the relevant Government departments, and then refining the shortlist with the industry and other stakeholders. The process generally seemed to work well, although the Campaign for National Parks and Friends of the Peak District felt that nature conservation NGOs had had insufficient involvement and that a better balance was needed between industry and NGO input.

The project selection process was also tightly controlled, with a Panel comprising Defra, CLG, CPRE / Friends of the Peak District, BAA, MPA and WRAP being convened to assess tenders. It was the first time the CPRE / FoPD representative had been involved in such a Panel; he was impressed by how joined up the policy networks were, the close handle they had on where funding was being spent, and how they ensured that duplication did not occur. It was evident that collaboration was continuing as project results emerged – CPRE / FoPD welcomed the open discussion of results, which was helping NGOs to develop their views to contribute to the policy development process.

Despite the inclusivity of the prioritisation and project selection processes, stakeholder opinion was still partially divided on the value of the projects undertaken. Interviewees expressed enthusiasm and scepticism in equal measure for the Mole Solutions project to assess the feasibility of using pipelines to transport aggregates; their views tinted by their more general attitude to “blue skies” research. There was however unanimous strong support for the BGS project evaluating the environmental impacts of aggregates within designated sites.

Policy leads provided largely positive feedback on the value of emerging findings. Defra thought that the project reports included “some very high impact possibilities”, particularly in underground mining and pipelines. The DfT policy lead thought that the ASRP was, so far, exceeding expectations, and noted that the project assessing the design of lorries and quarries for aggregates transport had provided “new insights”. CLG hoped that the underground mining and designated sites projects would inform future policy.

MIRO was concerned that the length of time taken to identify funding priorities had constrained the time available to select and run the projects, thereby increasing the pressure to get the work done in a shorter period. However Defra explained that it had been a conscious decision to undertake work in short stages, with initial research followed by a period of policy consideration and discussion with the researchers, before further research is undertaken; a longer timeframe to complete a piece of work would not
necessarily add to its value. Nonetheless Defra did concede that it might have helped to have been more involved during the projects, to make sure that they met the expectations of commissioning Government departments. At the beginning of financial year 2010/11, MIRO had not yet been informed of the funding priorities for the 2010/11 ASRP, so it is possible that the same issues will arise in this round too.

9.4.6 Research options for remediating pollution at abandoned mines

The objective of the Environment Agency work was to pursue monitoring investigations to support the design of remediation schemes to manage pollution from abandoned mines where there has been aggregates extraction.

The project was on course to deliver detailed reports on the conclusions of the investigations with recommendations for further work (either additional investigations or proposed remedial works). The Saltburn Project will additionally have an abstraction borehole which can be used as part of the minewater treatment works.

The investigations have also delivered additional unexpected benefits, identifying additional previously unknown risks at Saltburn and Gategill which may now be addressed, and contributing to positive working relationship with the Coal Authority at Saltburn and the North Pennines AONB team which are expected to lead to future benefits.

Defra explained that it was a high priority for the Department to fund action at priority NoCAM sites in 2009/10 to contribute to implementation of the Water Framework Directive and help to deliver the Department’s Water Strategy. The ALSF was considered an appropriate vehicle because of the links between mitigation of environmental damage caused by aggregates extraction, and abandoned metal and mineral sites.

Value for money has been assured in the following ways:

- The investigations have been carried out in accordance with the guidance developed both through the NoCAM project for investigation of mining impacted catchments and from the Coal Authority’s experience;
- Contracts were awarded after competitive tendering exercises to ensure best value for money.

Defra is confident that the outputs of the work will contribute to understanding and eventual treatment of minewater pollution and will help deliver good ecological status in the impacted rivers. Cost benefit analyses of these and similar sites have indicated that the local economy can derive considerable benefit once such sites are cleaned up.

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63 The direct benefits relate to minewater pollution deriving from historical mining activity. While this might be regarded as not strictly within the scope of the ALSF, the metal mines in question did involve the extraction of mineral containing aggregates from the surface. This waste rock has been removed as a free source of hard core or aggregate for use e.g. in farm tracks. This use has been a contributory factor in diffuse water pollution.
Defra chose to fund the Environment Agency’s work for good reasons and it is concluded that the projects will meet their objectives and deliver value for money against those objectives as well as against national priorities to improve water quality. It is not appropriate for this evaluation to comment further beyond noting that the direct benefits relate to treatment of minewater pollution which is outwith the scope of the rest of the ALSF and make a minimal contribution to mitigating the impacts of aggregates extraction.
9.5 Theme 2: Marine

9.5.1 Overview

The objective of Theme 2 is to reduce the environmental impact of marine extraction. The main real-world impacts of the programme are:

- Improved evidence base on marine environmental and archaeological resources, and better understanding of the effects and significance of dredging, giving greater certainty in marine spatial planning, and
- New and improved monitoring, mitigation and management techniques to reduce the impacts of dredging.

Although the scope to quantify the impact of the programme is limited to the seabed mapping programme, there is a range of evidence in other areas to demonstrate progress, including:

- Evidence of improved knowledge of the effects of dredging on the environment (including the speed of recovery) and historic environment;
- Evidence of take-up by the regulator and regulatory advisors in developing marine spatial planning and in the licensing process, leading to better policy making;
- Evidence of improved capacity and techniques to monitor the effects of dredging and manage its impacts on the environment and historic environment;
- Evidence of a positive reputation, with professionals demonstrating understanding and application of the outputs, and some wider communities more aware of the impact of dredging.

There are a number of factors that may affect performance assessment. The fact that the key stakeholders are all members of the Marine theme steering group and therefore share responsibility for the success of the programme may make it more difficult to secure a truly impartial perspective. It will be easier than under other ALSF themes to demonstrate evidence of progress, since the starting point was so low. In addition, since the impact of the programme is cumulative, it is not always possible, or relevant, separately to identify the achievements and impact of the 2008-11 period.

That said, there is objective evidence in the range of projects undertaken and arrangements for their dissemination and wider knowledge management, the self-assessment provided in the March 2010 document *Marine ALSF Achievements and Challenges for the Future* and the views of members of the steering group which confirms that significant progress has been made from a very low baseline, with unanticipated added value being delivered in a number of areas and some areas of work of international significance. The programme has also undoubtedly benefited from the fact that the opportunity to invest has coincided with increased Government interest in the marine environment, as epitomised by the new Marine and Coastal Access Act 2009.

Much of the evidence base on impact and mitigation is now in place, plus detailed seabed mapping, providing tangible outputs and context for decision making and an excellent
focus from all stakeholders on where further work is needed. To some extent this is enabling a more strategic focus than is possible under the other ALSF themes. The work on marine heritage represents a particular leap forward since virtually nothing was done prior to the ALSF. There is good evidence of take-up of programme outputs by the industry, by the regulator and by regulatory advisors.

Owing to the length of time needed to embed findings, six years in, the programme is only just starting to meet its overarching objective, but there can be a **high level of confidence** that the programme to date will help to achieve the overarching objective to reduce environmental impact in the longer term.

The *Achievements and Challenges* document concludes that “To a large extent the MALSF has achieved many of its initial strategic aims, although much additional work needs to be done to enhance our understanding of the wider implications of marine aggregate extraction on the environment.” This was borne out in discussion with stakeholders, who confirmed the need for further work especially on particular environmental and socio-economic impacts.

Figure 55 summarises the MEPF and English Heritage self-assessment of performance against objectives and targets. The subsequent sections assess performance against each of the five Marine theme strategic priorities, with a separate exploration of the emerging cumulative impact of the programme on licensing policy and process.

The Marine theme has the **potential to deliver excellent value for money** – some added value can already be seen, and this will increase over time. It is exemplary in terms of its governance model which has undoubtedly enhanced the value for money; perhaps the greatest vfm and legacy are to be gained from seabed mapping which has a direct and ongoing influence on the development of policy and on the quality, ease and speed of the licensing process, increasing confidence and certainty for regulator, regulatory advisor and industry. The actual impact on marine spatial planning should increase exponentially over the coming years as the MMO establishes a new system and as new licenses are granted and existing licenses renewed. The theme is also notable for the potential to transfer knowledge to other marine industries, and for its international significance.
### Figure 55 – Summary of performance under each activity focus / target

<table>
<thead>
<tr>
<th>MALSF objective</th>
<th>Self-assessment</th>
<th>Relevant English Heritage priority</th>
<th>English Heritage Perf Indics</th>
<th>Self-assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To develop and use seabed-mapping techniques to improve the evidence base of the nature, distribution and sensitivity of marine environmental and archaeological resources relevant to marine aggregate activities.</td>
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<tr>
<td><strong>Pre-MALSF</strong></td>
<td><strong>Area</strong></td>
<td><strong>2011</strong></td>
<td><strong>Self-assessment</strong></td>
<td></td>
</tr>
<tr>
<td>Basic</td>
<td>Seabed that has been surveyed in REC areas</td>
<td>Good</td>
<td>Meet: 1 major mapping project in two areas (Bristol Channel / Irish Sea); North Sea published report completed; 2 other projects make major contributions; 2 key projects assessing maritime heritage on the sea bed.</td>
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<tr>
<td></td>
<td>Areas that have not been surveyed</td>
<td>Basic</td>
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<tr>
<td></td>
<td>Change to the environment over time</td>
<td>Intermediate</td>
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<td></td>
<td>Effects of climate change</td>
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<td></td>
<td>Significance of North Sea Palaeo-geography</td>
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<td></td>
<td>Significance of other submerged landscapes</td>
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<td></td>
<td>Distribution of habitats of conservation significance</td>
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<tr>
<td>2. To increase understand of the effects and the significance of aggregate dredging activities</td>
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<tr>
<td><strong>Pre-MALSF</strong></td>
<td><strong>Area</strong></td>
<td><strong>2011</strong></td>
<td><strong>Self-assessment</strong></td>
<td></td>
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<tr>
<td>Intermediate</td>
<td>Impacts within the dredge zones</td>
<td>Good</td>
<td>Meet: a range of practical and useful R&amp;D, upgraded resources for management and associated knowledge.</td>
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<tr>
<td>Basic</td>
<td>Impacts outside the boundaries of the dredge site</td>
<td>Intermediate</td>
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<td></td>
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<td></td>
<td>Susceptibility of marine life to noise</td>
<td>Basic</td>
<td></td>
<td></td>
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<td></td>
<td>Impacts on ecosystem function</td>
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<td></td>
<td>Cumulative impact from multiple licence areas</td>
<td>Intermediate</td>
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<td>3. To develop monitoring, mitigation and management techniques where applicable, underpinned by scientific research</td>
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<tr>
<td><strong>Pre-MALSF</strong></td>
<td><strong>Area</strong></td>
<td><strong>2011</strong></td>
<td><strong>Self-assessment</strong></td>
<td></td>
</tr>
<tr>
<td>Intermediate</td>
<td>Appropriate methodology for monitoring</td>
<td>Good</td>
<td>Improve remote sensing technologies, improve monitoring and assessment systems to increase understanding of impacts and threats of dredging, develop solutions with industry, create guidance documents and resources for effective knowledge transfer.</td>
<td></td>
</tr>
<tr>
<td>Basic</td>
<td>Additional factors that may require monitoring</td>
<td>Intermediate</td>
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<tr>
<td></td>
<td>Appropriateness of seabed restoration</td>
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<td></td>
<td>Design and operational improvements to dredger fleet</td>
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<td>4. To research and understand the socio-economic issues associated with aggregate dredging activities</td>
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<tr>
<td>Pre-MALSF</td>
<td>Area</td>
<td>2011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic</td>
<td>Implications of land versus marine aggregate supply</td>
<td>Intermediate</td>
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<tr>
<td></td>
<td>Economic cost to ecosystem goods and services</td>
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<td></td>
<td>Methodology for socio-economic assessment</td>
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<tr>
<td></td>
<td>Availability of data to support socio-economic assessment</td>
<td>Basic</td>
<td></td>
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<table>
<thead>
<tr>
<th>5. To promote co-ordination and establishment of sustainable archives for the dissemination of research related to these aims to a wide range of stakeholders.</th>
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<tbody>
<tr>
<td>Pre-MALSF</td>
</tr>
<tr>
<td>Basic</td>
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<td></td>
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<tr>
<td>Intermediate</td>
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<tr>
<td>Basic</td>
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3. Marine historic environment training, dissemination and communication.

Enhance national capacity in remote-sensing, mapping and predictive modelling techniques to convert research and guidance into action. Support with national conferences, workshops and networks, and formal publications.

Meet: a range of practical and useful R&D, upgraded resources for management and associated knowledge.
9.5.2 Impact and performance against objectives

Cumulative impact of the ALSF Marine theme on marine licensing

BMAPA, The Crown Estate and the Marine ALSF Science Co-ordinator were able to provide clear evidence that the findings of the Marine theme have influenced marine licensing. For the first time, the work has furnished regulators, regulatory advisors and industry with the strategic information needed to determine the level of protection needed for particular sites. At the early stages of the process, knowledge and data assist in identification of site location and in the wider EIA process (for example the REC for the East English Channel directly informed the site-specific EIA process; BMAPA felt that the other RECs “were likely to play a similar role” for upcoming renewal of production licence areas). Conditions for monitoring and mitigation on new consents reflect ALSF-generated understanding of impact. For example all new consents further offshore in the English Channel have very tight conditions attached, including for the continuous monitoring of overflow; the outputs of the studies into features of nature conservation importance and the plume modelling research on wrecks have influenced some permissions.

Seabed mapping

During the period 2008-11, the area covered by the RECs will nearly double, with two completely new Characterisations and follow-up work to two others, taking the total area of seabed surveyed and mapped through six RECs to 31,560km². The Marine ALSF’s self-assessment is that the RECs have “significantly enhanced our understanding of seabed resources and are central to Marine Spatial Planning objectives.”. They are providing baseline data relevant to a number of industries against which the effects of climate change on seabed communities can be assessed, and provide important background data required to sustain a healthy marine environment. The MEPF expects the MMO to use the RECs in the developing of the new approach to marine spatial planning.

There have been similarly significant achievements in marine heritage mapping and characterisation – by March 2011, all aggregates dredging zones will have been covered by HSC projects; one major mapping project will have improved knowledge in the Bristol Channel and Irish Sea, and a number of other projects will contribute to better spatial understanding of marine heritage resources. The Marine ALSF’s self-assessment was that the level of knowledge would have improved from basic to intermediate, with the work having “revolutionised our understanding of the Palaeo-geography of the seabed and its significance for early man”. Cumulatively, the HSC work:

- provides a consistent, wide-ranging and updatable evidence base for environmental assessment and planning decisions;
- represents a major step forward in the understanding of landscape in the marine context, thereby supporting UK implementation of the European Landscape Convention, and
- offers the basis for raising awareness of the historic and cultural dimension of the seascape among a wide audience ranging from the public, to experts.
Effects of aggregates extraction

The Marine ALSF’s self assessment is that knowledge of the effects of aggregates extraction was generally poor prior to the programme. According to The Crown Estate, it has “allayed significant concerns” – for example MEPF research has demonstrated that the recovery of *Sabellaria spinulosa* (a marine worm that builds reefs) happens faster than was thought following dredging activity, within 6–9 months of disturbance, and in fact because dredging stirs up sediment, it provides more material for the worm to turn into habitat.

Thanks to the ALSF Marine theme, knowledge of the effects is now sufficiently robust to ensure sustainable management and protection of seabed resources in the vicinity of marine extraction sites and has been taken up quickly by regulators and regulatory advisors. Specific examples of applied learning include: the design of appropriate surveys to inform applications for new licences, the design of appropriate monitoring of seabed assets, identification of appropriate mitigation to protect archaeological and historic assets, and identification of appropriate extraction methods to reduce impacts on biological communities.

However potential impacts outside dredging boundaries remain less well understood.

Monitoring and mitigation

The Marine ALSF self-assessment is that projects have been successfully incorporated into sustainable management of aggregates extraction and have contributed to a better understanding of how the environmental impact of the dredger fleet can be reduced. Development of new sampling grabs and imagery systems has enhanced ability to interpret data obtained by standard oceanographic remote-sensing methods, “allowing real progress in understanding of marine biotopes in English coastal waters”. The updated benthic guidelines are of “fundamental importance” in providing agreed standard data acquisition, interpretation and data storage. The use of such guidelines underpins environmental impact surveys and monitoring for a wide range of marine industries.

Continued support for the BMAPA / English Heritage protocol on marine heritage finds, established prior to 2008, has embedded a voluntary industry remote-sensing capacity for finding new sites of heritage interest. The protocol has been very successful and is highly regarded.

Socio-economic issues

The Marine ALSF self-assessment is that prior to the ALSF there was virtually no information on socio-economic issues. The programme has acted as a pathfinder in this new area of science which is of relevance to the whole marine sphere. Some progress has been made in assessing the implications of terrestrial versus marine extraction at a regional scale, and in placing a value on biological resources so that these can be incorporated into an estimate of the value of goods and services provided by the marine environment at aggregate dredge sites. In particular, the work will help develop a
methodology to assist Planning Authorities where a choice may be made between land and marine won aggregates.

Co-ordination and dissemination

The Marine ALSF self-assessment is that the objective has been “successfully achieved”, drawing attention in particular to the MSc bursary scheme as “a considerable success”, allowing students and universities better to understand ALSF Marine theme work, at the same time as building new capacity and capability in UK marine science.

For The Crown Estate, the ALSF has had a positive impact in helping to overcome public prejudice that dredging, as an extractive industry, must be “bad”, by explaining just what the effects are, and demonstrating, backed by evidence, that the impacts are relatively insignificant.

While a proportionately greater sum has been available to spend on co-ordination and dissemination within the Marine theme than in other areas of the ALSF, and this has evidently achieved correspondingly better outcomes, the MEPF Secretariat did point to evidence that public awareness remains patchy, and suggested that further work is needed to increase the use and take-up of research outputs and to secure the maximum legacy potential for the data archive.

9.5.3 Value for money assessment

Project planning, targeting and the base case

By bringing all the key stakeholders together and giving them a shared, focused opportunity to shape and challenge the programme, the steering group has helped to ensure that the Marine theme maximises vfm. The steering group has:

- Provided a Forum to shape the Marine theme as a coherent programme with shared identification of outcome-focused priorities that support policy developments;
- Ensured that programme content is informed by practitioners with the skills and expertise to focus funding on filling gaps that will be of genuine value to stakeholder groups;
- Facilitated unprecedented collaboration between stakeholders;
- Enabled economies of scale, particularly following a reduction in the funding available to English Heritage;

The willingness of steering group members to invest considerable effort and time in the ALSF Marine theme reflects its value to them.

There was evidence of the steering group being genuinely driven by value for money concerns, handing back funding if it did not have complete confidence in the value of potential work, and the different interests of different members of the group appear to provide a built-in deterrent to the risks of getting carried away by shared enthusiasm.
The scale of funding and its availability over three years, and as part of a longer term programme, has also enabled more to be done and for really significant bodies of work to be tackled – for example generating added value through the RECs as the timescale allows time for the same contractor to gather, analyse and interpret data.

All members of the steering group who were interviewed felt that the governance arrangements worked well – managed strongly and transparently by the MEPF Secretariat, and with a well-defined role for the Science Co-ordinator to identify science priorities and to identify and foster new ideas coming from the wider scientific community.

The ALSF Marine theme has been particularly careful to make provision for continuous review and dissemination of programme outputs through conferences and written reports. These have focused attention on delivery and ensured that the case for future research is based on evidence and is publicly tested.

Project / contractor selection and distributional issues

For the most part, the steering group commissions MEPF projects via open calls informed by programme priorities. All EoIs and tenders are evaluated according to set of project selection criteria by a panel drawn from steering group members.

As CEFAS can bid for project tenders, the MEPF (which itself sits within CEFAS) has been very careful to put in place a fair and open process. This includes guarding against developing too “cosy” a relationship with contractors, putting additional work out to open competition rather than extending contracts unless this can be strictly justified.

English Heritage’s standard procedure is to permit approaches at any time with proposals that can contribute to the published priorities for funding; if a project looks promising, a detailed Project Design is commissioned before agreeing to the full project. Some specific work requirements are identified, and a brief is issued for competitive tender or Single Tender Action. If appropriate, expressions of interest are shortlisted and Project Designs requested. The contract winner is commissioned following a tender board.

Quantitative measures

The only quantitative measures of value for money are in terms of the area covered by the RECs, HSCs and other mapping and characterisation projects.

The total area licensed for dredging in 2008 across the seven dredging areas around the English coast was 1,278km². By comparison, by March 2011 the six RECs completed to date (covering the Outer Bristol Channel, South Coast, Eastern English Channel, Outer Thames Estuary, coast off East Anglia and the Outer Humber) will cover over 31,000km². At that time, the primary mapping of areas where extraction occurs, or might be...

64 This is documented and published on the MEPF website.
65 CEFAS explained that the purpose in this relatively broad coverage by comparison with the actual area licensed for dredging is to ensure a good understanding of the distribution of environmental assets on the seabed. This allows any potential impacts of aggregate dredging within the Licence Areas to be put into...
expected to occur in future, will be complete, although it will not cover areas such as the Bristol Channel and Irish Sea where there is limited dredging activity.

By March 2011, 60 per cent of England’s seas from coast to median line will be covered by marine heritage mapping following the new national method (the areas are: Severn Estuary, Irish Sea, North East England, Central-Eastern Channel, East Anglia) and a further 15 per cent is covered by one of the most advanced pilots (off Lincolnshire and the Humber). This includes all areas with licences or applications for licences for aggregates extraction. Areas left to be covered are concentrated mainly in the Thames Estuary and Western Approaches, with a small zone off North Norfolk.

Qualitative measures

Added value may be assessed qualitatively in the following areas:

- **Improved and more efficient marine spatial planning with increased certainty** – mapping data will support the development of new marine protected areas and should ease the regulatory process by providing a robust context for decision-making which is freely available to all and therefore less likely to be challenged (e.g. prior to ALSF research, uncertainty over the impact of dredging on *Sabellaria spinulosa* was a major issue; now the regulator is equipped to assess the scale of the impact on a particular habitat and judge whether an exclusion zone is necessary); it may also be possible to adopt a system in which the licensee no longer needs to collect his own data. While such process efficiencies cannot be measured now, it may be possible to do so in the future;

- **Vibrant archaeological research** – there has been significant academic take-up in archaeological research; according to English Heritage, prior to the ALSF, research on deep time periods (the Pleistocene and early Holocene) was “moribund”, now it is clearly vibrant; HSCs provide a new set of techniques;

- **Transferability to other industries** – the ALSF has acted as a pathfinder, with REC findings transferable to offshore power industries, for example a similar approach is now being used in round 3 wind zones; more generally, best practice in monitoring, mitigation and management of pressures may be directly applied to other activities in the marine environment;

- **International significance** – the MEPF is sharing knowledge with contacts in Australia who are preparing to research dredging impacts from a zero baseline; this will save them time and money and secure them quicker results; the independently produced *ALSF Marine Historic Environment Component International Context report 2010* notes that the ALSF “is instrumental in the UK being a European leader in the implementation of the European Landscape Convention, since the ALSF has led to many of the innovations in integrated management (including management of the interlinked terrestrial and marine, natural and cultural environments) that the convention proposes.”;

context against the nature and distribution of habitats, communities and archaeological/historic assets in the surrounding area.
• Impartiality and availability of techniques and data (“collect once, use many times”) – ALSF Marine theme outputs are all in the public domain so can be used again and again, and their impartiality means they can be widely trusted;

• Enabling improved cost effectiveness in heritage management through collaboration – the independent International Context report said that “A comparison of the different types of federal and centralised aggregates-related heritage management in use around the world highlights in particular how innovative the ALSF is in driving proactive, collaborative research of benefit to all stakeholders. The ALSF is a model of innovative heritage management, involving as it does peremptory public and private sector collaboration in the provision of strategic management of, and guidance upon, resources of benefit to all sectors”. It added that long-term interdisciplinary partnerships “make best use of resources and deliver added value to not just marine aggregate research but to wider research outcomes, a case point being the REC programmes” and concluded that “ALSF heritage funding represents an extremely cost-effective form of strategic funding in comparison to other sources of heritage funding”;

• Assuring the legacy – the MEPF already ensures that data (in particular REC survey data) is made freely available for third party use via its secure database66. The steering group is also preparing for the data resource to fit into the Marine Environment Data Information Network (MEDIN) when this comes on stream, but in the meantime has included the mid-term management of Marine ALSF data within its wider exit strategy to ensure free access continues in the event that ALSF funding ceases in March 2011.

Stakeholder and delivery partner views

The Chief Scientist at The Crown Estate drew attention to the quality of science under the ALSF Marine theme and said that some aspects were definitely world class; the MSc bursary scheme had produced work of “tremendous quality”. From his experience of sitting on a spectrum of grant awarding bodies, he noted that the steering group was one of the best organised he had seen, with a “really well run” management process. He felt it secured “tremendous vfm” thanks to its focus on outcomes and maximising learning.

BMAPA said that the ALSF Marine theme had contributed “enormously” to the organisation’s work. Its value lay in developing understanding which in turn delivered greater confidence and certainty to industry, the regulator, and Government. BMAPA added that the Fund had delivered a “seismic shift in knowledge and understanding”. It was achieving results “far beyond the value of ALSF expenditure in many ways”, with significant potential for the ALSF Marine theme to add value through its outputs supporting wider Government policies – most notably the delivery of the various aspects of the Marine and Coastal Access Act. The interviewee was unable to identify any other research programme which had achieved as much in such a timeframe.

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66 www.marinealsf.org.uk
English Heritage had seen a “palpable transformation” over the seven years the ALSF Marine theme had been running and described the programme as a “godsend” to marine heritage research.

The Marine ALSF Science Co-ordinator felt that the programme had been a “useful vehicle to spearhead groundbreaking research needed for marine spatial planning”, delivering “really important” foundation laying.
9.6 Theme 3: Sustainable resource use

9.6.1 Overview

The objective of Theme 3 is to deliver more sustainable use of aggregates. The main impacts of the programme are:

- The stimulus to the market for RSAs driven by increased demand / pull for RSAs created by the supply chain signing up to the voluntary commitment to reduce waste to landfill, in turn
- Stimulating recovery of CDEW by the waste management industry because there is a market to sell into, and
- Increasing use of RSAs and helping divert construction waste from landfill, thereby
- Avoiding associated CO₂ emissions and delivering cost savings as result of waste reduction.

Performance against the objective is measured through targets to divert CDEW from landfill, provide additional re-processing capacity and to support and elevate the success of aggregate-related quality protocols. There are four key quantitative targets:

- Divert 3.5m tonnes of CDEW from landfill over the period 2008-11, avoiding 750,000 tonnes of carbon emissions (WRAP Construction Programme);
- Put in place measures to deliver ongoing annual diversion from landfill per annum of 3m tonnes from 2011/12, avoiding 500,000 tonnes of carbon emissions (WRAP Construction Programme);
- Deliver an additional 350,000 tonnes of aggregates re-processing capacity (WRAP capital grants), and
- Directly influence diversion from landfill in the south east totalling 470,000 tonnes by March 2011 (PTZW).

On the basis of the evidence provided by the Delivery Partners and others, it is anticipated that the programme of activity will achieve and in some cases potentially exceed the targets set, thereby contributing to more sustainable use of aggregates.

Measurable progress will be made in minimising / designing out waste, in creating awareness around landfill diversion, and in diverting additional CDEW from landfill as a result of increased demand for RSAs and finding new uses for waste created, also securing consequent CO₂ and cost savings. This will mainly be achieved through:

- provision of additional re-processing capacity;
- engagement throughout the supply chain to encourage commitment to reduce waste to landfill and stimulate demand for RSAs, design out waste and to promote associated business opportunities;
• through direct engagement with the waste management sector to promote the business opportunities in waste recovery and, by providing advice, guidance and tools that help improve the quality of inputs to re-processing, to drive up the quantity and quality of the resulting RSAs;
• technical work to improve the potential to recycle CDEW.

Notwithstanding the difficulties in identifying the exact contribution made by ALSF funding to some of the funded activities, it is fair to say that activity under this theme has worked hard to maximise potential vfm. It will be some time before actual performance can be measured.

It has built on earlier work, responding to an identified need to use aggregates more sustainably and contributing to a wider goal to reduce CDEW going to landfill. It has developed a range of freely accessible products and, through targeted interventions and dissemination, stimulated appetite to use the products to achieve measurable outcomes that contribute to the overall goals. PTZW is highly regarded by stakeholders in the south east and has secured significant further investment to pursue a European Pathway to Zero Waste project.

It is difficult to comment, from the perspective of a lay person, on whether the impressive potential tonnage diversion from landfill and associated carbon and cost savings, will actually be delivered. Much depends on the behaviour of the companies which have committed to deliver the diversion from landfill over the next year. The Delivery Partners are putting in place robust mechanisms to calculate actual diversion so that a better assessment of performance and value for money will be possible in future.

The WRAP capital grants programme for additional reprocessing capacity, which was strongly criticised by the 2006 London Economics study, has been governed by a tight project selection process to ensure that funding is targeted to the points of greatest weakness and that it concentrates on projects that would not otherwise, on a case by case basis, be financially viable.

Many of the current activities are likely to have achieved their objectives during this round of funding and would not be worthwhile pursuing further. This report explores elsewhere the evidence that the scope to further increase production and use of RSAs is limited (see section 10.4); the fact that WRAP plans to shift the emphasis of the Construction Programme towards resource efficiency is evidence that work to expand the RSA market has run its course.
9.6.2 Impact and performance against objectives

WRAP Programmes

WRAP expects to meet its target to divert 3.5m tonnes of CDEW from landfill by March 2011, delivering 750,000 tonnes in cumulative CO₂ savings and securing £120m cost savings per annum. Their assessment of progress at the end of the second quarter 2009/10 is at figure 56 below. This will contribute to the broader target to halve CDEW to landfill, from around 20m tonnes, by 2012. The measures put in place to achieve the 3.5m tonnes diversion by 2011 are expected to deliver a legacy of 3m tonnes diversion ongoing per annum, with an associated 0.5m tonnes in annual carbon savings. The legacy will drive out £50m in materials savings to the industry (including the value of carbon savings) each year from 2011/12, as a result of the efforts to minimise aggregates use and to maximise use of RSAs.

Figure 56 – Progress towards target to divert 3.5m tonnes from landfill 2008-11

Achievements to date relevant to ALSF support for the 2008-11 period include:

- 368 signatories to the Construction Commitment to “play their part” in halving the quantity of CDEW going to landfill by 2012. As expected, the list is dominated by clients and contractors, but there are signatories from all elements of the construction

Source: WRAP Target Trajectories 2008-11
supply chain. Signatories include 8 of the top 10 contractors and represent 70% of the construction spend of the top 50;

- One prominent signatory is the Olympic Delivery Authority – WRAP supported the ODA in setting challenging targets for the recovery of waste materials (especially soils and aggregates from the Olympic Park) and their re-use, and the ODA has exceeded these. Much of the reclaimed material has been used to create the correct land levels and roads within the Olympic Park;
- In all, organisations signed up to the Commitment represent more than one quarter of the annual value of construction in the UK (some £25bn) and have the potential to reduce the current total of around 20 million tonnes going to landfill by three million tonnes. Next year should start to see commitments converted to delivery as signatories start using the new Waste to Landfill Reporting Portal (2-3 are already using it). Information on the Portal will include quarterly reports against targets and evidence on improved quality, report progress against targets quarterly. It is not yet clear whether this will run beyond 2012.

To help signatories and potential signatories to fulfil their commitment by setting policies and requirements for good practice Materials Resource Efficiency, WRAP is running / has run a range of dissemination and direct engagement events:

- Series of 9 regional “Halving Waste to Landfill” workshops held from September 2009 to February 2010, primarily for construction clients and contractors who have signed up to the Construction Commitment (250 attendees);
- Series of direct engagement campaigns with some of the largest construction clients across a wide range of construction market segments;
- In parallel, WRAP has been working to encourage sign up to the Construction Commitment and embedding of MRE requirements in contractors’ corporate policies which will ultimately translate into requirements on individual projects.

Progress in publishing research, and new guidance and tools, is as follows:

- Final reports on collection techniques and site segregation of materials being finalised for publication on the website and further dissemination. A further report on segregation technology, and guidance on using geosystems, are being disseminated through targeted engagement;
- Reports on the research into mobile processing options and good practice guidance for construction MRFs, as well as the “Designing out Waste” tool for civil engineers, client guidance for civil engineering projects, and an extension to WRAP’s Net Waste tool, are available on WRAP’s website;
- The 2008 CDEW survey is being finalised.

Performance measures and evidence of impact not yet available include:

- Number of downloads of web-based guidance and toolkits;
- Updates to guidance and tools informed by feedback generated by dissemination and advocacy events;
- (From the end of 2011) the new Waste to Landfill Reporting Portal will provide baseline data, performance against targets and improvements to quality, from Construction Commitment signatories right across the supply chain.

Ultimately, the reduction in CDEW to landfill will be seen in the Environment Agency’s waste data returns for 2010/11 and 2011/12.

WRAP expects to secure an additional 350,000 tonnes of CDEW processing capacity through the capital spend programme. 46 applications were received in round 1, and of these, 8 were selected to proceed. Two have since dropped out, unable to secure sufficient third party funding and contracts have been signed with the remaining six. One of the six contracted facilities is already operational. WRAP anticipates being on track to have all six facilities operational by the end of 2010. Facilities are expected to reach maximum capacity in year 5, i.e. 2014. Key statistics for each funded facility are set out in figure 57 below.

**Figure 57 – WRAP capital grant round 1**

<table>
<thead>
<tr>
<th>Company name</th>
<th>English region</th>
<th>£m grant awarded</th>
<th>Tonnage output (year 1)</th>
<th>Tonnage output (year 5)</th>
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<tbody>
<tr>
<td>Lift &amp; Shift</td>
<td>SE</td>
<td>0.2</td>
<td>35,590</td>
<td>50,000</td>
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<tr>
<td>Envirowaste</td>
<td>Y&amp;H</td>
<td>0.3</td>
<td>27,750</td>
<td>65,600</td>
</tr>
<tr>
<td>Raymond Brown</td>
<td>SE</td>
<td>0.4</td>
<td>22,200</td>
<td>31,700</td>
</tr>
<tr>
<td>G I Hadfield</td>
<td>E</td>
<td>0.3</td>
<td>19,800</td>
<td>49,500</td>
</tr>
<tr>
<td>Tudor Griffith Waste Services</td>
<td>WM</td>
<td>0.2</td>
<td>36,000</td>
<td>52,200</td>
</tr>
<tr>
<td>HS Sustainable Materials</td>
<td>SE</td>
<td>0.3</td>
<td>45,000</td>
<td>67,500</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>1.7</strong></td>
<td><strong>158,590</strong></td>
<td><strong>316,500</strong></td>
</tr>
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This demonstrates that round 1 will deliver 316,500 tonnes of additional re-processing by Year 5 (2014); round 2 expects to support a further five or six projects through a total of £0.7m grant. WRAP judges that if the performance of round 2 is similar to round 1, it could deliver another 120,000 tonnes of capacity – exceeding the target of 350,000 tonnes by about 80,000 tonnes. WRAP’s assessment of progress at the end of 2009/10 is at figure 58.
**Figure 58 - Tonnage outputs from reprocessing plants**

**MRF Construction Capital Activity (England)**

Q8
2008 -11

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<td>Q1</td>
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<td>Q10</td>
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<td>50,000</td>
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**Pathway To Zero Waste**

*Pathway To Zero Waste* is on track to deliver diversion of 1.9 m tonnes of CDEW from landfill over two years. This is a very significant result, equating to 75 per cent of the total tonnage of CDEW landfilled in the south east region, and achieved against a very challenging economic backdrop. PTZW said that this compared “extremely favourably” with other regional and local waste minimisation programmes. The total comprises 470,000 tonnes diverted through direct influence, and an additional 1.4m tonnes diverted through indirect influence, principally through by local authority adoption of PTZW planning process recommendations, but also through other “catalytic” activities such as local authority procurement guidance, waste exchange / re-use promotion, best practice promotion and other marketing activity. The full range of targets for direct and indirect influence, and the actual outputs delivered during 2009/10, are summarised in figure 59.

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68 Source: WRAP Target Trajectories 2008-11
69 Source: PTZW
Figure 59 – PTZW outputs delivered in 2009/10

<table>
<thead>
<tr>
<th>PTZW outputs</th>
<th>Waste diverted from landfill (t)</th>
<th>CO₂ avoided (t)</th>
<th>Virgin material saved (t)</th>
<th>Transport miles avoided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achieved to date (direct influence)</td>
<td>150,000</td>
<td>4,855</td>
<td>57,700</td>
<td>60,150</td>
</tr>
<tr>
<td>Programme target for March 2011 (direct influence)</td>
<td>470,000</td>
<td>14,832</td>
<td>180,000</td>
<td>200,000</td>
</tr>
<tr>
<td>Programme target for March 2011 (indirect influence)</td>
<td>1,400,000</td>
<td>42,483</td>
<td>538,300</td>
<td>561,500</td>
</tr>
<tr>
<td>Total target for March 2011</td>
<td>1,870,000</td>
<td>56,745</td>
<td>718,400</td>
<td>750,000</td>
</tr>
</tbody>
</table>

Performance measurement focuses on two metrics:

1. **Direct influence** on companies and local authorities getting them to change their behaviour and actively divert waste from landfill; working with large construction projects to design out waste (mostly in the public sector because that's where they are at the moment), and intervening to support development of waste processing infrastructure. All tonnages are confirmed by clients.

2. **Indirect influence** influencing through best practice, guidance (e.g. aiming to get local authorities to adopt planning changes which would enable diversion of 1.4m tonnes from landfill), convening workshops. Evidence is based on a variety of assessment criteria.

Key PTZW achievements since 2008 are:

- Working directly with the clients and supply chains of the top 100 construction projects in the south east, providing advice and support to increase the amount of reclaimed and recycled content of materials used, and reduce waste sent to landfill. *Forecast to result in diversion of 100,000 tonnes of material from landfill by March 2010.*
- Has developed a waste arisings “heatmap” and a model business case for a Construction Materials Recycling Facility (CMRF). Providing direct support to organisations seeking to expand or establish new CMRFs. *Forecasts additional 50,000 tonnes of re-processing capacity available by end March 2010.*
- Published a report on analysis of the potential to create a commodity market for recovered waste material in December 2009; in circulation to Government stakeholders.
- Working with construction materials re-use and exchange organisations to establish a trade association and one-stop-shop portal for them.
- Developed recommendations for local authority planning and procurement departments to enable them to reduce waste going to landfill from their own construction projects.

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70 Source: PTZW ALSF annual report 2008-10
Policy projects for CLG, DfT, DECC and Defra

and those they permit through the planning process, thereby reducing waste sent to landfill. Extensive consultation has been carried out since July 2009 with an extremely positive reaction. Promotion/implementation of recommendations begins in July 2010.

- Developed a methodology for quarterly reporting of types, volumes and disposal locations of construction and demolition waste material in the south-east. This was previously available only on an annual basis. It will increase the accuracy of planning for optimum type, size and location of new recycling facilities and supports the waste arisings heatmap and Construction Materials Recycling Facility business case.

**Waste Protocols programme**

The overall benefit from introducing Quality Protocols is to remove layers of unnecessary regulation so easing the burden on business and enabling the pursuit of more market opportunities which in turn generate environmental benefits. The Environment Agency stated that the project has “improved the relationship with industry enormously, enabling it to withstand greater and greater challenges”.

For the project as whole, the first 12 materials for which Quality Protocols were developed are expected to generate £1bn business savings and increased sales of products by 2020, saving 2.1m tonnes of CO₂ emissions, diverting 17m tonnes of CDEW from landfill and preserving 14m tonnes of raw materials.

Clearly it is not possible to identify the extent to which ALSF funding is contributing to this. In an ideal world, we would be able to measure the impact through the increased proportion of different recovered materials being used and the reduced proportion of different materials going to landfill, but in practice material-specific data is not available except for the work done on PFA and steel slag (see below).

An assessment of performance against objectives must therefore be based largely on input and output measures at this stage. These are enumerated below and suggest that the **Waste Protocols programme** is helping to improve confidence in and use of the Aggregates Protocol through site visits and resulting improvements to the Protocol which should in turn result in optimal use of high quality recycled and secondary aggregates. It is also clarifying the feasibility for a quality protocol for marine dredged materials, and is gathering data to inform the development of quality protocols for pulverised fuel ash, incinerator bottom ash and steel slag.

Progress to date to **build confidence in the Aggregates Protocol** includes:

- Primary research undertaken with 271 primary aggregate producers to assess companies’ usage and potential usage of, and any recommendations on, the Aggregates Quality Protocol;
- This informed development and implementation of 234 protocol review visits to RSA producers (around one third of the market) to establish whether companies were complying with the Protocol and to gain feedback on how it could be improved;
- Each site received a report suggesting how it could improve its processes, compliance with the protocol, and potentially its profits. 87 per cent of producers found the visits
useful or very useful and the MPA commented that the visits “helped highlight some areas of improvement”;

- A training package was also developed and has been rolled out to Environment Officers (EOs) in England and Wales to improve their understanding of the scope to engage with the industry around the Protocol (including when checking permits, looking at the output and offering advice on improvements) so they can pursue future site visits. This should improve compliance with the Protocol and reduce the practical and business risks arising from construction use of poor quality recyclates;
- 150 EOs shadowed site visits, and 180 attended a WRAP training workshop. In February 2010, 80 per cent of a sample of 50 EOs said that they actively promoted and supported the industry to apply the Aggregates Protocol in their area; this contrasted sharply with a workshop in June 2008 which showed that while EOs were aware of the Protocol they did not understand how it should be applied, nor where to get further information;
- Recommendations have led to work with industry to change the Protocol, addressing lessons learned since it was drafted.

This programme was complementary to a WRAP campaign to promote good practice in the Aggregates Protocol. This included industry workshops attended by 326 delegates. In 2009 there were 8,138 downloads of the WRAP quality protocol, and 6,775 downloads of the producers’ and specifiers’ checklist and guidance notes. In total, over 30,000 copies of the protocol were downloaded between 2004 and 2009, and nearly 10,000 copies of the checklist and guidance notes since their introduction in 2008, on a tangible upward trajectory.

The technical advisory group established to explore the potential for end of waste criteria for marine-dredged navigational materials has published a technical report on the feasibility of a protocol for this waste. Although it concluded that the development of a Quality Protocol for such materials was not possible at this stage, a way forward has been identified to encourage their further use. The associated Financial Impact Assessment has estimated that, if the “waste” label could be removed from materials derived from navigational dredging, savings and benefits to the navigational dredgings industry would be in the region of £175m over ten years.

Under the workstream gathering data to inform development of end of waste quality protocols for other waste derived aggregates, the Environment Agency commissioned research on the best testing methods for aggregates materials to demonstrate their safety, and as a result have changed to upflow leachability testing (which previously no UK laboratory was equipped to undertake). In 2009/10 these tests were under way for pulverised fuel ash (PFA), of which only around 50 per cent is used in construction, causing storage and disposal problems at power stations. The industry is keen to see an increase in its use in unbound applications such as motorway embankment construction, and as such the potential risks to water quality are being re-assessed for large-scale

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71 PFA is extensively used in precast and ready mixed concrete and in grout for the infilling of minework or similar restoration.
unbound application uses. Industry appreciates the value of data-sharing to address risks, and the link between quality of fuels used in power stations and the potential for end of waste markets. The Environment Agency reported that the next step would be to commission sampling and analysis of steel slag and incinerator bottom ash to inform risk assessments which should increase confidence in use of these waste-derived aggregates, but that there was currently no further funding to enable this.

In this area, quantification of potential benefits is possible. From the £0.7m invested by ALSF in the Waste Protocols Programme over the period 2008-10, over 10 years there could be £99.1m benefits in the form of increased sales for businesses producing RSAs from PFA and steel slag. This benefit would be accompanied by diversion of 7.8m tonnes of material from landfill, 9.1m tonnes of raw materials saved, cost savings to business of £107.9m, and carbon savings of 580,000 tonnes.
9.6.3 Value for money assessment

The overall present value of benefits in monetary terms, generated by the combined efforts of WRAP and the Environment Agency’s ALSF investment, is estimated to be £123m over the period to 2020 (see Annex H). The vfm of each element is analysed in more detail below: the capital grants programme is considered separately from the rest of the WRAP programmes because the scope for analysis of its value is so different.

WRAP programmes excluding capital grants

Project planning, targeting and the base case

The WRAP 3-year Business Plan identifies market failures where support should be targeted and interventions are developed accordingly. Recently, WRAP has ensured that the setting of programme budgets is informed by project-level budgets, providing a good indication of what is needed to deliver the programme rather than spending up to a budget. Prioritisation is conducted according to which projects will deliver greatest impact in terms of tonnes diverted from landfill, CO₂ and cost savings.

WRAP planned the Construction Programme to secure optimal value from research and from engagement, by ensuring that the research programme delivered data and tools at exactly the time that industry developed the appetite, and had the opportunity through engagement, to use them.

It was not possible to say whether, in the absence of the ALSF, WRAP would have chosen to focus on the aggregates industry in the way it has, nor at what pace change would have proceeded. WRAP did highlight the benefit of a sector-specific focus – that "by focusing on the specific barriers which are creating market failures and working directly with industry it is possible to make change over relatively short periods of time". However WRAP also held the view that the rising Landfill Tax and the Aggregates Levy would have driven limited change without any further policy drivers.

Project / contractor selection and distributional issues

Contractor selection is usually by inviting contractors from an existing framework contract to tender against a specific piece of work. All projects are assessed against “a number of varying criteria which have different weightings and are stated in the invitation to tender documents”. Tenders are internally independently assessed and scored, usually by three assessors, who then meet to discuss and reach agreement under a non-assessing Chair.

All of WRAP’s work is freely available. Where workshops and other events are run, WRAP aims to cover “as much of England as possible”, choosing locations in well-networked cities that are easily accessible from adjoining regions.
Quantitative measures

The ALSF is providing roughly one third of the budget for WRAP’s Construction and Materials Recycling Programmes for the period 2008-11\textsuperscript{72}. It is therefore possible to attribute 1m of the annual ongoing diversion of 3m tonnes of CDEW to the ALSF, which gives a value of £7.40 ALSF grant per tonne diverted. It is also possible to attribute 0.17m tonnes of the consequent 0.5m tonnes of annual carbon savings to the ALSF, and around £17m of the total £50m materials savings accruing to the industry each year. For the purposes of comparison within this evaluation, the monetised benefit of the ALSF proportion of the Construction Programme’s carbon savings has been calculated at £8.84m.

The WRAP projects so far entered to the database, including the capital grants programme, have a leverage factor of 2.2 – just above the ALSF average of 2.1.

To supplement these measures, in future it should be possible to use the download rates for web-based material as an indicator of industry interest and product usefulness. Such data will start to be available in 2010/11. If the Reporting Portal is embedded as planned, data entered to it will be a strong indicator of the programme’s success in persuading companies to change their behaviour and contribute to more sustainable use of aggregates.

Qualitative measures

WRAP’s Construction Programme has already influenced companies representing more than one quarter of the UK’s construction industry to sign up to the voluntary commitment to reduce CDEW to landfill. If this delivers, it will secure over a third of the target to halve CDEW to landfill by 2012\textsuperscript{73}.

WRAP has a comprehensive dissemination programme in place to ensure that the products of research reach the right audience; it also has mechanisms in place to ensure feedback from dissemination / engagement is fed back into further development of tools. AggRegain, the web-based resource on recycled aggregates, which has been funded by successive ALSF rounds, remains, according to WRAP “a powerful and well recognised tool within the industry. The earlier and ongoing work we did to build and maintain this resource means it remains relevant and up to date.”.

Stakeholder views

One interviewee, Brian Marker, observed that the WRAP programme had made “major contributions to the assessment and promotion of recycling of suitable materials as aggregates”. This view was generally shared by others.

\textsuperscript{72} The Programmes’ total budget, excluding the capital grants programme, is £22.8m over three years. ALSF is contributing £7.4m.

\textsuperscript{73} Organisations signed up to the Commitment represent more than one quarter of the annual value of construction in the UK (some £25bn) and have the potential to reduce the current total of around 20 million tonnes going to landfill by three million tonnes.
WRAP capital grants programme for re-processing infrastructure

Project planning, targeting and the base case

During the period 2008-11, WRAP has focused capital grants for re-processing capacity on the areas their evidence suggested were most in need of support, i.e. higher-value re-processing activities, and in the second round, handling of the more difficult mixed waste streams.

WRAP’s view is that its capital grant programme has added value by accelerating the diversion of waste from landfill to reduce pressure on limited landfill capacity sooner, and by levering additional private sector investment (see further comment below). The Aggregates Levy and Landfill Tax alone would in time have achieved optimal recycling, but without additional drivers for change, would have taken longer, not achieving the optimum until 2020-25. The timing matters because swifter diversion from landfill reduces the impact on the landscape and on remaining landfill capacity.

The vfm of WRAP’s capital grant programme is intrinsically open to challenge. It is impossible to know what the industry’s pattern of investment would have been in the absence of support; nor is it clear whether better value for money could have been achieved in the types of reprocessing / sites supported had there not been such tight time constraints.

Project / contractor selection and distributional issues

WRAP put in place a rigorous project selection process to maximise value for money from the capital grants programme and to ensure a focus on the priorities of the round. In the first round, 2008-10, bids were required to:

- Input CDEW arisings that would otherwise have gone to landfill;
- Be able to demonstrate a need locally for the facility and not displace existing capacity;
- Be able to demonstrate that viability is dependent on WRAP grant funding;
- Be commercially sustainable in the medium and long term and result in an auditable, additional annual output for a minimum of 5 years;
- Demonstrate clearly defined and where possible, secured end markets for processed material.

Each bid was evaluated separately by internal WRAP assessors, industry experts and an independent financial assessor (whose role was to check the numbers, mistakes and rate of return), who then came together in a selection panel. Evaluation criteria included:

- Overall value for money offered (as expressed by £ grant per tonne of inputs over the first five years of operation);
- Financial robustness of the proposal;
- Quality of the design of the project facility;
- Quality of arrangements for marketing and use of the facility outputs,
• Quality of arrangements for sourcing the input material.

WRAP has also sought to support a range of processors, from big companies to small independents / niche players.

Quantitative measures

This element of the ALSF programme has been particularly effective in levering private sector investment, as the maximum ALSF contribution was 30 per cent of the total project value. Thus the £1.7m ALSF investment in the 2008-10 capital grant round has levered private sector investment of £4m.

The project selection process includes two key quantitative measures of value for money – dependence on WRAP grant for financial viability, and grant per tonne output in the fifth year of operation (by which time the plant can be expected to have reached full operating capacity). As measures on their own, they are of limited value, but in the context of a robust project selection process, they contribute to confidence in the overall value for money of the portfolio of projects being funded.

The viability of projects was considered by the selection panel on a case-by-case basis, and decisions were reached by the whole selection panel including the independent financial assessor, taking into account the fact that the cut-off for viability would vary from project to project. While industry might expect a rate of return averaging 10-15 per cent, for a higher risk or more difficult project, it would be acceptable to seek a higher rate of return. The panel faced a difficult challenge in trying to judge exactly where the cusp of viability lay for individual projects and therefore where the ALSF could genuinely add most value.

Figure 60 shows the calculation of grant per tonne output in year 5 for each of the six successful bids in the first round of the capital grant programme.

**Figure 60 – Vfm as expressed by £ grant per tonne year 5 output**

<table>
<thead>
<tr>
<th>Company name</th>
<th>£m grant awarded</th>
<th>Tonnage output (year 5)</th>
<th>Grant per tonne (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lift &amp; Shift</td>
<td>0.218</td>
<td>50,000</td>
<td>4.36</td>
</tr>
<tr>
<td>Envirowaste</td>
<td>0.255</td>
<td>65,600</td>
<td>3.89</td>
</tr>
<tr>
<td>Raymond Brown</td>
<td>0.400</td>
<td>31,700</td>
<td>12.62</td>
</tr>
<tr>
<td>G I Hadfield</td>
<td>0.300</td>
<td>49,500</td>
<td>6.06</td>
</tr>
<tr>
<td>Tudor Griffith Waste Services</td>
<td>0.245</td>
<td>52,200</td>
<td>4.7</td>
</tr>
<tr>
<td>HS Sustainable Materials</td>
<td>0.284</td>
<td>67,500</td>
<td>4.21</td>
</tr>
<tr>
<td><strong>Total / average</strong></td>
<td><strong>1.7</strong></td>
<td><strong>316,500</strong></td>
<td><strong>5.37</strong></td>
</tr>
</tbody>
</table>
The vfm value for individual grants derived from calculating grant per tonne is of limited value and cannot on its own be used to assess vfm, as the judgement needs to be informed by the type of input material and the equipment which is being supported to process the materials. Thus a more difficult process, or a more difficult input material will have higher unit costs to achieve an output. This is clearly illustrated by the table, which shows that grant per tonne for the six funded projects varies from £3.89 to £12.62 \textsuperscript{74}. The average grant per tonne output across the programme is £5.37.

If you set the total budget for the two capital grant rounds for 2008-11, £2.4m, against achievement of the target to develop 0.35m tonnes of additional re-processing capacity, the average grant per tonne output will be £6.86, although if the second round performs at the same level as the first, WRAP estimates it could exceed the target by around 90,000 tonnes, reducing the average grant per tonne to just over £6.00.

**Qualitative measures**

There are no available qualitative measures of performance.

**Stakeholder views**

The Mineral Products Association wondered whether WRAP’s capital grant programme had experienced “mission creep” from the initial aim (which was to respond industry’s concern that there was insufficient reprocessing capacity), by shifting its emphasis from provision of capacity, to production of higher grade products, and now to concentrate on more difficult materials. This seems a moot point – WRAP has continued to target available resources to address market failure / immaturity in the reprocessing sector, redirecting effort as the market matures to secure best value for money in pursuit of the objective to increase capacity.

**Pathway To Zero Waste**

**Project planning, targeting and the base case**

PTZW has targeted resources by focusing on the 100 largest construction projects, and on working with construction projects that are at pre-contract stage so can still be influenced.

As a cutting edge project, it is very likely to have benefited from the particular skills of the project Director, Chindarat Taylor. A number of stakeholders commented on her vision and drive, and her firm conviction that PTZW could be made to succeed.

**Project / contractor selection and distributional issues**

The Environment Agency was clear that ALSF had acted as an “absolutely fundamental” catalyst for PTZW, providing an “unlocking mechanism” for other sources of funding. For example a subsequent successful bid to the European Regional Development Fund

\textsuperscript{74} The particularly high grant per tonne for Raymond Brown stems from the balance between the inert and non-inert elements of waste input to the re-processing plant.
Policy projects for CLG, DfT, DECC and Defra

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(ERDF) doubled 2008-11 project income, backdating £0.2m per annum over the three years 2008-11.

Quantitative measures

Directly influenced landfill diversion is verified by PTZW clients; indirectly influenced diversion is captured, where possible, using a variety of assessment criteria, and reporting is via PTZW’s “dashboard”, presented to the PTZW board every two months. Given that the ALSF has contributed 32 per cent of the £1.9m budget over 3 years, and the total directly influenced diversion from landfill is expected to be 0.47m tonnes over 2 years to March 2011, the programme represents excellent value for money at £4 ALSF grant per tonne diverted75.

The project has also been highly successful in levering further funding, including £3.2m through Life+ for the period 2010-2012 for a new European Pathway To Zero Waste project. EPOW’s aim will be to demonstrate how EU regions can introduce a programme leading to zero waste to landfill in their region. This would not have happened without ALSF – the pilot de-risked the larger bid.

Qualitative measures and stakeholder views

PTZW is acting to stimulate market mechanisms, for example stimulating the market in provision of aggregates reprocessing capacity by demonstrating evidence of the business opportunities in aggregates recovery. EPOW will build on existing PTZW work to demonstrate how markets for end-of-waste materials can be developed through establishing a pilot commodity market which, if successful, would be a precursor to a UK commodity market.

PTZW provided a wealth of evidence of strong stakeholder support and respect for the project, including:

- Feedback from the PTZW launch and from a number of subsequent events showed unanimous support for the project’s aims, including from senior industry figures and Government representatives;
- The project has received extensive positive national and regional media coverage;
- The Chief Executive of Reading Borough Council has volunteered to champion PTZW among local authorities in the south east;
- PTZW has been welcomed by the top 100 construction projects in the south east, with which the project has engaged directly;
- PTZW was able to pull together a panel of CEOs and Managing Directors from 15 UK waste management companies for a recent infrastructure development round table event.

75 This calculation of grant per tonne is likely to be artificially low because it is not able to take into account the extent to which complementary activity by WRAP and the Environment Agency has supported achievement of PTZW’s objectives.
By mentioning it in his keynote speech to the ALSF Event in March 2010, Defra Minister Dan Norris indicated the initiative’s growing profile.

**Waste Protocols programme**

**Project planning, targeting and the base case**

The Environment Agency identified ALSF funding as a crucial factor in enabling the Agency and WRAP to collaborate on the Waste Protocols programme. In the absence of ALSF funding, it is highly unlikely that the Environment Agency in particular would have been able to invest time and resource in the ALSF parts of the project because, as the Agency explained, the pressures of the regulatory role make it difficult to pursue proactive work.

**Project / contractor selection and distributional issues**

The programme of Aggregates Protocol site visits and the training programme for EOs were pursued nationally.

**Quantitative and qualitative measures**

Although it is not possible to assess the extent to which the ALSF elements of the work on the Aggregates Protocol will contribute to overall quantifiable benefits, it is worth noting that the figure of £1bn benefits and savings over ten years was derived through publicly available Financial Impact Assessments developed by a specialist according to Green Book rules.

ALSF funding has accelerated the pace of establishing Quality Protocols (which is what the industry wants), and has acted as a catalyst, for example by encouraging industry to contribute to the costs of laboratory analysis for PFA and steel slag.

In the case of PFA and steel slag, businesses producing RSAs from these materials could see increased sales of £99.1m over ten years, with attendant savings set out in the previous section.

On the qualitative side, collaboration between the Environment Agency and WRAP has enabled the project to make best use of collective financial resources and expertise.

The Environment Agency pointed to the fact that a workshop involving UKTI and Foreign Office Commercial Attaches identified unexpected inward investment opportunities in UK recovery and re-use of CDEW - although it is not clear whether or how any action might be taken to respond to this.

In a similarly unexpected way, the work on recycled aggregates testing is leading the way on data - providing industry with more data on the characteristics of RSAs than is available on virgin construction materials. The Environment Agency said that in this respect the UK is significantly ahead of other EU Member States, and a European Commission technical
working group under the Waste Framework Directive on when waste ceases to be waste is endorsing UK protocol work wholesale, enabling UK to influence EU policy and process.

A further spin-off from the project has been its contribution to capacity-building in the industry. Many aggregates replacement industries are dominated by small businesses, and the requirement to engage in the development of Quality Protocols is helping these industries to mature faster than would otherwise have been the case.

**Stakeholder and Delivery Partner views**

Both WRAP and Environment Agency regard the Waste Protocols programme as a “very very important” piece of work. The quality of the work has also been externally acknowledged at a high level – the Environment Agency and WRAP team won first prize in the Better Regulation category at the National Business Awards 2009.
9.7 Theme 4: Transport

9.7.1 Overview

The objective of Theme 4 is to reduce the environmental footprint of aggregates transport. The main real-world impacts of the programme are:

- Drivers of aggregates lorries drive more safely and economically, reducing fuel costs and consequent carbon emissions, and reducing the risk of accidents;
- An increased tonnage of aggregates is transported by rail rather than road, reducing the environmental impact including through fuel and carbon savings;
- More opportunities to transport aggregates by water in the areas with new lock facilities, thereby potentially reducing the environmental impact including through fuel and carbon savings.

Actual performance against the objective can be measured quantitatively, in terms of the number of drivers trained and the aggregates tonne miles diverted from road to rail or water transport, with extrapolated fuel and carbon savings. Information about financial leverage is also available. Qualitative evidence is, or could be, available relating to spin-off benefits such as improved nature conservation opportunities resulting from improved water quality, reduced road congestion, and reduced road accidents. British Waterways has provided estimates of potential future benefits from the Three Mills Lock project.

The theme objective is assessed to have been met for SAFED (the legacy of which is now assured) and REPS. British Waterways has put in place the right conditions to enable optimal use of the waterways related to the three Lock projects to transport aggregates and these projects have high potential impact, but their success will not be measurable for several years.

Figure 61 summarises the quantified benefits for the theme. The headline benefits are as follows:

- The quantified mode shift benefit of the ALSF element of Three Mills Lock project is £0.5m over 8 years from 2012 (assuming negligible benefits during the construction phase);
- The quantified mode shift benefit of the REPS grants for 2008-10 for transfer of aggregate transport from road to rail totals £2.7m;
- The fuel and carbon savings generated by the 2008-10 SAFED programme have a present value of £10.5m, assuming a 12 per cent reduction in fuel consumption over one year.

In conclusion, Department for Transport’s SAFED and REPS programmes offer good value for money although vfm in the 2008-11 period may be lower than in previous years. This is principally because it might have been possible to get SAFED adopted by the industry at an earlier stage, releasing that part of the ALSF for investment elsewhere, and because, in the economic downturn, the aggregates element of REPS has struggled to secure take-up (although that should not detract from the vfm of what has been funded).
The British Waterways projects have secured excellent leverage (the Delivery Partner was clear that the ALSF had acted as a catalyst to secure the remaining funding) and the Three Mills Lock project has delivered a worthwhile spin-off in the form of improved water quality in the Olympic Park. The vfm for the immediate future has been dramatically limited by the economic downturn, but there is potential for significant value for money in the longer term.

**Figure 61 – Summary of Transport theme outputs, outcomes and benefits**

<table>
<thead>
<tr>
<th>Output</th>
<th>ALSF contribution</th>
<th>Unit</th>
<th>Indicator</th>
<th>Quantified benefit (£m)</th>
<th>Source / notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribution to lock and water control system, Three Mills Lock; contribution to lock automation at Old Ford and City Mill</td>
<td>8.3%</td>
<td>1,453</td>
<td>Lorry journeys diverted over period 2012-2020</td>
<td>0.5</td>
<td>Equates to 8.3 per cent of total project benefits. Covers quantified benefits of Three Mills improvements only. Calculated using DfT freight mode shift values, discounted at 3.5%.</td>
</tr>
<tr>
<td>Revenue support for shift from road to rail</td>
<td>Grant calculated reflects benefit per lorry mile of rail transport over road transport</td>
<td>2,307,381</td>
<td>Annual tonne miles diverted</td>
<td>2.7</td>
<td>Defra calculated average benefit of lorry mile by water or rail over road to be £1.43.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,500</td>
<td>Reduction in CO₂ tonnes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training and advice for drivers and site managers</td>
<td>100%</td>
<td>8,397,882</td>
<td>Reduction in fuel litres</td>
<td>10.5</td>
<td>Reduced by £200 per driver to reflect opportunity cost of attending training session. Assumes 12% fuel saving over one year. Covers April 2008-September 2009.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5,703</td>
<td>Reduction in CO₂ tonnes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9.7.2 Impact and performance against objectives

SAFED

During the period 2008-10, the SAFED programme has trained 58 trainers and 2,841 drivers. This is estimated to represent 11 per cent of all drivers hauling aggregates.\(^{76}\) Over the period 2005-10, the programme is estimated to have trained a third of aggregates drivers.

DfT has measured average 16 per cent fuel savings secured on the training day. From this, carbon savings may be extrapolated – totalling around 5,700 tonnes for the period April 2008 – September 2009. This would equate to around 0.4 per cent of total aggregates transport carbon emissions.\(^{77}\) However DfT has limited confidence in these figures owing to uncertainty as to how savings taper off over time. Research in this area is ongoing in connection with a policy initiative to mandate eco-driving for all HGV drivers.

\(^{76}\) It is estimated that there are around 25,000 aggregates drivers (sources: AEA Technology, 2008, and MPA, 2010).

\(^{77}\) Assuming around 1m tonnes annual carbon emissions from aggregates transport, based on BCG figures.
No data are available, but the SAFED programme is also expected to have led to a reduction in injuries and fatalities, less damage to vehicles and less un-productive downtime for vehicle repair.

DfT has also succeeded in securing commercial take-up of the SAFED approach, transferring responsibility for the programme to the industry from April 2010. This marks and enables a shift in the Department’s policy emphasis away from specific programmes and towards encouraging eco-driving more generally.

On this basis the SAFED programme can be regarded to have achieved its objectives and become a sustainable part of industry good practice.

**REPS**

During the period 2008-10, grant was paid to six haulier / aggregates firm partnerships; diverting a total of 2.3m “tonne miles” between April 2008 and September 2009. The quarterly review of tonnage hauled against maximum permitted tonnage enables reallocation of un-used funding to ensure that the ALSF grant available each year diverts as many tonne miles as possible.

The grant paid reflects the external benefits generated by the transfer of aggregates transport from road to rail, valued across a number of categories including accidents, noise, pollution, carbon reduction, infrastructure costs, road congestion and visual intrusion. Rail costs and road taxation are netted off. CO₂ savings of around 1,500 tonnes/year (around 0.15 per cent of total annual aggregates transport emissions) may be extrapolated from the tonnage diverted. The carbon reduction benefit as a proportion of the total external benefit is small, valued at only 2.5p per lorry mile, with the major external benefit being reduced road congestion, valued at 43.9p per lorry mile.

DfT has already received several rail applications for 2010/11, with new companies and new routes being considered. There have not yet been any expressions of interest for water freight support.

On this basis the ALSF element of the REPS programme can be said to be achieving its objectives for rail freight; it is too early to comment on its success regarding water freight.

**British Waterways projects**

The British Waterways projects are part of an overall investment package totalling around £30m in the East London waterway network, the majority of which has been targeted to Three Mills Lock. The ALSF’s contribution is 8.3 per cent of funding.

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78 The full package includes about £2m for dredging and fendering around the River Lee, about £2m on improving water quality, £0.5m on repairing waterway walls, £0.5m on wharf improvements.
British Waterways has met its initial output objectives in the shape of improvements at Three Mills Lock, City Mill Lock and Old Ford Lock, establishing the right conditions to maximise waterway use for aggregates transport in the areas around those three locks.

While it is difficult to predict the lock improvements’ actual impact in increasing waterborne aggregates transport, it is anticipated that the main advantage will be in providing sustainable transport (particularly waste out and aggregates in) for the legacy development. British Waterways estimates that Three Mills Lock could save up to 17,500 lorry journeys and 440 tonnes of carbon emissions per annum, representing an increase of a third in waterborne aggregates transport from this one project alone. City Mill Lock may be able to take up the slack when the rail freight terminal for the Olympics at Bow East is removed at end of 2010. In the longer term, it offers potential for waterborne aggregates transport relating to Crossrail and Olympics legacy construction.

Two other major projects (Crossrail's Pudding Mill Lane portal and the Westfield development) are actively exploring using waterway transport – with a combined potential of 0.5-1m tonnes of waterways transport.

The projects’ main impact will not be measurable for several years, and will need to be considered over several years to account for peaks and troughs.

There are however some more immediate impacts that can be assessed.

British Waterways originally predicted that in its three years of operation running up to the 2012 Olympics, the Three Mills Lock could save up to 170,000 lorry journeys, transporting over 3m tonnes by water, and reducing carbon emissions by 4,000 tonnes. If this had been achieved, it would have represented a 100 per cent increase nationally in waterborne aggregates transport. In fact, in the period from June 2009 to February 2010, only 6,400 tonnes of materials, representing 320 lorry journeys, had been shifted through the lock. If that level of use continues to 2012, it would represent less than 1 per cent of the originally predicted achievements. The dramatic reduction in likely achievements for the Olympics construction phase reflects the economic downturn which has had a significant impact on the market for waterborne freight. Lorry transport prices are now lower because less development is going on; plans to bring in marine-dredged aggregates have been shelved as the price of recycled aggregates has dropped.

Other measurable outputs from Three Mills include the creation of new wetlands and enhancing biodiversity in the Olympic Park, made possible by improvements in water quality and the reduced risk of a “sewage event” occurring in the Olympic Park during the Games. Potentially measurable future achievements include reduced road congestion, accidents and fatalities in the local area, and a higher amenity value.

British Waterways uses a SCADA system to record movements through the three locks and plans to review their performance after the Olympics.

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79 Figure quoted at March 2010 ALSF Event.
80 SCADA stands for Supervisory Control and Data Acquisition and refers to software installed centrally which can be used to monitor signals from remote units based at the locks.
9.7.3 Value for money assessment

The combined present value of the benefits, in monetary terms, of Dept for Transport and British Waterways’ ALSF investment, is estimated to be £13.7m over the period to 2020.

SAFED

The SAFED programme 2005-10 has identified and addressed the potential to improve safety and fuel efficiency in aggregates road haulage with around a third of drivers reached directly or indirectly; the approach will continue to deliver benefits at no cost to the taxpayer. Evidence of its good value for money is as follows:

- High take-up by drivers and trainers;
- Delivering wider benefits in HGV driving since the eligibility criteria were reduced in response to the economic downturn;
- Success in achieving measurable fuel savings of 16 per cent on the day, even if longer term savings are unclear;
- Success in achieving consequent carbon savings;
- Has induced culture change in the industry as shown by the industry responding to evidence that training pays for itself and is profitable to run;
- The approach has been extended to van drivers;
- The success of the SAFED approach has enabled a policy shift at DfT from targeted safety and fuel efficiency training to implementation of eco-driving more generally.

There are however questions over the programme’s relative vfm in 2008-10 as compared with 2005-08, as the related HGV programme was taken up commercially two years ago. DfT suggested that SAFED aggregates had remained in house for longer because the funding was still available.81

REPS

REPS has worked to ensure good value for money by:

- **Targeting marginal flows.** Most rail haulage of aggregates is not subsidised. REPS targets marginal flows which need a subsidy in order to be financially viable, and through a grant payment secures the environmental benefits associated with the transfer from road to rail.

- **Requiring a minimum cost-benefit ratio.** Aggregates haulage scheme selection is run as part of the larger REPS process, which operates a three-monthly bid round. Each application is assessed using Sensitive Lorry Miles (up to 2010) or Mode Shift Benefit Values (from 2010) to calculate the environmental benefits it will deliver, including the lorry journeys and mileage likely to be removed from the road network.

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81 However, even if SAFED had been taken up commercially at an earlier date, this would have represented a transfer in the economy, with no net cost or gain.
Applications are ranked according to their vfm as expressed through a cost-benefit ratio. REPS as a whole must perform at a cost-benefit ratio of at least 2:1, i.e. buying at least £2 of environmental benefits for each £1 grant, with a floor of 1.5:1 for individual applications. Some schemes deliver a cost-benefit ratio of up to 5:1. The model incorporates assessment of the impact of changing the source of supply (i.e. to account for a longer rail journey rather than a shorter road journey), but because Carbon reduction represents only a small proportion of the environmental benefits of rail transport, this has a limited impact.

- **Monitoring performance and redirecting underspend to secure maximum mode shift.** Ongoing performance is monitored through tracking of the volumes of aggregates being moved / numbers of lorry journeys being removed, as recorded in the four-weekly grant claims made by hauliers. Underspend can be re-allocated on a quarterly basis.

- **Supporting additional mode shift schemes that would not otherwise be funded.** By putting additional funding into the REPS pot, the ALSF enables additional support for haulage transfer from road to rail and buys additional environmental benefits.

- **Handing back money that cannot be spent in a vfm way.** Because ALSF funding can only be used to support aggregates haulage, and there has been limited demand for this, there has been headroom in the ALSF-REPS budget unlike in the Sustainable Distribution Fund which supports the rest of REPS. However the cost-benefit ratio floor in the selection process ensures vfm, and DfT confirmed that the vfm offered by individual ALSF schemes was comparable to the rest of REPS. In April-May 2009, DfT handed ALSF funding back to Defra as it was unable to allocate it in a vfm way.

- **Modifying the scheme to address improvements in rail cost efficiency.** DfT has recognised that, since REPS started, rail haulage has become more cost efficient by comparison with road haulage. Up until now, that has not been reflected in the way the grant per tonne is calculated. This has led to hauliers becoming comfortable with the grant rate per tonne and has reduced the incentive to secure greater productivity – this will have led to a gradual decline in absolute value for money. This is being addressed from April 2010, from which time hauliers will be required to deliver improvements in productivity, which will reduce the cost to the taxpayer per tonne.

The only stakeholder organisation which commented directly on REPS was BAA. The Association questioned the long-term impact of REPS from the perspective of SMEs involved in aggregates extraction and haulage, suggesting that the ALSF might achieve better long-term value for money for the UK economy by supporting carbon reduction efforts by quarries serving local markets rather than providing grants to large foreign-owned companies who may not have long term commitment to UK operations.
It is not possible to give a robust assessment of vfm at this stage, but the potential vfm is high, for example for the Three Mills Lock project as measured through potential diversion of 17,500 lorry journeys per annum from road to water from 2012. The Mode Shift Benefit for British Waterways’ proportion of the budget totals £0.5m over the period 2012-2020. It may also be possible to measure the impact in terms of reduced road congestion, accidents and fatalities, with consequent quality of life improvements for local residents.

What can be said without doubt is that the ALSF funding for the three projects has offered excellent vfm by acting as a catalyst for third party funding. British Waterways described this role as “vital”. ALSF funding for Three Mills Lock helped secure over £20m in additional funding from 7 different bodies including Department for Transport, Transport for London, the Olympic Delivery Authority and London Thames Gateway. All the co-funders stand to derive benefits from the project.

A key spin-off benefit from Three Mills Lock has been the extent to which it has improved water quality in the Olympic Park by preventing the passage of sewage. British Waterways said that, in the absence of the Lock, the ODA would have had to invest “several million pounds” to address the high likelihood of a “sewage event” in the Park during the Olympic period, as construction of a nearby Super Sewer to tackle the problem will not be achieved in time for the Games. On the qualitative side the improvement to water quality has also enhanced biodiversity and provided better opportunities to develop new habitats in the Park.
9.8 Theme 5: Communities

9.8.1 Overview

The objective of theme 5 is to deliver benefits to communities affected by aggregates extraction, compensating them for impacts including dust, noise, vibrations, haulage traffic and consequent depression of housing prices.

The primary funding impacts relevant to achievement of this objective are social, and to a certain extent economic and environmental. Beneficial environmental impacts also contribute to achievement of goals under other ALSF themes and wider Government objectives. The impacts may be summarised as follows:

- **Social**: increasing the number of people and range of groups in the local community who can use local facilities, with consequent benefits;
- **Economic**: increasing employment opportunities, enhancing individuals’ skills and bringing money into local areas, and
- **Environmental**: improving habitats, landscape and visual outlook, and improving sustainability of energy consumption.

The success of the Delivery Partners’ programmes is best measured through evidence of resulting benefits to local communities, where this is available.

Analysis of the available information about a range of projects demonstrates the wide spectrum of benefits that accrue to local communities. Although information on implemented (as opposed to potential) benefits is limited, significant over-subscription of schemes (with many high quality eligible projects not funded), the fact that many beneficiaries apply a second or third time for funding, the enthusiasm of the Delivery Partners, and some direct evidence from project beneficiaries, is sufficient to conclude that the ALSF is meeting its objective to deliver benefits to communities affected by aggregates extraction.

Although much of the available evidence is circumstantial and / or based on case studies, it is sufficient to suggest that the theme is currently delivering **good value for money**. Particularly positive are its success in acting as a catalyst to lever further funding; the scope to tailor project support to local circumstances, and the achievements of individual projects for example in increasing visitor numbers, reducing energy usage and helping to strengthen communities.

Some question marks over vfm do however remain. The fact that funding for this theme is not ring fenced means that around a third of it is not delivering any ALSF-related benefits; with relatively little input there is scope to secure worthwhile benefits from good practice sharing between Delivery Partners; anecdotal evidence suggests that funding distribution may not be fully aligned with communities’ needs (put another way, some communities may benefit much more than others which suffer similarly from aggregates extraction).
There are two ways in which the analysis undertaken here could be strengthened and tightened in future. The cheaper option would be to add some additional feedback categories to the Defra database (e.g. covering energy savings, beneficiary population); alternatively, Defra could fund systematic post hoc evaluation of a sample of completed projects, with more in-depth analysis of funding and project distribution. ACRE suggested that, to ensure consistency of evaluation across the varying schemes run by different Partners, this would best be undertaken by a single independent evaluator.

9.8.2 Impact and performance against objectives

The impact of each project is unique, but there are a number of impacts seen regularly across a wide range of projects. It is these that are analysed here, drawing on evidence in the case studies at Annex F and additional case study material provided by Delivery Partners, from an analysis of the ACRE projects on the database, and from material gathered during a visit to projects in the Buxton area of Derbyshire and in a meeting with 9 of the Delivery Partners.

The assessment of project benefits is mainly qualitative, and refers principally to the potential benefits of projects identified at the application stage. Very little quantitative information is available, for example on reduced heating bills, increased usage of facilities and increased community cohesion, as no funding for evaluation has been made available to Delivery Partners. The 9 Delivery Partners attending the project meeting were unanimous that the communities strand had “without a doubt” met its objective, by enabling communities to secure tangible benefits that they would not otherwise have received.

Impacts fall into three categories – social, economic and environmental.

Social impacts

Improvements to, and improved access to, community building facilities, to the local built and natural environment and landscape, and to local sports, recreational and other visitor amenities, widens the range of groups able to use facilities and the range of activities that may be undertaken, with particular benefits to less mobile groups (e.g. elderly, pre-school, disabled), as well as improving the visual outlook of an area. Several Delivery Partners had anecdotal evidence of improved use. New groups using such buildings might include mum and toddler groups, luncheon clubs, weddings and other functions. Most such projects are in rural areas where community facilities are the heart of the community.

Examples of specific projects include a new Scout Headquarters in Harpur Hill near Buxton, improvements to Nunwick Cricket Club in Cumbria, the new play area in Peak Dale, Derbyshire, and the community improvements in Lound, Nottinghamshire.

Many projects include an educational angle, benefiting children and young people as well as the wider community. Examples include Shropshire’s Transport to Nature project, introducing local residents to what nature reserves at former aggregate quarry sites can
offer and so encouraging them to visit again, and the new wildlife habitat at Worthington School, Leicestershire.

These deliver a range of potential consequent benefits:

- More recreational opportunities for young residents **reducing anti-social behaviour** and increasing funds available for investment by reducing spend on vandalism;
- Improved outdoor recreational facilities and improved indoor facilities providing opportunities for **improved health, fitness and wellbeing** across the local community; improved quality of facilities can improve safety;
- Improved **community spirit / participation / cohesion** through project development and implementation, volunteering opportunities, use of improved facilities;
- **Sense and pride of place** generated through improvements to local built and natural environment; oral history and local heritage projects enhancing understanding of local quarrying and natural heritage;
- **Improved environmental awareness and understanding** from improved access to natural environment and educational opportunities.

**Economic impacts**

A range of projects contribute to the local economy by providing **employment opportunities** during or after the project. Opportunities include work for local tradespeople to improve buildings and facilities, and permanent employment at visitor facilities. By creating volunteering opportunities and encouraging more people to volunteer, as well as through the learning and coaching opportunities for project implementers, projects **enhance individuals’ skills** and possibly their **employment prospects**. By attracting increased numbers of visitors, projects may **bring more money into the local area**. Projects may also bring **new businesses** to the area.

Examples include the Worthington School and Harpur Hill Scout Headquarters’ use of local contractors, and the additional employment resulting at Poole’s Cavern in Buxton. The Transport to Nature project in Shropshire has so far encouraged four of the residents who went on a visit to become guides at the local nature reserves. Improvements to Poole’s Cavern visitor facilities were one of the main factors in Go Ape’s decision to site one of their high wire courses nearby.

**Environmental impacts**

Natural environment projects create new habitats and enhance existing habitats, **increasing opportunities for (sometimes endangered) species of flora and fauna.** Some community building projects make improvements that **reduce energy usage** e.g. by installing more energy efficient boilers, improving insulation, replacing windows and thereby **reduce running costs**. A small handful of projects make a contribution to much larger initiatives to enable **use of renewable energy**, for example hydro or solar power.

Examples of these include improvements to woodland, reed bed and other floodplain habitats in Leicestershire, habitat management in South Gloucestershire; a number of
Policy projects for CLG, DfT, DECC and Defra

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community building sustainability projects supported by ACRE, and Staffordshire’s Chasewater Green Energy Project installing a solar thermal hot water system and wind turbine at an outdoor education centre.

9.8.3 Value for money assessment

Project planning, targeting and the base case

It is first worth making the point that, because the funding distributed through local authorities is no longer ring-fenced to the ALSF, at least one third of it, i.e. around £3.5m over three years, is not compensating communities for the adverse impacts of aggregates extraction. While the merits of the LAA approach fall outside the scope of this evaluation, and while the LAA system should ensure that that £3.5m is invested in a vfm way in the priority needs of the local authority area, it cannot represent good vfm for the achievement of ALSF objectives. This calls into question the overall vfm of the ALSF Communities theme as it is delivered at present.

Setting the LAA question aside, the fact that ACRE and those local authority Delivery Partners distributing most or all of their ALSF allocation through a specific ALSF scheme are able to tailor ALSF distribution to local circumstances and need, and (in the case of local authorities) in line with local political aspirations, suggests that they are able to deliver best value for money against the Fund’s objectives. Delivery Partners who contributed directly to this evaluation felt strongly that this was the case, stating in one case that it achieved the “right balance between flexibility and focus”.

It should not be taken for granted that the fact that ALSF funding is now distributed through the LAA in local authorities assures its vfm even if it is invested in support of the Fund’s objectives. While in some local authority areas the LAA process will actively ensure that ALSF spend contributes to LAA priorities, at least two local authority Delivery Partners reported that they were left to their own devices and were not required to meet particular LAA requirements or even report in to the LAA.

Delivery Partners did however give the impression that Defra, as ALSF programme co-ordinator, was too hands off – potentially so hands off as to inhibit the achievement of vfm at the margins. The Communities theme involves 19 Delivery Partners, around 13 of whom are active. Under normal circumstances, there is no communication between any of these Delivery Partners, and minimal communication with Defra. Given that all Delivery Partners have the same goal, it is likely that more consistent data gathering by Defra (e.g. chasing up annual reports or similar) and some analysis and sharing of that data, plus some basic facilitation of good practice sharing and networking, would enable Delivery Partners to be fairer and more consistent in their distribution of the Fund and to make the best use of shared learning to maximise the impact and vfm of the Fund. That said, even before ALSF grant was distributed by local authorities through Local Area Agreements (which prevents Defra from imposing requirements), the local authorities asked Defra to minimise reporting requirements given the limited administration budget.

A 90-minute meeting with 9 of the Delivery Partners provided supporting evidence for this. It was the first time they had met in well over two years. It gave them a useful opportunity
to share information about the schemes they ran, with particularly constructive discussion about eligibility, at the end of which at least one Delivery Partner was planning to consider making changes. They were keen to have more opportunities to meet and share good practice and felt that it would help to further improve vfm and the targeting of spend to worthwhile projects.

Project / contractor selection and distributional issues

As far as could be established within the scope of this evaluation, the local authority Delivery Partners appeared to have a robust selection process in place, although the degree of external input and challenge varied from county to county, ranging from decision processes managed entirely within the team, to selection panels incorporating independent third parties. The fact that the ALSF enables Delivery Partners to manage their allocation to make the most of synergies with existing local structures and ensure that local needs are met should contribute to maximising vfm. ACRE’s process was also very thorough, with local representatives screening and shortlisting up to around 6 projects totalling no more than £40,000, and final decisions taken by a national grants panel.

As far as could be established, all active Delivery Partners also took steps to ensure fair distribution across identified eligible areas, with Cornwall at the most systematic end of the spectrum awarding a standard amount to eligible parishes. ACRE has the greatest challenge, as their budget limits them to supporting only one medium-sized project per local authority area per annum. They try to award an equal amount (around £20,000) to each area and try to get a spread of different types of project. The sum available to ACRE is not large enough to make it feasible to weight distribution according to the amount or impact of extraction in each area, but the Programme Manager did say that in considering applications they took into account the severity of the impact on individual communities.

What is more difficult to ascertain is the vfm offered by Delivery Partners’ eligibility criteria, given that these vary significantly from Partner to Partner. The fact that geographical distribution of extraction sites, the impact of different types of quarrying, population density and distribution, and haulage systems, will vary from area to area, suggests that some variation is justified. And most – although not all – Delivery Partners were able to give good reasons for having established their criteria. So, in general terms, it is possible to be confident that the communities benefiting from the Fund are communities adversely affected by aggregates extraction.

That said, the following points suggest that a more detailed exploration of the relationship between eligibility criteria and vfm may be justified:

• it is uncertain whether the prevailing arrangements ensure a fair national distribution of benefits to affected communities given inconsistency of approach particularly relating to the inclusion / exclusion of haulage routes, the radius of eligibility around quarry sites, and the fact that the affected population per unit of aggregate production (and therefore ALSF allocation) will differ from area to area;
• It was not clear that all Delivery Partners had the same approach to repeat funding for individual project recipients and communities. Some said they would take
previous grants and geographical spread into consideration if they were over-subscribed or considering projects of equal merit, while others appeared to support multi-phase projects as a matter of course. This is certainly not in contravention of the letter of the objective (ongoing benefits in respect of ongoing adverse impact of quarrying), but there may be questions about whether repeat funding is to meet genuinely crucial community needs or is erring towards the “nice to have” end.

Quantitative measures

There is substantial potential for quantitative analysis of the value for money delivered by the Communities theme, but very patchy actual evidence. Figure 62 identifies some of the key indicators and the quality of available data, and comments on what conclusions can and could be drawn.

The only robust and fairly comprehensive evidence is on leverage – which is excellent. The database provides reasonable evidence of project outputs – numbers of beneficiary facilities and the like, although it is hard to draw conclusions on value for money from these. Owing to the wide range of projects undertaken, there is very limited mileage in analysis of the size of beneficiary population and grant per head of local population, but ACRE’s data for 2008/09 suggest that improvements to community buildings may be substantially better value per head of beneficiary population (typically under £1 per head), as compared with the cost of improvements to sports facilities (a range of £7-13 per head).

Circumstantial evidence is available in a number of further areas – fund administration, energy and cost savings, enhanced fundraising, user data. These provide evidence of good vfm, but mainly for individual projects considered as part of this evaluation. The breadth of evidence could be extended to cover more case study projects, but it is worth noting that Delivery Partners were sceptical as to whether this would represent good value for money given the difficulties in extracting usable data.
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Quality of data available</th>
<th>Analysis</th>
</tr>
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</table>
| Leverage                        | Excellent – evidence on database, plus case studies.            | - Leverage factor for projects on database is just over 4, so very high on average (although skewed by a few small contributions to very large projects).  
- Delivery Partners confirmed that ALSF acted as catalyst, often first source of funding for a project, “making life a lot easier” and encouraging other funders to contribute. The sorts of projects funded by ALSF were often those which wouldn’t get, or be eligible for, funding elsewhere. So while some would go ahead to a slower timescale in the absence of ALSF, the smaller projects and those with little or no match funding, or matched support in kind, would probably not happen.  
- E.g. Wickwar Rd Multi-User Path, South Glos - small initial grant enabled design preparation which levered much larger sums of money (including a further ALSF contribution) to build the MUP.  
- E.g. Beckingham Willow Works, Notts – Delivery Partner cited ALSF funding as a significant factor in securing HLF approval for community-focused £3m Trent Vale Landscape Partnership programme. |
| Administration                  | Circumstantial evidence from DPs, but could be improved.       | - Some, possibly many, DPs contribute own resources to support administration of ALSF scheme, releasing greater proportion of funding to projects on the ground.  
- E.g. ACRE felt their scheme was particularly cost effective as it delivered funding to 23 counties “in one hit”, (although one local authority commented that their administration fee at 12.5 per cent was considerably higher than the 7 per cent permitted to local authorities). Local members of Rural Communities Action Network (RCAN) responsible for short-listing potential projects don’t cover their costs (they are paid £1,800 p.a. for ALSF admin), but participate because it advances local objectives. |
| Size of beneficiary community   | Robust data from ACRE                                          | - Data for 2008/09 ACRE projects shows that population in communities benefiting from projects ranges from 400 to 125,000 and the grant per individual ranges from £0.05 to over £25. The median beneficiary population was 1,500 and the median grant per individual was £5.30.  
- In that year, most improvements to community buildings cost less than £1 per head of population in the beneficiary community; the cost per head from recreational projects was typically higher, in the range £7-13. |
| Energy / Carbon savings         | Circumstantial evidence from case studies, but could be improved. | - A number of projects fund improvements to insulation / new boilers / other energy saving measures. No DP collects follow-up data on actual energy savings, but this could be done if funded.  
- E.g. Buxton Methodist Church estimated that energy savings from new boilers would average 20 per cent.  
- E.g. ACRE’s Phoenix Centre Panasonic Air Pump has potential to save up to 63 per cent on energy bills.  
- E.g. ACRE’s Wellow Community Minibus reduces emissions from private car and taxi journeys; by converting the minibus to LPG, exhaust fumes will be reduced by 90 per cent, CO₂ emissions by 20 per cent. |
| Cost saving / increased fundraising power / re-investment | Circumstantial evidence from case studies, but could be improved. | - See comment on energy savings above. Would be possible to collect data on fuel bill savings resulting from increased energy efficiency.  
- Projects which improve / widen the usability of a facility should increase hire income, generating more funding to re-invest in the facility. E.g. new Scout HQ at Harpur Hill nr. Buxton.  
- If projects for youth facilities and activities reduce vandalism, more funding will be available for re-investment. |
| Project outputs                 | Reasonable – from database; scope for more in-depth analysis.  | - Outputs for the £3m investment already on the database include: improvements to 84 community buildings; improvements to 32 children’s play facilities; enhancements to the environment or landscape in 53 locations; improvements to 24 sports facilities.  
- This analysis could be significantly deepened using evidence available on the database. |
| User data                       | Circumstantial evidence from case studies but could be improved. | - Types of evidence include visitor numbers, “footfall” numbers where a facility is used by many groups. DPs agreed that these data could be gathered but that at present there was no resource to do so. They also questioned whether conducting such evaluation would represent vfm as the data would be difficult to access (would available funding be better spent on the communities themselves rather than on quantifying “self-evident” impacts?).  
- E.g. Poole’s Cavern, Buxton – visitor numbers increased from 30-50,000 following work supported by ALSF.  
- E.g. in Shropshire some project sites have started visitors’ books to give an idea of numbers and the value visitors were gaining.  
- E.g. project deliverers must complete final grant claim form at project completion reporting back on outputs agreed at start of project. Where a project includes events/ workshops, form may include records of numbers of people involved (Shropshire Transport to Nature project is designed to reach 200 local residents). |
Qualitative measures

The meeting with Delivery Partners and case study analysis provided circumstantial evidence of:

- **Community involvement in, support for, and feedback** on ALSF projects;
- ALSF projects contributing to **community capacity building and community cohesion**, including through building stronger links with local NGOs and third sector organisations.

Delivery Partners confirmed that, in their experience, beneficiary communities really appreciated the investment, and understood that the funding was intended to compensate for the adverse impact of quarrying. Most Delivery Partners made acknowledgement of ALSF a project requirement and/or provided plaques. They also felt that the ALSF had been beneficial in building capacity among community groups to apply for funding, thereby improving their chances of securing support from other sources.

Specific examples in these areas include: Harpur Hill Scout Leader’s opportunity to develop project management skills; local authority officers making direct contributions of expertise / project management to projects; local community input to, and feedback on, Worthington School project; direct contact with Wildlife Trust and new volunteers on nature reserves resulting from Transport to Nature project.

There was also potential for, although limited actual evidence of, ALSF projects contributing to a closer or more productive **relationship between local communities and the relevant quarry operators**, and to **improving understanding of the quarrying industry and its local heritage**. Positive examples of this include:

- Derbyshire’s “Stories of Stone” project in which a voluntary arts organisation worked with companies operating local quarries such as Lafarge and Tarmac, and the communities around Dowlow Quarry and Sterndale Moor to produce a book, DVD and educational pack of stories, shared local heritage and images of past and present quarry workers and quarry sites;
- Cornwall’s production of a guide on local stone and slate which provides details of suppliers, craftsmen, traditional skills and local styles.

**Stakeholder and Delivery Partner views**

The Communities theme was universally popular with Delivery Partners supporting other ALSF themes and with the wider stakeholder – particularly the industry – community because it offered a direct and therefore inherently at least basically cost effective way to help target communities. Local authority Delivery Partners confirmed that it was generally popular with local politicians because it gave them opportunities to get out into communities and to generate positive press coverage. Two local authorities reported that incoming councillors had reacted very positively to briefing on the Fund following local elections in which political control of the council had changed hands. Locally-based NGOs including the Wildlife Trusts and Friends of the Peak District (FoPD) also confirmed its value – FoPD felt that the Derbyshire ALSF scheme known as DALGS was “very well...
used” and represented “tremendous value”. The CNP additionally commented on this ALSF theme’s potential to respond to current national priorities, citing Derbyshire’s statement that it would favour proposals tackling climate change.

However stakeholders expressed significant concern about the proportion of ALSF Communities funding being diverted to other priorities. The industry and local authorities in particular felt that vfm was seriously compromised where ALSF monies were not locally ring fenced. Local authorities reported that quarry operators were convinced that, over time, ALSF funding would be re-directed to other LAA priorities.
10 OVERVIEW OF ALSF ACTIVITY AND PERFORMANCE IN 2007/08

10.1 Background and summary

ALSF 2007/08 represented a continuation of the programme from the previous year to fit in with the revised timetable for the Comprehensive Spending Review.

Activity was pursued by 25 Delivery Partners, including 18 local authorities and ACRE as a new Partner, under four objectives, as set out in figure 63.

Figure 63 – the ALSF programme in 2007/08

<table>
<thead>
<tr>
<th>Objective</th>
<th>Delivery Partner(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Minimising demand for primary aggregates.</td>
<td>WRAP</td>
</tr>
<tr>
<td>2. Promoting environmentally friendly extraction and transport.</td>
<td>MIRO, CEFAS, English Heritage, Natural England, Dept for Transport</td>
</tr>
<tr>
<td>3. Addressing the environmental impacts of past aggregates extraction.</td>
<td>Natural England, English Heritage</td>
</tr>
<tr>
<td>4. Compensating local communities for the impacts of aggregates extraction.</td>
<td>Local authorities, ACRE</td>
</tr>
</tbody>
</table>

10.2 Funding

A total of £20.4m was allocated by Defra in 2007/08, of which £20.3 was spent. Figure 64 includes information on expenditure broken down by Delivery Partner. It shows that all the Delivery Partners were effective in spending their allocation. Key points on funding distribution are that:

- English Heritage’s allocation was commensurate with earlier years, but has since reduced significantly;
- Natural England’s allocation was lower than its allocation (or the combined allocation of its two predecessors) in previous years;
- WRAP’s 2007/08 allocation was at a low point compared with previous years; it has since increased again;
- CEFAS’s 2007/08 allocation was higher than in earlier years, and has since increased further.
As in the period 2008-11, projects in 2007/08 were allocated in one of five categories: research, dissemination, transport, quarry site and local community. Figure 65 shows the distribution of funding between project types. The distribution between project types is broadly similar to that in 2008-11, although in 2007/08 there was slightly less emphasis on research and dissemination; and transport accounted for a smaller, and quarry site projects for a larger, proportion of the budget.

In the time available, it has not been possible to consider activity, performance and value for money in 2007/08 in any depth. The three sections below summarise readily available information, by objective and Delivery Partner. The degree of detail depends to some extent on the availability of information on the Defra database or in annual reports, and the extent to which those drew out readily accessible highlights.
In most cases, aside from accounting for the fact that in 2007/08 the programme was at an earlier, less mature stage, limited added value would be obtained from a detailed analysis because the same Delivery Partners were involved as in 2008-11, running the same programmes of activity in the same way with the same project selection process. This applies for example to Objective 4: communities, to the Marine ALSF, and to Natural England.

The biggest innovation was the Dissemination Project commissioned by Defra and overseen by MIRO and English Heritage to bring the knowledge gained from earlier ALSF research to the right audiences to help it gain maximum real-world impact.

10.3 Objective 1: Minimising demand for primary aggregates

WRAP was the sole Delivery Partner for this objective in 2007/08, investing just under £2.7m in three areas: the AggRegain website, research into specific RSAs, and five capital grants for re-processing infrastructure ranging from £85,500 to £709,780. This represented a continuation of the previous WRAP ALSF programme.

All of these activities will have contributed directly to the objective; value for money will have been ensured through the rigorous project selection arrangements that WRAP has in place.

10.4 Objectives 2 and 3: Promoting environmentally friendly extraction and transport; reducing the environmental impacts of past extraction

10.4.1 Introduction

These two objectives are considered together, as there was no easy way to identify which projects related to which objective. Five Delivery Partners contributed to these two objectives – MIRO, CEFAS, English Heritage, Natural England and Dept for Transport.

10.4.2 The Dissemination Project

The main innovation in 2007/08 was Defra’s decision to commission MIRO and English Heritage to review and provide an overview of the 360+ research projects funded through the ALSF between 2002 and 2007, to ensure that key information was disseminated more widely among its target audience. The budget for the Project, including contracted work on the benchmark reports as well as the development of the website and holding a dissemination event, was £0.6m.

The main products of the Dissemination Project were eleven published benchmark reports under four themes:

- Reducing the environmental footprint of quarrying
- Sustainable provision of aggregates
- Biodiversity, geodiversity and restoration
A further project produced a report entitled “An overview of design and management approaches to reducing the environmental footprint of the supply chain for land-won aggregates” putting the other reviews into the context of the quarry life-cycle, specifically in relation to the various elements of environmental footprint and the stages in the supply chain for land-won aggregates.

English Heritage led on the three Heritage reports; MIRO led on the remainder. English Heritage summarised the aim of the reports as follows82:

“The aim of the projects … was to provide a succinct critique and summary of the research work undertaken through the ALSF, in the context of wider research … this involved critical assessment of the results and products, peer review of the perceived impact of the ALSF, and production of readily digestible high-level reports which included both statements on key potential objectives should further … resources become available, and case studies to promote good practice.”

The reports were written by “recognised experts in their fields”83 and reviewed by industry representatives and other key stakeholder groups, and were designed to be easily accessible and widely shared.

All the reports, together with published material from the individual research projects, was then brought together in a new web platform at www.sustainableaggregates.co.uk. The website’s stated aim is to “distil some of the best projects into one easily-digestible pool of knowledge, through reviews of research on specific topics and a repository of project reports”. In the last quarter of 2009 Sustainable Aggregates received around 1,600 hits a week. Data are not collected on who is accessing the site, nor for what reason, which makes it difficult to draw conclusions as to its impact. See section 8.3.3 for discussion as to how the website could be further improved, including to raise awareness of its existence among the stakeholder community and potentially to make it a one-stop shop for the ALSF programme.

The findings of the benchmark reports have been used to shape the programme of 2008-11 ALSF research - MIRO and English Heritage’s research programmes have the specific objective of filling identified research gaps with the potential significantly to reduce the environmental footprint of aggregates extraction. Defra commented that the value of the Dissemination Project was in “helping the knowledge gained reach the right audiences to increase the probability of real-world change” although, beyond the statistics on website hits, there is little quantitative information on the extent to which the Dissemination Project made a difference and what real world changes may have resulted.

However, judging by the interviews undertaken for this evaluation, the benchmark reports are widely used and respected by the stakeholder community and, together with the new website, secured considerable added value for the ALSF programme.

82 ALSF Annual Report 2007/08, English Heritage
83 Sustainable Aggregates: A review of ALSF research projects – companion booklet
10.4.3 MIRO

MIRO also funded fourteen research projects covering issues including potential uses of quarry wastes, health and safety, and improvements to monitoring techniques.

10.4.4 English Heritage

English Heritage also funded 17 marine projects and 66 terrestrial projects. A “significant number” of projects had education, outreach, access and the local community as their driving force. Aside from the outreach strand, which did not receive ongoing support in 2008-11, the other areas of activity were typical of the ALSF programme in previous and subsequent years.

Much of the marine effort was directed to improving baseline data and information about the marine historic environment, as well as new research into marine evaluation and mitigation techniques. One of the most significant projects was the BMAPA / English Heritage Protocol for reporting finds of archaeological interest, support for which has been extended into 2008-11. See section 9.5.2 for a brief commentary on its powerful impact.

On the terrestrial side, a notable introduction was the pilot “Vulnerable Historic Assets” scheme. Its aim was to repair and restore strategically important and vulnerable buildings, monuments and landscapes within communities directly impacted by aggregates extraction, to enable them once again to play a pivotal role in local life and ensure a sense of pride and place. Seven projects were funded, all within 5km of an aggregate quarry. English Heritage stressed that this had a double benefit, as it contributed to English Heritage’s priorities for strategic conservation and Defra’s PSA for regeneration. Although successful in its pilot year, this strand of work has struggled to identify suitable monuments in 2008-11 because there are so few that meet the stringent eligibility criteria.

2007/08 also made a considerable contribution to the ongoing programme of assessments of archaeological resources in aggregate areas (ARAs), adding Durham, East Sussex, Yorkshire East Riding, Gloucestershire and Hampshire.

10.4.5 CEFAS

Co-ordination of marine ALSF work was undertaken in the same way in 2007/08 as in 2008-11, with CEFAS providing co-ordination for a programme of work shared with English Heritage, overseen by a steering group comprising all the key interested parties. The same five strategic objectives also applied.

CEFAS’s MEPF funded 17 projects in 2007/08. Many of these focused on improving understanding of the impacts of dredging. During the year, two REC studies were undertaken, for the outer Thames Estuary and South Coast regions. A Marine ALSF

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84 ALSF Annual Report 2007/08, English Heritage
website was also developed to provide a repository for marine ALSF research information, incorporating a GIS database.

Quotes from delegates at the 2008 Marine ALSF conference are indicative of the high regard with which the programme was already held in that year, and its relevance to the industry:

“The wide range of work and the degrees of overlap and potential synergies are very exciting.”

“The range of outputs from a wide range of science, social policy, data and outreach projects have provided an excellent benchmark for the future.”

“The ALSF has reached a point of ‘critical mass’ of knowledge to enable science and management to go forward with real confidence. There has been a sound, long-term vision.”

10.4.6 Natural England

Natural England supported 98 projects in 2007/08, contributing to the following aims:

- contributing to the development and achievement of UK and Local BAPs;
- conserving, restoring or enhancing landscape and/or geographical features, contributing to local Geodiversity Action Plans;
- addressing the effects of old mineral planning permissions;
- improving access and interpretation on greenspace and informal recreation facilities for scientific study, education, recreation and tourism;
- building capacity and confidence of communities to be involved in, contribute to and benefit from their natural environment;
- improving people’s quality of life, especially those who have been affected by aggregate extraction activities.

Figure 66 shows how the 98 projects were categorised – the distribution was broadly similar to that seen in the 2008-11 period, although a greater proportion contributed to biodiversity aims in 2007/08 than subsequently. However, the majority of projects cut across – and delivered benefits under – more than one theme. For example a single project may deliver biodiversity benefits and contribute to BAP targets at the same time as improving access to a site thereby improving people’s quality of life by providing access to green space and informal recreation facilities.

Figure 66 – Natural England 2007/08 projects, by category

<table>
<thead>
<tr>
<th>Biodiversity</th>
<th>Geodiversity</th>
<th>Bio/Geo</th>
<th>Landscape, access and recreation</th>
</tr>
</thead>
<tbody>
<tr>
<td>46</td>
<td>17</td>
<td>3</td>
<td>32</td>
</tr>
</tbody>
</table>
According to data provided by Natural England for 2006/07 and 2007/08\(^{85}\) (a breakdown was not provided for 2007/08 only), highlighted outputs for those years included:

- 830ha restored;
- Projects covering over 1,200 geological sites, and 89 new Regionally Important Geological Sites declared;
- Over 40,000 primary school pupils were involved in an ALSF-supported school visit;
- 8,200 volunteers took part in projects;
- Nearly 155,000 people attended ALSF-sponsored events;
- 74.7km of new footpaths and boardwalks were laid;
- Nearly half a million leaflets and guides were distributed, and
- An estimated 16m people were made aware of the projects.

### 10.4.6 Transport

In 2007/08, Dept for Transport provided grant through REPS totalling over £400,000 to four organisations to enable transfer of aggregates transport from road to rail. This will have contributed to reducing the overall environmental impact of aggregates haulage in that year. All four organisations have continued to benefit from REPS during the subsequent two years.

As REPS grant will have been made on the same basis as in 2008-11; the same comments on value for money apply.

### 10.5 Objective 4: Compensating local communities for the impacts of aggregates extraction

The communities objective was delivered in the same way in 2007/08 as in the 2008-11 period – through 18 local authorities, and ACRE. 2007/08 was ACRE’s pilot year and brought communities within an additional 23 counties into the scope of the ALSF; for all the other Delivery Partners, the programme continued previous work. The sum available that year (£3.3m in total, of which all was spent) was similar to that available in subsequent years.

In the time available for this evaluation, it has not been possible to analyse the types of project undertaken, but the evidence suggests a similar distribution and performance in 2007/08 to that in subsequent years. The set of case studies at Annex F includes two which received funding in 2007/08.

Figure 67 summarises key statistics for 2007/08 on the basis of information entered to Defra’s database, supplemented by ACRE’s annual report for 2007/08 and material provided by local authorities which attended a meeting convened for this evaluation. It shows that 233 projects were funded by 13 Delivery Partners at a total cost to the ALSF of £2.3m. It is assumed that the discrepancy with the total allocation is accounted for by: under spend, diversion to other priorities by some actively participating Delivery Partners

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\(^{85}\) ALSF Annual Report April 2006 – March 2008, Natural England
and the non-participating Delivery Partners, administration costs, and projects not entered to the database.

Figure 67 – Communities objective 2007/08: ALSF spend and projects undertaken

<table>
<thead>
<tr>
<th>Delivery Partner</th>
<th>Number of projects supported</th>
<th>Total project funding (£) entered to database or otherwise confirmed (rounded to nearest £,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACRE</td>
<td>30</td>
<td>435,000</td>
</tr>
<tr>
<td>Cornwall</td>
<td>17</td>
<td>43,000</td>
</tr>
<tr>
<td>Cumbria</td>
<td>14</td>
<td>130,000</td>
</tr>
<tr>
<td>Derbs</td>
<td>13</td>
<td>224,000</td>
</tr>
<tr>
<td>Lancs</td>
<td>10</td>
<td>113,000</td>
</tr>
<tr>
<td>Leics</td>
<td>19</td>
<td>283,000</td>
</tr>
<tr>
<td>Lincs</td>
<td>12</td>
<td>98,000</td>
</tr>
<tr>
<td>North Yorks</td>
<td>24</td>
<td>231,000</td>
</tr>
<tr>
<td>Notts</td>
<td>18</td>
<td>104,000</td>
</tr>
<tr>
<td>Shrops</td>
<td>9</td>
<td>93,000</td>
</tr>
<tr>
<td>Somerset</td>
<td>40</td>
<td>275,000</td>
</tr>
<tr>
<td>South Glos</td>
<td>19</td>
<td>93,000</td>
</tr>
<tr>
<td>Staffs</td>
<td>8</td>
<td>182,000</td>
</tr>
<tr>
<td>Other</td>
<td>No information available for Devon, Doncaster, Durham, Essex or Gloucestershire.</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>233</td>
<td>2,300,000</td>
</tr>
</tbody>
</table>
11 APPRAISAL OF FUTURE OPPORTUNITIES FOR FUNDING

11.1 Overview and recommendations

The ALSF has made dramatic progress since 2002 to improve understanding of the impacts of aggregates extraction and transport, to mitigate those impacts and to make the most of opportunities. In some areas, bodies of work have been completed or have become self-sustaining through embedding in standard industry practice. That does not mean that the ALSF’s job is done. There continue to be some areas where very high vfm could be achieved with further funding.

Figure 68 below sets out the main stakeholder views on the future of the ALSF.

Figure 68 – summary of stakeholder views on the future of the ALSF

Industry leads the argument that the rationale remains strong for using a proportion of Aggregates Levy receipts to reduce the environmental impact of aggregates quarrying, not least because to do otherwise would be to de-couple the Levy from its original environmental purpose.

While all parties are clear that levied monies should not be used to support the core obligations of industry and Government there was acceptance on both sides that, given the tight constraints on future public spending, Aggregates Levy receipts might need to be called upon to act as what the MPA described as a “safety net”.

Other comments relevant to future funding decisions include that industry, supported by other practitioners including the planning community, felt that investment in research needed to be closely targeted, and that the resources available to compensate communities for the adverse impacts of extraction should be increased and ring-fenced. The MPA felt that the ALSF, if continued, should have more formal arrangements for strategic input from stakeholders, and be given a higher public profile.

The over-arching goal to which the ALSF contributes is sustainable supply and management of aggregates to meet national need, including through:

- Sustainable extraction techniques;
- Optimal use of RSAs;
- Minimising the impact of aggregates haulage;
- Minimising the impact and maximising the opportunities for the natural and historic environment at site and landscape scale, and
- Compensating local communities for the adverse impacts of quarrying.

This suggests that Government and stakeholders would be well-advised to return to first principles and ask what further Government support is needed to enable the aggregates supply chain to operate sustainably.

This needs to take into account:

- What this and previous evaluations conclude about what the ALSF has achieved since 2002 to improve the sustainability of the aggregates sector;
- What further evidence is needed to assist future policy development and monitor implementation;
• What Government support will be needed (owing to market failure) to enable the aggregates sector to implement policy changes, respond optimally to technological developments, improved understanding of threats, and other changes to the external operating environment, and

• How best use can be made of the group of stakeholders mobilised over the nine years of the ALSF’s operation, in particular whether the balance between Government and industry lead should shift in response to increased industry capacity, maturity and collaboration.

This evaluation did not have the resources to conduct a full first principles review, but has provided evidence that there is a **strong case** for future Government support in the five areas set out in figure 69 below. It was not within the scope of this evaluation to assess the relative priority of the three suggestions outwith the scope of the current ALSF (see section 11.7), but these will need to be considered alongside other priorities.

**Figure 69 – Areas which merit future support**

1. **Knowledge and data management and dissemination** – in many areas, further funding would help consolidate and fully realise the potential of ALSF investment 2002-11, including by maintaining and updating existing resources, providing effective web-based access to project outputs and datasets, and ensuring optimal awareness of these among the stakeholder communities who could benefit.

   *Priorities include:* rolling out the carbon reduction technology accelerator programme; completion of historic environment Aggregates Resource Assessments (ARA) programme; knowledge and data management and dissemination of terrestrial and marine historic environment and technical research and marine RECs, and RSA standards, guidance and advice.

2. **Targeted, practically applicable research to enable the sector to continue to perform optimally and to innovate** – this would respond to technological developments, improved understanding of threats, and changes to the external operating environment.

   *Priorities include* targeted research relevant to the terrestrial and marine historic environment, the environmental footprint of extraction activity.

3. **Targeted practical or site-based assistance contributing to achievement of national priorities**

   *Priorities include:* further support for modal shift from road to rail and water, conservation (by record or physically) of significant archaeological and historic resources, biodiversity and geodiversity projects contributing to BAP and GAP targets.

4. **Delivering benefits to communities affected by aggregates extraction**

   *The focus could be on* contributing to national priorities e.g. for community capacity building, improved health and wellbeing, carbon reduction, with better integration with work relating to the historic and natural environment.

   *Priorities include:* embedding industry collaboration on carbon reduction; encouraging and enabling aggregates companies to supply product from the most sustainable source depending on individual circumstances.

5. **Facilitation of further-improved co-ordination and collaboration** within and between Government, the industry, NGOs and experts, and further behavioural change in the industry to optimise the sector’s performance.

   *Priorities include:* embedding industry collaboration on carbon reduction; encouraging and enabling aggregates companies to supply product from the most sustainable source depending on individual circumstances.

If future support were available, **best value for money** could be achieved through making the most of opportunities for more cost effective administration, better joined up delivery and consideration of what constitutes the right balance between sector-specific and more general investment to meet wider national goals e.g. for carbon reduction. Measures worth considering would include:
• Where the aggregates sector or supply chain is one of many target sectors, embed action more fully within wider work programmes (e.g. WRAP, Environment Agency, Carbon Trust, DfT);
• Ensure that funding which remains aggregates-specific does contribute to the sector’s goals by distributing it through Delivery Partners whose budgets can be ring-fenced (although this could damage momentum if crucial links between experienced Delivery Partners and grant applicants were lost);
• Explore the potential to concentrate administration and programme management of remaining aggregates-specific funding into fewer bodies, appropriately advised by technical and local experts, and perhaps mirroring the approach of the successful MALSF steering group by developing a parallel high-level terrestrial steering group. This could also include joining up the expertise of Delivery Partners from the Communities theme with Natural England, English Heritage and possibly the Carbon Trust to ensure that communities funding makes the optimal contribution to a wide range of national goals.

11.2 Risks associated with discontinuing currently funded programmes

Delivery Partners and stakeholders provided substantial analysis of the impact on programmes currently supported by the ALSF if no further Government support is available after 2010/11. Key impacts would include:

• Loss of catalyst to industry collaboration before this is fully embedded;
• (Unless funding is directed to putting the legacy in place in 2010/11) Failure to make optimal use of existing research outputs and data-sets; data-sets will quickly become obsolete;
• Risk of poorer / less well thought out policy and licensing decisions, and continued uncertainty on impacts (especially marine) would make securing extraction permissions more difficult, which in turn would increase pressures elsewhere;
• Adverse impact on achievement of BAP and GAP goals and on conservation by record and physically of nationally significant archaeological and historic resources;
• Reduced opportunity to undertake research of national and international significance;
• Possible reversion of existing rail haulage to road, and reduced likelihood of attracting new companies / new routes to consider rail haulage as an option;
• Potential third party investment lost to a whole range of projects from refurbishment of community halls to creation of priority habitats and innovation in quarrying technology;
• In particular, communities near extraction sites and haulage routes would notice a marked reduction in available funding – the more substantial projects would suffer most, and would be likely to find it significantly more difficult to secure sufficient funding from other sources to go ahead.

The following sections provide more detailed analysis of future funding opportunities, organised by current ALSF theme.
11.3 Theme 1: Quarries

11.3.1 Reduction in Carbon emissions

The Carbon Trust’s ambitious three-year programme was due to conclude in March 2011 with no assumption of further funding. However, owing in part to the economic downturn, the Trust has made slower progress than had been hoped in working to encourage self-sustaining collaboration within the industry, and the lead time for the technology accelerator projects has also been longer than expected. This means that to complete the planned programme, Carbon Trust will need to source and invest an estimated £950,000 in 2011/12. Figure 70 indicates the breakdown for this expenditure, and the Carbon Trust’s other longer-term suggestions for funding.

The MPA supports continuation beyond 2011 of the Carbon Trust’s work with the aggregates industry on the basis that the work is only just getting off the ground now and it has greater future potential.

It is recommended that support for the embedding of the collaboration work, plus the completion and roll-out of the technology accelerator projects in 2011/12 is accorded high priority because it has the potential to deliver significant measurable gains (combined, up to 600,000 tonnes in annual carbon savings, equating to over 20 per cent of the 2008 baseline) and because if it is not funded, the impact and vfm of committed expenditure in 2008-11 will be compromised.

Figure 70 – Carbon Trust view of carbon footprint future funding opportunities

<table>
<thead>
<tr>
<th>Stop...</th>
<th>Do more of...</th>
<th>Costings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solutions:</strong></td>
<td><strong>Solutions:</strong></td>
<td><strong>Carbon Trust has suggested an indicative budget of £500k for collaboration in 2011/12, delivering up to 300,000t annual Carbon savings.</strong></td>
</tr>
<tr>
<td>• Site surveys.</td>
<td>• Further work on collaboration, which has been slow to get going: Carbon Trust aspires to MPA becoming self-sufficient in driving the agenda and aligning the industry;</td>
<td>Other areas not costed.</td>
</tr>
<tr>
<td></td>
<td>• Roll out change programme to SMEs;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Longer-term benefits from transport study;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• De-carbonising energy supplies for aggregates.</td>
<td></td>
</tr>
<tr>
<td><strong>Innovations:</strong></td>
<td><strong>Roll out of innovations work;</strong></td>
<td><strong>Second year of funding for technology accelerator projects: £200k.</strong></td>
</tr>
<tr>
<td></td>
<td><strong>More advanced work on carbon reduction</strong></td>
<td><strong>Roll-out to sector: £250k.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>This will maximise the potential to deliver the identified 300,000t annual Carbon savings.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Potential follow-on projects: up to £500k (will be clearer early 2011).</strong></td>
</tr>
</tbody>
</table>
11.3.2 Benefits to natural environment around quarries

Figure 71 demonstrates Natural England and key stakeholder bodies’ support for continued funding for projects benefiting the natural environment around quarries. Natural England advocates a five-year funding commitment to enable funding of larger and longer-term projects to ensure that such projects are funded to completion. This would also help to avoid the annual flurry to process applications and award grants, the short timescale of which has mitigated against new applicants and favoured experienced applicants, and thereby contribute to capacity building in the sector. End-year flexibility would help capital works projects (e.g. building walkways) and other projects dependent on good weather. Natural England does however support a “full evaluation of the successes of ALSF during a further funding round”.

Figure 71 – Natural England and other stakeholders’ view on future funding opportunities for the natural environment around quarries

<table>
<thead>
<tr>
<th>Carry on with…</th>
<th>But …</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Full range of current site-specific work.</td>
<td>• While diminishing returns not yet an issue because there are so many sites worthy of assistance, after a maximum further five years, undertake full evaluation of effectiveness and impact of spend – not least because geographical limitations of scheme mean that quality funding targets will eventually dry up;</td>
<td>• If less than £3m available, it would not be possible to administer an open scheme;</td>
</tr>
<tr>
<td>... and …</td>
<td>• Nature After Minerals approach needs to prove itself before receiving further support (evidence not available before end 2010/11) – if it does, ongoing support justified.</td>
<td>• A 5-year commitment would permit funding of larger and longer-term projects.</td>
</tr>
<tr>
<td>• Particular emphasis on biodiversity work;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Further potential to mitigate adverse impacts on BAP species;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GeoConservationUK keen to see geodiversity and geoconservation work receiving continued support;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• GeoConservationUK pointed out the potential for funding to materially improve the environment or raise awareness through education and lifelong learning in Areas of multiple deprivation or areas undergoing regeneration.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In spite of the limited geographical scope of the Fund, there is not yet evidence of diminishing returns. The ratio of applications to funded projects, at 3:2, has remained constant over the past few years; the sift threshold was increased from 50 to 60 per cent in 2009/10, which Natural England suggests indicates an improvement in the quality of

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86 The outputs of proposed projects are assessed against published criteria to give a score which is converted into a percentage of the maximum possible score; projects which fall below the sift threshold are not put forward for approval.
applications. But Natural England was able to provide only limited information as to where funding had had greatest impact, even in obvious areas such as BAP targets (data on contribution to BAP targets is not specifically collated centrally despite awareness that restored quarry sites alone could more than meet UK BAP targets), and beyond BAP targets, did not offer any particular priorities for the future.

Natural England was aware that there was some regional imbalance between funding allocation and the actual impact of aggregates extraction. Figure 72 compares Natural England ALSF funding in 2008/09, by region, with percentage of aggregates sales by region\(^\text{87}\) as a proxy for the impact of extraction. This shows that the North West, South East and London received a broadly fair allocation. The East of England did dramatically better than it should have done, and the South West and West Midlands were also net beneficiaries. The North East and Yorkshire and Humberside received less than they should have done, and the East Midlands was the biggest net loser. This is not intended to be a criticism of Natural England – there was no requirement to allocate resources proportionately to aggregate sales and the agreed “open” grant scheme was not designed to achieve this. Moreover there may be reasons for a “fair” regional allocation to be disproportionate to aggregate sales, for example in respect of disused or dormant extraction sites which are not reflected in sales but which have an ongoing impact on communities, and because aggregate sales will not necessarily reflect the scale of impact on local communities.

Figure 72 – comparison of Natural England ALSF funding with proportion of aggregates sales, by region

![Figure 72 – comparison of Natural England ALSF funding with proportion of aggregates sales, by region](image)

In summary, although the evidence is limited, it is highly likely that there are many more potential projects that would significantly benefit the natural environment around quarries, and further investment in such projects would be popular with nature conservation and geo-conservation bodies as well as with local communities and the industry. That said, the

\(^{87}\) Aggregate Minerals Survey 2007.
available evidence was not sufficient to demonstrate that future funding on the same scale was justified.

**It is recommended** that priorities should be:

- Biodiversity projects which make a measurable contribution to national BAP targets;
- Other biodiversity, geodiversity, landscape and evidence based projects that meet national priorities;
- Projects benefiting local communities if more effectively joined up with any other activity mitigating the impacts of aggregates extraction on local communities (see section 11.6).

The Delivery Partner should take steps to ensure fair regional distribution and, depending on the objectives of any future funding, it would also be well worth considering whether commitments could be made over a longer timescale to enable larger, longer-term projects to be funded where these would deliver best value for money and support capacity building in the sector. If a reduced level of funding were made available for the same sort of programme, it might be necessary to reconsider the allocation model, as Natural England consider that the 7 per cent allowed for administration may not be sufficient to handle a smaller open grant scheme.

11.3.3 Historic environment research and conservation (terrestrial)

Figure 73 sets out English Heritage’s views on where future funding might be directed.

**It is recommended** that **high priority** is accorded to completion of the programme of ARAs to ensure a consistently high quality evidence base for future minerals planning. This would cost around £0.3 – 0.5m per annum over three years. It is also very important to ensure effective consolidation and dissemination of research to date.

English Heritage would also put together a **strong case** for emergency funding on an ongoing basis. If future R&D could be supported, English Heritage would develop a specific three-year research agenda – they do not consider diminishing returns to be an issue before this. This would include predicting and survey, and response to threat, as well as unlocking the research dividend of some of the past archaeological investigations of quarry sites held on a database. Beyond the three-year horizon, funding would enable English Heritage to respond to technological developments and improvements in understanding of threats.

Depending on the focus of any future funding, there would be a **good case** for linking preservation of monuments, and heritage outreach, to community benefit schemes.
### Complete or re-direct ...

| Preservation of monuments – all eligible monuments will have been addressed in another three years. |    |
| Eligibility could be broadened to open up significant new opportunities and make links with community benefit schemes. |    |

| Try again ...

| European Landscape Convention type projects linking historic environment and landscape / biodiversity; | £0.36m (4 exemplars and follow-up synthesis / guidance) |

| Continue ...

| Emergency funding – this will continue as long as new areas are being opened up for extraction, so no diminishment; | Difficult to predict but c £180k pa; |
| Unlock research dividend of database of 500-700 past emergency investigations of quarry sites (currently “dead data”); | £1m pa (but investigations are prioritised so could do worthwhile work with less money); |
| ARAs – English Heritage has identified a further “14 aggregates-producing counties we feel would benefit strongly from this strategic assessment approach” | ARAs – £0.84 – 1.4m over 2-3 years, followed by support for processes for update and sustainability |

| Future R&D...

| Develop a more specific research agenda to establish what else needs to be addressed in terms of predicting and survey, and response to threat – there is three years’ work on areas English Heritage is currently interested in. Beyond that, diminishment although not below a certain level as technological development and threat understanding will continue to open up new horizons. | English Heritage ready to put together a strong case; cost / speed of programme limited by resource pool. |

### 11.3.4 Technical quarrying research to reduce environmental impact

Figure 74 sets out MIRO and other interested stakeholders’ views on the priorities for future technical quarrying research. MIRO was keen to expand MIST’s brief to develop new technologies and methods of aggregate extraction going beyond the carbon brief to reduce waste and the non-carbon impacts of extraction (e.g. noise, dust). MIRO considered there was a case for following the Carbon Trust’s lead to address downstream issues associated with e.g. asphalt and concrete, production of both of which often takes place in or near aggregates quarries. Finally, MIRO thought that more could be done to improve public understanding of the need to extract aggregates and issues around security of supply.

It is recommended that a high priority be given to further consolidation and dissemination of the MIST programme to date, and that consideration be given to expanding the Sustainable Aggregates website to provide a single portal for all ALSF outputs, with further marketing / publicity to ensure all key stakeholders are aware of it.
From the perspective of a lay person, notwithstanding the many benefits delivered by the MIST programme to date, there seems a fairly high risk of diminishing returns from its continuation in its current form. MIST has received significant funding targeted to the same areas over a long period, and there is a limited pool of bodies able to contribute to the work.

That said, there is undoubtedly further useful work for which a good case could be made – not least to address the research gaps identified in the 2007/08 benchmark reports which have not yet been addressed, to make best use of further technical developments and respond to changes to the operating environment.

To be successful, any future technical research programme would need to:

- Be confident that it would target the industry’s identified needs, i.e. with practical application rather than theoretical outputs and, for any future strategic research, to meet policy requirements. This should be achieved by ensuring that industry is a key player in all projects. Following the example set elsewhere in the EU, it would be worth considering whether industry could be encouraged to lead and drive research;
- Allow scope for innovation – accepting that this may require additional activity to help promote cultural change;
- Enable projects on a scale and over a time period that will maximise value for money;
- Allow sufficient lead time to cultivate and attract the best proposals.

MIRO suggested there was a good case for reviewing good practice in aggregates research elsewhere in the EU to see what other innovations might be brought to the UK.

**Figure 74 – MIRO view of future funding opportunities in technical quarrying research**

<table>
<thead>
<tr>
<th>Filling research gaps</th>
<th>Costings</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIRO would like to expand MIST brief to look at innovative ways to produce aggregates, e.g. to reduce dust, waste, crush rock better and to tackle downstream issues associated with e.g. asphalt and concrete production</td>
<td>£7.5m over three years to have significant impact (would support bigger-scale projects as seen elsewhere in ALSF)</td>
</tr>
</tbody>
</table>

**Education**

<p>| | |</p>
<table>
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<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>More to be done to improve understanding of the need to extract / issues around security of supply, and the trade-offs involved</td>
<td></td>
</tr>
</tbody>
</table>

11.3.5 Strategic research to underpin long-term planning of sustainable aggregates supply

It is clear that **there will be an ongoing need for strategic research** to underpin long-term planning for a sustainable aggregates supply, but at the time this evaluation was undertaken, it was difficult to establish where any available resources should be targeted in 2011/12 and beyond. This is because policy leads and other stakeholders were still
absorbing the outputs of the 2009/10 ASRP projects, and because the priorities for the 2010/11 had not yet been announced.

Two ideas which were put forward, by CLG and CNP respectively, were:

- Research to inform the upcoming revision of Minerals Policy Statement 1, e.g. to evaluate environmental effects of current planning policy; policy on aftercare, and restoration, and
- Examination of the implications and impacts on policy of removing aggregates extraction from National Parks by 2042.

It is recommended that the need for, and priority accorded to, future strategic research is reconsidered once 2010/11 projects are under way.
11.4 Theme 2: Marine

Figure 75 summarises MEPF and English Heritage’s recommendations for future investment to reduce the environmental impact of marine extraction. Since 2002, work to reduce the impact of marine extraction has received significant investment and has made huge progress from a low base; some marine ALSF outputs are of international significance.

In two areas – research into the immediate effects of dredging and their mitigation, and the work to develop RECs for the main dredging areas – the marine ALSF’s work is more or less complete.

It is recommended that high priority be given to ensuring effective storage of existing marine ALSF data, to dissemination of existing work to the wider marine community, and to maintenance of the RECs.

Given the advent of the new Marine and Coastal Access Act 2009, funding will be needed to effect the introduction of the new marine spatial planning system. On the aggregates side, there is therefore a strong case to ensure that the development of spatial planning policy and the EIA process for specific sites are underpinned by robust evidence, by

- pursuing the further research listed in the “ramping up” section below, and
- considering expanding the REC programme e.g. to enhance the resolution of data coverage in significant areas, to provide targeted monitoring of changes to marine communities over time, and to provide baseline characterisation data for areas with some aggregates relevance and also wider policy relevance.

Depending on wider future priorities, there is also a strong case for continued support for a targeted marine historic environment research agenda to bring understanding and techniques up to the standards of terrestrial historic environment research.
### Figure 75 – CEFAS and English Heritage view of marine extraction future funding opportunities

<table>
<thead>
<tr>
<th>Stop or slow ...</th>
<th>Costings</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Research into immediate effects and mitigation;</td>
<td></td>
</tr>
<tr>
<td>• Seabed mapping (RECs) of main aggregate areas complete.</td>
<td></td>
</tr>
</tbody>
</table>

### Continue ...

**Seabed mapping (RECs):**
- Sustain, maintain currency and integrity of data, including by linking to industry’s REAs, keep up with policy developments;
- May need targeted monitoring e.g. to track changes in marine community composition over time;
- Map other marine geographical areas e.g. North West, North Wales, Liverpool, where aggregates market not optimally supplied and therefore potential role for marine supply;
- Improve / enhance the resolution of data coverage especially where resources of particular natural or historic significance have been identified.

**Marine historic / archaeological environment research programme:**
- Develop more specific research agenda to establish priorities for predicting and survey and response to threat (at least three years of work);
- Support work on submerged landscapes modelled on North Sea palaeo-landscape interpretation.

**Work to improve awareness and dissemination:**
- Among the general public and for educational purposes;
- Continue the MSc bursary;
- Among the wider marine community so that they are aware of the wide range and potential value of ALSF work undertaken;
- Secure data storage.

### Ramp up ...

**Research into areas that will inform the EIA process, including:**
- Impact of dredging outside dredging boundaries;
- Finer resolution of the cumulative effects of multiple licence areas on wider aspects of ecosystem function;
- Integrated studies on food web structures of marine communities near dredging sites;
- Consider socio-economic impact of new pressures including noise;
- Further case studies applying the concept of ecosystem goods and services to specific sites.

To be useful, at least £3m for CEFAS; £0.75m for English Heritage work.
11.5 Theme 3: Sustainable resource use

Over the next year it is likely to become evident that WRAP and the Environment Agency have been successful in embedding behavioural change across the supply chain, making sustainable use of aggregates self-sustaining. This will have been achieved by speeding up the provision of re-processing capacity, fostering the market for RSAs by effectively making the case for the business opportunities involved, and by putting in place the frameworks, guidance and tools needed to enable optimal use of RSAs. In so doing, WRAP and the Environment Agency will largely have written out their role in this area.

Continuing support for the current programme of capital grants, research and dissemination activity would be highly likely to deliver diminishing returns not only because the industry needs much less support, but also because the potential further to expand RSAs’ share of the aggregates market is limited due to available resources and the commercial viability of recovery. Data from WRAP’s survey of CDEW in England for 2008 suggests that total UK aggregates production in 2008 was 257m tonnes, of which 71m, or 28 per cent, were RSAs. According to further figures provided by WRAP in 2009, maximum notional capacity for RSA production is 86.3m tonnes, if site numbers are increased to meet future demand and resource availability. This suggests that the maximum potential increase in RSAs’ share of the market is around 5 percentage points. The target to halve waste to landfill can only be met if this further growth is achieved.

WRAP’s own future intentions for the Construction Programme, shifting its emphasis towards resource efficiency, e.g. Carbon and water savings, already reflect the assumption that work to expand the RSA market has run its course. WRAP questioned whether work on aggregates recycling would be the best use of the Programme’s future efforts and whether it would deliver further worthwhile benefits to UK plc. This view was backed by the BAA and MPA, both of which concluded that there was little more to be achieved.

Figure 76 summarises the views of WRAP, the Environment Agency and other key stakeholders as to what further activity would support more sustainable use of aggregate resources.
Figure 76 – WRAP and Environment Agency view on future funding opportunities for sustainable use of aggregates resources

Stop

- Capital grants for re-processing capacity (these have done their job).

Monitor, maintain and update

- AggRegain and other web-based resources;
- Use of the Quality Protocols, including for regulatory purposes, with a refresh every 2 years;
- Project monitoring of capital projects ensuring compliance to the contractual commitments.

New R&D

- Evaluate opportunities to develop new uses for RSAs and undertake further laboratory analysis of waste-derived aggregates to demonstrate they were safe to use and would not harm health or the environment. This would safeguard the existing market and possibly make it more economic with a higher financial return;
- Improve resource efficiency in primary aggregate extraction and processing in order to minimise or eliminate production of unmarketable products;
- Consider whether any further markets/processes could be found for the remaining difficult CDEW, mainly excavation wastes (e.g. clays, soils). WRAP reported that there was some potential to build on their existing work on soil stabilisation, the use of hydraulic binders and Geosystems.

Focus on sustainable supply

- An awareness/behaviour-changing exercise to encourage companies to move away from differentiating between primary aggregates and RSAs and instead supply material from the most sustainable source for a particular project. WRAP reported that companies already had the systems and capability to do this;
- An accompanying piece of work to ensure that policy drivers for sustainable supply are correctly aligned (i.e. that there are no perverse incentives to use RSAs where use of primary aggregates would have a smaller environmental impact).
- The Environment Agency has put forward a range of suggestions for future work on the Quality Protocols programme which could be funded in 2010/11 if funds become available, or further into the future. A priority would be to encourage RSA producers to specify Quality Protocol-compliant material, to sustain the existing market and reduce risk of harm by promoting an increase in the quality of aggregate production,

Pathway To Zero Waste

- Continued support for PTZW in 2011 to 2013. This is crucial to consolidate material resource efficiency and leave a long term legacy for industries, in particular the aggregates industry.
- Extend PTZW methodology and practice to other regions, possibly London and East of England, to build momentum and greater economy of scale in material exchanges (Environment Agency pointed out that investment per region of £0.6m had the potential to trigger a project valued at nearly £2m).
It is recommended that **high priority** is given to monitoring, maintaining and updating current resources and systems that support optimal use of RSAs. The suggested work focusing on sustainable supply behaviours and policy drivers would also be **very worthwhile** to ensure that the vfm of investment to date is maximised and to make the most of existing momentum for behaviour change across the supply chain.

The suggested new research and development could be undertaken if it fits well with the direction of wider Government policy but, given the likelihood of a fairly low return, may not be a priority in the near future.
11.6 Theme 4: Transport

Figure 77 summarises DfT and other key stakeholders’ views on where future funding to reduce the environmental footprint of aggregates transport might be targeted.

There was evidence of diminishing returns in the existing work funded by DfT. The Department has succeeded in embedding SAFED in industry good practice, and while there is a case for continued revenue support for modal shift from road to rail to buy environmental benefits, improvements in rail cost efficiency mean that more rail haulage is viable without a subsidy, thereby reducing the marginal opportunity to make a difference. Moreover, DfT’s assessment was that, in the absence of future revenue support, existing traffic would probably continue because of sunk costs.

On the other hand, the MPA commented that transport and logistics would be worthy of increased support, and at the time of writing was identifying priority areas for potential action, in discussion with DfT.

It is likely that the suggested targeted marketing and promotion to the aggregates sector under DfT’s Freight Best Practice programme will be funded within the current programme. DfT thought the first useful step would be to identify all ALSF research that could be disseminated to the sector as best practice, building on the 2007/08 benchmark report.

In the longer term, there may be a case for work to follow up current MIRO research on quarry vehicles, and the Carbon Trust’s Transport Review and White Paper.

There is no evidence of current appetite for further waterways capital support, or for revenue support to enable modal shift. Given the very high cost of capital investment, British Waterways intends to wait for evidence that the investment in the East London waterways network is paying dividends before taking further action, saying that “in the event that it can be demonstrated that there is a clear commitment from the aggregates industry to move aggregates by water in east London which would result in significant modal shift, but relatively minor barriers remain (e.g. lack of operating infrastructure such as barges and load handling equipment), revenue or capital funding may be considered to help realise this demand”.

It is recommended that funding for MSRS be continued if possible, in line with wider Government policy on modal shift, but not at the expense of other areas of investment highlighted in this report as being of high priority.

The case for further transport-related research and practical projects should be reviewed further into 2010/11 with DfT, MIRO and the Carbon Trust, once the outputs of existing projects are clearer.
Stop ...

- SAFED (is being taken on in full by industry from April 2010).

Continue ...

- MSRS (successor to REPS Bulk, covering rail and water) – but DfT recognises that rail has become more cost-efficient relative to road; not reflected in way subsidy per tonne calculated, so hauliers have become comfy with rate per tonne. From April 2010, will insist on rail productivity improvement and costs, thereby reducing cost to taxpayer per tonne.

<table>
<thead>
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<th>Costings</th>
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<tr>
<td>£0.7m per annum</td>
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Start ...

- (In conjunction with Carbon Trust) targeted marketing and promotion to aggregates sector under Freight Best Practice – in discussion with Carbon Trust and within DfT; could also embed some of MIRO’s recent research. Could have cross-pollination benefits elsewhere;
- Taking action in collaboration with the industry to reduce the number of empty back loads (although DfT was not sure to what extent collaboration could have a major impact);
- Following MIRO work, demonstration projects for quarry vehicles, bringing best practice to bear, e.g. automatic tyre inflation and deflation (higher risk for Govt to undertake demonstrations, but helps industry to realise and understand benefits) (although DfT questioned the need for such a demonstration programme given that this had already been featured by Freight Best Practice as a case study, and DfT would not normally back a specific technology).

<table>
<thead>
<tr>
<th>Costings</th>
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<tbody>
<tr>
<td>DfT can fund £0.1m from existing £0.7m in 2010/11; not clear if any further work needed in 2011/12</td>
</tr>
<tr>
<td>Cost not yet clear.</td>
</tr>
<tr>
<td>Around £0.5m over two years from 2011/12 (but need to see MIRO product first)</td>
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</table>

Wait and see ...

- Whether the investment in the East London waterways network is resulting in a commitment from the aggregates sector to modal shift, before committing further resources.
11.7 Theme 5: Communities

The communities strand of the ALSF is the most strongly and widely supported element of the current Fund; stakeholders including BAA, MPA, ALGAO and CNP considered that direct support to communities should be a core part of any future funding available to mitigate the impacts of aggregates extraction. In many counties, the ALSF has built up a strong following among potential beneficiaries. Leicestershire commented that “the ALSF programme in Leicestershire has … gained a very good reputation and has made a huge difference to local communities (which has also been borne out by the extremely positive responses to our Customer Satisfaction Surveys). Many of the queries I get are via ‘word of mouth’ from other grant applicants who have benefited from our ALSF, and most enquirers have assumed that the ALSF will just continue for several years to come.”. While Leicestershire said while they make applicants aware of the limited forward commitment to the ALSF, they thought that some applicants would think that the Fund had been running for so many years that it would have finished by now if it was going to; others would not have given the matter any thought.

An important question in considering the justification for any future funding is whether, after a number of years of funding for specific purposes in limited geographical areas, diminishing returns would start to be an issue.

Local authority and ACRE representatives saw no risk of diminishing returns for the foreseeable future, although they thought that in time the programme might become “self-levelling”, as there were a finite number of eligible projects in eligible areas. Conversely, as the Fund had become known and established, community groups were starting to plan ahead and prepare applications for future years so, if anything, the number of high quality applications was rising. In addition, the economic downturn had reduced the quantity and breadth of funding available to local communities, putting greater pressure on the ALSF. From the available evidence, all programmes where applications were sought were over-subscribed, receiving at least three applications for every two that could be funded; many of the Delivery Partners who attended a meeting were confident that they could invest two or three times the funding in projects of equal quality and value. Most had to be careful not to advertise the Fund too widely, to avoid being swamped by an unmanageable, and unfundable, number of applications.

For example, Somerset reported that their ALSF programme had been over-subscribed since it started in 2002 and had seen no significant reduction so far in the number of applications. In each of 2008/09 and 2009/10, Somerset had received 60 or more applications for a total upward of £700,000; in each year, only 40 had been funded. In 2009/10, Somerset’s applicants had responded to the reduction in available funding by reducing the scale of their proposed projects or running them in phases over a longer period.

Leicestershire felt that it could potentially fund at least 3-4 more years of projects. In each of 2008/09 and 2009/10, 5 projects were deferred to the following year (in the context of funding between 10 and 20 projects a year) owing to pressure on resources. Of 74 enquiries about 2010/11 funding, around 30 were expected to apply, on top of the 5
deferred projects. In the past year, Leicestershire had twice been forced to reduce the maximum proportion of project funding provided – in July 2009 from 90 per cent down to 75 per cent, with a further reduction in March 2010 to 50 per cent or £30,000.

Further evidence was sought to try to establish whether there was any risk of a decline in the value for money of future projects, using as a proxy the geographical distribution of projects within eligible areas. Information about geographical distribution was readily available from four Delivery Partners – ACRE, Cornwall, Leicestershire and Nottinghamshire.

It is undeniable that some small areas have benefited from several projects. In Cornwall, this is a matter of policy, as the budget is divided each year between 17 eligible parishes. In other counties, including Nottinghamshire and Derbyshire, there were obvious concentrations of projects in particular localities affected by aggregates extraction.

However even from the limited information available, it was clear that there were still eligible areas that had benefited very little (despite the efforts of at least some Delivery Partners actively to encourage applications from such areas). Most counties supported by ACRE benefit from only one to three projects per annum. In Nottinghamshire, where the ALSF has been running since 2005/06, in three of the four large eligible areas there were obvious localities that had not had any projects, and two of the six smaller outlying areas had had no projects. In Leicestershire, there are 42 parishes located in four concentrations with four smaller outlying areas, which have been eligible for ALSF funding for part or all of the period since 2002. Most parishes have benefited from between 1 and 3 projects, but a small handful have had 5 or more, and two parishes had 21 projects between them. Seven of the 42 parishes have not yet benefited from projects. Leicestershire explained that there were a number of reasons for this, including that they were newly eligible parishes that had not yet applied for funding; that they were represented by a “parish meeting” rather than Parish Council, which had fewer responsibilities and powers and could not own land; that they were small and therefore had very few active community groups, or that the project(s) they wished to pursue were too complex, ambitious or long term to be supported by the ALSF given uncertainty over its future.

It therefore seems unlikely that there would be a genuine risk of diminishing returns at least over the next 3-4 years. Whether repeat funding for an individual locality can be justified is a moot point – on the one hand; one could argue that funding should be shared between all affected communities before allowing repeat funding; on the other, the projects funded will have met the Delivery Partners’ requirements for quality and vfm, and provide ongoing benefits in respect of the ongoing adverse impact of quarrying.

It is recommended that there is a strong case for continued direct support to communities affected by aggregates extraction.

However if community support is to continue; Defra must think very carefully about the method of distribution. The current approach, which has enabled one third of ALSF 2008-11 funding to be diverted to other local authority priorities, cannot deliver value for money for the ALSF and results in a serious imbalance to the degree of compensation to affected
communities in different parts of the country. Industry representatives considered that the diversion of funding could be expected to intensify in response to increased local authority budgetary pressures.

Both MPA and BAA suggested that the funding currently distributed by local authorities and ACRE should be combined into a single pot which could be administered by ACRE. This would have the significant advantage of ensuring that the whole amount was ring-fenced to ALSF objectives, and would be likely to reduce the unit cost of administration. It could also ensure fairness and consistency through a national framework for project eligibility (e.g. on distance from quarries, inclusion of haulage routes, attitude to repeat funding for a single beneficiary) and project quality.

However this approach would have potentially serious disadvantages. Unless a way could be found to draw on the knowledge and expertise of the local authority officers currently administering the grant, their commitment, enthusiasm and personal links with local communities would be lost, probably along with some of the momentum the fund has gained in those areas. Likewise, if ALSF funding were withdrawn from local authorities, they would probably be less likely to contribute the same level of match funding as now.

Whether or not any future funding for communities is drawn into one pot, there would still be a case for a more joined up approach to community-facing aggregates projects (principally those currently delivered under Theme 5, but also community-focused Natural England and English Heritage projects). This would ensure an overview of aggregates-related support to communities in each area and help to promote fair distribution. It could also help a limited budget to contribute more effectively to a wider range of national objectives (e.g. enabling Natural England to influence more funding in support of BAP targets, enabling English Heritage to promote support for the conservation of historic buildings in aggregates-affected communities). It could even stretch to simplified and administration if all community-facing project funding were brought together, and shaped and steered by an expert group incorporating Natural England and English Heritage. This model might also enable better sign-posting to current best practice - for example the Carbon Trust could help ensure that relevant local projects such as village hall refurbishment have access to the best available information to help them make the most of opportunities to contribute to carbon reduction.

English Heritage expressed a strong preference for the model of a cross-Fund strategy setting out the benefits sought and supported by an expert group, but thought that funding should be subdivided into three programmes to be delivered by separate expert bodies. It identified the three programmes to be:

- “Community compensation” along the lines currently delivered by ACRE and local authorities;
- “Public participation” based on current or former aggregates extraction sites, e.g. including Natural England and English Heritage projects such as community digs and events;
“Aggregates to amenities” of assets on or near aggregates extraction sites, e.g. including Natural England and English Heritage projects delivering restoration, conservation and public amenity benefits.

Natural England was also supportive of an approach along these lines and suggested that it would be well placed to administer such a strategy, noting that this would take time to establish and would have some additional set-up costs.

11.8 Suggestions for aggregates-related funding outwith scope of current ALSF

Three suggestions for future financial support fell outside the current scope of the ALSF. These are summarised below and should be considered alongside other options.

ALGAO suggested research into climate-proofing buildings, especially solid-walled historic and traditional structures. ALGAO felt this was a real problem to which a solution had not yet been identified. Such work could look at alternatives to cladding, and how demolition could be avoided. This might help to reduce the need for primary aggregates and could therefore contribute to Carbon savings.

CNP drew attention to a previous proposal, whereby the Fund would enable land purchase to deal with problematic extraction permissions. It was felt that this could deliver significant benefits, including removing planning blight from local communities, and improving habitats, landscape and geodiversity. CNP was conscious that the proposal could be presentationally difficult.

The Planning Officers’ Society and others drew attention to the problem with future funding for Regional Aggregates Working Parties currently funded by CLG to underpin the Managed Aggregate Supply System and suggested (with support from MPA for a top-slice) that this would merit support in the order of £0.25m per annum. It was not clear how this would sit with the ALSF’s current approach of not funding statutory requirements.
12 CONCLUSIONS

Over the period 2008-11 the ALSF stands to make an important contribution to its overarching objective to reduce the environmental footprint of aggregates extraction, and make measurable progress under each of the five themes. The Fund will generally deliver good value for money with potentially more significant gains in the longer term.

Tangible impacts over the period include:

- Reduced carbon emissions;
- More optimal use of RSAs contributing to diversion of CDEW from landfill;
- Reduced, safer and more fuel efficient road haulage;
- Improved understanding and better monitoring and mitigation of the impacts of aggregates extraction;
- Better use made of the opportunities resulting from extraction, including enhanced biodiversity, preservation of sites of geodiversity interest, improved knowledge and conservation of historic and archaeological assets and landscape; improved public understanding, access and recreational opportunities;
- Contribution to wider interests including benefits for other marine industries and a better evidence base for assessing climate change impacts, and
- A range of benefits for local communities.

The ALSF is now a mature programme with considerable momentum behind it and a generally very good reputation within the aggregates sector and wider supply chain, with NGOs, with regulators and regulatory advisory bodies, and with local communities. Some of the work it has sponsored has an influential European and international profile. It has built up a wide community of interest, has worked hard to encourage innovative collaboration and has promoted take-up of new business opportunities relating to RSAs. The 2008-11 period has further contributed to the huge body of research, data sets, tools, advice and guidance which will be a valuable legacy to the programme if properly maintained and updated.

Notwithstanding the ALSF’s significant achievements to date, there remains a strong case for future funding in five areas:

- Knowledge and data management and dissemination;
- Targeted, practically applicable research to enable the sector to continue to perform optimally and to innovate;
- Targeted practical or site-based assistance contributing to achievement of national priorities;
- Delivering benefits to communities affected by aggregates extraction, and
- Facilitation of further improved co-ordination and collaboration within and between Government, the industry, NGOs and experts, and further behavioural change in the industry to optimise the sector’s performance.
However, to prepare for the possible eventuality that the ALSF as a programme ceases in March 2011, Defra should encourage all Delivery Partners to use the year 2010/11 to put arrangements in place to safeguard its legacy.

If there were appetite for a more robust assessment of actual (as opposed to potential) value for money for the 2008-11 period, this would be possible in 2011/12 or later, by which time the majority of the programme’s impacts should be felt. This could incorporate a range of case studies in the areas where quantification is difficult, tackle areas of current weakness as set out in section 8.3.1, and would benefit from specialist economist input to make the most of opportunities to quantify benefits (for example the potential to use value transfer methodologies to quantify the benefits of the outputs of Natural England’s work) and explore the extent to which estimated benefits have been realised.

Whether or not this more robust vfm assessment is carried out, the consideration of future funding opportunities would benefit from further development of the evidence base in five areas:

- Gathering evidence of the impact and significance of the research elements of the programme to inform the future research agenda;
- Preparing detailed case studies for quarry site and local community projects to quantify their benefits more systematically and to provide a more robust assessment of the timescale over which diminishing returns would be likely;
- Where the ALSF has contributed to bigger programmes and wider goals, assessing whether continued targeted support for the aggregates sector represents the best use of funding for UK plc;
- Assessing the performance of significant programmes and projects which are insufficiently advanced at present (including MIRO’s ASRP and Natural England’s Nature After Minerals programme), and
- Clarifying where Government and the regulator would benefit from investment to support relevant policy development, policy implementation and licensing decisions.
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ACRE's investment of ALSF COMMA Fund 2008/09 – report to Defra
Shropshire ALSF projects 2009/10
Cumbria ALSF reports 2008/09 and 2009/10
Note on ALSF in South Glos, 2008-10
Staffordshire ALSF Funded Projects
Cornwall ALSF projects

Websites

www.acre.org.uk
www.afterminerals.com
www.aggregain.org.uk
www.alsf-mepf.org.uk

Policy projects for CLG, DfT, DECC and Defra
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Annex B – Contributing Organisations

The following organisations were interviewed or otherwise made a direct contribution to this evaluation.

ACRE
Association of Local Government Archaeological Officers (ALGAO)
Brian Marker
British Aggregates Association (BAA)
British Marine Aggregate Producers Association (BMAPA)
British Waterways
Campaign for National Parks
Carbon Trust
CEFAS
Cornwall County Council
CPRE / Friends of the Peak District
Cumbria Waste Management Environmental Trust
Department for Transport
Derbyshire Environmental Trust
English Heritage
Environment Agency
GeoConservationUK
Lancashire County Council
Leicestershire County Council
Lincolnshire County Council
Mineral Products Association (MPA)
MIRO
Natural England
Nottinghamshire County Council
Pathway to Zero Waste
Planning Officers Society Minerals Planning Advisory Group
RSPB
Shropshire County Council
Somerset County Council
South Gloucestershire Council
Staffordshire County Council
The Crown Estate
The Wildlife Trusts
WRAP
### ANNEX C - Overview of ALSF spend by theme and priority

<table>
<thead>
<tr>
<th>Theme heading</th>
<th>Priority</th>
<th>Delivery partner</th>
<th>08/09 £m</th>
<th>09/10 £m</th>
<th>10/11 £m (expected)</th>
<th>Total £m (expected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarries</td>
<td>a) Encourage a reduction in CO2 emissions.</td>
<td>Carbon Trust</td>
<td>0.8</td>
<td>2</td>
<td>1.8</td>
<td>4.6</td>
</tr>
<tr>
<td></td>
<td>b) Deliver benefits to the natural environment around quarries.</td>
<td>Natural England</td>
<td>4.0</td>
<td>4.8</td>
<td>3.1</td>
<td>11.9</td>
</tr>
<tr>
<td></td>
<td>c) Address research gaps with potential to significantly improve sector's environmental performance.</td>
<td>MIRO</td>
<td>0.5</td>
<td>0.7</td>
<td>0.7</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>d) Undertake strategic research to underpin long-term planning of sustainable aggregates supply.</td>
<td>MIRO</td>
<td>0.7</td>
<td>0.9</td>
<td>0.6</td>
<td>2.2</td>
</tr>
<tr>
<td>Marine</td>
<td>a) Environmental protection and ecosystems</td>
<td>Cefas</td>
<td>3.6</td>
<td>4.1</td>
<td>3.8</td>
<td>11.5</td>
</tr>
<tr>
<td></td>
<td>b) Archaeology</td>
<td>English Heritage</td>
<td>0.5</td>
<td>0.6</td>
<td>0.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Resource use</td>
<td>a) Promote more sustainable use of aggregate resources.</td>
<td>WRAP</td>
<td>6.3</td>
<td>3.5</td>
<td>2.4</td>
<td>12.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Environment Agency</td>
<td>0.4</td>
<td>0.6</td>
<td>0.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Transport</td>
<td>a) Encourage further diversion from road to rail and water transport.</td>
<td>DfT</td>
<td>0.8</td>
<td>0.7</td>
<td>0.7</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>b) Promote more efficient driving through Safe and Fuel-Efficient Drivers Programme and encourage the commercial take-up of SAFED approach.</td>
<td>British Waterways</td>
<td>2.0</td>
<td>0.4</td>
<td>0</td>
<td>2.4</td>
</tr>
<tr>
<td>Communities</td>
<td>a) Support local community projects of demonstrable public benefit in areas that suffer environmental impacts of aggregates extraction.</td>
<td>ACRE working in 23 counties</td>
<td>0.5</td>
<td>0.6</td>
<td>0.5</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18 local authorities</td>
<td>3.0</td>
<td>3.0</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>3.5</td>
<td>3.6</td>
<td>3.5</td>
<td>10.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>23.5</td>
<td>23.5</td>
<td>18</td>
<td>65</td>
</tr>
</tbody>
</table>
## ANNEX D – Carbon Trust ALSF 2008-11: breakdown of activities, costs and estimated carbon savings
(Source: Carbon Trust)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Annual Identified CO2 Savings (Tonnes)</th>
<th>Annual Implemented CO2 Savings in 2009/10 (Tonnes)</th>
<th>Lifetime Potential CO2 Savings (Tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Understanding the Opportunity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sector-wide Strategic review</td>
<td>£173,312</td>
<td>£245,305</td>
<td></td>
</tr>
<tr>
<td>Transport Review</td>
<td>£124,000</td>
<td>496,300</td>
<td>£57,000</td>
</tr>
<tr>
<td><strong>Technical Delivery</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SME Site Surveys (up to 37)</td>
<td>9,182</td>
<td>36,728</td>
<td>TBC</td>
</tr>
<tr>
<td>Big 5: one-to-one interventions</td>
<td>135,453</td>
<td>545,812</td>
<td>TBC</td>
</tr>
<tr>
<td>Mobile Plant Training</td>
<td>36,000</td>
<td>144,000</td>
<td>TBC</td>
</tr>
<tr>
<td><strong>Strategic Delivery</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change Programme – development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change Programme – implementation</td>
<td>30,000</td>
<td>120,000</td>
<td>£219,061</td>
</tr>
<tr>
<td><strong>Collaborative/Sector-wide Delivery</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry DVD</td>
<td>13,000</td>
<td>52,000</td>
<td>£160,000</td>
</tr>
<tr>
<td>Industry Portal (develop &amp; deploy)</td>
<td>Implementation 2010/12</td>
<td></td>
<td>£14,000</td>
</tr>
<tr>
<td>Transport 'white paper'</td>
<td>TBD</td>
<td>Implementation 2010/12</td>
<td>£11,500</td>
</tr>
<tr>
<td>Baselining Industry best practice</td>
<td>30,000</td>
<td>120,000</td>
<td>£45,000</td>
</tr>
<tr>
<td>Collaborative projects with industry</td>
<td>100,000</td>
<td>400,000</td>
<td>£100,000</td>
</tr>
</tbody>
</table>

### Total Costs

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost 2010/11</th>
<th>Cost 2011/12</th>
<th>Cost to 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>£753,935</td>
<td>£3,015,740</td>
<td>£627,312</td>
</tr>
<tr>
<td>Overhead</td>
<td>£57,533</td>
<td>£169,926</td>
<td>£255,000</td>
</tr>
<tr>
<td>VAT (est)</td>
<td>£169,926</td>
<td>£255,000</td>
<td>£255,000</td>
</tr>
</tbody>
</table>

Policy projects for CLG, DfT, DECC and Defra
ANNEX E – WRAP ALSF 2008-11: breakdown by activity for projects entered to database  (source: WRAP)

<table>
<thead>
<tr>
<th>Work prog focus</th>
<th>Activity Type</th>
<th>Costs 2008-11 reflected on database (£m)</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved Construction practices</td>
<td>Dissemination</td>
<td>0.5</td>
<td>Guidance on geosystems, trench re-instatement, cost benefit analysis of virgin/RSA/HBM and trenchless technology</td>
</tr>
<tr>
<td>Baseline to measure performance against 1/2WtL objective</td>
<td>R&amp;D</td>
<td>0.2</td>
<td>CDEW survey + net waste tool</td>
</tr>
<tr>
<td>Tools and guidance for the civils sector to use inert waste more efficiently on site</td>
<td>R&amp;D and Dissemination</td>
<td>0.3</td>
<td>Designing out waste tool for civil engineers, guidance for civils projects and Infrastructure Sector Engagement</td>
</tr>
<tr>
<td>Options for collecting, sorting and processing CDEW</td>
<td>R&amp;D</td>
<td>1.1</td>
<td>Collection technologies; mobile processing options; site segregated vs. Mixed collection; segregation technologies; good practice guidance for MRFs, measurement tool, Contractual guidance; supporting exemplar case studies</td>
</tr>
<tr>
<td>Increasing aggregates reprocessing capacity</td>
<td>Capital Grants</td>
<td>1.9</td>
<td>Grants are with: R.Brown, Envirowaste, Hadfield, Lift and shift, Tudor Griffith and H&amp;S Sustainable Materials. New capital grant round for 2010/11</td>
</tr>
<tr>
<td>Maintenance of the Aggregain website</td>
<td>Dissemination</td>
<td>0.3</td>
<td>Ensuring the Aggregain web pages are kept up to date and effectively disseminate information effecting the sue of RSA (e.g. REACH, changes to Specifications to Highways)</td>
</tr>
<tr>
<td>Tools and resources and workshops to support the correct implementation of Agg QPs and use of RA</td>
<td>Dissemination</td>
<td>0.2</td>
<td>Programme of work to raise awareness of and correct implementation of Aggs QP, ASR guidance for RA</td>
</tr>
<tr>
<td>Forum</td>
<td>Dissemination</td>
<td>0.01</td>
<td>Forum to enable effective dissemination of work and facilitate direct engagement with stakeholders enabling them to comment on future work</td>
</tr>
<tr>
<td>Materials Resource Efficiency guide including demolition and dissemination programme</td>
<td>Dissemination</td>
<td>0.2</td>
<td>Design Guide for Materials Resource Efficiency, revisions and updates to include demolition and supporting advocacy campaign.</td>
</tr>
<tr>
<td>Implementing the Utilities Sector Agreement</td>
<td>Dissemination</td>
<td>0.2</td>
<td>Raising awareness of the Utilities Sector agreement to reduce waste and use on-site resource (excavation waste) more efficiently, encourage the utilities supply chain to sign up to the agreement.</td>
</tr>
<tr>
<td>Guidance on Regeneration in construction</td>
<td>R&amp;D and Dissemination</td>
<td>0.3</td>
<td>Implementation programme and exemplar case studies highlighting opportunities and benefits</td>
</tr>
<tr>
<td>Design Guide for Civil Engineering</td>
<td>R&amp;D and Dissemination</td>
<td>0.2</td>
<td>Design Guide and supporting tools and resources, regional advocacy events</td>
</tr>
</tbody>
</table>

Total 5.5
ANNEX F – Theme 1: Natural England case studies

Theme: Landscape and Nature Conservation
Project: Building on the Foundations - Ouse Fen Nature Reserve
Applicant: Royal Society for the Protection of Birds (RSPB)
Grant Awarded: £16,836.75

This large area is gradually being extracted for sand and gravel by Hanson Aggregates over the next 30 years extracting some 1 million tonnes per year. Restoration was originally planned to be to farmland but negotiations with conservation groups have resulted in a complete change. The overall project of which this project is a part aims to create a 700 hectare wetland to be managed by the RSPB. It will include the biggest reedbed in the UK (460 hectares) and will have 20 miles of rights of way.

This project set out to improve and manage the new habitats through
- improved cattle handling and grazing management; cattle grazing is essential to promote grassland establishment and short sward for breeding waders
- the removal of invading willow scrub to ensure that ideal habitat conditions for colonising key reedbed species are retained
- reedbed establishment; design and wetland habitat features, including underwater habitat for fish, mere and ditch networks providing suitable habitat for reedbed species such as bittern, reed bunting and marsh harrier. Specifically, this part of the project will provide fence protection for reed seedlings from grazing by geese and coots
- testing of water quality to determine that water quality parameters are being met and that the quarry water supply has no negative effects on ecology and wildlife
- visitor infrastructure; design, production and installation of interpretation panels and way-markers/signage
- purchase of tools, equipment and personal protective equipment to support staff and volunteers
Theme: Access & Informal Recreation
Project: Adrenaline gateway Mountain Bike Trail
Applicant: Lancashire County Council
Grant Awarded: £50,000

This project formed Phase 2 of the development of mountain bike trails in a former aggregates quarry - Lee Quarry near Bacup and included:
- 700m of new trails and a number of technical sections to be braided into existing routes
- Development of detailed designs and full tender documentation for approximately twelve kilometres of additional trail within the quarries plus at least 6km of linking trail to nearby cross country routes

This project forms part of the long-term Adrenaline Gateway project to transform Pennine Lancashire into the adventure sports capital of the north. In addition to cycling, there will be a network of facilities for adrenaline sports including water sports, quad-biking and climbing to create an area for outdoor activity and events. Importantly this development will provide employment and income to Pennine Lancashire, develop the tourism offer and encourage commercial opportunity.

The topography and rugged terrain of the disused gritstone quarry provided the ideal landscape for the development of mountain bike trails and the first phase of work was funded to action this by ALSF in 2007. This proved successful and popular with both the local residents and mountain bike riders both locally and nationally. To be able to build on this success Lancashire County Council carried out study works, to identify how these facilities could be further improved and extended and link Lee Quarry to other sites in the area with the aim of providing a network of facilities.
### Theme: Evidence Gathering
### Project: River Lamprey Survey
### Applicant: Bellflask Ecological Survey Team
### Grant Awarded: £29,250

This project formed part of a long-term programme of survey, species monitoring and research into the life cycle and population dynamics of lamprey in the Humber-Ouse river system under the auspices of the Environment Agency and Natural England.

Lamprey are primitive-looking eel-like fish with a complex life cycle during which adults migrate many miles upstream from the sea in order to spawn. They are protected under the Habitat Directive and are of local, national and European Biodiversity Action Plan importance.

The project was research-based and involved trapping, measuring, and tagging both upstream migrating adult lamprey and down migrating juveniles; the latter known as ammocoetes and transformers. This sort of work is time-consuming and was carried out, during successive seasons, in all weathers and in all states of river flow and at all times of the day or night. Survey work was undertaken adjacent to and downstream of Ripon Quarry (Hanson Aggregates) at East Tanfield, near Ripon in North Yorkshire by BEST, an independent ecological consultancy recognised as being one of the country’s leading specialists in the field. A very good and supportive working relationship exists with the aggregate company.

Data collected to date have increased understanding of the species and will ultimately help develop a population model and sustainable management and species conservation plan. The data can then also be valuable in protecting the species when applied to mineral planning consents for future aggregate extraction at Ripon and in similar settings.
This project has provided a focal point and a lasting legacy in Shrewsbury as it celebrated the bicentenary of the birth of Charles Darwin, the town’s most famous son. It did this by promoting an understanding of the world-changing message encapsulated in of Darwin’s ideas through the creation of a GeoGarden themed on Darwin, evolution and geology at a prominent riverside location in central Shrewsbury. This presented his ideas to the public in an easily accessible and innovative way.

An area of the garden is dedicated to flora with links to Darwin whilst at its centre, the garden houses a spectacular 9 metre high sculpture ‘Quantum Leap’, the shape of which evokes fossils, rock strata and evolutionary change; local aggregate was used to build the structure. The GeoGarden incorporates a ‘rock clock’ surrounding the Quantum Leap. This interprets Shropshire’s remarkable geological story which over 700 million years of geological time. The GeoGarden interpretation will also promote understanding of the relationship between geology and mineral working, by exhibiting the many different types of aggregate worked in Shropshire and the uses to which they are put, including in construction of the Quantum Leap sculpture. It also acts as a focal point for the town’s Darwin Trail and guided GeoTrails and provides interpretation (display boards, leaflets) about Darwin, Shropshire geology and the local aggregates industry.

The overall scheme of which this project was a part, involved the creation of a major new public open space by the River Severn, which is ideal for holding environmentally themed public exhibitions and can provide significant environmental learning opportunities as well as significant social benefits for Shropshire and Shrewsbury. The winning Quantum Leap design provides a spectacular metaphor for the link between geology and evolution.
The Cotswold Water Park consists of settlements fragmented by gravel extraction and the Willow Lantern Pageant, the only community festival in the Cotswold Water Park, brings young people, families and communities together.

The Willow Lantern Pageant also brings together artists and the special flexible qualities of willow to work with community groups and schools, and especially young people who may not otherwise have the opportunity to work creatively in this way. The Willow Lantern Workshops, of which there were 56, inform about the wildlife, history, geology and economy of the Cotswold Water Park, encouraging people to study and observe that ecology so that they can create wonderful original lantern images that celebrate a special landscape.

This was a pilot project and proved so successful that it received innumerable congratulations on the night of the pageant from members of the participating public, and also equally innumerable requests that it 'must happen again'. The feedback from young people after the Willow Lantern Pageant strongly supports the sense of well being the creative community process brought for them.
<table>
<thead>
<tr>
<th>Project type</th>
<th>Detail</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case study title</strong></td>
<td>Replaced old failing boiler system with four high efficiency condensing boilers with new balanced flues and integrated control system. Associated minor works will further reduce gas consumption, ensure compliance with current regulations, enhance fire protection and reduce radon accumulation. In addition to the worship area, the building includes three meeting rooms and kitchen facilities that are well used by a range of community groups (footfall approaching 1,000 per wk, ranging from luncheon club to youth club to guides to coffee on market days; church used for concerts, public enquiries, coroners’ inquests). Remaining £35k project costs met mainly by donations from Church members and friends, plus tax recovery on Gift Aid donations, fundraising through social events, and Church reserve funds.</td>
<td>If the boiler had not been replaced, it had been expected to be shut down by a Corgi inspector, leaving the building cold and forcing users to go elsewhere. Should reduce energy usage by 20% (too early to measure).</td>
</tr>
<tr>
<td><strong>Delivery Partner</strong></td>
<td>Derbyshire</td>
<td></td>
</tr>
<tr>
<td><strong>Amount (£k)</strong></td>
<td>20,000</td>
<td></td>
</tr>
<tr>
<td><strong>Year(s)</strong></td>
<td>2009/10</td>
<td></td>
</tr>
</tbody>
</table>

### 3rd Buxton (Harpur Hill) Scout Group Headquarters

<table>
<thead>
<tr>
<th>Project type</th>
<th>Detail</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case study title</strong></td>
<td>The Scout Group involves over 75 children and has outgrown its current building. University of Derby has donated a redundant mobile building (worth £20k) which has been resited at Buxton Rugby Club. Building is now being refurbished to enable use as Scout Headquarters. It is hoped to be able to hire out the facility to other groups. Remaining project costs met by volunteer labour (over £3k) and by fundraising or a Scout Association loan. Harpur Hill is surrounded by quarries.</td>
<td>Old building limited range of potential activities / health and safety concerns; limited storage and only one toilet; limited numbers of children. Restoration of new headquarters has maximised re-use and used local labour. Improves the visual outlook of the area and a visible symbol of ALSF. Has enabled scout leader to develop new project management skills. Should be scope to sub-let, and to start up additional cub packs. Potential contribution to cohesion in a mixed community (affluent – poor / locals - recent incomers).</td>
</tr>
<tr>
<td><strong>Delivery Partner</strong></td>
<td>Derbyshire</td>
<td></td>
</tr>
<tr>
<td><strong>Amount (£)</strong></td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td><strong>Year(s)</strong></td>
<td>2009/10</td>
<td></td>
</tr>
<tr>
<td>Project type</td>
<td>Detail</td>
<td>Impacts</td>
</tr>
<tr>
<td>--------------</td>
<td>--------</td>
<td>---------</td>
</tr>
<tr>
<td>Environment and landscape / children’s play</td>
<td>Improve grounds for wildlife, more stimulating play and learning environment, also improving facilities available outside school hours. Project was designed by children, parents, school governors and staff; they also undertook some of the practical work.</td>
<td>Benefits to school and wider local community – positive response and input already received. Creating new habitats e.g. for insects and small mammals, enhanced wildlife pond; challenging play equipment; educational opportunities – music, science, vegetable growing.</td>
</tr>
</tbody>
</table>

**Case study title**
Worthington School Wildlife Habitat

**Delivery Partner**
Leicestershire

**Amount (£)** 27,818

**Year(s)** 2009/10

---

<table>
<thead>
<tr>
<th>Project type</th>
<th>Detail</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment and landscape / transport</td>
<td>Based on evidence from Wildlife Trust of local demand for increased transport provision to sites, uses low-cost community transport to take people from communities affected by quarrying out to wildlife sites in former quarries. The people benefiting from the project suffer particularly from the effects of haulage routes which have lowered house prices and had a detrimental effect on community services. The idea was developed by a local community action group.</td>
<td>20 trips for a total of 200 people across 7 nature reserves. Involvement of local Wildlife Trust enabled people better to appreciate what wildlife sites can offer and encourage them to return. Contribution to community cohesion and helped residents re-connect with positive aspects of local area. Increased awareness of community transport availability. Connected residents with volunteering opportunities – learn new skills, improve job prospects, contribute to conservation. So far, 4 of beneficiaries (of 120 visitors at date of report) have become volunteer guides at the sites.</td>
</tr>
</tbody>
</table>

**Case study title**
Transport to Nature

**Delivery Partner**
Shropshire

**Amount (£k)** 3.417

**Year(s)** 2009/10

---

Photo: Wildlife pond, invertebrate habitats and raised planting beds (credit: Leicestershire County Council)
<table>
<thead>
<tr>
<th>Project type</th>
<th>Detail</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children’s play</td>
<td>Will transform central area of Peak Dale village, which is within sight and sound of two large quarries. Playground refurbishment a priority in Parish Plan, but had not been undertaken owing to difficulties in accessing substantial funding. Additional funding £10k met by Big Lottery Funding. Obsolete play equipment will be replaced with new items selected following comprehensive community consultation.</td>
<td>New facility will be used by local children (local primary school has over 70 pupils) and families from surrounding area.</td>
</tr>
</tbody>
</table>

**Case study title**
Peak Dale Play Area

**Delivery Partner**
Derbyshire

**Amount (£)**
50,000

**Year(s)**
2009/10

---

**Project type**
Sports

**Case study title**
Nunwick Cricket Club improvements

**Delivery Partner**
Cumbria

**Amount (£k)**
5,000

**Year(s)**
2008/09

**Detail**
Will provide new practice areas and nets, a new store shed and a ramp to make the clubhouse fully accessible. Will also support tree-planting on a newly-donated area of land.

**Impacts**
Encourage participation in sport; upgrade facilities and increase potential usage; improve accessibility; opportunity to educate community about importance of environment.

---

Photo: Peak Dale play area in redevelopment (credit: Suzie Daykin)
### Poole’s Cavern

<table>
<thead>
<tr>
<th><strong>Project type</strong></th>
<th>Landmark / amenity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case study title</strong></td>
<td>Poole’s Cavern</td>
</tr>
<tr>
<td><strong>Delivery Partner</strong></td>
<td>Derbyshire</td>
</tr>
<tr>
<td><strong>Amount (£)</strong></td>
<td>16,212</td>
</tr>
<tr>
<td><strong>Year(s)</strong></td>
<td>2008/09</td>
</tr>
</tbody>
</table>

**Detail**
Phase 2 of an ALSF funded project, providing educational and interpretation facilities in the Visitor Centre for local people and visitors, especially school children. Phase 1 in 2007/08 involved refurbishment and conversion of two existing buildings into a learning area and small auditorium, as part of larger project to extend Visitor Centre to include relocated shop and new café. Poole’s Cavern is owned by Buxton Civic Association; prior to investment its visitor numbers had dropped below levels required for business viability, owing to competition elsewhere in the area.

**Impacts**
(For whole project) Visitor numbers have increased by 2/3; new education has doubled number of children who can use facility – up to 500/day. Cavern now generates surplus, of which £10k fully covers costs of maintaining neighbouring 200 acre woods also owned by Buxton Civic Association, used mainly by local people. Woodland includes SSSIs and 4 threatened bird species – investing in habitat improvements. Benefits to local economy – additional employment on site, cavern and neighbouring Go Ape highwire course (which only located to site because of Cavern improvements) bring in additional visitors.

Photo: Poole’s Cavern, Buxton (credit: Suzie Daykin)

### YWCA West Kent Centre after school activities programme

<table>
<thead>
<tr>
<th><strong>Project type</strong></th>
<th>Youth facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case study title</strong></td>
<td>YWCA West Kent Centre after school activities programme</td>
</tr>
<tr>
<td><strong>Delivery Partner</strong></td>
<td>ACRE</td>
</tr>
<tr>
<td><strong>Amount (£)</strong></td>
<td>5,574</td>
</tr>
<tr>
<td><strong>Year(s)</strong></td>
<td>2008/09</td>
</tr>
</tbody>
</table>

**Detail**
The project provided an opportunity for young women, in two age groups, to attend after school activities at the YWCA, which targets its services at disadvantaged young women. The activities provided creative activities around healthy lifestyles, sexual health, friendships and image and relationships. For the younger group, activities included teambuilding, trips, exploring personal strengths and friendships, designing/accessorising bags and t-shirts. The older group addressed issues such as relationships and emotions, abuse of drugs and alcohol and produced a DVD around sexual health to use as a peer mentoring tool for younger women.

**Impacts**
Support healthier lifestyle among disadvantaged young women who attended. Channel energies to positive activities – may have led to reduction in ASB. Assist community capacity building and cohesion through production of DVD.
<table>
<thead>
<tr>
<th>Project type</th>
<th>Detail</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access / Sports</td>
<td>Wickwar Rd forms an important link between recreation areas and a popular skateboard park. It was a busy road with no footpath, but used by walkers, skateboard park users and cyclists. In 2006 a man was knocked down and killed.</td>
<td>Improved safety for cyclists, skateboarders, pedestrians. Improved access for disabled people. “Massive” increase in use over first year of operation – counters now in place. Potential for improved fitness and health.</td>
</tr>
<tr>
<td>Case study title</td>
<td>Wickwar Road Multi-User Path</td>
<td></td>
</tr>
<tr>
<td>Delivery Partner</td>
<td>ALSF Communities theme contributed initial grant for design of the 1,300m path; Natural England’s ALSF programme and South Glos Council funded its construction.</td>
<td></td>
</tr>
<tr>
<td>Amount (£k)</td>
<td>5,800 for design, 94,000 for construction</td>
<td></td>
</tr>
<tr>
<td>Year(s)</td>
<td>2006-08</td>
<td></td>
</tr>
</tbody>
</table>

**Case study title**

Wickwar Road Multi-User Path

**Delivery Partner**

South Glos, Natural England

**Amount (£k)**

5,800 for design, 94,000 for construction

**Year(s)**

2006-08

---

<table>
<thead>
<tr>
<th>Project type</th>
<th>Detail</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts / heritage</td>
<td>River Medway has a wealth of natural and industrial heritage in which quarrying has played / continues to play a key role. Medway Valley Walk runs alongside the river from Tonbridge to Maidstone, giving opportunities for people to access and enjoy the valley. Project responded to visitor demand for information to help them explore river’s wildlife and heritage. It produced a “River Medway Spotters Pack” available as leaflets and downloadable from website.</td>
<td>Wildlife and heritage spotter guides provide an active approach to learning; free resource directly benefits local communities, enabling them to learn about and explore the river and its valley.</td>
</tr>
<tr>
<td>Case study title</td>
<td>Medway Valley Countryside Partnership</td>
<td></td>
</tr>
<tr>
<td>Delivery Partner</td>
<td>ACRE</td>
<td></td>
</tr>
<tr>
<td>Amount (£)</td>
<td>6,400</td>
<td></td>
</tr>
<tr>
<td>Year(s)</td>
<td>2007/08</td>
<td></td>
</tr>
</tbody>
</table>

**Case study title**

Medway Valley Countryside Partnership

**Delivery Partner**

ACRE

**Amount (£)**

6,400

**Year(s)**

2007/08

---

<table>
<thead>
<tr>
<th>Project type</th>
<th>Detail</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community improvements</td>
<td>In Cornwall, a designated set of affected parishes are awarded a standard amount to invest in community improvements. Lezant Parish Council chose to support a range of activities, including: War Memorial refurbishment, community building improvements, grant towards purchase of small marquee and furniture for use at annual horticultural show, purchase of play equipment, purchase of printer for Parish Magazine and other Council and Parish matters, preparation and printing of map and guide to footpaths in the Parish for free distribution to residents.</td>
<td>Improved community facilities and improvements to equipment that helps nurture community activity and spirit (e.g. Parish Magazine, horticultural show); improved visual outlook (e.g. War Memorial refurbishment) and more opportunities to enjoy the local area (e.g. guide to footpaths).</td>
</tr>
<tr>
<td>Case study title</td>
<td>Lezant Parish Council</td>
<td></td>
</tr>
<tr>
<td>Delivery Partner</td>
<td>Cornwall County Council</td>
<td></td>
</tr>
<tr>
<td>Amount (£)</td>
<td>5,000</td>
<td></td>
</tr>
<tr>
<td>Year(s)</td>
<td>2009/10</td>
<td></td>
</tr>
<tr>
<td>Project type</td>
<td>Detail</td>
<td>Impacts</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Landmark / amenity</td>
<td>Part of a larger package of restoration works to improve a popular visitor attraction. ALSF funding in 2008/09 attracted match-funding of £84k to support the restoration and stabilisation of the 12th century grade-one-listed castle keep. The local school was involved in design and implementation of the project.</td>
<td>Provision of enhanced parkland for public enjoyment and relaxation; new educational facilities.</td>
</tr>
<tr>
<td><strong>Case study title</strong></td>
<td>Clitheroe Castle Restoration project</td>
<td></td>
</tr>
<tr>
<td><strong>Delivery Partner</strong></td>
<td>Lancashire</td>
<td></td>
</tr>
<tr>
<td><strong>Amount (£)</strong></td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td><strong>Year(s)</strong></td>
<td>2008/09</td>
<td></td>
</tr>
</tbody>
</table>

The ALSF had made an earlier contribution to the restoration programme in 2005/06, when it paid for restoration and enhancement of the Old Rose Garden.

<table>
<thead>
<tr>
<th>Project type</th>
<th>Detail</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community improvements</td>
<td>Lound village is situated near quarry workings and is affected by haulage traffic. Over the period 2005/06 to 2008/09, it has benefited from ALSF grants worth £26,575, match funded by Notts County Council. The grant has enabled replacement of the gate and railings around the village hall, acquisition and development of a green space area, and replacement of the village sign. The community has been closely involved.</td>
<td>Readily accessible green space site; improved visual outlook; design of green space improvements enabled use by people with restricted ability.</td>
</tr>
<tr>
<td><strong>Case study title</strong></td>
<td>Lound projects</td>
<td></td>
</tr>
<tr>
<td><strong>Delivery Partner</strong></td>
<td>Nottinghamshire</td>
<td></td>
</tr>
<tr>
<td><strong>Amount (£)</strong></td>
<td>14,250</td>
<td></td>
</tr>
<tr>
<td><strong>Year(s)</strong></td>
<td>2008/09</td>
<td></td>
</tr>
</tbody>
</table>

Policy projects for CLG, DfT, DECC and Defra
ANNEX H – ALSF 2008-11 MONETISED BENEFITS

This matrix shows how the present value of costs and benefits has been calculated, and therefore how the cost : benefit ratio has been arrived at.

The following general assumptions were used:

- Base year for calculating present value: 2010
- Period over which present value calculated: 2010 - 2020
- Discount rate: 3.5%
- Annual reduction in additionality (to account for activity which would have happened anyway in absence of ALSF): 10%
- Tax per tonne of inert materials landfilled: £2.50
- Aggregates levy per tonne: £2.00
- Traded carbon value per tonne 2010 (DECC): £22
- Non-traded carbon value per tonne 2010 (DECC) £52

<table>
<thead>
<tr>
<th>Theme</th>
<th>Delivery Partner</th>
<th>Workstream / activity</th>
<th>ALSF allocation 2008-11 (£m)</th>
<th>Output indicator</th>
<th>Predicted achievement</th>
<th>Timeframe</th>
<th>Present value of costs (£m)</th>
<th>Present value of benefits (£m)</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quarries</td>
<td>Carbon Trust</td>
<td>Reduction in carbon emissions</td>
<td>4.6</td>
<td>Annual carbon savings (m tonnes)</td>
<td>0.03</td>
<td>By March 2010</td>
<td>4.68</td>
<td>58.4</td>
<td>Assumes flat profile for increased carbon reduction from 2012 onward, reaching 0.56m tonnes in 2020. Assumes additionality declines by 10 per cent per annum from 2013. Calculates half of benefits as traded carbon, half as non-traded carbon (in absence of better information as to what proportion falls in each category).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.16</td>
<td>By March 2012</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.56</td>
<td>In 2015-20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

88. This does not include the £0.95m Carbon Trust estimate is needed in 2011/12 fully to capitalise the benefits of 2008-11 investment and deliver in full the estimated 0.56m tonnes of carbon savings in the 2015-20 timeframe.
<table>
<thead>
<tr>
<th>3. Sustainable resource use</th>
<th>WRAP</th>
<th>More sustainable use of aggregates (capital grant)</th>
<th>2.4</th>
<th>Additional CDEW re-processing capacity (m tonnes)</th>
<th>0.35</th>
<th>By 2015</th>
<th>13.5</th>
<th>123</th>
<th>Assumes maximum capacity 0.35m tonnes reached in 2015 and sustained thereafter. Assumes additionality declines by 10 per cent per annum from 2016.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>More sustainable use of aggregates (Construction Programme)</td>
<td>7.4</td>
<td>CDEW diverted from landfill (m tonnes)</td>
<td>1.00 (proportion of total benefits attributed to ALSF)</td>
<td>Per annum from 2011/12</td>
<td></td>
<td></td>
<td>Assumes same amount material diverted from landfill / same amount carbon savings each year from 2010 to 2020, with 10 per cent reduction in additionality per annum from 2013.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Annual carbon savings (m tonnes)</td>
<td>0.17 (proportion of total benefits attributed to ALSF)</td>
<td>Per annum from 2011/12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment Agency</td>
<td>Pathway to Zero Waste</td>
<td>0.6</td>
<td>Directly influenced CDEW diverted from landfill (m tonnes)</td>
<td>0.15 (proportion of total benefits attributed to ALSF)</td>
<td>Over two years to March 2011</td>
<td></td>
<td></td>
<td>Assumes same amount material diverted from landfill / same amount carbon savings each year from 2010 to 2020, with 10 per cent reduction in additionality per annum from 2013.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Carbon savings (m tonnes)</td>
<td>0.005</td>
<td>Over two years to March 2011</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment Agency</td>
<td>Waste Protocols programme</td>
<td>0.7</td>
<td>PFA and steel slag diverted from landfill (m tonnes)</td>
<td>7.8</td>
<td>Over ten years.</td>
<td></td>
<td></td>
<td>Assumes same amount material diverted from landfill / same amount carbon savings each year from 2010 to 2020, with 10 per cent reduction in additionality per annum from 2013.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Carbon savings related to PFA and steel slag re-processing (m tonnes)</td>
<td>0.58</td>
<td>Over ten years.</td>
<td></td>
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<tr>
<td>Policy projects for CLG, DfT, DECC and Defra</td>
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<tr>
<td><strong>4. Transport</strong></td>
<td><strong>DfT</strong></td>
<td><strong>Reduce environmental footprint of aggregates transport (mode shift grant)</strong></td>
<td>0.7</td>
<td><strong>Annual tonne miles diverted (m)</strong></td>
<td>2.3</td>
<td><strong>Data for April 2008 onwards entered to database by March 2010.</strong></td>
<td>4.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Annual carbon savings (m tonnes)</strong></td>
<td>0.0015</td>
<td><strong>Each year, 2008/09, 2009/10</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Reduce environmental footprint of aggregates transport (SAFED)</strong></td>
<td>0.6</td>
<td><strong>Reduction in fuel use (million litres)</strong></td>
<td>8.5</td>
<td><strong>Data for April 2008 onwards entered to database by March 2010.</strong></td>
<td>10.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Carbon savings (m tonnes)</strong></td>
<td>0.0057</td>
<td><strong>Data for April 2008 onwards entered to database by March 2010.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>British Waterways</strong></td>
<td><strong>Reduce environmental footprint of aggregates transport (Three Mills Lock)</strong></td>
<td>2</td>
<td><strong>Annual reduction in lorry journeys</strong></td>
<td>1,453</td>
<td><strong>(proportion of total benefits attributed to ALSF)</strong></td>
<td>0.5</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Over 15 years from 2012.</strong></td>
<td></td>
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</tr>
</tbody>
</table>

| £m quantified | 19.2 |
| Proportion of total budget (%) | 29.6 |
| Present value benefits (£m) | 195.1 |
| Present value costs (£m) | 20 |
| Cost : benefit ratio | 1 : 9.8 |

Average benefit of aggregates lorry mile by water or rail over road: £1.43. Average distance of road journey 25 miles.
ANNEX I – ACKNOWLEDGEMENTS

IHPR and Defra are very grateful to the following individuals for their contribution to the evaluation:

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