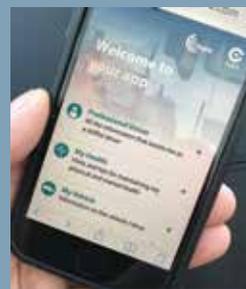


Summer 18 | Issue 17

The magazine of the Mineral Products Association

mineral

products today



Technology driven
pushing productivity



Choosing offsite?
why precast works

Community fund
new ideas

No-one better
top for recycling

WELCOME

THE debate over how best to satisfy Britain's urgent need for more homes is an important one and it is interesting that the Government has now thrown its support behind factory-built homes as a means to speed up construction. We have to hope that the quality benefits of traditional masonry-built homes are not lost in a general lean towards lightweight alternatives that cannot offer the same fire/flood resistance and other benefits.

It is interesting that a survey by the Modern Masonry Alliance (page 6) reveals that less than 1% of people believe prefabricated, modular homes are built from the most robust construction material, and only 3% regard timber as a strong solution. Some 90% said there should be greater transparency amongst developers over building materials. That must surely make sense.

Good sense was undoubtedly a feature of the former Aggregates Levy Sustainability

Fund. A legion of community, wildlife and other socially beneficial projects have good reason to be grateful to it, and I am delighted that we are now offering the Government a potential successor (page 10). The fact that the ALSF was so unceremoniously dropped in 2011 was a source of great frustration and sadness, not just to the industry but to bodies such as The Wildlife Trusts, RSPB and many community groups.

Over its nine-year life the fund dispensed £65m while leveraging over £47 million in third-party funding. It was a very direct way in which the industry could build bridges with local communities and stakeholders.

The MPA's proposed new Aggregates Levy Community Fund would divert much less but it could still deliver around £10m a year for the benefit of community schemes, biodiversity and the environment. We very much hope that its substantial potential is recognised and acted upon.



Also highlighted in this issue is the fact that the UK is the European leader when it comes to our commitment to the use of recycled and secondary aggregates. The fact that some 29% of our overall aggregates market is met from such sources is of huge credit to operators large and small.

*Martin Riley
Chairman, MPA*

Supply 'cannot be assumed'

PROPOSED amendments to key mineral planning policies threaten the future supply of essential materials upon which the UK's housebuilding and infrastructure depend, says MPA.

The association believes that draft revisions to the National Planning Policy Framework (NPPF) will further weaken the mineral planning system while the weight given to environmental designations is being strengthened, with no transparent evidence provided to justify the changes. It comes at a time when more than three billion tonnes of construction aggregate will be required to service national demand to 2030 and beyond.

MPA's figures show that the ten-year average

replenishment figure for sand and gravel reserves is only 60%, with sales continuing to outstrip new reserves permitted.

MPA chief executive Nigel Jackson says that the proposed changes to the NPPF reverse the long-held recognition that minerals, and in particular aggregates, are essential. Supplies are, he says, becoming increasingly strained, yet Government continually fails to prioritise the sustainability or security of supply.

"These latest proposals run the risk of dismantling a system which has served the nation's needs well for decades and is

admired internationally," he said. "Supply cannot be assumed – it needs planning, monitoring and managing, locally, regionally and nationally. Government must not simply 'pass the buck' to local authorities, and risk the further erosion of what was once a coherent system, in favour of an inconsistent and fragmented approach."



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River and rail hubs protected

MPA has welcomed positive references to rail and water freight in the Mayor of London's Transport Strategy.

London needs ten million tonnes of primary aggregates every year to supply construction, equal to 30,000 tonnes every single day. Some 97% of this is brought in to rail depots and wharves for onward distribution.

MPA has continually stressed that safeguards need to be applied rigorously, especially by London boroughs, when producing plans and considering applications that may affect the future of wharves and rail depots. Under the new strategy, the Mayor will require all new development proposals to demonstrate in their construction logistics plans and delivery/servicing plans that all reasonable endeavours have been taken to use

non-road vehicle modes.

The new strategy recognises that shifting more freight onto rail and water will enable improvements to be made to reduce congestion, improve air quality and provide vital materials for ambitious housebuilding plans.

Jerry McLaughlin, MPA's executive director of public affairs, was pleased that full use of rail and water was a key element of meeting the Mayor's objectives to reduce road freight traffic and build more houses.

"We fully support the development of a rail freight strategy for London," he said. "The high-level policy is now in a much better place, with a positive intent on rail freight to complement action taken to promote water freight."

Cutting fire risk



RECOGNITION in the newly published Hackitt Report on building regulations following the Grenfell disaster that use of non-combustible materials "inherently provides higher levels of protection" has been welcomed by MPA.

MPA The Concrete Centre submitted evidence based on its engineering and fire expertise. "It is now evident that buildings degrade and fire protection is compromised during use of a building, so the choice of non-combustible concrete and masonry is a very good way to reduce these risks," says MPA executive director Dr Andrew Minson.

MPA also supports the focus on Construction Design Management regulations and the recommendation for HSE involvement beyond completion of construction. In recent years, HSE recognised and acted on the heightened risks from timber framed buildings during construction.

The report concludes that building regulations and guidance are not fit for purpose and that enforcement is inadequate. It recommends new processes to deliver rigorous enforcement and an overarching body for competency.

App drives progress

MPA is set to launch an app to help drivers across the industry achieve the highest standards in their day to day work and to maximise awareness of the vulnerable road users around them.

The initiative has been made possible through Transport for London (TfL) funding. It capitalises on the momentum that has come from the Construction Logistics and Community Safety (CLOCS) initiative through which MPA and the wider construction industry are working to improve vulnerable road user safety. Significantly more pedestrians, cyclists and motorcyclists are killed and seriously injured as a result of collisions with industry delivery vehicles than employees and contractors due to workplace incidents.

The app will make it possible for drivers to use their mobile phones to access a 'one-stop shop' of information.

They will, for example, be able to check the common vehicle standards they are expected to achieve, plus best practice on health and safety while also keeping track of their own professional qualifications and key dates for updating them.

They will be able to use the app as a means of reporting near-misses and other incidents from which others in the industry can potentially benefit. It will also allow them to access MPA social media, information from MPA and other key sources and



there will be a 'latest news' function.

A 'my health' zone will aim to increase awareness of health issues with a particular aim of achieving greater awareness of mental health and wellbeing with links to online media for support and advice.

MPA executive director, Jerry McLaughlin is managing the development of the app. "Industry drivers are professionals carrying out a difficult job and we want to provide resources and information which are of practical use," he said. "It draws on the success of our *MPA Delivery Driver's Handbook*. The challenge now is to turn that mine of information into a digital resource that is capable of further growth. We very much appreciate the considerable support we are receiving from TfL and CLOCS in making it happen."

We have done localism ... now we need some strategy

IS everywhere divided? Election result after election result seems to suggest so by exposing and exacerbating splits. North and South, young and old, town and country, somewhere and anywhere.

It is hardly a surprise given the understandable political choice and force of devolution and localism that empower and ultimately fuel drift away from the body corporate. One can appreciate the comfort and security the local and smaller picture can provide, but what about the bigger picture?

Our 'United' Kingdom is straining. Our Government and our Opposition are both split. Our Houses of Commons and Lords are in conflict, and our constitution could potentially soon be tested. Perhaps this is a good thing as it might excite the voting public to engage more with politics. Sadly, I think the reverse may be true as Facebook makes way for fake truth, and the power of a distorting and distorted traditional media wanes while social media grows deeper and widens divisions.

Where once there was deference for 'the establishment', there is now scepticism and challenge. Politicians may be beginning to realise this and maybe their power is weakening as we 'take back control'.

The challenges to the country need practical solutions from more politicians who have proven commercial and industrial track records and who have 'done stuff'. We need

people with diverse experience of real life and its problems and the ability to conceive and deliver solutions that are in everyone's best interests.

As I have indicated above, there is comfort and security in the smaller picture. This is where too much wind is blowing. Where is the bigger picture for the UK? 'Global Britain' is already the fifth largest economy in the world, albeit slipping. Surely the aim is to stay fifth or climb above Germany into fourth?

Most of the major challenges that face us, from resource use to cybercrime, atmospheric degradation, bio-threats and migration, require strategic solutions to protect our ability to thrive. We need to be advancing educationally and professionally, and aim to be more productive to secure the best return from our human and natural resources.

A growing and prosperous economy is absolutely fundamental to capitalising on our other assets. If we are to address the need for better public services we need a better private sector. Enterprise therefore needs to be advocated and supported strongly in the political arena and properly recognised as a force for wider good.



By MPA chief executive
Nigel Jackson

The challenges to the country need practical solutions from more politicians who have proven commercial and industrial track records and who have 'done stuff'

Our essential industry – which underpins construction and much of manufacturing – is vital not just for the economy but to enable the country to operate on a daily basis. We need clarity of vision and economic stability to encourage commercial ideas and convert them into investment. Government must avoid mixed messaging and agendas that only unsettle and confuse. We need less talk and more action. We need a clear strategic vision.

Addressing a broken housing market needs proper solutions, not more reviews. Infrastructure pipelines need to flow, runways need approving, power stations need replacing and roads need mending. We need planned action backed by cash to boost confidence and investment; strategy that unites diverging communities and builds better relationships in an increasingly uncertain world; strategies that recognise local needs, but are in balance and connected with regional, (yes Regional!) and national needs.

Industry can help (and wants to) but there needs to be better engagement if we are to be able to help broker solutions and play a full part in maintaining the UK as a 'top five' economy in the world.



A nation pulled in different directions

Photo: Shutterstock

Delivering more homes

Photos: FP McCann



Precast concrete looking like brick – flats at The Lansdowne in Birmingham

MPA has responded to Government pressure on builders to provide Britain with much needed new homes at a significantly faster rate with a warning that offsite construction based on new technology carries with it risks ranging from durability to fire resistance. The association is making a powerful parallel case for factory-produced precast concrete and masonry as routes through which to deliver material efficiency, quality control ... and durable, long lasting housing.

OFFSITE construction has hit the headlines over recent months as the Government gave it a massive boost with the aim of making it the main player in providing a 'faster, smarter and more efficient' route through which to provide the built assets for transport, education, healthcare and defence and justice. Rhetoric has extended it to new homes as well.

Chancellor Philip Hammond announced in the Autumn Budget that offsite and other modern construction methods would be prioritised by next year for work flowing from five Government departments. There are, however, those in the more traditional building camp who will question the 'best

value' test when the factory in question is using timber rather than masonry as the basis for its homes. Research by the Modern Masonry Alliance (see page 6) indicates that when buyers or renters are given a choice (along with detailed information), they overwhelmingly prefer bricks and blocks because they consider masonry to be more secure, resilient, comfortable and energy efficient.

For multi-occupancy there is also the capacity

of factory-produced precast concrete to provide the wall panels, floor units, stairways, columns and beams – and to do so using rapid construction methods while out-performing timber and steel across the board, all the way from fire and flood resistance to energy efficiency.

British Precast member Creagh Concrete specialises in an innovative fast-track build system ideally suited to multi-storey housing projects where the layout is replicated

Precast concrete uses rapid construction methods while out-performing timber and steel across the board.

consistently across each floor. It employed it to good effect for a 276-apartment development of up to seven storeys at Stonewood, Aberdeen. The project addresses a critical shortage of high standard accommodation for professionals.

The total frame solution comprises structural walls and solid or hollowcore flooring with construction speed greater than alternative systems. Creagh designed, manufactured, and installed the complete structure from foundations to roof. Units were manufactured offsite at a factory in County Antrim and delivered for installation over a 40-week build. Units included external sandwich precast panels, precast columns, hollow core floors, internal cross walls, lift shafts, stair flights, landings and external brick clad retaining walls.

The technique offers a versatile range of finishes including smooth, etched, patterned and even printed concrete plus various brick finishes.

Another British Precast member, FP McCann, offers multi-storey housing amongst wide ranging precast concrete solutions from 12 UK-based manufacturing facilities. Its residential output consists mainly of apartments of four storeys and above with frame and cladding, stairs, lift shafts, drainage and attenuation tanks all typically precast. Recent successes include a £26m residential apartment building known as The Lansdowne in Birmingham (see photos p5). The external walls are 410mm thick and of a 'sandwich' construction, with the outer 80mm thick facade consisting of a detailed buff brick design. Going the precast route, each floor took around nine days to complete.

James Donington, UK commercial manager for FP McCann architectural precast, says that the company would respond to increased demand for housing by expanding its existing factories but that such a change would only be achieved if clients and architects designed for precast rather than timber or steel.

The case is, he says, a strong one: "Precast concrete is more robust, better for thermal mass, fire resistant, better acoustically and quick to build."



Photo: Shutterstock

SO WHAT'S YOUR DES RES?

EVERYONE knows what the Government wants from the UK's 'broken' housing market – 300,000 homes a year by 2025. But what do consumers want from their dream home?

The Modern Masonry Alliance, which exists to promote the benefits of masonry solutions, has undertaken a survey of 2,000 UK adults to try to get beneath the surface of what both buyers and renters really want from the home they aspire to.

Some 71% of those who participated felt that new build offered the best in quality plus latest fixtures and fittings, but 85% perceived them as not offering best value. In terms of materials, an overwhelming 89% preferred masonry and only one in ten (11%) wanted a timber home. Those who preferred bricks and blocks as the basis for their home considered masonry to be more secure, resilient, comfortable and energy efficient.

When asked to choose from a long list, the attributes that came out top were: fire resistance (94%); energy efficiency (93%); robust construction (92%); premium sound insulation (92%); low insurance premiums (89%); and flood resilience (87%). While typically wanting their homes to be comfortable and value-for-money, people expected them to be safe, not just from fire and flood but from burglaries and excessive noise (66%). Damp was a concern for renters in particular.

Less than 1% believed prefabricated, modular homes to be built from the most robust



Photo: Shutterstock

construction material and only 3% thought timber to be a strong solution. There was a lack of knowledge of what homes are built from and the great majority (90%) said there should be greater transparency over building materials.

The Modern Masonry Alliance lists five key reasons why masonry is number one for houses:

- 1 Most economical form of construction** – concrete blocks in particular are both robust and affordable, and can be built with speed to high quality
- 2 Energy efficiency** – masonry-built houses are cheap to run because they offer excellent insulation and airtightness
- 3 Durability** – masonry is durable because the components are inert, non-biodegradable and do not rot
- 4 Fire and flood resistance** – masonry materials do not burn. If fire does start, the structure continues to be load-bearing
- 5 Quiet** – masonry houses have lower levels of sound transmission.

The vast majority of houses – in excess of 80% – are built using traditional masonry construction because of the performance benefits, ease of construction and it is cost

effective for developers. The survey of 2,000 UK adults by the Modern Masonry Alliance leads to the conclusion that robust, resilient long lasting construction is also what the public wants.

Offsite concrete

IF clients and developers favour an offsite solution, they need look no further than precast concrete for high performance from a local and long-lasting product.

In a new guide for designers on the benefits of concrete for offsite construction, MPA The Concrete Centre stresses that bespoke designs can be achieved using precast components. Modular floors, stairs and wall panels can all be seamlessly combined with non-precast elements to produce "free-flowing spaces". Architects can also specify curved precast panels with a wide range of attractive and durable finishes.

"The most economical solution might well consist of a mix of cast in-situ and factory-produced precast units," says the guide. "Thorough consideration of construction options at an early design stage is critical to optimise speed of construction, structural performance and delivery of the most economical frame package for each project."

The desire for speed is, says The Concrete Centre, eminently met using precast. It estimates that one erection crew can install up to 14 single-storey columns, 15 spine and edge beams and 16 wall panels in a day. A typical team can also put in up to 350 square metres of floor units and 15 stairs or landings in a working day. Offsite solutions of any material require a longer lead-in time for the factory production stage. However precast concrete for the offsite component is a good choice as it is fully compatible with in-situ concrete which has shorter lead-in times and can be used for the first stages of projects to deliver overall speed.

The design opportunities are many and varied, not least because concrete is mouldable into any shape; and repetition makes even complex shapes affordable. Architecturally, precast offers a wide range of both colours and textures, and the working life of the end-product can be 100 years or longer, achieving far



Above and below: Creagh Concrete's Stoneywood apartment block in Aberdeen

greater whole-life value than non-concrete alternatives.

Given the controversies over recent years relating to fires and flood, concrete has much to offer when it comes to avoiding emergencies. It quite simply doesn't burn and has low heat conductivity, giving it the best fire rating possible under European standards. Concrete also has inherent properties making it ideal to reduce overheating and noise transfer. As for flood resistance, the relevant British Standard recommends the use of concrete structures.

The other key argument for concrete lies in its sustainability, not least because its raw materials are locally produced using local labour and usually delivered over less than 30 miles. Some 90% of the cement in UK concrete is manufactured in the UK and often incorporates by-products from other industries. Qualities such as thermal efficiency add to the sustainability benefits of a material which is, at the end of its long life, 100% recyclable.



Eliminating



DEVELOPERS keen to opt for offsite construction may well have concerns over the risks that go with being amongst the first to commit to new technology and unfamiliar suppliers.

MPA affiliate British Precast says that those who go the precast route into offsite construction greatly reduce the issues to which they are exposed while benefiting from performance credentials that are backed by many years of experience. Its advice includes:

- Precast hits long-established **product standards** and has achieved CE marking as normal practice
- The **supply chain** is a robust and competitive one, with no project reliant on any one supplier
- Concrete is a **local product** made in the UK and is part of a responsible supply chain
- British Precast members employ **responsible sourcing** and follow common codes for sustainability and health & safety
- There is no better material than concrete for **durability/robustness** and ease of transport to local sites
- Government statistics have made clear that compared with timber frame alternatives masonry and precast have **lower risk of more extensive fires**
- Given its **thermal mass** characteristics, concrete provides resilience to overheating
- **On-site preparatory** work such as concrete foundations can be undertaken in the lead-in times that are required for offsite construction.



Photo: Finning

TECHNICALLY SPEAKING

THINK of a quarry and the image most of us carry is of a rugged world in which muscle is what matters most. But if your perception is of a place where technology is not a main driver then you need to look a bit more closely.

With the pressure on to boost productivity, the industry is turning to technology that provides real time information as a means of monitoring the health of critical mobile plant. Live performance data is fed to managers via hand-held tablets, while eye-in-the-sky drones are providing valuable information on everything from face stability to the size of stockpiles.

Meanwhile, the trucks that take the products to market may at first sight look like the mass of others on the roads. But those typically being specified by mineral products operators are brimming with technology, not least cameras, mirrors and other devices to help keep cyclists and pedestrians safe.

It comes at a time when there have been early signs of a turnaround in the productivity of British industry generally. "The recession took a big toll on our industry and we had barely started to recover before we faced all the new uncertainties that go with Brexit," says MPA chief executive Nigel Jackson. "Our members have had to wait a long time before confidence levels were restored to a point where they could sensibly invest in new technology."

Boost productivity

Encouragement has come from the Government's new 'National Infrastructure and Construction Pipeline' which it says will revolutionise British infrastructure to the tune of £15bn a year and in doing so boost productivity in the construction sector.

Given the mineral products industry's annual flow of 360mt of aggregates and manufactured products, the productivity of quarries is particularly important at the roots of Government ambitions. Larger sites with massive investment in mobile plant are particularly conscious of the benefit they



Photo: QuarryDesign



can squeeze from using the state-of-the-art monitoring technology that is now available to them.

Major suppliers like Finning are now offering a range of services designed to maximise output. They include productivity monitoring technology which collects real-time data to build a picture of the health of each machine from which can come a tailored rebuild strategy.

CEMEX UK used the service at Dove Holes quarry in Derbyshire and upped annual output from 3.8mt to 5mt from the same fleet. At Cliffe Hill quarry in Leicestershire, Finning's agreement with Midland Quarry Products will use the machine health checks to produce an individually tailored rebuild strategy. The deal also ties in drone flights to produce data to help the company make informed decisions about the future layout of the quarry as it develops. GPS information from machine alerts, including braking and acceleration patterns, is already being combined with drone survey data to spot opportunities to make changes to haul roads.

Drones and lasers

At Aggregate Industries' Glensanda super quarry in Scotland, a condition-monitoring system has been installed in the fixed plant with a dedicated team using the technology to dramatically reduce unplanned shutdowns. Meanwhile, a drone has various uses – from recording blasts to carrying out inspections.

Using drones combined with remote sensing pulsed lasers to measure variable distances provides survey specialists QuarryDesign with data comprising millions of points. As a result, vital surveys which provide essential planning and face stability information can be

conducted from the safety of the quarry perimeter or even from the air.

Digital opportunities are also impacting the ways in which operators do business. While Aggregate Industries focussed heavily on the issue at its latest 'Annual Innovation Workshop', CEMEX has launched a fully digital customer integration platform which it says will revolutionise the

way in which it interfaces with its customers.

Robots and plasma cutting

Concrete product manufacturers are likewise making big steps forward in productivity. Examples include a block company which has achieved a 12% improvement with an innovation in which a robot seamlessly steps in to introduce product into a line when the flow has been affected by maintenance or other stoppages. Meanwhile, a floor beam

company boosted its productivity by 20% with two new ideas: automating a wire stressing process cut the time commitment from three hours for two operatives to just 90 seconds; and replacing heavy manually operated mechanical saws with plasma cutting improved the work environment and worker morale.

On the lorry front, Hanson has invested in 40 low-entry cab ready-mixed concrete trucks. Packed with vulnerable road user alerts, they are also highly manoeuvrable and have lightweight drums to improve efficiency while increasing the load size from 7.5 to 8 cubic metres.

Meanwhile the UK cement industry constantly invests heavily in latest technology to support its quest to improve efficiency while driving down emissions. Its alternative fuels range from processed household waste to tyres and sewage sludge pellets. Low-carbon cement alternatives are now widely used and the sector is also gaining ground towards carbon capture and storage for the long-term.



Making waves

THE new technology boosting the productivity of the mineral products industry is as evident on the high seas as it is on land, with marine aggregate operators now investing heavily in state-of-the-art new-build dredgers.

While Hanson is investing over £60m in two vessels from a yard in the Netherlands, CEMEX UK has commissioned a £30m addition to its fleet from another Dutch manufacturer through its yard in Romania.

The trio will be key additions to the capacity of a British fleet which averages 20 years in age.

Each of the new dredgers will be brimming with new technology, with major improvements in fuel consumption, reliability and CO₂ emissions. Hanson says its pair are the first step in a strategic fleet replacement programme. The CEMEX ship will have 25% more capacity, 20% faster discharge, double discharge rate and hybrid power.

New fund to boost communities

MPA has unveiled proposals for a new Aggregates Levy Community Fund (ALCF) in England as it seeks to revive the best from an initiative which, over nine years, delivered massive benefits to areas affected by quarrying.

The proposed new fund would be smaller and more focused than the original, which was abandoned by the Government in England in 2011. It would, however, still deliver around £10m a year for the benefit of community schemes, biodiversity and the environment.

The many hundreds of projects that have benefited from the old fund include the Lancashire Wildlife Trust's flagship Brockholes wetlands nature reserve near Preston (pictured above). The fund awarded a total of over £340,000 to help develop it from a former quarry. Today, it attracts thousands of visitors each year and incorporates a floating conference centre with shops and restaurant. (More detail on facing page).

MPA chief executive Nigel Jackson recognises the substantial challenge in persuading Defra Ministers of the need to support a cause they have previously turned their backs on. "We continue to believe that the decision to end it was wrong in principle given the controversies surrounding the introduction of the levy in the first place," he says. "But despite best efforts, attempts to convince ministers of the need for its re-introduction have thus far been fruitless.

"Austerity arguments for abandoning the fund simply do not add up as the revenue from the levy continues. However, we are realistic and have tailored the proposals for a new scheme by narrowing its scope and reducing the quantum sought."

He added: "We believe the new proposals

will support delivery of the Government's localism agenda and the new 25-year plan for the environment, and hope MPs, councillors and planners in aggregate producing areas will join local community and environmental organisations to get behind our proposals and encourage Government to support it."

The new MPA initiative would involve the introduction of 'Local Aggregate Community Trusts' made up of operators, communities and councils to help improve stakeholder engagement and steer the funding for use in the immediate area.

Proposed for introduction in April 2020, the new ALCF would build on the legacy of the previous Aggregates Levy Sustainability Fund (ALSF), but at a lower cost. The MPA proposal would see 8p per tonne – or 4% – of Aggregates Levy revenue being allocated to the new fund. It would mean that an aggregates quarry selling 200,000 tonnes of aggregates per year would generate aggregates levy credits of £11,200 annually

IN SUMMARY

- **Fund to deliver approx £10m pa**
- **Focused on community schemes, biodiversity and nature conservation**
- **Could be widened to include carbon reduction, heritage and security of supply**
- **To be introduced in April 2020**



Children have been major beneficiaries from the ALSF

for community use, equivalent to between £112,000 and £168,000 for a ten to 15-year operating life.

A separate £3m fund is proposed for biodiversity and nature conservation, involving engagement from other expert environmental organisations. It would include marine projects, another important beneficiary from the previous fund.

MPA has pointed out that there is a clear precedent in the Landfill Tax Communities Fund, through which landfill operators claimed tax credits of £35 million in 2016/17 against tax receipts of £903 million. The Autumn Budget set out a Landfill Tax Communities Fund of £33.9 million in 2018/19 with a tax credit cap of 5.3% of tax liability for operators.

Established in 2002, and set at a rate of £2.00 per tonne since 2009, the Aggregates Levy was introduced by the Government to generate revenue from the sales of primary aggregate for use in construction. It was designed to better reflect the environmental costs of winning primary aggregates and to encourage the use of alternative, secondary and recycled construction materials. It has typically raised £300m to £350m pa for the Treasury, a total of some £5bn since its inception.

‘We believe the proposals will support delivery of the Government’s localism agenda and the new 25-year plan for the environment’

To reduce the environmental consequences of winning aggregates, up to 10% of the revenue raised was theoretically allocated to the former Aggregate Levy Sustainability Fund (ALSF). In practice around £20m pa (of a theoretical £30m pa) in England, was

invested in a range of initiatives including schemes involving key mineral producing local authorities, local communities and conservation groups.

MAKING LOCAL LIFE BETTER



Photo: Chris Brown



Photo: Amy Lewis



Photo: Trevor Southward

WITHDRAWAL of the former Aggregates Levy Sustainability Fund pulled approaching £20 million a year more money into Government coffers ... and deprived local communities of what had become an invaluable ‘force for good’.

The ALSF ran for nine years until 2011. In the three years to its demise, the £65 million it dispensed also leveraged over £47 million in third-party funding. While much of the value of the actual projects is not quantifiable, a Government-commissioned review said that funding devoted to carbon reduction in the industry achieved savings worth £58 million. The value of waste reduction programmes was put at £123 million. And more fuel-efficient driving by well-trained truckers saved over £10 million in diesel and carbon.

The wildlife successes are legion. More than 3,000 hectares (20 times the size of Hyde Park) were improved for biodiversity and seven miles of footpaths upgraded and ALSF funding was critical to the early operations of the highly successful Nature After Mineral programme. Meanwhile, numerous heritage assets of national significance were preserved using ALSF money distributed by English Heritage.

Amongst the most high profile successes in terms of both wildlife and community benefit has been the Lancashire Wildlife Trust Brockholes wetlands nature reserve close to the M6 near Preston. Transformed from a large former quarry, it now has a mosaic of habitats reminiscent of old Lancashire and is a nature conservation area of regional, national and international importance.

Over three years, ALSF grants of £340,800 helped mitigate the effects of extraction by enhancing wetland habitats, improving access and developing a community and education programme.

AS an ALSF delivery partner distributing funds at community level, Action with Communities in Rural England (ACRE) attracted over 900 applications from its inception in 2007 and awarded grants totalling £1.8 million to 190 community projects.

At Hampstead Norreys in Berkshire, the Communities Aggregates Fund (COMMA) facilitated (with a £7,000 grant) the launch of a

community shop which is owned and operated by local people. It serves nearly 450 people, not just as a corner store and coffee shop but with services such as dry cleaning, key cutting, shoe repairs and prescription drop-offs. It is open seven days-a-week and is staffed mainly by volunteers.

At Shilton in Oxfordshire, an £8,500 COMMA grant enabled villagers to repair an increasingly dangerous dry stone wall that surrounds their much loved village hall. In a parish with under 100 homes, they raised a matching sum to landscape the overgrown surrounds of the hall.



Hampstead Norreys community shop – mainly staffed by volunteers



Nobody does it better

NEW figures confirm that Britain is better at turning waste materials into aggregates than any other country in Europe. In doing so, the mineral products industry keeps millions of tonnes of primary aggregates in the ground each year for use by future generations.

MPA figures show that Britain reduced its call on primary aggregates to 176 million tonnes in 2016 by extracting value from over 70mt of recycled and secondary aggregates. It is an achievement which puts the nation at the top of the European table for the proportion of recycled/secondaries to primary aggregates and ahead of countries such as the Netherlands (25%), Belgium (20%), Germany (17%) and Switzerland (10%).

MPA director of economic affairs, Aurelie Delannoy, says the significance of Britain's recycled aggregates performance often goes unrecognised. "We have been at or near the top of the European league table for the aggregates recycling market share and resource efficiency for many years," she said. "Our latest analysis shows that our performance remains as strong as ever. Our commitment to the circular economy and to extracting maximum value from precious resources is second to none and needs to be taken into account when planning for the future."

CONSTRUCTION, DEMOLITION & EXCAVATION WASTE
54.5mt

Construction and demolition waste material is by far the largest source of alternative aggregate, often coming from urban areas

Europe's top 10 aggregate recyclers

2016	Total aggregates production	Recycled & secondary	Share
GB	247.0	70.4	29%
Netherlands	74.5	18.6	25%
Belgium	81.5	16.0	20%
Germany	572.0	97.0	17%
Switzerland	51.0	4.9	10%
Poland	268.5	22.0	8%
France	324.0	25.0	8%
Denmark	47.7	2.9	6%
Austria	102.0	6.0	6%
Bulgaria	33.0	1.5	5%

Million tonnes (Mt)
Source: UEPPG & MPA (2016 figures)

where brownfield sites are being developed and where the recycled material is close to existing markets. More remote sources often include removal of major infrastructure such as old runways and hospitals. Government identified back in 2014 that 90% of UK non-hazardous construction and demolition waste was already being recovered, so future growth in this supply source is likely to be incremental.

ASPHALT PLANINGS
6mt

Planings are removed from the road surface prior to maintenance or full reconstruction.

Asphalt materials are almost unique among construction products in that they can be 100% recycled, and in many cases re-used directly back into the application, and even the site from which they have been extracted.

CHINA & BALL CLAY WASTE
2.1mt

The production of china clay in the south-west generates waste material, some of which has beneficial secondary uses as a building stone or secondary aggregate in concrete and asphalt. Its use is limited by distance from potential major markets. Sand interburden found between ball clay seams is worked for secondary aggregates, and also industrial and horticultural uses.

ASH
4.1mt

Ash from various sources is used as a secondary material. Most of the ash produced in coal-fired power stations is a fine powder called pulverised fly ash (PFA) which can be used as a cement-making material, as fill and in ground remediation. Furnace bottom ash is a coarser material which is sold as a lightweight aggregate for cement block making. Incinerator bottom ash comes from burning municipal waste and historic data indicated that nearly 90% of potential supply was used in aggregates markets.

IRON & STEEL SLAG
2mt

Blast furnace and steel slags are by-products of iron and steel making and have for many years been used in cementitious markets and as a secondary aggregate. Blast furnace slag in particular can be used directly as a substitute for natural aggregates in more demanding applications and future supply will be linked to the levels of domestic iron and steelmaking.

SLATE, CLAY/SHALE & CHALK
1.8mt

Slate waste, generated mainly in North Wales, can be used as fill/aggregate in road construction, but the cost of transport limits its geographical use. Although clay and shale are not normally considered as a source of aggregate, they are used for bulk fill.

NEW CEMENTS FOR CARBON REDUCTION

Constructed in an aggressive environment on Ireland's east coast, Greystones Harbour Marina achieved significant carbon savings through the use of concrete made with a multi-component cement

MPA is leading on a development project that aims to win acceptance for a range of multi-component cements offering the UK construction industry reductions in carbon impact while maintaining performance.

The initiative is part of a drive by the cement and concrete industries to reduce the carbon impact of their products. The UK cement industry was the first in the world to commit to an ambitious target to reduce greenhouse gases by 81% by 2050 compared with a 1990 baseline and has already made substantial progress. The use of alternative supplementary materials with cement clinker, along with developing carbon capture/use technology and replacing fossil fuels, are all important strands in the wider battle.

In today's concrete industry, the carbon impact of cement is commonly reduced by substituting the primary component – Portland cement clinker – which is energy and carbon intensive, with low-carbon secondary components such as fly ash (a waste from coal-fired power stations) or blast furnace slag (a by-product from iron and steel manufacture). With wider market dynamics now changing for fly ash (and potentially so for ggbs), the UK industry is looking in greater detail at the potential for using another more readily available mineral – finely ground limestone – as an additional component with fly ash or slag.

Says MPA executive director Dr Pal Chana: "Given recent improvements in processing

capabilities, it would make sense for us to research how finely ground limestone can be better utilised as a secondary material in composite cements, either as a sole blend or addition with fly ash or slag.

"Recent research has demonstrated that if the grinding of limestone is optimised, Portland-limestone cement (PLC) can be produced to achieve similar or better performance to that of pure Portland cement (CEM I). Indeed, other countries have implemented the technology to standards that allow PLC to be used in place of CEM I with significant carbon savings and without compromising performance.

"To date, the use of multi-component cements is still not permitted by UK application standards. However, we have now submitted a proposal to the British Standards Institution to support the standardisation of new multi-component cements for concrete. This has since been approved for normal applications and the redrafting of the concrete application standard (BS 8500) is currently underway."

The project has a number of objectives and outputs. Following optimisation and manufacturing trials of low-carbon multi-component cements, an extensive test programme is being discussed with

the Building Research Establishment to demonstrate practical use in the UK. This will cover:

- Concrete mix design trials to meet minimum mechanical performance criteria;
- Laboratory-scale environmental testing in a range of durability exposure conditions to classify and understand resistance to sulfates, chlorides, alkali-silica reaction and carbonation.

The work will allow performance to be compared directly with established cement types used in aggressive exposure conditions and recommendations to BSI to permit the use of the cements in a wide range of applications. Demonstration projects are planned with monitoring to show fitness for purpose for a range of conditions.

Dr Chana concluded: "This is an important development for the UK cement and concrete industry. The success of this project will enable cement and concrete manufacturers to optimise the use of finely ground limestone in their products thus improving resource efficiency and carbon performance without compromising performance."

CAREERS



Securing talent pipeline

YOUNG people are inspired to consider careers in the quarrying industry through an educational programme delivered by the Somerset Earth Science Centre (SESC) and John Wainwright & Company.

"As an educational centre that is funded by local quarry companies, we have a commitment to engaging with young people who are thinking about taking their first career steps," explains Dr Gill Odolphie, manager at the SESC. "By offering a suite of events that raise awareness of quarrying as a potential career path, we're hoping to secure a talent pipeline."

So far, the programme has included participation in school careers fairs and assemblies, and involvement in special events. A 'Girl Power' conference coincided with International Women's Day and was aimed at female students with an interest in STEM subjects.

In addition, groups of sixth-formers are being welcomed to the SESC for careers days. Recent visits from students at Frome College and Wells Blue School Business have included workshops on topics like CV writing and PR, as well as quarry tours and mock interviews.

STONE SAND

Carving a market

HUTTON Stone's resident carvers now have their own top of the range workroom as their services become increasingly in demand. The steel fabricated building at the company's Northumberland headquarters is home to nationally renowned carver, Michelle De Bruin, and skilled student of the art, Josephine Crossland. They previously used the next door walling shed so were delighted with their own peaceful space for their bespoke masonry projects.

Michelle can generally be found working on some carved detail – a headstone, or a coat of arms, or



even a life size wolf, octopus or bat's ear for her 'Broom Cupboard' collection. Ian Black, health & safety manager, says: "We are extremely proud to have found a point where the heavy side of quarrying and stone production can sit happily together with creative artistry. Michelle and Jo produce some stunning pieces and it is fitting that they have a smart space in which to work."

TRANSPORT

Supporting super sewer

LONDON's 'super sewer' project has welcomed eight new barges to help remove the spoil from the tunnelling process. The Thames Tideway Tunnel – a 25km interception, storage and transfer tunnel – will run up to 66 metres below the River Thames, replacing the Victorian sewers that leak tens of millions of tonnes of raw sewage every year.



Aggregate Industries, through its joint venture with Bennett's Barges, has procured the specialist barges, which will work on the 7km west section of the tunnel. Bennett's Barges will also be employing and training up to 24 marine operatives to manage the fleet. The joint venture has procured two new state-of-the-art tugs, with an innovative rising bridge, designed specifically for this project.

The first of the new 1,500t capacity barges, *Churchill*, recently completed its maiden voyage to London, followed shortly by the arrival of a new 1,000t capacity barge, *Phoebe*.



AIR QUALITY

A cleaner capital



AS the Mayor of London sets out new measures to tackle emissions, FM Conway is investing heavily in the environmental credentials of vehicles delivering materials to construction projects in the capital.

The infrastructure services company has added some 250 vehicles to its fleet, including 7.5 tonne lorries and eight-wheel tippers, which meet Euro Six standards. They will be transporting highway arisings and recycled-content asphalt mixes to and from FM Conway's operational sites and recycling plants around the city.

The move comes in advance of the extension of London's Ultra-Low Emission Zone (ULEZ) city-wide for lorries from 2020 and up to the North and South circular roads for all vehicles the following year.

Peter Parle, FM Conway's transport manager, said: "Whether it's investing in plant and vehicle emission technology or cycle safety, FM Conway aims to pave the way on best practice for construction logistics. This latest move will ensure that our vehicle fleet continues to meet the highest environmental standards, helping to improve London's air quality and supporting our many construction projects in the capital."

The company has invested £235 million in its infrastructure over the past decade to support its commitment to sustainable construction and self-delivery approach to projects.

WETLANDS

Countryfile fame

THE spotlight was turned on a former sand and gravel quarry – now set to be Europe's largest wetland – when it appeared on BBC's Countryfile. The RSPB-Hanson site at Needingworth quarry in Cambridgeshire was featured on the rural affairs TV programme. The 10-minute piece showed how Britain's biggest man-made reedbed, a 700 hectare wetland known as Ouse Fen nature reserve, is being created following the extraction of 28 million tonnes of aggregate.

When complete, Ouse Fen will boast nearly 20 miles of footpaths, bridleways, cycle paths and a visitor centre. It will be the largest nature reserve of its kind in Europe, providing a home for some of the UK's rarest birds, including the bittern and bearded tit.

The crew spent two days filming at the site, both on the ground and from above using a drone camera, and interviewed Hanson Aggregates' unit manager Hilton Law, who displayed some of the fossils found during quarrying, including a mammoth tooth.



TRAINING

A smarter workforce

A NEW smart card for HGV drivers logs all training and qualifications, ensuring competency and enhancing safety. Tarmac rolled out OneCard, a cloud-based system, to record data on a driver's credentials, making the process of site safety checks quicker and reassuring customers that drivers are fully trained.

Sean McGrae, senior national transport manager at Tarmac, said: "The technology is helping us to tailor our driver training programmes as well as improve the efficiency of our supply logistics, making it simpler for drivers to move between Tarmac's nationwide network of over 400 sites."

Following a successful pilot, the OneCard is now being used by over 1,000 drivers, and will be rolled out across Tarmac's UK-wide driver population. Each driver is provided with a personalised smart card, which has a unique identifier to prevent fraud and is checked using smartphone technology.



WORLD CLASS mineral products

WHETHER or not England win the World Cup in Russia this summer, there can be little doubt that the stadia at the top end of our football-mad nation are a class mineral products act. From the multi-million pound structures themselves (still appearing at a rapid rate) through to the playing surfaces, they are what they are by virtue of aggregates, cement, concrete and sand in particular.

While the Wembley national stadium may be famous for its glowing nighttime arch and its 1,700-tonne retractable roof, those features ultimately depend for their strength on two massive concrete pads resting on piles that are all of 35 metres deep.

Meanwhile, the Premiership club that is currently lodging at Wembley, Tottenham Hotspur, is currently pouring 72,000 square metres of concrete for its new home in north London (artist impression above).

The stadium is high tech right the way down to its roots, with a playing surface that still owes much to sand – though in this case the real grass surface with its artificial reinforcing will roll out on three 3,000-tonnes trays each powered by 68 motors! And when that is wheeled out of the way you have an artificial surface beneath for American football.

The mineral products most evident in Chelsea's planned new £500m stadium will be bricks and mortar. Six million bricks will be needed for a façade that involves 264 pillars to support a steel ring. Other stadia due to rise in the coming months include Brentford FC which will hold 17,250 fans. Stadium ambitions also include York City

(8,000 capacity) and Ebbsfleet United (8,500).

All of which demonstrates not just how England loves football but how much money washes around within it. Duncan Adams runs a website dedicated to news on football grounds and says that in most cases the new developments are driven by a desire to increase corporate revenues, add hospitality opportunities and comply with health and safety. But some clubs have moved to out-of-town locations on the back of selling central locations for housing.

He adds: "The Premier League has seen consistent huge growth in income since it was formed in 1992. Just ten years ago, television income through the sale of broadcast rights was £843m for the whole league. This has now risen to £2.9bn and that has certainly made it an attractive proposition for investors from overseas."

'From the multi-million pound stadia through to the playing surfaces, they are what they are by virtue of aggregates, cement, concrete and sand'

The level of stadium that incorporates a motorised retractable pitch with under-soil heating is but a distant dream for a club like Haverfordwest County, which plays in Division 1 of the Welsh Football League. But it still needs top dressing sand – supplied locally by MPA member Cardigan Sand & Gravel – as an essential part of its management programme. The carefully specified sand not only improves drainage but in doing so gives a better bounce, truer passes and better player grip. Having been relegated in 2016, budgets are tight and the club has not been able to afford regular applications this season.

In the world of football, the gulf between Tottenham Hotspur and Haverfordwest County is huge. But the fact that both attract devotion from their respective large and small fan-bases demonstrates why Britain remains such a football-mad nation.