



The Coal
Authority

Annual sustainability
report

2017-18



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foreword**

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Chair's foreword

The UK coal mining industry and our role in licencing has significantly diminished since we were established in 1994. By contrast, our work in managing the legacy of mining has increased and provided us with the opportunity to deliver positive economic, environmental and social outcomes in a way that supports the UK's commitment to global sustainable development goals.

Our Sustainability Framework (published in 2016) outlines the positive contribution we make to both the public and the environment and sets performance goals for health and safety, environmental, people and economy. We continue to make good progress with these and have begun to gain wider recognition for our work.

An example is winning the edie 2018 Sustainability Leader's Award in the Recycling and Resources category for our innovative work in finding new ways to generate value from the waste produced in our mine water treatment schemes.

This year sees the end of our current 5 year corporate plan giving us a great opportunity to reflect on the progress we have made and review where we are as we develop our strategy for the next 5 years. A big part of this will be to ensure that we meet government sustainability targets and support the UK's Industrial and Clean Growth Strategies and 25 Year Environment Plan: A Green Future.

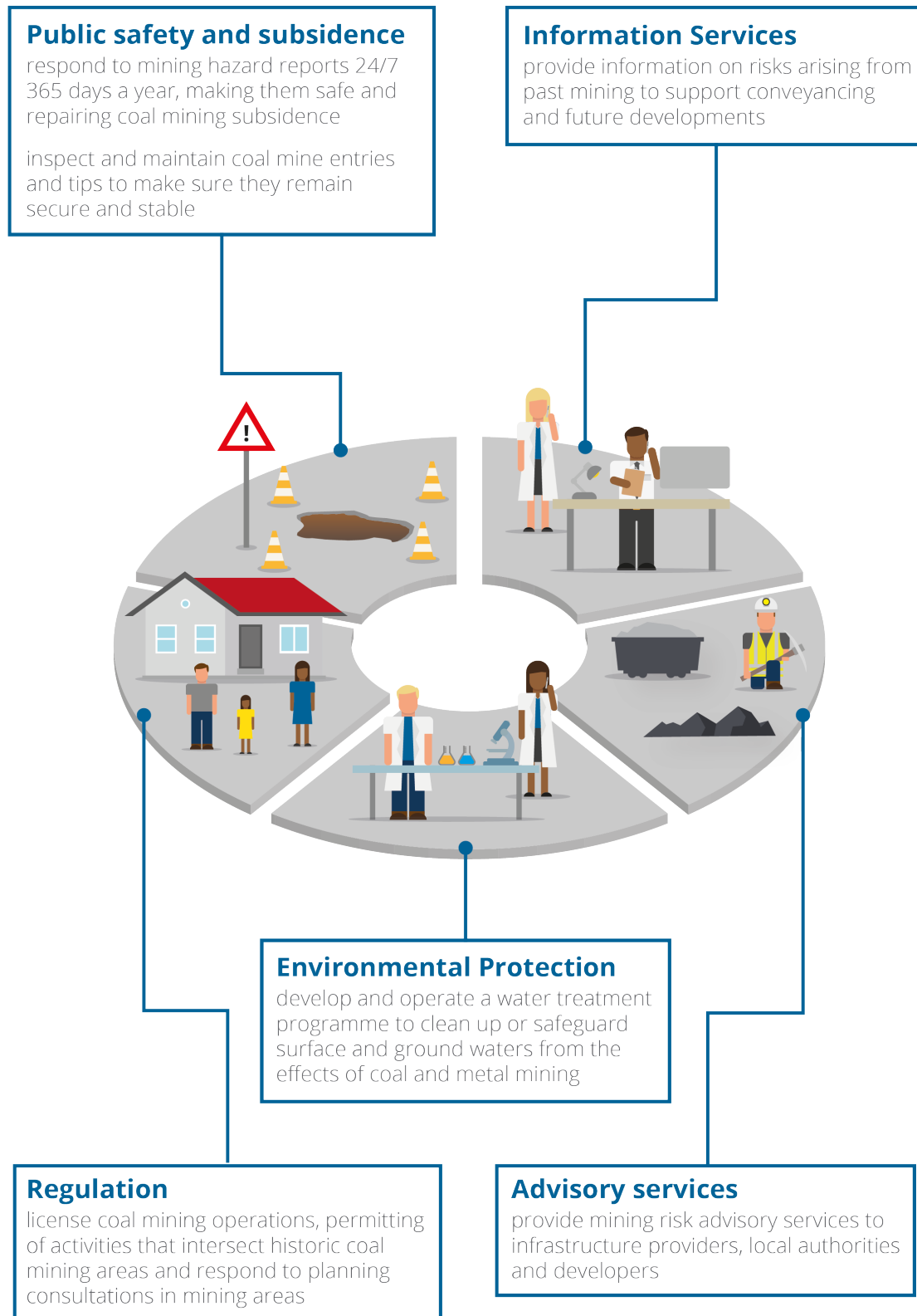
Steve Wilson

Chair of Safety, Health & Environment Committee



What we do

Our role is to protect people and the environment from the impacts of past mining, and promote economic growth from Britain's mining legacy.



How we performed

We have 3 core themes: health and safety, environmental, people and economy.

Health and safety

Sustainability area	Broad goal	What success looks like	How we performed
Occupational health and safety	Zero harm - ensure our staff and contractors can carry out their work safely and maintain wellbeing for all involved.	<p>Zero lost time accidents and no new incidences of work related ill health.</p> <p>Less absenteeism.</p> <p>Recognition as a safe and responsible business.</p>	<p>Nine lost time accidents since 2013/14 representing an Accident Frequency Rate (AFR) of 5.2, well below the industry average. Sickness absence rate is also significantly below the sector average.</p> <p>All accidents investigated and root cause analysis undertaken to mitigate any future recurrence.</p> <p>We have won several prestigious awards for our work and been commended on our approach to safety.</p>
Public safety	<p>Zero harm - protecting the public from mining hazards when they occur.</p> <p>Zero harm - providing mining information to the public and organisations.</p>	<p>No accidents associated with a mining hazard.</p> <p>Responding to new hazards within defined timeframes.</p> <p>Reputation as the go to organisation for safety related mining hazards.</p> <p>Zero incidents of new inappropriate developments/ land use within coal mining areas.</p> <p>Mining information of recorded workings fit for conveyancing and development purposes.</p> <p>Early engagement in planning and development decisions.</p>	<p>One minor accident to a member of the public, lessons learned have been implemented.</p> <p>Response KPIs for public safety met every year.</p> <p>Planning consultations, Licensing and Permit application KPIs met every year.</p>

Environment

Sustainability area	Broad goal	What success looks like	How we performed
Climate change	Minimising our impacts on climate change by reducing the carbon intensity of how we deliver our remit.	<p>Increased energy efficiency.</p> <p>Lower carbon footprint.</p> <p>Increased value to the tax payer.</p> <p>Investigate opportunities to use mine workings in climate change adaptation.</p>	<p>Overall carbon footprint reduced by 42%.</p> <p>Carbon intensity of our minewater schemes reduced by 61% and at our head office by 42%.</p> <p>712KW of renewable electricity capacity installed.</p>
Material and waste	Making the right decisions about material use and waste by appropriate selection and responsible sourcing reuse, recycling and disposal of materials.	<p>Zero waste to landfill.</p> <p>Responsible selection of materials.</p> <p>Using materials more innovatively and efficiently leading to associated cost savings.</p>	<p>Over 250 tonnes of ochre sludge used in land remediation.</p> <p>Over 3,700 tonnes of reed bed waste recycled therefore avoiding the need for landfill.</p> <p>Government buying standards now specified in all relevant contracts.</p>
Natural resources	Protection of groundwater resources and contributing to returning water resources to good ecological standards.	<p>Achieve government best practice standard for water use in our offices.</p> <p>Achieving good ecological standards on the water bodies targeted by our projects.</p> <p>Minimal ecological impacts arising from our construction projects.</p>	<p>Office water use reduced to below government best practice standard of 6m³/FTE representing an overall reduction of 31%.</p> <p>Significant improvements in ecological standards achieved through the mine water programme resulting in environmental and social benefits of circa £23 million.</p>

People and economy

Sustainability area	Broad goal	What success looks like	How we performed
Amenity and engagement	Protecting people's enjoyment of areas affected by historic mining activity and helping the communities we work in to understand our remit by reducing the potential for nuisance associated with the mining legacy.	Regular engagement and interaction with the communities we work in. Positive feedback from the communities we have worked in. Future mine water treatment schemes are welcomed.	Stakeholder management procedures developed and embedded. All major projects have a stakeholder engagement plan.
Skills and learning	Developing an engaged, productive and knowledgeable workforce. Promoting best practice construction skills amongst our staff, partners and contractors.	Improved employee satisfaction outcomes in relation to training and development. Our supply chain develops their staff on our projects (eg through NVQs and apprenticeships).	People Survey completed and satisfaction levels well above public sector average. Opportunities created for apprenticeships in our core delivery contracts.
Local and SME spend	Creating economic opportunity in former coal mining areas by increasing the proportion of spend with local suppliers and SMEs.	Achieved government targets for spending with SME and local suppliers. Our supply chain increases their effort to engage SME and local suppliers.	Government target of 33% spend with SMEs by 2022 exceeded 4 years early. Our procurement processes actively consider by SME and local suppliers and many of our contractors are local to the areas in which we work.

Highlights

Achieved our **first sale** of minewater at our Lindsay scheme for industrial use, supporting water scarcity by mitigating the need to use high quality drinking water



Launched **new products** into the market to help customers **improve their understanding** of mining and wider geospatial risks, so reducing the likelihood of future damage with the associated impact on safety and resource use



Delivered our **first mining risk reports** to a major infrastructure provider and increased the number of coal mining risk assessments, supporting safer development and maintenance and reducing future resource use



Recycled **over 3,700 tonnes** of our first reedbed waste, reducing the environmental impacts associated landfill and saving **over £400,000**



Increased our portfolio of solar arrays, taking our **renewable generating capacity** to 712kW which is enough to power 1,500 homes



Won a prestigious **edie Sustainability Leaders Award** for our work in finding new ways to reuse waste products



Sustainability governance

Governance

Our sustainability framework sets out the significant impacts associated with delivering our remit.

These impacts are wide ranging and are as relevant to our staff and those who work with us, as they are to the environment and wider society. For this reason, we have integrated our approach and our governance arrangements have been revised to reflect it.

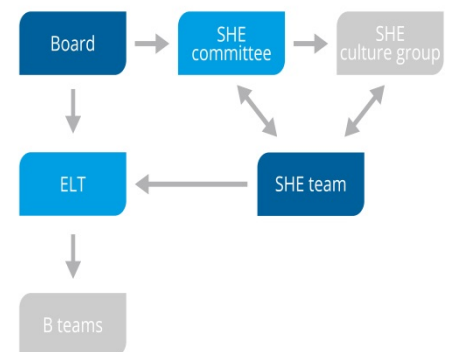
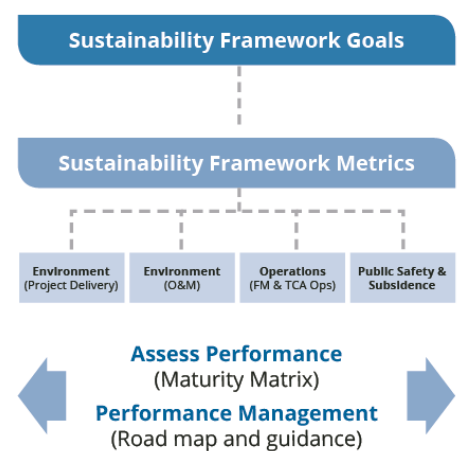
A specific board committee, chaired by a non-executive director, has responsibility for providing strategic oversight and its main focus is:

- the development of our sustainability strategy including the management of safety, health and environment (SHE)
- ensuring the development of a positive health and safety culture that is embedded throughout the organisation
- providing advice and guidance on strategic SHE matters to support our business plan

Its work is reviewed by our executive leadership team and supported by the SHE team. The SHE culture group, which includes representatives from across the business, focusses on continuing the development of a positive culture through initiatives and awareness raising and also provides feedback on the views of our employees and external stakeholders.

Systems

The SHE management system supports delivery of our sustainability framework and helps ensure we maintain compliance and deliver continual improvement through corporate SHE objectives and management of SHE risks and opportunities. It's designed around the plan, do, check, act cycle and is regularly reviewed and updated.



Review of the year



Health and safety

Occupational health and safety

The health and safety of our employees and those that work for us is of paramount importance and we take a holistic approach to managing it. We review and update our policies routinely and have a structured system of monitoring to provide assurance they are effective and being implemented consistently.

We place great emphasis on proactive monitoring as this helps highlight hazards and allow them to be addressed before they can cause harm. The introduction of SHE observations is a core part of this approach and is well embedded.

Each year, our SHE Committee conducts a comprehensive review and agrees future objectives to help drive our continual improvement.

A positive health and safety culture is vital and human factors have a big influence on how people act. To help us understand this better we have reviewed our strategy and as a result, over the next few years we will be using the Health and Safety Laboratories (HSL) Safety Climate tool.

We also ran our first survey in February 2018 and we had an excellent response from our employees. These have been evaluated and our SHE Culture Group will be developing initiatives to make improvements in key areas highlighted by the survey.

Awareness of mental health issues and their impact on an individual's quality of life and performance at work is gaining much greater recognition. The government commissioned report by Farmer and Stevenson published in October 2017 provided recommendations on standards to be adopted to support good mental health. We already adopt many of them but it is an area where we will be looking to see what more we can do.

Public safety

Providing peace of mind and protecting the public from mining risks is one of our primary objectives. Our comprehensive suite of services including 24/7 emergency response for mining hazards, subsidence claims management, developer permitting, mining reports and planning consultation and advisory reports, ensure we cover all angles.

This year has seen us continue to deliver these effectively and make further strides towards helping those we serve to understand and better manage mining and other geospatial related risks.

Managing mining hazards

Each year we receive over one thousand reports of potential mining hazards and subsidence damage and our teams are committed to quickly identifying the cause and either dealing with or making sure it is dealt with appropriately by others if not a mining related problem.

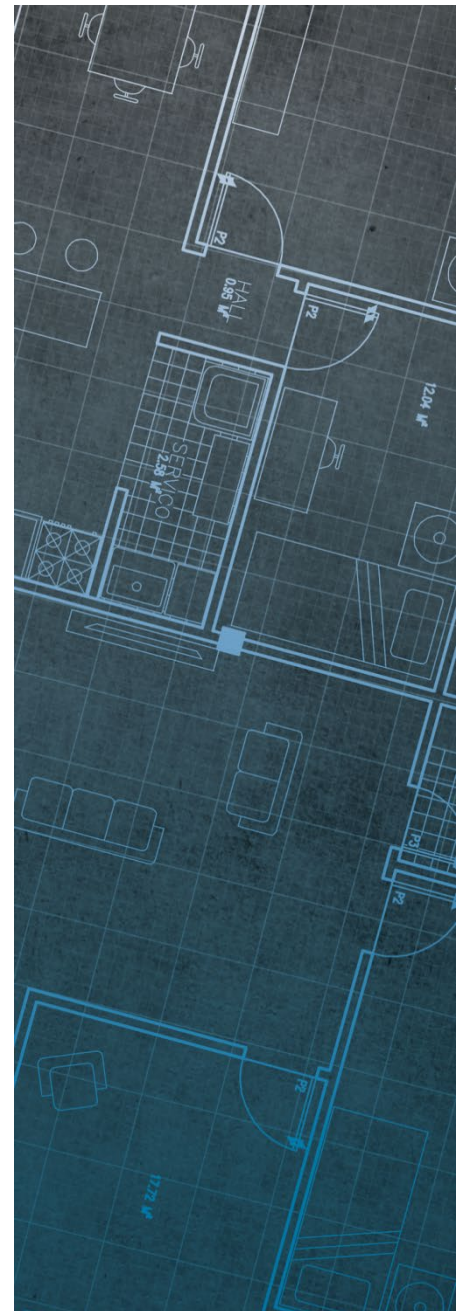
Doing this in a way that meets our customer's satisfaction is our goal and this requires specialist technical expertise alongside excellent engagement and communication.

Providing information and adding value

Alongside the standard mining report used by the conveyancing market, we have continued to look at how we can improve the offering to specialists to enable them to advise their clients and make informed decisions.

After a comprehensive exercise of listening and consulting with our partners and customers, we have developed improved reports for these technical specialists.

The updated consultant's report and Enviro-all-in-one reports were launched this year and offer a considerable step forward in helping to manage mining and other geospatial related risks.



Case study

A chilling discovery

Although much of our work is complex sometimes natural conditions are all you need to identify mining risk. We were called to a school in Wolverhampton during the now famous 'beast from the east' arctic conditions experienced in February 2018, to find a perfect snow-less circle in the playground.

On closer inspection there was evidence of the tarmac beginning to crack around the edges. Investigations subsequently proved that it was in fact a previously filled shaft that was beginning to show signs of instability.

Our team were able to undertake works to make it safe to prevent it from being a safety risk to the school children, teachers and parents.



Case study

Back to school

Two of our team went 'back to school' to make sure repairs to a playground were on the right lines. The original games markings, together with the playground disappeared over a weekend in May 2017 when a seemingly small dip on the surface of the tarmac turned into a ground collapse.

Investigations revealed that the collapse was as a result of an old bell pit and work was completed to stabilise it and fill the surrounding shallow mine workings. Most importantly we were able to reinstate the playground with new and interesting games markings using a specialist contractor.

Alan Hines, our Project Manager said: "It was great to see the playground finished. The markings were designed by both the children and parents and it was really nice to see some of the children helping out. It brought a very good end to an incident that had quite a big impact on the school."



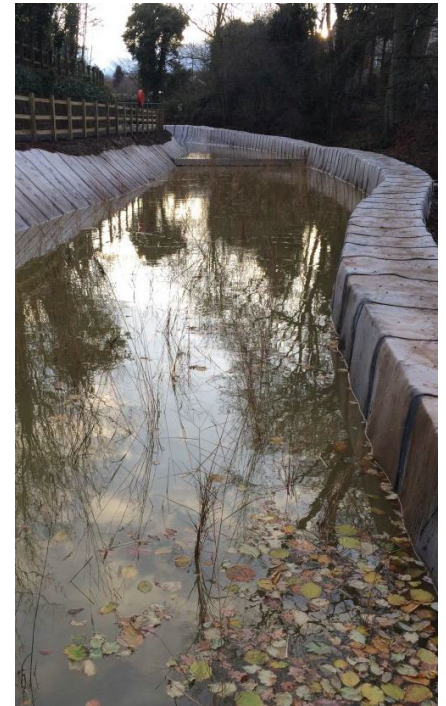


Environment

Managing the environmental impacts of historic mining is our other primary objective. The impact of mine water on water quality and biodiversity is now better understood, as are the social-economic impacts to local communities and the UK as a whole.

Our coal mine water programme is well established and working with the Environment Agency (EA) we continue to develop new schemes to support their river basin catchment management plans. Some of the schemes have been operating for many years and our focus in recent years has moved towards ensuring they remain at optimal efficiency, using the most sustainable solutions and reflecting improvements in techniques.

Our Silkstone scheme, near Barnsley is a good example. We replaced the old plastic liner with a system of concrete canvas to stop surge water from the adjacent Silkstone Beck seeping into the scheme affecting its performance. It is now greatly improved and as it establishes will soon be operating at its optimal performance.



Being sustainable whilst delivering good environmental outcomes is important to how we work. Work carried out at two of our schemes, A Winning and Woodside on the Nottinghamshire/Derbyshire border, is a perfect example of this approach in action.

To proactively manage mine water levels in Nottinghamshire, we actively pump and treat water at these two sites whilst monitoring the results. Recent monitoring indicated that water levels were rising more rapidly than originally anticipated meaning that a new scheme would need to be built to control it.

As this is both expensive and time consuming, our expert team of hydrogeologists identified that the water could be more efficiently controlled by lowering the level of the pumps at both of the schemes.

Doing this will negate a new scheme being required or will extend the period considerably.



Metal mine programme

Like coal mine water, metal mines can cause pollution to our rivers, harm aquatic life and adversely impact tourism, often being located in national parks and areas of outstanding natural beauty.

The Water and Abandoned Metal Mines programme (WAMM) was set up by the Department for Environment, Food & Rural Affairs (Defra) in 2010 to target the most heavily impacted areas and funds measures to mitigate their impacts. Working in partnership with the EA we have continued to support this programme this year.

Mine water pollution sources vary in nature; some arise from clearly identifiable sources whereas others result from numerous less obvious sources, known as diffuse. Diffuse pollution is often associated with rainfall runoff into old metal mine tips and tailings and require a number of smaller interventions rather than a full treatment scheme.

Working in partnership with charitable rivers trusts we are looking at ways to carry drainage or sealing works to prevent surface water from soaking into old spoil tips as well as small scale phytoremediation using vegetation to remove, degrade or contain metal pollutants.

This work benefits local community by improving amenity and water quality and local SMEs are used to complete the work.

Recognition for our work

Saltburn mine water treatment scheme has made a significant contribution to creating a better place for people and wildlife by removing over 100 tonnes of iron a year from a short, coastal river that runs onto one of the most popular surfing beaches on the east coast. This has provided environmental benefits in terms of improved biodiversity and social benefits by improving local amenity.

A great example of collaborative working was receiving the 'Better Place Award' at an Environment Agency ceremony in May 2017. The award was for the team or individual who has gone the extra mile to help create a better place for people and wildlife.

We were also delighted to win the prestigious edie 2018 sustainability award for being a sustainability leader in recycling and resources. The award was for our innovation work in finding ways to generate value from the sale of ochre rather than the material being sent to landfill. This is a great example of how we are contributing to the circular economy. We were also shortlisted for Sustainable Business of the year, demonstrating that our work covers a broad range of sustainability.

Our achievements also extend to being nominated for a national 'Go Award' in the sustainable procurement category.



Focus on innovation

Innovation is a critical part of our strategy to deliver sustainably and this year we have refined our areas of focus and continued to make good progress in all of them. These areas include reducing energy and chemical use and improving process efficiencies, sludge management and reed bed maintenance.

The Chief Scientific advisor from our sponsor department, BEIS, visited us recently and was impressed by our approach to delivering innovation with tangible benefits while also running an R&D programme focussed on the science and creating a pipeline of projects.

Links with multinational companies in energy and materials continue to build and both the EA and Scottish Environment Protection Agency (SEPA) have been complimentary about our innovation initiatives and wish to be involved.

Work this year has included installation of renewables, installing more efficient site security using Perimeter Intruder Detection systems (PID) and recycling large quantities of our reed waste in preference to its disposal.

Our work has not only delivered tangible environmental and social benefits but has resulted in a future annual contribution of over £1 million, reducing our cost to treasury and enabling funding to be redirected positively elsewhere .

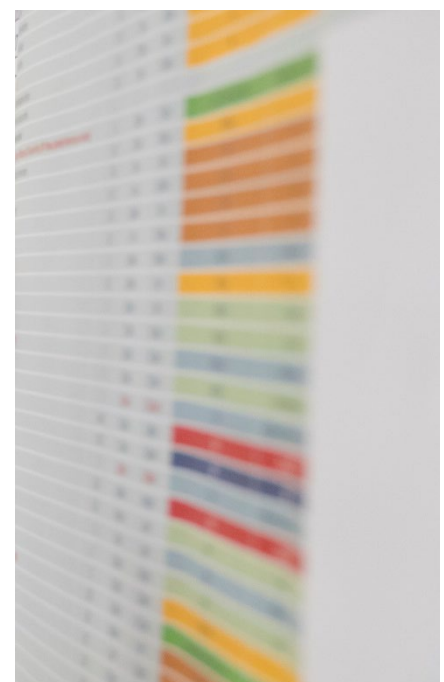
Sharing ideas

We have developed an internal database and communications hub to capture all innovation opportunities and maintain a record of progress. It is open internally and extended to our partners so that everyone can contribute.

The hub functions as an innovation log and a blog to share ideas and follow specific projects. It provides an historical record of past innovation to ensure duplication of effort is avoided and enables us to benefit from previous experience.

Innovative operational activities

Our operation and maintenance partner, Severn Trent Services made great use of the innovation funding incentive we provide to purchase a truxor to improve reed bed management.



Sustainable energy

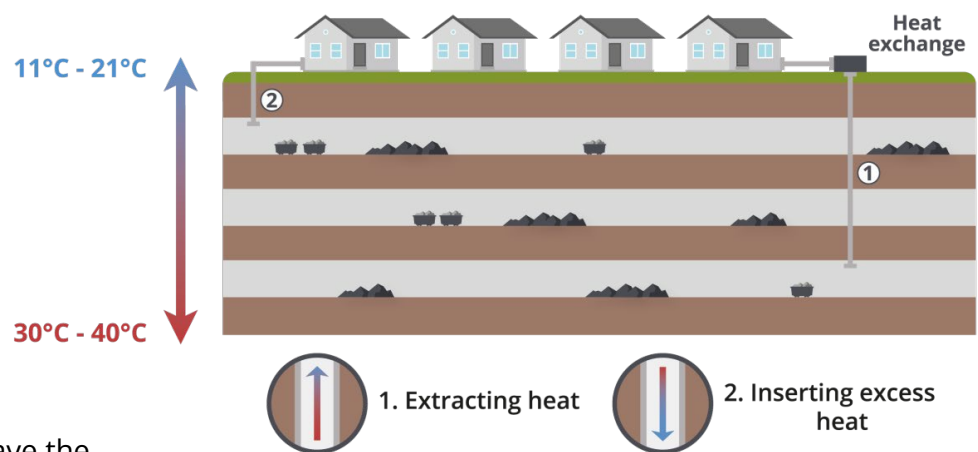
Renewables

Our rolling programme to install roof and ground based solar is progressing well and will continue to run until 2020. So far, we have installed arrays at our Dawdon, Woolley, Old Meadows, Chester South Moor, Deerplay and Taff Merthyr minewater treatment schemes.

By 2019 we will have exceeded 1MW of renewable energy generation capacity, resulting in savings of 150 tonnes of CO₂e.

Heat

Geothermal heat and energy storage in mines has shown potential for it to be of strategic importance to the UK, resulting in a high level of interest from industry, our sponsor department, and wider government and questions have been raised in Parliament.



We have shown that mines have the potential to deliver significant benefits for government in its Energy, Industrial and Clean Growth strategies through building resilience in energy, water, flood and food, creating employment opportunities and improving wellbeing in coalfield communities.

Circular economy

Minewater operations provide significant improvements in water quality, biodiversity and amenity. In addition, they also offer opportunities for producing valuable resources that would ordinarily be considered waste. We have invested considerable effort in realising the value in the ochre sludge and reed bed material generated as part of the treatment process. And this is beginning to realise financial and environmental benefits and is contributing to the circular economy.

Ochre

The unique properties of ochre have been exploited in dealing with arsenic land contamination and we continue to progress the developing of other ochre products for use in phosphate removal for waste water treatment and as a fine art pigment; the latter in partnership with University College London.



Reedbeds

Our schemes have created large areas of reedbed wetland which support biodiversity but their management does generate large volumes of reed bed materials. These have previously been disposed of to landfill due to their contamination with ochre. Landfilling results in land contamination, leachate generation and greenhouse gas emissions and is also expensive.

Working with a number partners and waste treatment operators, our reedbed material is now used for improvement of agricultural land and the production of recycled compost.

This year we have recycled over 3,700 tonnes saving £400,000 whilst mitigating the adverse environmental impacts associated with landfill.



Use of water

We achieved the first sale of mine water from our Lindsay minewater treatment scheme this year. Providing our water for use in various processes, helps reduce the demand on drinkable water supplies, which as a result of climate change and population growth, are likely to become scarcer in the coming years. Whilst modest at present, it demonstrates that there is a demand for it. We have now engaged with water retailers who are interested in helping us to find a use for the 100 million cubic metres of mine water we treat per year.



Improving future Innovation

Next year will see an ambitious programme of innovation trials being undertaken using a combination of our innovation expertise and specialist technical support which should accelerate the rate and number of trials we are able to run.

Following the success of an aeration trial on toring turbines in partnership with the National Coal Mining Museum England at Caphouse mining museum, we are in the process of planning a permanent Mine Water Innovation Development Centre.

Focus of research and development (R&D)

To support innovation and overall strategy, R&D has a pivotal role to play. We have been active in a number of areas and this is continuing to provide the conveyor belt of new ideas and thinking that will be needed to achieve our ambitious business plan.



Locating mine entries and assessing stability

One of the challenges we face in managing public safety is how to locate mine entries below the ground and assess how stable they are and are involved in collaborative research projects to improve our ability to do this.

As part of the EU research fund for coal and steel long-term stability assessment and monitoring of flooded shafts project, we have tested a new ultrasonic profiling tool in a partially flooded mineshaft. As part of the Innovate UK gravity for rivers agriculture and mines project, we are working with partners to explore the feasibility of new sensing technology to detect mining hazards without the need for drilling or trial pits.

These technologies have the potential to improve our understanding of mining hazards, improve our response to them and reduce the costs associated with investigating them.

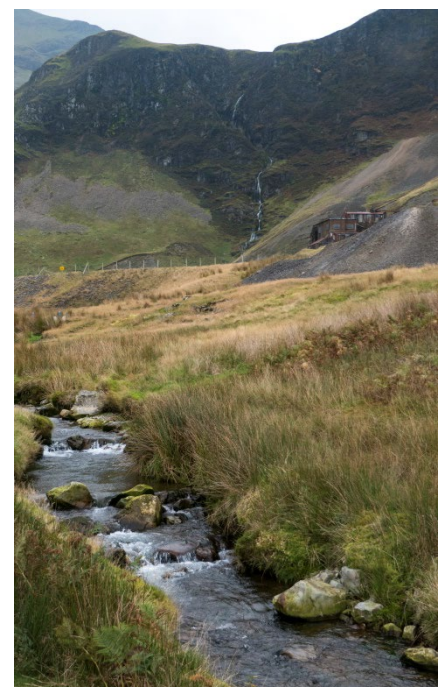
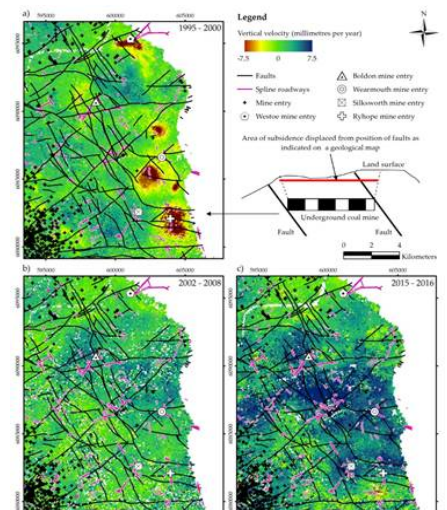
Satellite monitoring of ground movement

We are engaged with a PhD project at the University of Nottingham that is investigating the use of a novel satellite technique called InSAR to monitor ground movement related to mine water recovery. It is hoped that this research will provide a framework that allows us to quantify the rate of recovery from ground movements on the coalfield. This should help us reduce costs by improved targeting of monitoring boreholes.

InSAR image of the Northumbrian Coalfield over 3 different time periods, showing ground movement related to coal mining and subsequent mine water recovery following the cessation of mining activities.

Metal mine water treatment

We are working with the University of Newcastle to investigate the potential to improve the performance of metal mine treatment systems as part of the WAMM programme. The project is investigating ways of reducing the residence time of the compost-based treatment systems such as at the Force Crag scheme in Cumbria. If successful, this work will allow us to reduce the size of treatment schemes or treat more water in the same area, reducing costs, waste volumes and the visual impact of the schemes.



Improved efficiency and reduction on chemical use by design

Means of improving efficiencies of existing schemes and reducing chemical use is under development including the use of computational fluid dynamics to retrofit lagoons with flow booms.

Trials to develop a low energy, low chemical use small footprint treatment solution are underway and these could deliver an international step change in mine water treatment scheme design.

Following the success of our coal innovation programme, Defra are funding a metal mine innovation task and finish project. Because many technologies and applications have synergies between coal and metal mine pollution our expertise will continue to build across a widening range of solutions.

Focus on biodiversity

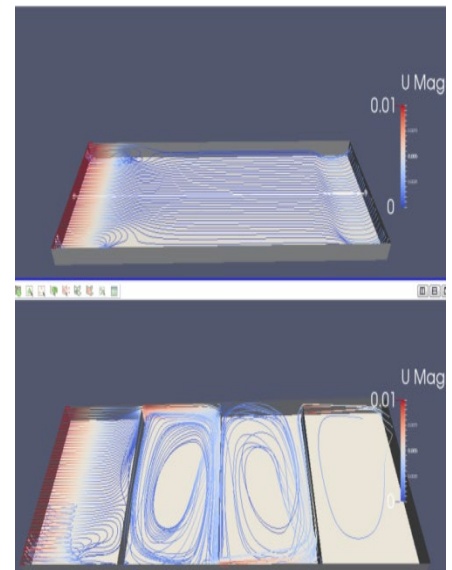
Our mine water treatment sites provide a rich habitat and their creation supports local and national biodiversity action plans, which is supported by research and our own experience.

Impact of our schemes

Biodiversity assessments have been undertaken on a number of our mine water treatment schemes and from these we have developed case studies to show the impact that building them has had overall. The results were very encouraging and show the positive impact.

Earlier in the year, we received the final results of a PhD project undertaken by a University of Nottingham post graduate student to look at biodiversity at constructed and natural wetlands. As part of this research, Biodiversity assessments were undertaken at our Hockery Brook and Taff Merthyr mine water treatment sites looking specifically at mammals, stem dwelling invertebrates and moths to identify the number individuals or species present.

Both sites showed positive results especially for moth diversity, which is a good indicator of the health of an ecosystem. Overall, the research concluded that biodiversity was similar on both natural and constructed wetlands demonstrating the value of our wetlands.





People and economy

Much of the work we do takes place in communities across both urban and rural areas. It is important therefore that we form strong links with the communities in which we work and communicate clearly on what we do and the benefits we believe it will bring.

To ensure a consistent approach, we have developed a stakeholder management process that helps us to identify all stakeholders, evaluate their needs and develop an effective and timely engagement plan. All minewater projects and public safety and subsidence projects now have a stakeholder management plan.

Managing sensitive and complex projects

Our largest ever individual subsidence event, in north Tyneside required 18 properties to be demolished.

By working closely with local residents and engaging widely with the local authority, MPs and others, we were able to minimise the disruption and reach an agreeable solution. A number of public meetings were organised to communicate our plans and the long term strategy for the estate.

The proposed minewater scheme at Nent Haggs is complex and has many active and passionate stakeholder groups but through good partnership working and engaging with all interested parties, we have successfully developed an approach that is broadly acceptable and subsequently submitted the planning application.

Maximising opportunities for SMEs

The vital role of SMEs in the success of the UK economy is well known, accounting for over 60% of private sector employment and a significant proportion of GDP.

Government recognise the importance of them benefiting from government procurement spend and have set a target of 33% either directly or through the supply chain by 2022.

We are delighted to have achieved that target already and continue to work hard to manage our procurements in a way that provides equal opportunity for SMEs.

Our performance



Health and safety

Category	Year	SHE observations			Environmental incidents	SHE inspections	Accidents		
		Unsafe Acts Unsafe conditions	Good practice examples	Significant			No lost time	Lost time	RIDDOR
Staff	2013/14	120	0		2013/14		3	0	1
	2014/15	666	38	318	54	52	12	0	1
	2015/16	767	81				7	0	0
	2016/17	617	60		2014/15		4	0	0
	2017/18	855	109	62	101	200	5	1	1
					2015/16				
Contractors	2013/14	882	0	39	27	254	9	3	1
	2014/15	884	24				4	0	1
	2015/16	463	64		2016/17		4	0	0
	2016/17	1,197	113	32	19	226	5	0	0
	2017/18	1,536	72				3	1	0
					2017/18				
				24	6	215			

Good progress continues to be made since we introduced personal safety responsibilities and SHE observations with the number of significant (those with a high potential for significant harm to occur) observations and near misses continuing to reduce year on year.

There is also a continued increase in reporting by our contractors and examples of good practice.





Environment

Greenhouse gas emissions (GHG)		2013-14	2014-15	2015-16	2016-17	2017-18
Non-financial indicators (tCO2e)	Scope 1	91	107	82	122	94
	Scope 2*	14,277	13,918	15,155	10,458	410
	Scope 3*	43	33	44	49	7,871
	TOTAL	14,411	14,058	15,281	10,629	8,375
	Emissions per FTE (tonnes)	104	87	88	55	36
Financial indicators (£)	CRC gross expenditure	c£205,000	c£219,000	c£245,000	c£233,450	c£151,395

*NB following a review of how we report our emissions, the electricity associated with our minewater schemes, is now included within scope 3 not scope 2

Our efficiencies programme and increase in the amount of renewable energy generation means our overall carbon footprint is continuing to reduce, down by 20% from 2016/17. Most of our direct carbon emissions are associated with electricity use and the continued decarbonisation of the electricity supply network accounts for 15% of the reduction.

Minewater sites	2013-14	2014-15	2015-16	2016-17	2017-18
CO2e (t)	14,735	13,092	14,314	9,886	7,779
Water discharged (MI)*	81	83	107	91	109
Kg CO2e/MI	181	158	134	109	71

[*1000's]

Head office	2013-14	2014-15	2015-16	2016-17	2017-18
CO2e (t)	721	821	841	571	412
Total net area (NIA) (m2)	4,378.5	4,375.5	4,378.5	4,378.5	4,378.5
Kg CO2e/M2	165	188	192	130	95

The carbon intensity of our operations also continues to reduce significantly; by 61% for our minewater operations and 42% at our head offices over 5 year corporate plan period.

Parameter	2013-14	2014-15	2015-16	2016-17	2017-18
tCO ₂ e /1000,000km	19.5	19.1	19.2	18.4	14.2
Miles/FTE	4,197	3,664	3,563	3,420	3,280
% public transport	24%	26%	29%	28%	22%

Lower emission vehicles and continued expansion in the use of video conferencing technology has resulted in a continued reduction in the carbon intensity and amount of business travel undertaken per employee.

Public transport use has reduced mainly due to an increase in work on the metal mine programme, where many sites are remote and geographically diverse meaning they can only be accessed by car.

Parameter	2013-14	2014-15	2015-16	2016-17	2017-18
m ³	963	1,068	1,108	1,282	1,910
FTE	138.99	161.775	173.35	193.34	399.35
m ³ /FTE	6.93	6.6	6.4	6.6	4.8

Water intensity has reduced mainly as a result of an increase in the number of people based on site and the cessation of pool car washing on site. It is now well below the governments good practice benchmark of 6m³/FTE.

Parameter	2013-14	2014-15	2015-16	2016-17	2017-18
Non-recycled	0	0	5	7	25
Recycled	1,040	1,165	670	661	840
Reams/FTE	7.48	7.2	3.89	3.45	3.7

Our paper use has remained static as many of our key initiatives have been completed.

Head office	2013-14	2014-15	2015-16	2016-17	2017-18
General	-	18,920	6,490	10,169	6,900
Recycled	-	12,250	12080	4521	3960
Closed loop	-	4435	10590	8100	8076
TOTAL	-	35605	29160	22790	18936
% reduction from 2014/15	-	N/A	18%	36%	47%
% recycled	-	47	78	55	64

The amount of waste produced at our headquarters continues to reduce and reflects the impact of ceasing on site catering facilities.



People and economy

	2013-14	2014-15	2015-16	2016-17	2017-18
% SME spend	17.4%	14.6%	27.2%	34.2%	35.8%

Our spend with SMEs continues to increase and as we capture more information about indirect spend with them (by our larger contractors), it is expected that this will continue to rise in future years.

The year ahead

Along with our personal objectives we also have a role to play in the government's 25 year plan to improve the environment: A Green Future. This strategy also sits alongside the UK's Industrial Strategy which we will also play a role in.

Our role in the UK's Industrial Strategy:



Ideas
the world's most innovative economy



People
good jobs and greater earning power for all



Infrastructure
a major upgrade to the UK's infrastructure



Business world
the best place to start and grow a business



Places
prosperous communities across the UK

<p>We:</p> <ul style="list-style-type: none"> • innovate • partner with universities and other partners • invest in R&D • value our data and plan to improve it • influence internationally 	<p>We:</p> <ul style="list-style-type: none"> • employ experts in all fields • attract, develop and retain people with skills that enable us to continue to manage the mining legacy 	<p>We:</p> <ul style="list-style-type: none"> • enable safe infrastructure development • give the right guidance to the right people at the right time • will evaluate the clean energy source stored in mine workings 	<p>We:</p> <ul style="list-style-type: none"> • will support economic growth with our geospatial data • underpin the development sector in coal mining areas • have the skills to assist BEIS develop and regulate the heat market and the Clean Growth Strategy 	<p>We:</p> <ul style="list-style-type: none"> • recognise how the legacy of mining affects people and properties • will continue to engage with the right stakeholders to ensure mining risks are addressed • operate in communities across the UK
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Our role in A Green Future:



Clean an plentiful water

Engage with the natural environment

Reduce the environmental hazards

Use natures resources more sustainably

Minimise and manage our waste materials

<p>We:</p> <ul style="list-style-type: none"> • prevent and remediate water pollution from coal and metal mines enabling a compensatory water supply for abstraction 	<p>We:</p> <ul style="list-style-type: none"> • operate wetlands which are rich environmental habitats • plan where possible to open these up to public access 	<p>We:</p> <ul style="list-style-type: none"> • will invest in environmental data collection so our stakeholders can better manage development, flood protection and drought in areas affected by mining 	<p>We:</p> <ul style="list-style-type: none"> • will continue with our energy efficiency and solar programme • will work with BEIS to realise the benefits of heat in mine workings 	<p>We:</p> <ul style="list-style-type: none"> • will continue to innovate with partners so our by-products are reused and not treated as waste product
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Safety, health and environment (SHE)

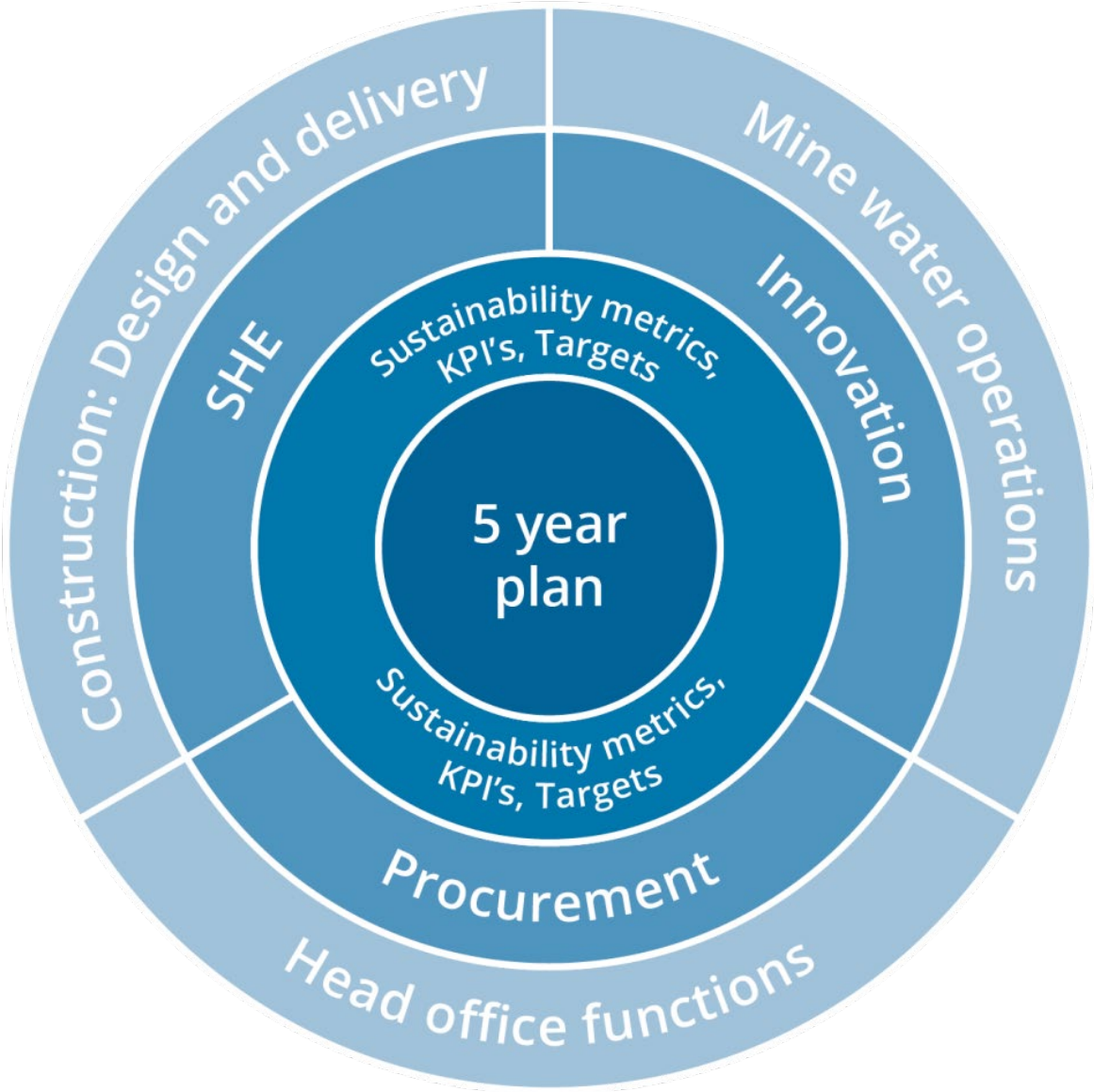
The nature of what we do and the size of the organisation has increased in recent years and to ensure we keep pace with this expansion and continue to effectively manage the risks and take advantage of the opportunities we have, our focus for the next 12 months is:

- to develop our systems to ensure that everyone has been trained on the SHE responsibilities for their role and the procedures that they should follow
- to further develop protocols and expand our engagement with SME to support them in delivering to the SHE standards we require, recognising in addition to our legal duty, the wider moral and economic benefits of doing so
- continuing to implement a mental health strategy that meets the core and enhanced standards outlined in the government commissioned Framer and Stevenson report so that we can help ensure all our employees thrive at work
- further develop our operational environmental standards to reflect the changing nature of our work

Sustainability

We have reviewed progress with our sustainability Framework and have developed a 5 year strategy to support sustainable delivery of our business plan for 2018/19 – 2023/24.

Excellent progress has been made in the last 5 years but in order to measure our performance against best practice, we firstly need to obtain the data and then use it to benchmark ourselves with a view to setting future improvement target.



Our strategic aims are that by 2023 we will have:

- baselined, set targets and made good progress in improving the sustainability of our construction and mine water operation and maintenance activities
- demonstrably improved the sustainability at our head office
- continued to embed sustainability into our supply chain by transitioning from level 2 of the Defra flexible framework for sustainable procurement¹ to proportionate implementation of the ISO 204002, including the development and use of whole life carbon accounting
- communicated effectively the improvements in biodiversity that our mine water programme delivers

For each of the 3 activity areas of construction, mine water operations and maintenance and head office, a series of high level strategy aims have been developed:

<p>Construction:</p>	<ul style="list-style-type: none"> • short term: 95% of data for all agreed sustainability KPIs is being collated by the end of financial year 2018/19 on construction projects that meet the criteria defined in the Project SHE appraisal/CDM Notification* • medium term: establish baseline for each KPI and assess whether the industry targets are a realistic benchmark, by the end of the 2021/22 financial year • long term: establish targets for each KPI according to the data collection and benchmarking process, by the end of the 2022/23 financial year
<p>Minewater operation and maintenance:</p>	<ul style="list-style-type: none"> • short term: baseline 2017/2018 direct carbon per mega litre of water discharged data, by the end of the 2018/19 financial year and continue data collection for each remaining KPI • medium term: establish baseline for each remaining KPI* and assess whether the industry targets are a realistic benchmark, by the end of the 2020/21 financial year • long term: establish targets for each KPI according to the data collection and benchmarking process, by the end of the 2021/22 financial year
<p>Head office:</p>	<ul style="list-style-type: none"> • short term (climate change only): collate existing data to define a baseline for 2017/18 financial year for carbon intensity, including energy, water and waste, and define a target to be in place by the end of the 2018/19 financial year • medium term: continue monitoring and progress against climate change, water and waste targets through the 2021/22 financial year • long term: achieve the climate change, water and waste targets by the end of the 2022/23 financial year, progress against this target to be reported annually

