

# Building a brighter future



**The CARES Sustainable Constructional Steel Scheme  
Sector Report 2012/2013**



# Contents

01	Executive Statement
02	CARES enabling sustainable procurement for construction
04	Sustainable Steel: What is it? Why is it needed?
05	How the Scheme Works
07	Material Sustainability issues
08	Environmental performance
12	Social performance
14	Economic performance
15	Further information
16	Glossary
17	CARES SCS Scheme Approved Firms

# About this report

Welcome to the CARES Sustainable Constructional Steels (SCS) Scheme Sector Report for 2012/13.

Covering the calendar year 2012, this is our second annual sustainability report. The report aims to provide an update on the performance of the sector in the past year, and to provide information that demonstrates the commitment of CARES to understanding and managing the role that constructional steel can play to reduce risks and to promote sustainability opportunities within the construction sector.

The report is focused on the operation and performance of the CARES scheme, and does not look directly at the operations of CARES the organisation, nor at other certification schemes that CARES provides.

We have used the content and quality of information principles of the Global Reporting Initiative (GRI) to inform the report development. Since this is a sector certification scheme report, there is some deviation from GRI requirements.

2011 formed our baseline year for various environmental, social and economic metrics outlined within the report. In this report we provide an update of the Scheme's performance against these metrics, and our targets set for 2015.

We welcome your comments and feedback on this report, and your expectations of how the constructional steel sector can contribute to a sustainable future.

## Who are CARES?

CARES is an independent, not-for-profit certification body, established in 1983 to provide confidence to the users, purchasers and specifiers of constructional steels through regulation, testing and inspection. For the benefit of the construction industry CARES offers certification schemes for companies that produce materials and components or offer services, primarily to the reinforced concrete industry. Customers who specify CARES approved companies and products have confidence that they comply with the relevant standards without any need for further verification.

The Policy Advisory Committee (PAC), the strategy and policy making body of CARES comprises the following Members:

Specifier	Contractor	User
<ul style="list-style-type: none"> <li>Association of Consultancy and Engineering</li> <li>Institution of Structural Engineers</li> <li>The Highways Agency</li> </ul>	<ul style="list-style-type: none"> <li>UK Contractors Group</li> <li>Civil Engineering Contractors Association</li> </ul>	<ul style="list-style-type: none"> <li>CONSTRUCT</li> <li>Heathrow Airport Holdings Ltd.</li> <li>Southern Water Services Ltd.</li> </ul>
Manufacturer (Producer)	Manufacturer (Processing)	UK CARES
<ul style="list-style-type: none"> <li>UK Steel Association</li> <li>Hot Rolled Long Products Group</li> <li>Post Tensioning Association</li> </ul>	<ul style="list-style-type: none"> <li>British Association for Reinforcement</li> </ul>	<ul style="list-style-type: none"> <li>Independent Chairman</li> <li>Executive Officers of UK CARES</li> </ul>

For locations of CARES approved organisations, please refer to our website: [http://ukcares.com/pages/approved\\_map.html](http://ukcares.com/pages/approved_map.html)



# Executive statement

CARES is clearly committed to the principles of sustainable development, and the CARES Sustainable Constructional Steel (SCS) Scheme turns this commitment into action. The CARES Scheme is unique and it is the first construction sector scheme to be accredited by UKAS to BS 8902.

Accurate, accessible and timely information on the environmental and social impacts of different materials is increasingly important to designers, contractors and buyers in their efforts to satisfy green building rating systems. A building achieves credits if such a system is in place. The environmental attributes and the responsible sourcing of structural materials attract the credits. The aim is to encourage the use and the specification of such materials.

Those who evaluate and certify such information must be able to demonstrate competence, impartiality and integrity. Therefore we believe strongly that independent accreditation by UKAS is vital to a certification body. Indeed, the conformity assessment policy of the Department for Business Innovation & Skills recommends "the use of UKAS accredited conformity assessment services whenever this is an option".

Our vision is to increase the international recognition of our SCS Scheme and to achieve the highest level of professionalism in the provision of third party certification services. We aim to maximise the value of the CARES Scheme to all CARES approved firms, and others, in this fast-changing area.

So, this report gives a snapshot of progress on the journey to a more sustainable value chain for constructional steel products; I encourage you to read it.

Why take the risk? Specify CARES.



**Professor Les Clark OBE**

Chairman of the Board of Management of CARES

"Crossrail has engaged with CARES over the past two years to help ensure that our tier-one contractors have more options to obtain certified sustainable constructional steel. We are therefore delighted that the CARES Scheme is accredited by UKAS to BS 8902. This is good for Crossrail and good for the industry. The firms in the CARES approved supply chain have delivered thousands of tonnes of constructional steel to the project to date."

Mike de Silva, Crossrail Sustainability Manager

## What is the CARES Sustainable Constructional Steel (SCS) Scheme?

The Scheme has been specifically developed for the constructional steel supply chain using the most relevant performance indicators. It enables approved firms in the CARES approved supply chain to declare product and organisational sustainability performance.

Accredited by the UK Accreditation Service (UKAS), the CARES SCS Scheme **quantifies the environmental and social impact of the constructional steel supply chain**. The scheme complies with BS 8902: 2009 *Responsible sourcing sector certification schemes for construction products*<sup>1</sup>. This standard provides a framework for the responsible management, development, content and operation of sector certification schemes for supply of construction products.

Using products from CARES SCS approved firms enables the industry to demonstrate the responsible sourcing of construction products and its commitment to sustainable development. Reinforcing steel products produced by CARES approved firms are fully traceable and uniquely identifiable, allowing a chain of custody throughout the whole supply chain, from mill to site. This unbroken chain provides an assurance that sustainability is being pursued in their supply chain so allowing the end user to know the source and manufacturing processes used as well as the post-industrial use, recovery and recycling processes.



**Independent, impartial and trusted**

<sup>1</sup> This standard is available from: <http://shop.bsigroup.com/ProductDetail/?id=00000000030191223>

# CARES SCS enabling sustainable procurement for construction

CARES is setting the standard in constructional steel certification, helping to meet the needs of the construction industry in the UK and internationally. Local steel end users increasingly want to know that product sourcing and manufacturing are done responsibly. The CARES approved supply chain provides full product traceability: an unbroken chain from hot metal during production to steel delivery on site.

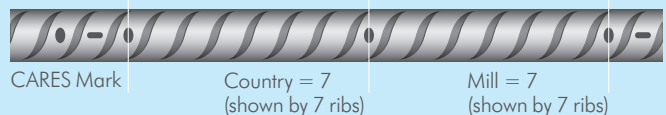
We outline here the key features and benefits of the CARES Scheme. Further details and endorsements are available on the CARES website; [www.ukcares.com](http://www.ukcares.com).

- |          |  |   |
|----------|--|---|
| <b>1</b> | <b>UKAS Accreditation – Unique recognition</b> | Ours is <i>still</i> the only sustainability scheme accredited by the UK Accreditation Service (UKAS), recommended by BIS as the preferred option for conformity assessment activities. |
| <b>2</b> | <b>Achieving green building credits</b>        | The Firms in the CARES approved supply chain enable projects to achieve credits in BREEAM and other green building rating systems.  |
| <b>3</b> | <b>Full product traceability</b>               | Constructional steel products produced by CARES approved firms are fully traceable throughout the entire supply chain, from mill to site delivery. See opposite.                        |
| <b>4</b> | <b>Confident in carbon data</b>                | Independently validated carbon footprint data and an advanced Lifecycle assessment (LCA) calculator in accordance with EN 15804.  |
| <b>5</b> | <b>Applying ISO 9001 and ISO 14001</b>         | Our Scheme ensures that approved firms operate certified management systems. Provide product certification to BS 4449, BS 6744, BS 4482, BS 4483 and BS 8666.                           |
| <b>6</b> | <b>International reach</b>                     | Providing certification in over 40 countries, more than any other, our SCS Scheme is recognised by assessment methods and certifying bodies used throughout the world.                  |

## CARES SCS product markings

Traceability starts with a 'cast number', representing about 100t of steel, when scrap steel is melted in the furnace. Tracked by the cast number, molten steel is cast, rolled, and then delivered to the fabricator. During cutting or bending the cast number is accompanied by a 'bar schedule reference' and 'bar mark' before delivery and use. Finally, batches of product carry the labels shown opposite.

### Product Marking:



### Product Labelling:



## 1 UKAS Accreditation - Unique recognition

CARES is the only constructional steel scheme that is accredited by UKAS to the rigorous requirements of BS 8902: 2009 - Responsible sourcing sector certification schemes for construction products. So, put simply, if you ignore CARES you may risk not achieving your sustainability goals.

### Who are UKAS?

In the eyes of the UK government, the UK Accreditation Service (UKAS) is the only national accreditation body that can assess organisations that provide certification, testing, inspection and calibration services. UKAS is independent of Government but is appointed as the national accreditation body by Accreditation Regulations 2009 (SI No 3155/2009) and the EU Regulation (EC) 765/2008 and operates under a Memorandum of Understanding with the government through the Secretary of State for Business, Innovation and Skills (BIS). It is BIS policy to recommend the use of UKAS accredited conformity assessment services whenever this is an option ([www.ukas.com](http://www.ukas.com)).

Accreditation by UKAS means that certification bodies have been assessed against internationally recognised standards to demonstrate their competence, impartiality and performance capability.

## 2 Achieving green building credits

In the UK, BREEAM is the most prominent green building rating system. Firms in the CARES approved supply chain are able to provide the evidence to achieve the maximum number of credits against section MAT 03 ('responsible sourcing of materials') in the BREEAM 2011 green building rating system. In addition, CEEQUAL is used in the UK for civil engineering projects and its users can achieve maximum credits by procuring from the CARES approved supply chain.

A number of environmental assessment methods of buildings are used throughout the world, which have provisions within them that favour the demonstrable use of sustainable construction materials and practices. The following are a selection of those widely used internationally:

- LEED (USA)
- ESTIDAMA (UAE)
- GSAS (Qatar).

## 3 Full product traceability

Key metric	2011	2012	2015
Percentage of reinforcing steel products supplied where each batch is traceable (chain of custody) through CARES	100%	100%	Maintain 100%

The supply chain for constructional steel is complex, and global. You want to be confident of the provenance of your steel, so it is vital that suppliers are independently verified. As a result, steel of unknown origin, properties or performance is avoided. Constructional steel products made by CARES approved firms are fully traceable, from scrap to delivery. When manufacturing constructional steels, CARES approved firms uniquely mark the product (see box - CARES SCS product markings). Providing full product traceability saves money – it makes the site manager's job of checking provenance much easier and it allows the use of the product without the need for further testing.

## 4 Confident in carbon data

Data describing the Global Warming Potential (GWP) of a product can vary significantly depending on who prepares the data, what assumptions are made, what methods are used and where organizational boundaries are drawn.

The CARES Environmental Product Declaration (EPD) and Carbon footprint tools were developed in partnership with industry and with PE International. They provide a consistent basis to calculate the carbon footprints and the GWP associated with the production of constructional steel products from "cradle-to-grave". The EPD tool complies with the EN 15804 standard.

## 5 Applying ISO 9001 and ISO 14001

Our Scheme also ensures that approved firms operate effective management systems to demonstrate legal compliance. ISO's management system standards, 9001 and 14001, provide assurance to end-users that they have robust systems in place ready for CARES to audit. Our objective is to verify that such systems are being operated effectively.

## 6 International reach

CARES operates internationally, providing certification in over 40 countries worldwide. In the UK, CARES product certification is a requirement in major construction specifications such as for Highway Works, County Councils, the National Building Specification and the National Structural Concrete specification. We endeavour to ensure that our certification is required by firms operating in the constructional steel supply chains in the UK and internationally.

# Sustainable Steel: What is it? Why is it needed?

Whilst the products and services rendered for society and industry worldwide are a huge contribution, the global construction sector, the built environment and their supply chains are nonetheless responsible for significant negative impacts.

The sector accounts for:

- 40% of all workplace fatalities
- The highest occurrence of labour practice issues
- Poor gender diversity: few female employees
- 30-50% of waste to landfill
- 30-50% of mineral resource extraction
- 40-50% of all energy use (50-70% of electricity use)
- 40% of man-made CO<sub>2</sub> emissions

The steel sector and the reinforcing bar industry within it are part of the construction industry supply chain, contributing a fraction of these impacts. Sustainable steel supply will be achieved when net positive impacts are achieved in the areas listed above. Customers are expecting, and increasingly contractually obliging, in all parts of their 'value chain' improvements in performance. There are significant costs associated with these issues and there it is accepted that contractors and building owners cannot deliver the improvement alone.

Regulation varies globally. An example in the UK is the Climate Change Act 2008. The main provisions of the Act are legally binding targets, a carbon budgeting system and company level reporting of greenhouse gas emissions. Also, industry/government initiatives, such as the UK Strategy for Sustainable Construction, aim to promote change and deliver benefits to the construction industry and the wider economy. Such partnership approaches are vital to the delivery of sustainable patterns of policy-making and economic growth. Indeed a number of environmental assessment methods for buildings are used globally, and they require sustainable construction materials and practices; CARES connects with them to help achieve this.

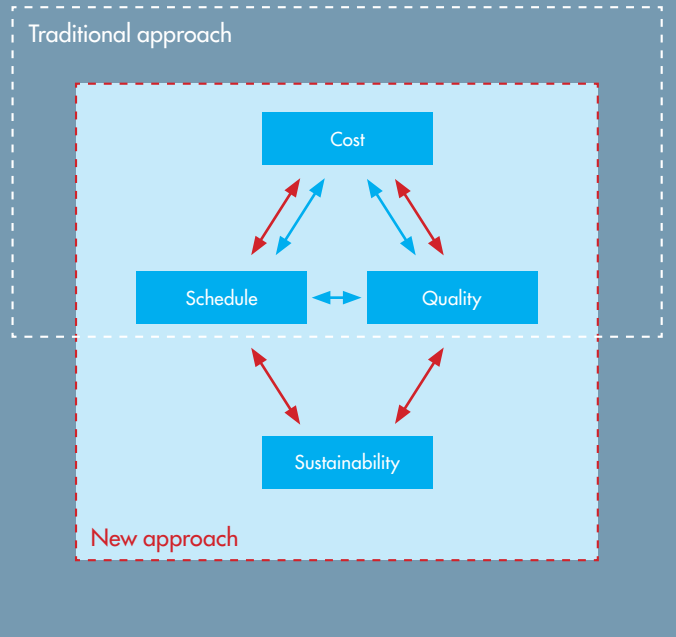
Resource scarcity and the importance of supply chain security are growing. So process efficiency is being promoted through the use of clean technology, smart design and leaner management techniques. Sustainability is embedding in the way construction works (see box).

And with more extensive social connectivity and awareness, people and communities place certain expectations on industry and government to reduce negative environmental and socio-economic impacts. Examples include unfair labour conditions, corruption, human rights, and nuisance.

CARES is not only driven by a need to reduce the negatives. We also recognise the opportunities from product differentiation, competitive advantage, safety and higher workforce welfare and a cohesive approach to sustainable construction.

The implications of this changing approach to decision-making in construction procurement are that the supply chain must be able to clearly demonstrate it is managing these issues to improve sustainability performance. The CARES SCS scheme is formally set up to do this through its scope, objectives, principles and the way it operates.

## Enter the fourth dimension: construction decision models



"CARES have a proven track record of assuring the quality of the product delivered via the CARES approved constructional steel supply chain; Masdar City contractors have used steel from CARES approved sources. We are now working to develop further the CARES SCS scheme, notably on determining the carbon footprint."

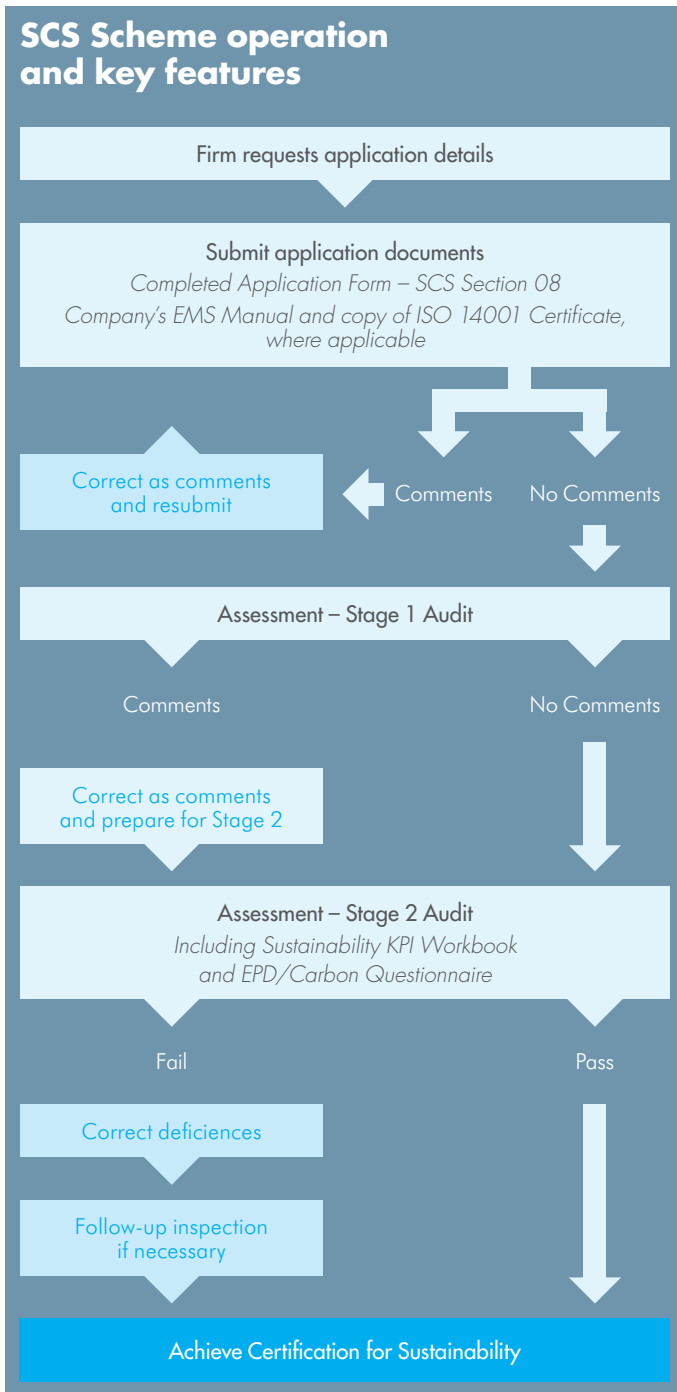
Richard Reynolds, Manager – Supply Chain Consultancy, Masdar City

# How the Scheme Works

To achieve CARES sustainability certification, a company's product, quality and environmental management systems are assessed.

Applicants submit an application and undergo a rigorous, two-stage audit process (see box - SCS Scheme operation and key features).

The CARES SCS scope, objectives, principles and the way it operates are presented here.



## Evaluation and Reporting against the Principles

Each year, approved producers are required to submit reports on their performance against the indicators agreed for the Scheme. The reports are used by CARES in subsequent audits. In total CARES tracks over 60 indicators of performance; selected key performance indicators are disclosed in this report. Procedures and systems exist to allow data collected to be audited. Over time CARES expects to see evidence of a transition to a more mature and effective approach to the issues by an approved producer.

By adopting the BS 8902 framework, CARES and constructional steel industry stakeholders have developed a workable approach to the identification, collection, auditing and reporting of sustainable performance data.

## Assuring Compliance

Sustainability considerations and requirements are increasingly built into legislation. The responsibility for compliance with regulations and standards rests absolutely with the approved firm. CARES assessments and on-going audits provide assurance that these requirements continue to be met.

## The scope of the Scheme

The scheme is open to producers and processors (or fabricators) of steel bars and coils for the reinforcement of concrete who meet the scheme's requirements. Applicants must already possess a valid CARES product certification certificate or product certification acceptable to CARES and an ISO 14001 Environmental Management System certificate from CARES or an accredited certification body acceptable to CARES.

## Scheme policy

As required by BS 8902, we are required to publish the CARES Scheme policy, objectives and principles.

CARES is committed to the principles of sustainable development, including inclusivity, integrity and transparency, and shall actively promote those principles through the effective implementation of the CARES sustainable constructional steel scheme which is UKAS accredited to BS 8902. Through active and frequent stakeholder engagement the Scheme has been specifically developed for the constructional steel supply chain. It uses the most relevant performance indicators which shall be publicly reported at least annually. There shall be a full re-appraisal at least every two years in consultation with stakeholders to assess the level of performance by the Scheme against the sustainable development principles. CARES shall ensure that the Scheme steadily improves this level of performance through periodic review of the sustainability principles, responsible sourcing issues, objectives, targets and operational assessment schedules. The overall intent of this is that accredited certification of the constructional steel supply chain will deliver an improvement in sustainable development. CARES will endeavour to promote the fulfillment of this intent nationally and internationally.

# How the Scheme Works continued

## CARES Sustainable Constructional Steel Scheme Principles

- i Inclusivity, integrity, stewardship and transparency. These shall be reflected in practice by characteristics/criteria appropriate to the constructional steel supply chain. These will be measured at the product and organization level and will develop in line with different stages of the Scheme's maturity with regard to sustainable development
- ii The Scheme is concerned with ensuring that approved firms operate to the highest quality, environmental and health and safety standards necessary to satisfy end users by attaining and maintaining quality, environmental and health and safety management systems to ISO 9001, 14001 and 18001 respectively
- iii The responsibility for compliance with legal requirements and standards rests absolutely with the Firm
- iv The means of ensuring consistent compliance with the policies are the formal management systems which the firm must operate and implement to the satisfaction of the Authority and which are subject to assessment by the Authority at periodic intervals
- v Development of products that improve the quality and sustainability of the built environment
- vi Effective management of all waste streams and minimization of waste disposed to landfill
- vii Measurement, reporting and improvement of performance on sustainability issues
- viii Minimization of pollution and emissions associated with production and transportation
- ix Protection and enhancement of the natural environment adjacent to or affected by constructional steel production
- x More efficient use of energy and reduction in 'global warming potential/carbon footprint'
- xi More efficient use of primary materials and promotion of the recyclability of constructional steel products
- xii More efficient water use and minimization of demand on mains water supplies
- xiii Respect internationally recognised norms concerning workers conditions and rights.

An approved firm shall annually assess its level of performance against the sustainability principles using a maturity matrix.



## CARES Sustainable Constructional Steel Scheme objectives

- i. To provide a means by which construction clients can be assured that approved firms have produced and processed the product in line with the sustainability principles
- ii. Provides a means by which approved firms in the constructional steel supply chain are able to declare product and organisational level sustainability performance
- iii. To undertake a review, at least biennially, to ensure continuous improvement of the constructional steel supply chain against the relevant issues and continuous improvement against the sustainability principles
- iv. To undertake regular and relevant public reporting, at least annually, to ensure continual improvement of the constructional steel supply chain against the relevant issues and sustainability principles
- v. To facilitate sustainable procurement in accordance with BS 8903: 2010 Principles and framework for procuring sustainably – Guide.

"When we worked on the sustainability clauses for the National Structural Concrete Specification we were impressed by the enthusiasm of the construction industry to take on responsible sourcing. Sector schemes were needed to make this desire a reality and the CARES scheme meets this need. It is impressive in its breadth and detail and shows that responsible sourcing can be objectively practiced and demonstrated internationally. We are pleased the scheme will also fill gaps in data by the inclusion of carbon footprinting. This will help us as designers."

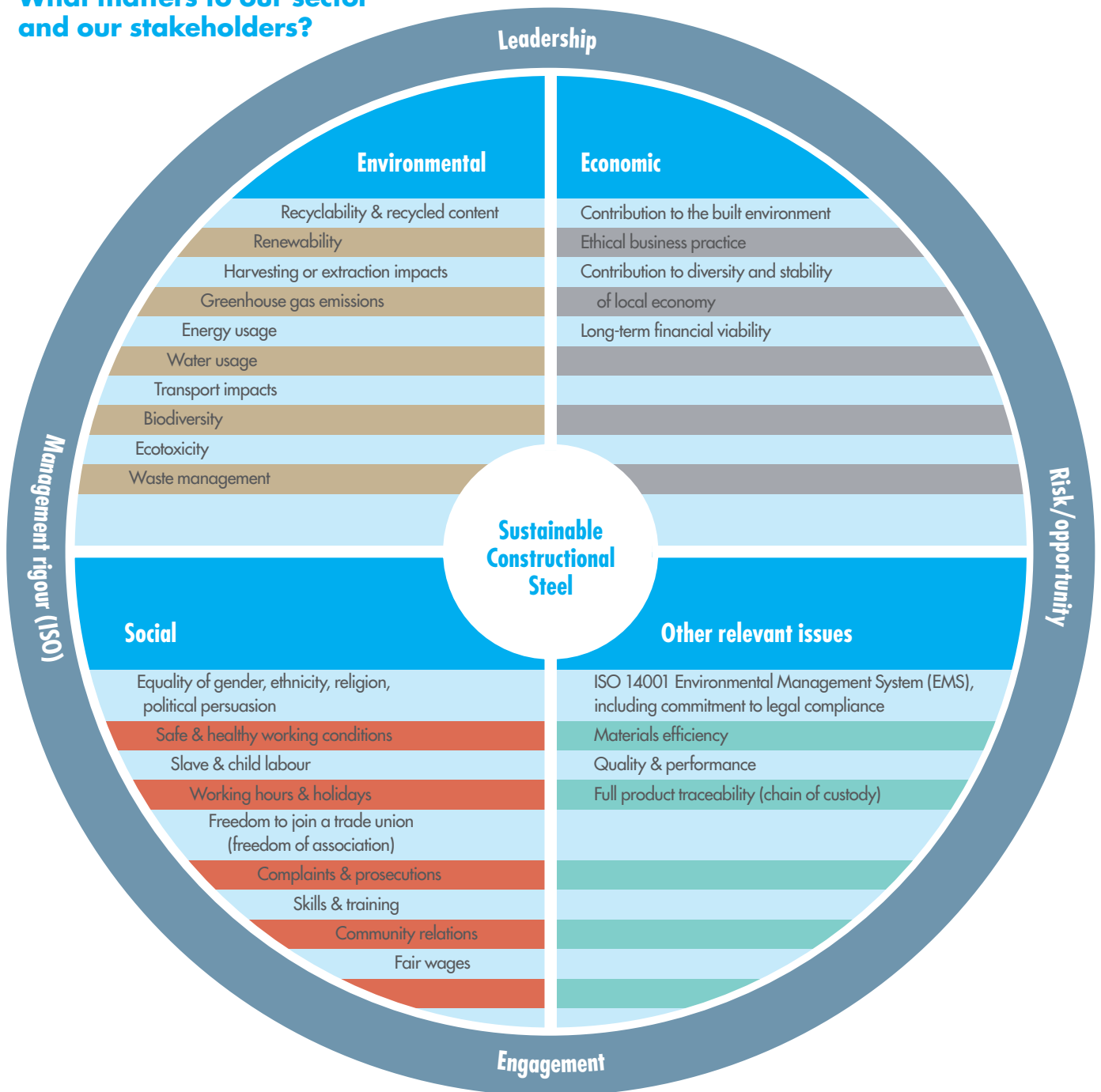
Sarah Kaethner, Structural Associate Director, Arup





# Material Sustainability Issues

## What matters to our sector and our stakeholders?



## Assessing materiality: what issues are important to our stakeholders?

CARES conducted a formal issues review and materiality process which listed the range of issues that are important to our stakeholders.

The issues were prioritised based on a number of factors including significance to key stakeholders, maturity of formal management systems, capability of existing systems and training programmes to manage the issues, and overall relevance to the constructional steel supply chain.

These issues must be covered in both the *schedule* content and in *performance reporting* of the CARES SCS Scheme. The structure of the Scheme schedule and this Report are guided by the materiality process. The graphic on this page summarises the key issues. The basis of the table is the requirements of BS 8902 and the Ethical Trading Initiative (ETI) Base Code. Currently, three issues are not a schedule requirement of the Scheme: *Renewability*, *Harvesting and extraction impacts* and *Land remediation*. Their inclusion is subject to review in due course.

# Environmental Performance

## Environmental Management

Key metric	2011	2012	2015
Percentage employees employed at ISO 14001 certificated or equivalent sites, of total employees of steel producer	96%	100%	100%

Effective environmental management is the cornerstone of the SCS Scheme, and ISO 14001 certification is a recognised benchmark worldwide. There are various ways a company might address the environmental consequences of its operations. The CARES Scheme requires approved companies to maintain a system certified to the Environmental Management Systems international standard ISO 14001.

A well-conceived environmental management system (EMS) can help a company reduce wastes and operating costs, achieve some competitive advantage in the market place, show continual improvement, engage employees, demonstrate compliance and improve the public image.

### How the CARES SCS Scheme promotes EMS

The CARES SCS Scheme encourages the uptake of the ISO 14001 standard. Our auditors evaluate the status of the EMS to ensure it is working effectively.

The CARES SCS Scheme requires approved suppliers to provide a breakdown of the sources of their raw materials (eg, iron ore, steel scrap, and others). They arise from different sources upstream. The Scheme provides traceability to the source. A significant number of source sites are ISO 14001 and ISO 9001 certificated, and operate health and safety management systems.

## Energy Efficiency and Greenhouse Gas Emissions

Key metric	2011	2012	2015
Greenhouse gas emissions relating to direct, indirect and avoided scrap burden <sup>1</sup> . (Tonnes CO <sub>2</sub> e per tonne of carbon steel bar produced, based on Electric Arc Furnace (EAF) route which uses recycled steel).	1.1	N/A	Reduce by 2.5%
Global Warming Potential relating to direct, indirect and avoided scrap burden <sup>1</sup> (Tonnes CO <sub>2</sub> e per tonne of carbon steel bar produced, based on Electric Arc Furnace (EAF) route which uses recycled steel)	N/A	1.3	Reduce by 2.5%

Improving energy efficiency and reducing greenhouse gas (GHG) emissions in the constructional steel sector is a key objective for our Scheme.

<sup>1</sup> Scrap Burdens - the world steel industry follows the 'substitution/avoided burden' approach to recycling at end-of-life, and assigns environmental impacts to ferrous scrap. Consuming scrap

### How the CARES SCS Scheme promotes energy efficiency

The CARES SCS Scheme provides a means for producers to measure and improve their energy and GHG emissions performance, and to inform users of the embodied energy and GHG emissions for any approved steel that they purchase. CARES strongly encourages companies to publically disclose the product carbon footprint of their constructional steel.

The CARES Scheme also assesses company data relating to transport efficiency. Whilst there are other environmental impacts from transport the SCS Scheme focuses on GHG emissions. All approved suppliers provide complete transport data. This includes the mode of transport, average distances travelled by those products, supplier locations and tonnages hauled.

## Bespoke Carbon Footprint and EPD tool for CARES approved companies

Data describing the Global Warming Potential (GWP) of a product can vary significantly depending on who prepares the data, what assumptions are made, what methods are used and where organizational boundaries are drawn.

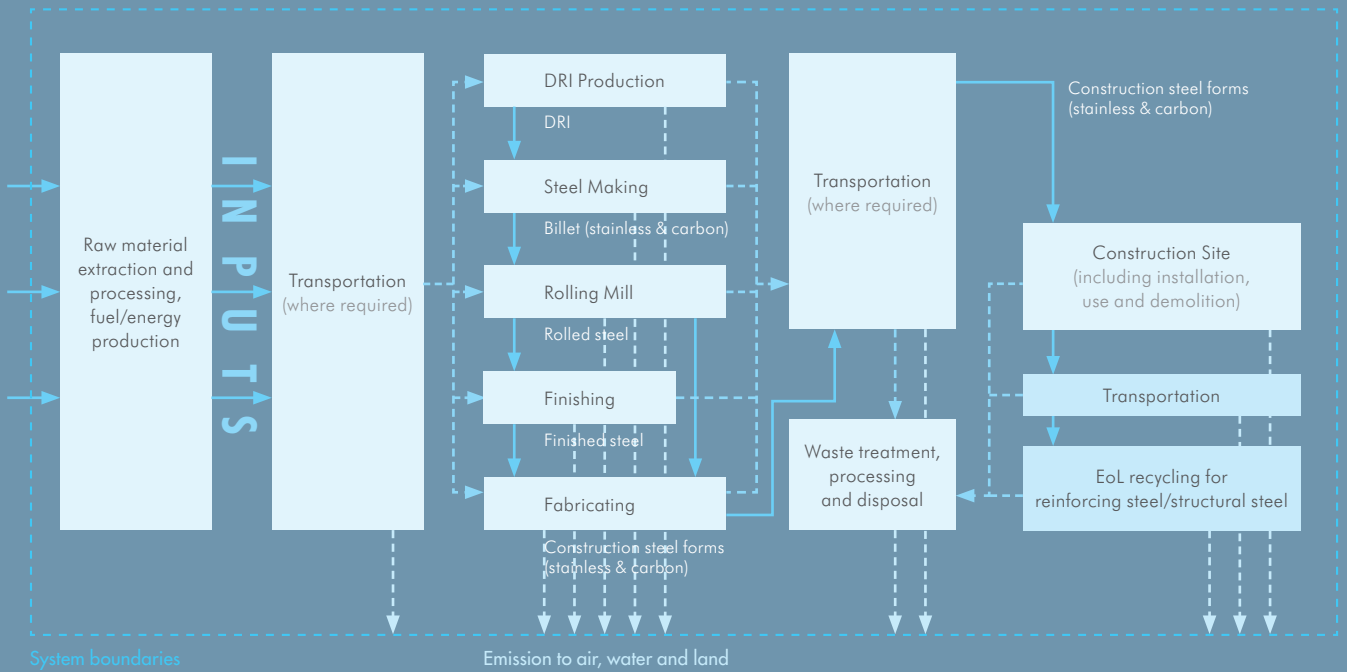
The CARES Environmental Product Declaration and Carbon footprint tools were developed in partnership with industry and with PE International, experts in lifecycle assessment (LCA). So our approach provides a consistent basis to assess the GWP associated with the production of constructional steel products from "cradle-to-grave".

The CARES Scheme also assesses company data relating to transport efficiency. Whilst there are other environmental impacts from transport the SCS Scheme focuses on GHG emissions. All approved suppliers provide complete transport data. This includes the mode of transport, average distances travelled by those products, supplier locations and tonnages hauled.



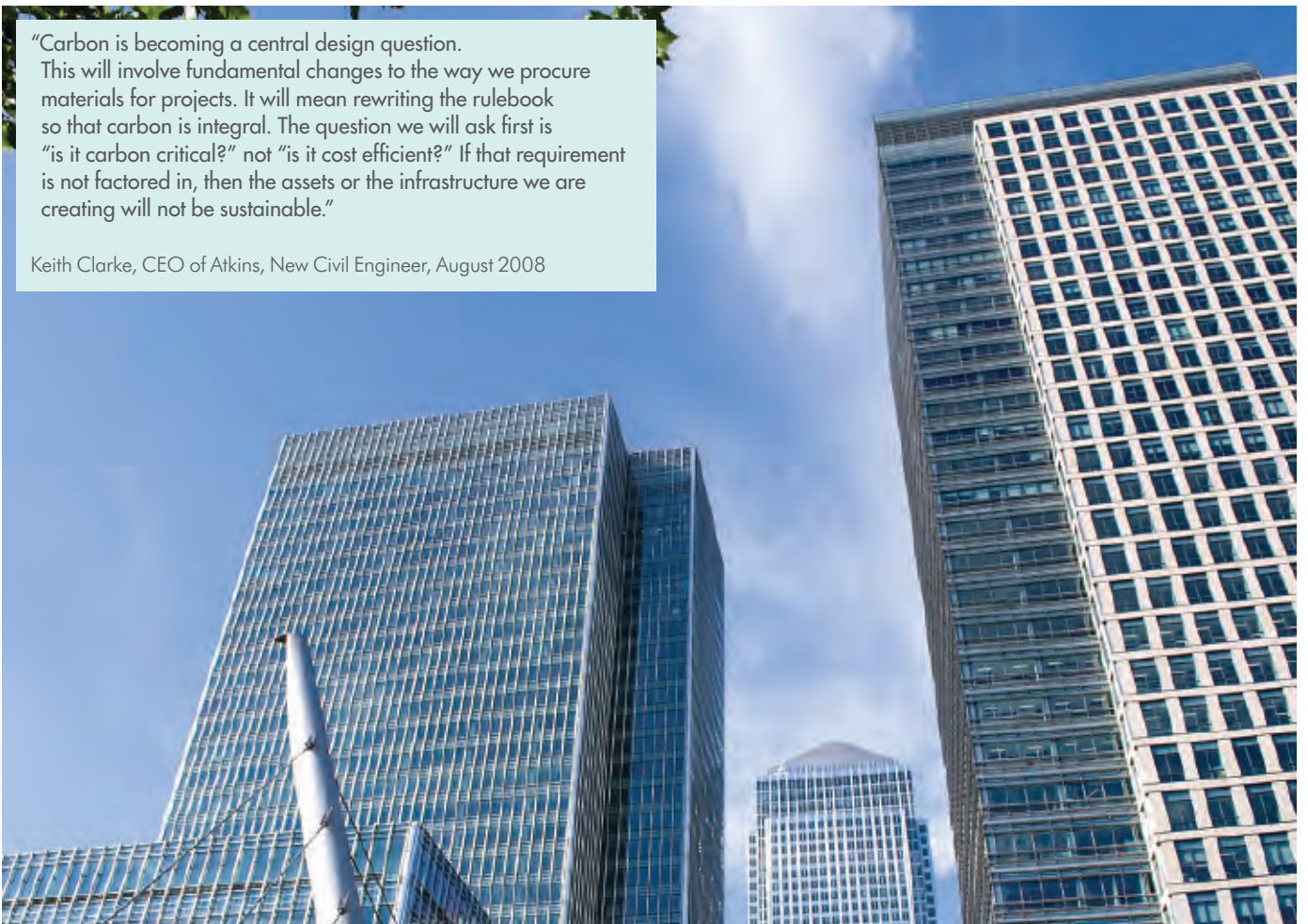
increases GHG emissions. Producing scrap (for recycling) gives a credit, reducing the overall carbon footprint. In this assessment it is assumed that the recycling rate at end of life is 90%.

## Environmental data – What do we capture? / Global Warming Potential (GWP) Reporting System Boundaries and Scope



“Carbon is becoming a central design question. This will involve fundamental changes to the way we procure materials for projects. It will mean rewriting the rulebook so that carbon is integral. The question we will ask first is “is it carbon critical?” not “is it cost efficient?” If that requirement is not factored in, then the assets or the infrastructure we are creating will not be sustainable.”

Keith Clarke, CEO of Atkins, New Civil Engineer, August 2008



# Environmental performance continued

## Materials Efficiency

Key metrics	2011	2012	2015
Tonnes of steel billet as percentage of tonnes of raw materials used	82%	82%	To be determined
Percentage of post-consumer steel scrap in CARES SCS Scheme approved product (by mass)	97%	97%	Maintain 97%

By improving materials efficiency the constructional steel supply chain can reduce costs, waste and pollution. Whilst a high proportion of steel is recycled due to its magnetic properties and easy separation from waste streams, there is not enough scrap steel entering recycling streams to satisfy global demand.

The two main steel production routes are:

- The integrated steelmaking route, based on the blast furnace (BF) and basic oxygen furnace (BOF), uses raw materials including iron ore, coal, limestone and recycled steel
- The electric arc furnace (EAF) route, primarily uses recycled steels and/or direct reduced iron (DRI) and electricity.

Steel can be recycled indefinitely without compromising its properties. It is one of the most recycled materials in the world. Recycling steel reduces the extraction of virgin raw materials.

### How does the SCS Scheme promote materials efficiency?

The Scheme encourages the responsible sourcing of materials. Approved suppliers are required to provide a breakdown of raw material sourcing, including volumes from sites certified to OHSAS 18001, ISO 14001 and ISO 9001. This allows greater visibility on responsible management of materials, waste and water impacts in the supply chain.

The Scheme promotes materials *eco-efficiency*, which refers to the production of a given output relative to the raw material inputs. The aim is to improve this.

In terms of steel recycling, approved suppliers are required to provide data on the use of post-consumer scrap steel within their products. Currently the Scheme achieves very high levels of recycled use.

Total steel production in 2008, for example, reached 1.3 billion tonnes, of which over 475 million tonnes were made from scrap metal<sup>4</sup>. The most commonly recycled scrap items are from industrial processes, end-of-life products such as containers, vehicles, appliances, industrial machinery and construction materials. As well as preventing the need to extract expensive virgin raw materials such as iron ore from the natural environment to create new steel, recycling steel results in significant energy and carbon savings.

<sup>4</sup> <http://www.worldsteel.org/steel-by-topic/sustainable-steel/environmental/efficient-use.html>

## Waste

Key metrics	2011	2012	2015
CARES SCS Scheme-approved suppliers with Waste Management Plan in place	100%	100%	Maintain 100%
Kg of waste sent to landfill per tonne of finished product	95kg	86kg	To be determined
Kg of waste incinerated per tonne of finished product	8kg	3kg	To be determined
Kg of waste recycled per tonne of finished product (kg per tonne of rolled steel billet) [constructional steel producers]	175kg	164kg	Increase by 5%

Similar to other heavy industry, steel production creates waste that needs to be managed effectively as part of responsible resource management. The aim is to divert as much waste as possible from landfill.

### How does the SCS Scheme promote effective waste management?

The Scheme encourages effective management of all waste streams. Approved suppliers have to provide data for the waste generated per tonne of finished product, and then describe the treatment or disposal method.

Suppliers are required to have a site Waste Management Plan (WMP) in place and to indicate its level of sophistication. An advanced WMP would include targets and KPIs as well as clear responsibilities for monitoring wastes arising and their disposal methods.



## Water

Key metrics	2011	2012	2015
Water consumption (m <sup>3</sup> ) per tonne of finished product	1.1 tonnes	1.0 tonnes	Reduce by 5%

Water stress is increasing globally. It results from a combination of excessive demand, poor management and diminishing supply. Water management is incredibly complex and highly political in many regions of the world.

After iron ore and energy, water could be considered the next most valuable resource for the steel industry. It is used for process cooling, materials conditioning (such as quenching and annealing) and in air emissions scrubbing technology.

Water is a shared resource so responsible manufacturing involves proper management of water. This will benefit the natural environment, communities, and the producers themselves.

### How does the SCS Scheme promote effective water management?

To encourage the reduction of water use by steel producers, the Scheme necessitates the reporting of water consumption per tonne of finished product, as well as total annual water use.

The Scheme actively encourages more effective water treatment to increase water recirculation and recycling on sites. This helps to reduce demand for additional water supply from other sources.

## Biodiversity and Eco-toxicity

Key metrics	2011	2012	2015
CARES SCS Scheme approved manufacturers who monitor and report on their biodiversity impacts (%)	71%	100%	Maintain 100%
Environmental incidents that resulted in an enforcement order or a penalty <sup>5</sup> at a CARES SCS Scheme-approved manufacturer site	1	0	0

We depend on biodiversity for the ecosystem and life-support services that it provides, such as clean air, CO<sub>2</sub> absorption, drainage, fertile soil or pollination. Biodiversity is also a valued part of cultural heritage and lifestyle. Arguably, the global economy would not function without it. The degree to which we all rely on biodiversity is often underestimated or taken for granted, and while impossible to accurately quantify, we are currently living in an age of unprecedented biodiversity loss.

Responsible stewardship of industrial sites recognises the importance of biodiversity by conducting appropriate monitoring of impacts and by implementing site-specific action.

As with other industries, steel production may be responsible for spills, pollution events and other *eco-toxicity* stresses affecting the natural environment. Careful monitoring and management is needed to mitigate such site-specific impacts.

### How does the SCS Scheme manage biodiversity and eco-toxicity?

Under the Scheme, approved producers are required to document procedures to collect, report and maintain data relevant to biodiversity and eco-toxicity impacts.

Documented procedures must be in place to monitor emissions to air, land and water and to control any environmentally significant releases, impacts or nuisance. This includes any noise from the processes operated.

The monitoring must be performed according to the requirements of CEN Standards, or if CEN Standards are not available then to ISO, national or other internationally recognised standards.

Manufacturers must also identify and list the types of hazardous wastes associated with their site operations and clearly define the traceability system and paths for the disposal of waste.



<sup>5</sup> This includes a financial penalty, an enforcement notice, a prohibition notice, and/or a prosecution.

# Social performance: People & Community

## A safe and healthy workplace

Key metrics	2011	2012	2015
Employees at OHSAS 18001 certificated sites (%)	89%	100%	Maintain 100%
Companies operating a system to ensure workers conditions are safe and healthy (%)	100%	100%	Maintain 100%

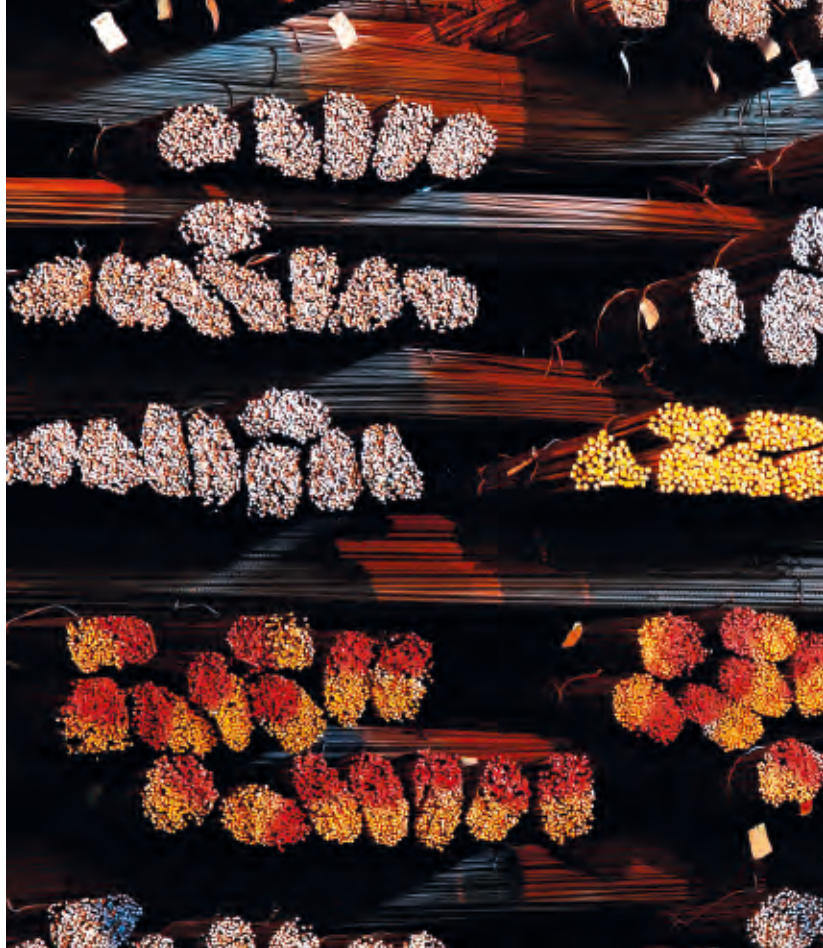
The steel-making sector is a significant employer. Since making constructional steel exposes employees to hazards and risks, it is essential that good procedures and systems are in place to reduce these risks and drive performance towards incident-free workplaces.

### How does the CARES SCS Scheme promote safe and healthy workplaces?

Zero accidents and incidents: this is the aim of the steel and construction industry. Our Scheme recognises that effective health and safety management must deliver fewer accidents with less severe outcomes.

The current focus for the Scheme is that 100% of employees are covered by the requirements of the certifiable Health and Safety management system OHSAS 18001, by 2015. Doing this helps identify and control risks, reduce the potential for accidents and support compliance.

Separate CARES audits are conducted under the Scheme to provide additional assurance that continuous improvement is being achieved by the company in question.



## Training: keeping up the skills

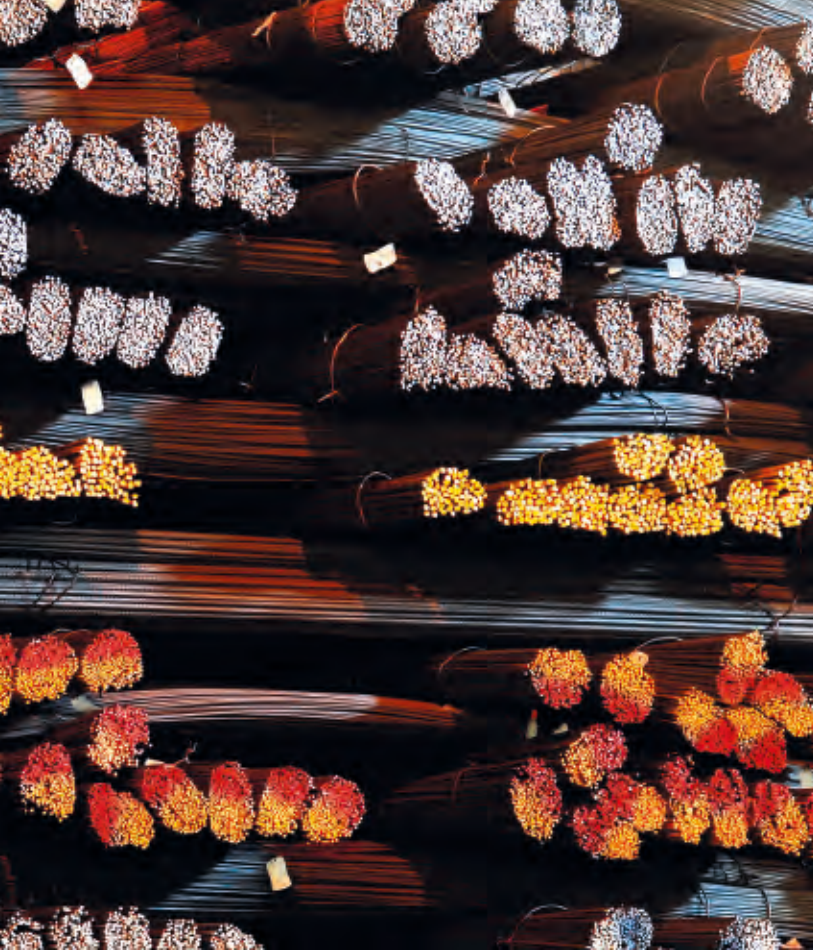
Key metrics	2011	2012	2015
Number of training hours per employee (total training hours/total number of employees)	24	28	Increase by 5%

The right mix of skills, and knowing when to apply them, helps achieve a responsible value chain.

As a first principle, all employees have a right to receive training so they can do the job safely and effectively. Skills and career development are important to productivity, long term progress and loyalty.

### How do we promote employee development?

The Scheme requires firms wishing to certify to provide evidence of the requisite training to equip employees with technical and on-the-job skills. Evidence can be qualitative and quantitative, for example the time invested in training, and measures of outcomes and effectiveness. The Scheme looks for evidence of skills gaps and the training developed to address them. An additional focus for auditors is training relating to clean technology and health and safety are key areas for sustainable steels where our auditors would expect to see training development.



## Community Relations

Key metrics	2011	2012	2015
CARES SCS Scheme approved producers who have a policy in place to increase engagement with community stakeholders (%)	93%	100%	Maintain 100%
CARES SCS Scheme approved producers who have specific systems in place to deal with local community complaints (%)	93%	100%	Maintain 100%

The operations of a constructional steel producer can impact on local communities in several ways such as noise, odour, and heavy transportation for example. Community relations are increasingly important to companies in the steel value chain; they want to minimise disturbance to the local community, to understand any issues raised and respond appropriately. Simply put, community stakeholder involvement is crucial to operating responsibly.

### How the CARES SCS Scheme supports community cohesion

Approved producers should manage and strengthen engagement with the host community and other stakeholders in ways that meet the needs of those stakeholders. Stakeholder engagement methods vary, for example:

- Gathering views: Opinion surveys, media tracking, suggestion schemes
- Structured projects: Corporate community involvement projects; Sustainability Reporting at group and/or local levels, stakeholder based verification or assurance
- Contact point: dedicated feedback contact point, emergency contacts or helpline
- Communication channels: Advertisements, newsletters, open days, focus groups, public meetings, direct conversations
- Employee representation, union meetings.

The Scheme expects approved producers to deal appropriately with legitimate complaints using suitable systems, such as:

- A defined complaint procedure
- Clear ownership of complaints logged and the response mechanism
- Communications to share information on outcomes.

## Securing Human Rights

Key metrics	2011	2012	2015
Compliance with applicable laws and industry standards on fair wages, working hours, and public holidays (%)	100%	100%	Maintain 100%

The construction industry is no different to other sectors in seeking full traceability and responsibility through the value chain. Companies increasingly seek to ensure fair treatment of people and a reduction of human rights abuses.

### How is the CARES SCS Scheme helping to ensure that human rights are respected?

The Scheme supports the initiatives of many companies asking how suppliers should satisfy criteria for fair labour practices, labour rights, diversity and equality. Aligned with the Ethical Trading Initiative (ETI) Base Code, our audit requirements cover:

- Slave, bonded or child labour
- Fair, clear and legally compliant employment contracts
- The right to collective bargaining and union activity
- Discrimination

CARES auditors check for policies and their implementation using documentary evidence, as well as through observation and engagement with employees, such as focus group meetings.

# Economic performance

Companies have very significant impacts on the economic circumstances of relevant communities and stakeholders. This is particularly true of companies that may be responsible for a large number of jobs and significant demand for goods and services in a specific community or region. However, all companies, to a greater or lesser extent, add economic value and contribute to the stability of their local host community.

Therefore the financial practices and ethics adhered to by a company doing business in a community is vitally important to a considerable number of stakeholders including the company itself. Intelligent and ethical economic decisions can lead to increasing prosperity in host communities and this in turn can lead to economic growth for the company and more favourable treatment towards it in terms of its licence to operate and other benefits.

## Ethical Business Policy

The CARES Scheme requires approved companies to adopt and provide evidence for an ethical business policy on some, or all, of the following:

1. Employee profile which reflects the diversity of the host community, region, nation
2. Evidence of Economic Value Added: the contribution to the stability of the local economy (e.g. employment, supply chain, multiplier effect, physical infrastructure, other impacts)
3. Ongoing investment relating to sustainability impacts (e.g. production innovation, customer satisfaction, supply chain resilience, adaptation to climate change, security of personnel, etc)
4. Responsible procurement policy, measurement, monitoring and review process
5. Policy to comply with ethical business practices
6. Impact on local skills and capability
7. Objectives and Targets in all these areas.

Key metrics	2011	2012	2015
CARES SCS Scheme approved manufacturers who have externally audited accounts for the latest financial reporting period (%)	100%	100%	Maintain 100%
CARES SCS Scheme approved manufacturers who implement a policy to comply with ethical business practices (%)	79%	100%	Maintain 100%

### How the CARES SCS Scheme supports economic value

Financial transparency is a cornerstone to building trust and confidence in a company and its long term financial viability. Threats to this viability present a serious risk to many stakeholders including investors, employees and local communities. A scheme requirement is for all approved producers to publish externally audited financial accounts.

The scheme also operates an ethical business policy.





## Further information

### How to specify reinforcing steel from the CARES approved supply chain

To ensure the correct material is purchased, the purchaser's specification should make an explicit reference to the product standard and CARES certification or third party product certification. The suggested wording for inclusion in a specification (UK and non-UK) is:

#### UK project specifications – BS 4449 2005 and BS 4483 2005

*All hot rolled and cold worked steel bars specified shall conform to BS 4449 (Grade B500B or B500C) and shall be cut and bent in accordance with BS 8666. The bars shall be obtained from firms holding valid CARES (or fully equivalent schemes) product conformity and sustainability scheme certificates of approval for the production and supply of the steel reinforcement.*

*Steel fabric reinforcement shall conform to BS 4483 (Grade B500A, B500B or B500C) and shall be cut and bent in accordance with BS 8666. Steel fabric reinforcement shall have a minimum nominal bar size of 6 mm (8 mm for Grade B500A). Steel fabric reinforcement shall be delivered to site in flat mats or pre-bent. The steel fabric shall be obtained from firms holding valid CARES (or fully equivalent schemes) product conformity and sustainability scheme certificates of approval for the production and supply of the steel fabric reinforcement.*

*NOTE For diameters  $\leq$  12mm, Grade B500A, Grade B500B or Grade B500C conforming to BS 4449:2005 may be considered. For diameters  $>$  12mm, Grade B500B or Grade B500C conforming to BS 4449:2005 shall be specified*

#### Non-UK project specifications – BS 4449 1997 or 2005 and BS 4483 1998 or 2005

*All hot rolled and cold worked steel bars specified shall conform to BS 4449 [1997 or 2005] (Grade 460A or 460B or B500A, B500B or B500C) and shall be cut and bent in accordance with BS 8666. The bars shall be obtained from firms holding valid CARES (or fully equivalent schemes) product conformity and sustainability scheme certificates of approval for the production and supply of the steel reinforcement.*

*Steel fabric reinforcement shall conform to BS 4483 [1998 or 2005] (BS 4482 1985 Type 1 or Type 2, BS 4449 1997 460A, 460B or B500A, B500B or B500C) and shall be cut and bent in accordance with BS 8666. [Steel fabric reinforcement to BS 4483 2005 shall have a minimum nominal bar size of 6 mm (8 mm for Grade B500A)]. Steel fabric reinforcement shall be delivered to site in flat mats or pre-bent. The steel fabric shall be obtained from firms holding valid CARES (or fully equivalent schemes) product conformity and sustainability scheme certificates of approval for the production and supply of the steel fabric reinforcement.*



## Glossary



### **Biodiversity**

Biodiversity is the degree of variation of life forms within a given ecosystem, biome, or an entire planet. Biodiversity is a measure of the health of ecosystems.

### **Carbon Dioxide Equivalent (CO<sub>2</sub>e)**

Carbon dioxide equivalency is a quantity that describes, for a given mixture and amount of greenhouse gas, the amount of CO<sub>2</sub> that would have the same global warming potential, when measured over a specified timescale (generally, 100 years).

### **Ecotoxicity**

Ecotoxicity, refers to the potential for biological, chemical or physical stressors such as emissions and pollutants to affect ecosystems.

### **Embodied Energy**

Embodied energy is defined as the sum of energy inputs (fuels/power, materials, human resources etc) that was used in the work to make any product, from the point of extraction and refining materials, bringing it to market, and disposal/re-purposing of it. Embodied energy is an accounting methodology which aims to find the sum total of the energy necessary for an entire product lifecycle. This lifecycle includes raw material extraction, transport, manufacture, assembly, installation, disassembly, deconstruction and/or decomposition.

### **Materiality**

The significance and relevance of an issue.

### **Product traceability**

Refers to the completeness of the information about a product in every step of its process chain.

### **Stakeholder**

A person, group, organization, or system who affects or can be affected by an organisation's actions.

### **Stakeholder engagement**

Stakeholder engagement is the process by which an organisation involves people who may be affected by the decisions it makes or can influence the implementation of its decisions.

### **Sustainable construction**

Architecture, engineering, urban planning and construction designed to achieve a sustainable built future by including sustainable responses to the technological, environmental, socioeconomic, and cultural issues affecting building and construction.

### **Construction specifier**

A construction professional who is proficient in the knowledge and art of preparing technical specifications for the building construction process.

# CARES Sustainable Reinforcing Steel Scheme Approved firms (November 2013)

## Reinforcing Steel Producers

ArcelorMittal Rodange and Schifflange – Rodange and Schifflange, Luxembourg  
ArcelorMittal Gipuzkoa S.L.U. – Factory of Zumarraga, Zumarraga, Spain  
Ekinciler Iron & Steelworks Inc. – Iskenderun, Turkey  
Megasa Siderúrgica SL – Naron, Spain  
Izmir Demir Celik Sanayi A.S. – Izmir, Turkey  
ArcelorMittal Hamburg GmbH – Hamburg, Germany  
ALPA – Gargenville, France  
Yazici Iron & Steel Co Inc. – Iskenderun, Turkey  
ICDAS Celik Enerji Tersane Ve Ulasim Sanayi A.S. – BIGA, Turkey  
HABAS A.S. – Izmir, Turkey  
SN Maia - Siderurgia Nacional, S.A. – San Pedro Fins, Maia, Portugal  
Diler Iron and Steel Co Inc. – Gebze, Turkey  
SN Seixal - Siderurgia Nacional, S.A. – Seixal, Portugal  
Emirates Steel Industries – ICAD I, Mussaffah, Abu Dhabi, United Arab Emirates  
Kroman Celik Sanayi A.S. – Gebze Turkey  
Qatar Steel Company (QSC) – Mesaieed, Qatar  
Nursan Metalurji Endustrisi A.S. – Payas - Dortyol, Turkey  
Nursan Celik Sanayi Ve Haddecilik A.S. – Payas - Dortyol, Turkey  
ArcelorMittal Zaragoza, S.A. – Zaragoza, Spain

## Structural Steel Producers

Emirates Steel Industries – ICAD I, Mussaffah, Abu Dhabi, United Arab Emirates

## Reinforcing Steel Processors (Fabricators)

Kierbeck Thames Ltd. – Barking, UK  
ArcelorMittal Kent Wire Ltd. – Chatham, UK  
Midland Steel Reinforcement Supplies – Mountmellick, Co Laois, Ireland  
Thames Reinforcements Ltd. – Sheerness, UK  
F Brazil Reinforcements Ltd. – Canvey Island, UK  
Brazil & Co. (Steel) Ltd. T/A Fairyhouse Steel – Ratoath, Ireland  
Midland Steel Reinforcement Supplies – Erith, UK

## Stainless Steel Reinforcing Bar Producers and Processors

Outokumpu Stainless Ltd. T/A Sheffield Stainless Bar,  
Long Products – Sheffield, UK  
Outokumpu Stainless Ltd. T/A ASR Rod Mill and Sheffield Stainless Bar,  
Long Products – Sheffield, UK



## Tell us what you think

This is our second report where we seek to capture how the CARES Sustainable Constructional Steel supply chain impacts on the environment, society and the economy. Is there something that you think we can do better or something we are not doing at all? We welcome your feedback, please contact us for further discussion.

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