UK CARES Sustainability Scheme; Enabling Sustainable Procurement

Ayhan Tugrul  
Business Development Manager
Contents

• CARES – Organization and assurance services provided as “not-for-profit” company structure since 1983
• CARES Sustainable Steel Scheme
• Environmental Product Declaration – EPD Reports and Stats
• Conclusions
The Members of CARES

Clients and specifiers
LHR Airports Ltd (previously BAA Plc)
Highways Agency
Southern Water
Nuclear Reg. HSE*
RSSB – Rail*

Designers
Association for Consultancy and Engineering (ACE)
Institution of Structural Engineers (IStructE)

Contractors
CONSTRUCT
Civil Engineering Contractors Association (CECA)
UK Contractors Group (UKCG)
Post-tensioning Association

Manufacturers
UK Steel Association
British Association for Reinforcement (BAR)
Stainless Steel*

* Denotes Chairman Nominee
CARES organisational structure

Members

Board

Chief Executive Officer

Policy Advisory Committee (PAC)

Technical advisory committees

Independent Chairman of PAC and Board – Professor Les Clark OBE, FREng

General Manager

Company Secretary
CARES – Assurance services provided

• **Product certification** – all about steel!
  – Reinforcing steel – BS 4449, BS 6744 plus others
  – Prestressing wire and strand – BS 5896
  – Mechanical splices/couplers – BS 8110 plus others

• **Management Systems Certification**
  – Quality Management systems to ISO 9001 2008
  – Environmental Management systems to ISO 14001 2004
  – Health and Safety Management systems to OHSAS 18001 2007

• **CE Marking**
  – Structural steel sections to EN 10025 2004

• **Sustainable constructional steel**
  – Sector certification scheme UKAS accredited to BS 8902
  – Product carbon footprinting
  – EPD to EN 15804
The CARES approach to sustainability
CARES Sustainability Scheme

- Sustainable Constructional Steel Scheme
- Green Building Rating Systems
- CARES Approach to Environmental Product Declarations - EPD
- Environmental Product Declarations, “Sustainable Construction” and building level environmental rating schemes
- Benefits of having EPD`s
Why act now?

Construction team decision models

- Traditional approach
  - Cost
  - Quality
  - Schedule

- New approach
  - Cost
  - Quality
  - Schedule
  - Sustainability
# CARES sustainable constructional steel issues – BS 8902 Table 1

<table>
<thead>
<tr>
<th>Environmental</th>
<th>Greenhouse gas emissions and energy usage</th>
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<tr>
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<td>Transport impacts</td>
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<tr>
<td></td>
<td>Environmental management</td>
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<td>Water usage</td>
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<tr>
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<td>Waste management</td>
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<td></td>
<td>Recyclability and recycled content</td>
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</table>

<table>
<thead>
<tr>
<th>Social</th>
<th>Fundamental rights at work</th>
</tr>
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<table>
<thead>
<tr>
<th>Economic</th>
<th>Long-term financial viability</th>
</tr>
</thead>
</table>
CARES Sustainability Scheme assesses against organizational, supply chain, environmental and social criteria...

- A policy commitment to Responsible Sourcing
- Ethics (ETI Base Code)
- Legal Compliance
- Product traceability (chain of custody) to production source and manufacturing process at all steps
- Human Rights
- Supply Chain Management Systems
- Health and Safety
- Lifecycle Assessment - LCA (Climate Change and Energy)
  (Independently validated Environmental Product Declaration – EPD including Global Warming Potential)
- Environmental Stewardship
- Resource Use
- Waste Management
- Water Usage
- Transport Impacts
- Local Community Engagement
- Employment and Skills
- Complaints and Prosecutions
- Contribution to the Built Environment
- Continuous Improvement
CARES SCS - Transparent benefits

Compatibility with Sustainability Standards and Building Rating Mechanisms

- BS 8902:2009 (Responsible Sourcing Sector Certification Schemes for Construction Products)
- ESTIDAMA
- BREEAM 2014
- LEED V4 (just published) and others

Stakeholder Engagement

- Developed via stakeholder engagement process, fully encompassing the needs of the construction sector
- An independent scheme council continues to address these needs through the standard management & development to ensure continuous improvement
- Local community engagement mandatory
CARES SCS - Transparent benefits

Continuous Improvement

- CARES SCS sector reporting system encourages continuous improvement: pushing manufacturers to aim for higher levels
- Increases transparency by giving stakeholders the ability to review performance via public reporting mechanisms
Background information for building assessment methodologies and CARES Sustainable Steel Scheme

Green Buildings??
• The CARES SCS Scheme aims to enable the CARES approved steel supply chain to achieve the award of the credits against the materials evaluation criteria in BREEAM [UK and internationally], CEEQUAL [UK], LEED [US and internationally], Estidama [Abu Dhabi], GSAS [Qatar]
Accreditation

CARES is committed to the principles of sustainable development and actively promote those through the activities of the CARES SCS Scheme which has been established to comply with BS 8902. We are delighted to be the first construction sector scheme to be accredited to this standard by UKAS and the first sector scheme to produce a sustainability report.
<table>
<thead>
<tr>
<th></th>
<th>BREEAM (UK)</th>
<th>LEED (US)</th>
<th>ESTIDAMA</th>
</tr>
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<tbody>
<tr>
<td>Organization</td>
<td>BREEAM</td>
<td>US Green Building Council</td>
<td>Abu Dhabi UPC</td>
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<tr>
<td>Started</td>
<td>1990</td>
<td>1998</td>
<td>2009</td>
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<tr>
<td>Number of buildings assessed</td>
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<td>&gt;13000 buildings</td>
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<td>Building types</td>
<td>Different building types</td>
<td>Different building types</td>
<td>Different building types</td>
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<td>Allocation of credits</td>
<td>Based on carbon emissions</td>
<td>Credits based on ASHRAE and US dollar</td>
<td>Sustainable development</td>
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<tr>
<td>Main focus</td>
<td>Carbon and energy consumption</td>
<td>Renewable energy</td>
<td>Renewable energy, water and material stewardship</td>
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<tr>
<td>Materials (%)</td>
<td>12.5%</td>
<td>13.5%</td>
<td>16%</td>
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<tr>
<td>Evaluation stages</td>
<td>Design and post construction</td>
<td>Design and post occupancy</td>
<td>Estidama Integrative Design Process (Design, construction and post-occupancy – to be launched soon)</td>
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<tr>
<td>Coverage</td>
<td>UK + internationally</td>
<td>In over 90 countries</td>
<td>Abu Dhabi</td>
</tr>
<tr>
<td>Rating system</td>
<td>Pass Good Very good Excellent Outstanding</td>
<td>Certified Silver Gold Platinum</td>
<td>Pearl Building Rating System - PBRS (1 to 5 pearls)</td>
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<tr>
<td>Web</td>
<td><a href="http://www.breeam.org">www.breeam.org</a></td>
<td><a href="http://www.usgbc.org">www.usgbc.org</a></td>
<td>`www.estidama.org</td>
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<td>BREEAM</td>
<td>LEED</td>
<td>Estidama</td>
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<td>Mat 1</td>
<td>Lifecycle impacts</td>
<td>MR 4</td>
<td>Recycled Content</td>
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<td>Regional Materials</td>
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<td>Mat 3</td>
<td>Responsible Sourcing of Materials</td>
<td>MR 5</td>
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<td>Mat 1</td>
<td>Materials Specification (Major Building Elements)</td>
<td>MRc1</td>
<td>Building Life-cycle Impact Reduction</td>
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<td>Building Product Disclosure and Optimization – Environmental Product Declarations</td>
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</tbody>
</table>
Building Level Environmental Schemes

- BREEAM 2011:

BREEAM 2011 includes the opportunity for products with independently verified EPD to increase the credit for a building element in BREEAM 2011 using a new credit uplift.
Building Level Environmental Schemes

• BREEAM 2014 (To be introduced within 2014):
  
  - Including responsible sourcing of major building elements (treatment of sustainability issues through out the supply chain),
  
  - Accreditation of Product Certification Schemes:
    
    • CARES Scheme`s recognition as a Responsible Sourcing Scheme and BS8902 Accreditation
Building Level Environmental Schemes

- LEED V4 (Just introduced in 2013):
  - Materials matter! – LEED V4 pushes forward a paradigm shift in how we think about materials.
  - Life Cycle Assessments, Environmental Product Declarations, Material Ingredient Reporting etc.
Building Level Environmental Schemes

- ESTIDAMA (Abu Dhabi – UAE)

All government buildings should be awarded at least two pearls.

CARES Sustainability Scheme is now eligible to Estidama (Estidama credit SM-10)
According to ESTIDAMA (credit SM-10, Recycled Materials);

- A CARES sustainable certification will allow a steel product to count toward the 1 credit available for “Recycled Steel.” The certification must be under CARES Sustainable Reinforcing Steel Appendix 01, “Production of continuously cast steel billets” and “Production of hot rolled steel bar and coil for the reinforcement of concrete.”
The CARES approach to environmental product declarations (EPD) and carbon footprinting of constructional steel products
Environmental Product Declaration

EPD Reporting Mechanism (EN15804)
It is particular type of *Life Cycle Assessment* - *LCA* which has been developed to provide environmental information from LCA studies in a common format, based on common rules known as **Product Category Rules (PCR)**.

PCR for construction industry has been developed in the UK, Germany, France, the Netherlands, Scandinavia and Australia amongst others.
Life Cycle Assessment – LCA & Environmental Product Declaration - EPD
Life Cycle Assessment – LCA is a methodology used to measure the environmental impact of a product (or a system) over a life cycle. It measures the environmental impacts from extraction of raw materials, through processing, manufacture, refurbishment to eventual end-of-life and disposal.
Use of life cycle assessment through EPD Mechanism

• Life cycle thinking
  – Considers the environmental impacts at all stages of a product’s life cycle
  – The environment is not just about one single issue

• Transparent, quantitative and verifiable data
  – Critically reviewed in accordance with ISO standards
  – Functionally equivalent comparisons
  – More than just ‘environmentally friendly’
  – Identify improvement opportunities
The environmental impacts most commonly considered in a Life Cycle Assessment of a construction product (reinforcing steel?):

- Climate Change,
- Acidification,
- Eutrophication,
- Stratospheric Ozone Depletion,
- Photochemical Ozone Creation
Environmental Product Declaration – EPD is a specific Life Cycle Assessment model based on regulated format for construction products.
Using CARES CF Questionnaire`s improved version for EPD data collection

Desktop review at CARES Office

Data verification by CARES as part of Sustainability Audits

Web-publishing of externally verified company-specific EPD`s

LCA Study based on CARES PCR by GaBI for generating a sector-average EPD

External verification of sector-average EPD and background report by registered External Verifiers

External Verification of company-specific EPD`s, based on pre-verified background report
## EPD Report Analysis

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Production</th>
<th>Construction</th>
<th>Use stage</th>
<th>End of Life</th>
<th>Credits</th>
<th>Credits</th>
<th>TOTAL</th>
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<td>Producer #1</td>
<td>kg CO₂-Eq.]</td>
<td>818</td>
<td>16.2</td>
<td>92.3</td>
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<td>2.04</td>
<td>39</td>
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<td>Producer #2</td>
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<td>78.8</td>
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<tr>
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<td>111</td>
<td>0</td>
<td>2.04</td>
<td>39</td>
<td>0</td>
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<td>65.8</td>
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<td>76.4</td>
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<td>70.5</td>
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<td>Producer #13</td>
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<td>Producer #16</td>
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<tr>
<td>TURKEY Average</td>
<td>kg CO₂-Eq.]</td>
<td>789</td>
<td>16.2</td>
<td>98</td>
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<td>2</td>
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<tr>
<td>CARES World Average</td>
<td>kg CO₂-Eq.]</td>
<td>724</td>
<td>16.2</td>
<td>90</td>
<td>0</td>
<td>2</td>
<td>39</td>
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</table>
Key benefits of CARES Sustainability Scheme

- Quality assured product, BS 4449/8666/6744
- Full product traceability (Chain of custody)
- ISO 9001/ ISO14001/OHSAS18001 certified supply chain
- Independent EPD and carbon footprint data
- Environmental, social and economic impacts independently assessed
Benefits of EPD`s
• **Marketing:** EPD enable manufacturers to communicate credible product and company environmental performance in a transparent way and enable manufacturers to substantiate marketing claims and comparisons against similar products.

• **Supply Chain:** EPD normally use generic data for the input materials, energy and waste processing associated with the manufacture of construction products. EPD verification can cover the specific information provided by the supply chain as well as the product manufacturer to ensure the robustness of this approach.
• **Procurement:** EPD is used as source information in the procurement and purchase of products. They provide buyers with the confidence of knowing that the environmental performance of a specific product has been reviewed and validated by an independent party with expertise in LCA.

• **Specification:** Specifiers can include information provided in EPD in their performance specifications to ensure that product used in the building meet the required environmental performance.
• **Client Groups:** Many client bodies wish to calculate the embodied carbon of their developments and information included in an EPD can help them to do this. Along with other environmental indicators, EPD provide verified credible embodied carbon or greenhouse gas data for construction products.
Concluding remarks....

• Product focused
• Independent
• Impartial
• Trusted

www.ukcares.com
THANK YOU
TESEKKURLER

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