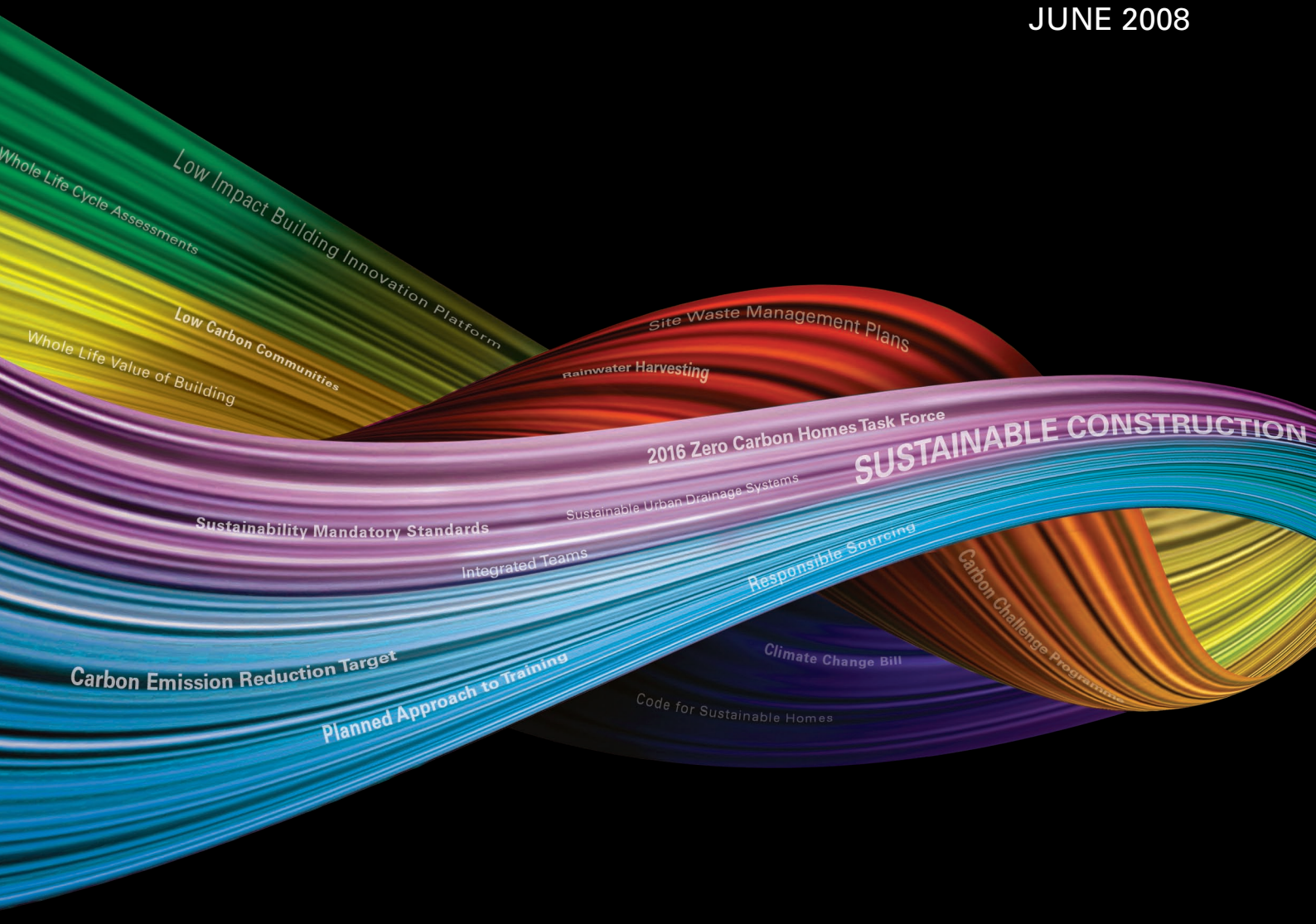
HM Government

in association with

STRATEGIC FORUM FOR CONSTRUCTION

# STRATEGY FOR SUSTAINABLE CONSTRUCTION

JUNE 2008



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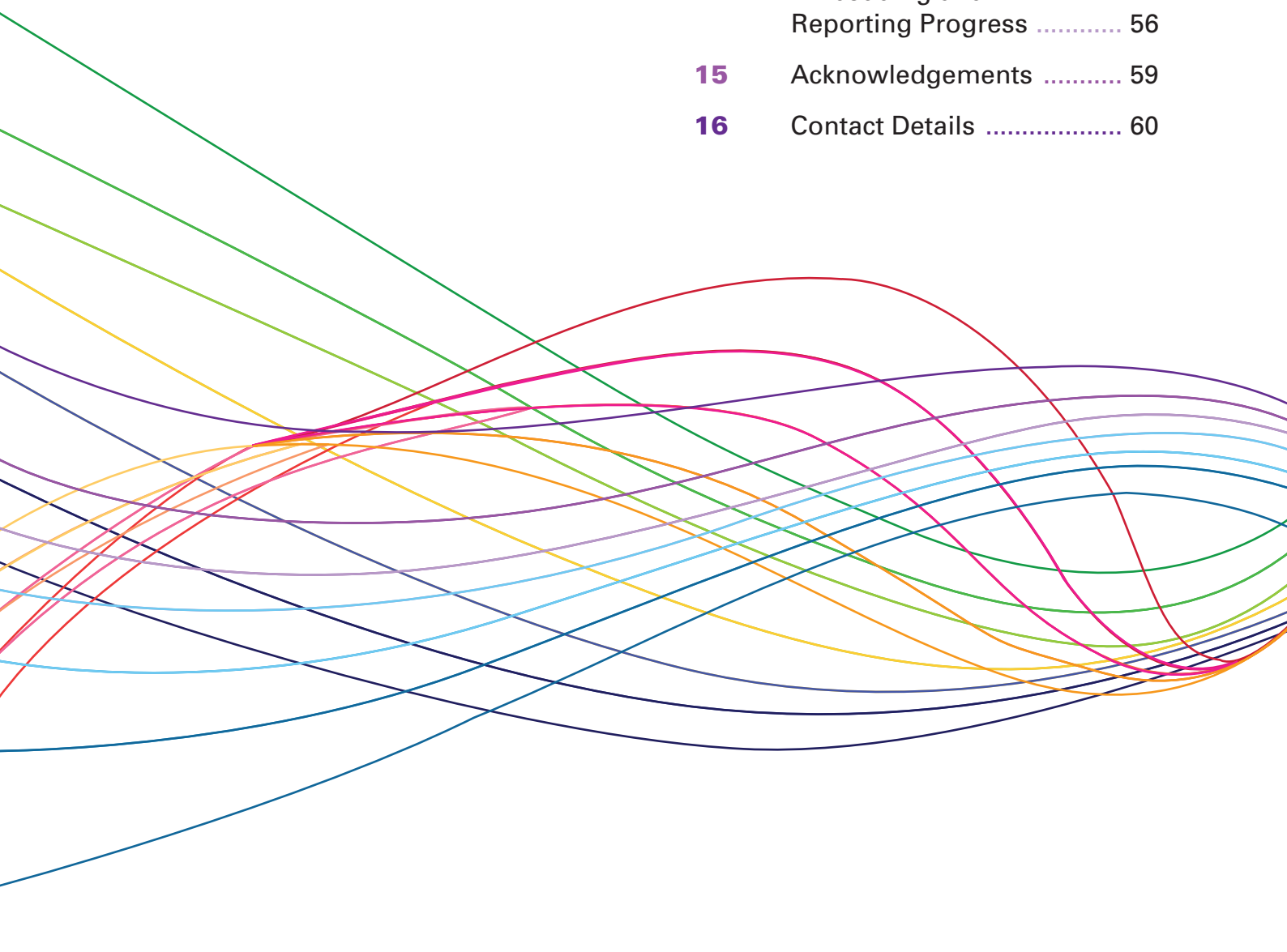


# 1 Foreword

The construction industry is significant: its output is worth over £100bn a year. It accounts for 8% of Gross Domestic Product (GDP) and provides employment for around 3 million workers. The public sector is a major client of the industry and is responsible for directly procuring about a third of all construction.

The output of the construction industry, be it public buildings, commercial buildings, homes or infrastructure such as our roads, harbours and sea defences, has a major impact on our ability to maintain a sustainable economy overall and has a major impact on our environment. Moreover, it is clear that we cannot meet our declared environmental targets without dramatically reducing the environmental impact of buildings and infrastructure construction; we have to change the way we design and build.



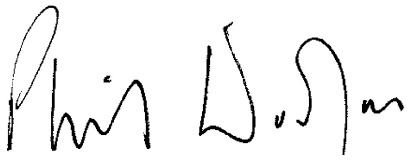
This joint industry and Government Strategy is based on a shared recognition of the need to deliver a radical change in the sustainability of the construction industry.

We want to lead the world in sustainable construction. The Strategy for Sustainable Construction represents a commitment from the industry to work towards this vision by reducing its carbon footprint and its consumption of natural resources, while creating a safer and stronger industry by training and retaining a skilled and committed workforce. It lays out specific actions by industry and by Government which will contribute to the achievement of overarching targets within each of the main areas covered by the sustainability agenda.

For its part, in its 2007 Sustainable Procurement Action Plan the Government set out its aim for procure more sustainable properties and infrastructure to be procured throughout the public sector. This Strategy also aims to provide greater clarity about the range of Government commitments and targets which are relevant to the delivery of a sustainable construction industry.

**Shriti Vadera**

Department for Business,
Enterprise & Regulatory Reform (BERR)



**Phil Woolas**

Department for Environment,
Food and Rural Affairs (Defra)

**Caroline Flint**

Department for Communities and
Local Government (CLG)

**Ian Pearson**

Department for Innovation,
Universities & Skills (DIUS)

**Margaret Hodge**

Department for Culture, Media and Sport (DCMS)

**William Jordan**

Office of Government Commerce (OGC)
Centre for Expertise in Sustainable Procurement

**Mike Davies**

Chair of the Strategic Forum for Construction

# 2 Introduction

## Economic Contribution of Construction

The construction industry makes an important contribution to the competitiveness and prosperity of the economy. A modern, efficient infrastructure is a key driver of productivity, and the construction industry has a major role in delivering the built infrastructure in an innovative and cost effective way. Firms throughout the economy are dependent on the performance of built infrastructure such as roads, rail, power stations and telecoms networks to remain competitive, and inward investors will consider the quality of the built infrastructure as one of the key factors when considering location decisions. Our productivity also depends on the efficiency and nature of the built environment. The flexibility, mobility and effectiveness of the workforce and the productivity of firms depend on the availability of appropriately configured and located houses and premises.

The design, construction and operation of our built environment have other important economic effects, for example, on the rate at which we use resources. Buildings are responsible for almost half of the country's carbon emissions, half of our water consumption, about one third of landfill waste and one quarter[1] of all raw materials used in the economy. Through its impact on the built environment, construction plays a central role in our drive to promote sustainable growth and development.

1 420Mt from a total of 1508Mt

420Mt - The Construction Industry Mass Balance: resource use, wastes and emissions, R A Smith, J R Kersey and P J Griffiths, Viridis Report VR4 (Revised), 2003, ISSN 1478–0143 www.tinyurl.com/46ho5g

1508Mt - page 59, Mass Balance: An Essential Tool for Understanding Resource Flows, Conor Linstead, Caroline Gervais and Paul Ekins, October 2003, www.massbalance.org/resource

# Vision

Government and industry share a vision of construction as a competitive sector which plays a central role in delivering sustainability and prosperity across the economy.

The Government has introduced a wide range of measures to promote competitiveness, most recently in the Enterprise Strategy, Enterprise: unlocking the UK's talent[2] and the Innovation White Paper, Innovation Nation[3]. This Strategy is developed by Government and the industry to focus on sustainability in construction.

# Joint Industry/ Government Strategy

The Strategy[4] for Sustainable Construction will help to deliver the aims set out in the UK's Sustainable Development Strategy[5]. It is a joint industry and Government initiative, and is intended to promote leadership and behavioural change, as well as delivering substantial benefits to both the construction industry and the wider economy.

This Strategy complements the Action Plan for Civil Engineering published in July 2007[6]. The Strategy does not encompass some of the broader issues facing developers such as planning, the management of the existing built environment and transport policy. Information on Planning policy[7], the Built Environment[8] and Transport policy[9] can be found below in the relevant footnote.

The Strategy lies alongside a strong business case for the sustainable construction agenda, based on:-

- Increasing profitability by using resources more efficiently;
- Firms securing opportunities offered by sustainable products or ways of working;
- Enhancing company image and profile in the market place by addressing issues relating to Corporate and Social Responsibility.

2 www.tinyurl.com/2mhpkp
3 www.tinyurl.com/2mykoz
4 This is a Strategy for England. Policy for most aspects of sustainable construction are devolved matters. Government departments continue to work closely with Welsh, Scottish and Northern Irish counterparts who are also driving forward the sustainable construction agenda.
5 www.tinyurl.com/2rs3h7

6 www.tinyurl.com/6ytgcg
7 www.planningportal.gov.uk
8 www.cabe.org.uk
9 www.dft.gov.uk

# Purpose of the Strategy

This Strategy is aimed at providing clarity around the existing policy framework and signalling the future direction of Government policy. It aims to realise the shared vision of sustainable construction by:

- Providing clarity to business on the Government's position by bringing together diverse regulations and initiatives relating to sustainability;
- Setting and committing to higher standards to help achieve sustainability in specific areas;
- Making specific commitments by industry and Government to take the sustainable construction agenda forward.

# Delivery

To deliver the Strategy, Government and industry have devised a set of overarching targets related to the 'ends' and 'means' of sustainable construction. The 'ends' relate directly to sustainability issues, such as climate change and biodiversity; the 'means' describe processes to help achieve the 'ends'.

The following table sets out overarching targets and the chapters of the Strategy in which they are discussed. Central to each of these chapters is a delivery plan for industry and Government of specific actions and deliverables which will contribute to the achievement of the overarching target.

| | Chapter Headings | Overarching Target |
|---|---|---|
| The 'Means' | Procurement | To achieve improved whole life value through the promotion of best practice construction procurement and supply side integration, by encouraging the adoption of the Construction Commitments in both the public and private sectors and throughout the supply chain. |
| | Design | The overall objective of good design is to ensure that buildings, infrastructure, public spaces and places are buildable, fit for purpose, resource efficient, sustainable, resilient, adaptable and attractive. Good design is synonymous with sustainable construction.<br>Our aim is to achieve greater use of design quality assessment tools relevant to buildings, infrastructure, public spaces and places. |
| | Innovation | To enhance the industry's capacity to innovate and increase the sustainability of both the construction process and its resultant assets. |
| | People | An increase in organisations committing to a planned approach to training (e.g. Skills Pledges; training plans; Investors in People or other business support tools; Continuous Professional Development (CPD); life long learning).<br>Reduce the incidence rate of fatal and major injury accidents by 10% year on year from 2000 levels. |
| | Better Regulation | A 25% reduction in the administrative burdens affecting the private and third sectors, a 30% reduction in those affecting the public sector by 2010. |
| The 'Ends' | Climate Change Mitigation | Reducing total UK carbon dioxide (CO2) emissions by at least 60% on 1990 levels by 2050 and by at least 26% by 2020. Within this, Government has already set out its policy that new homes will be zero carbon from 2016, and an ambition that new schools, public sector non-domestic buildings and other non-domestic buildings will be zero carbon from 2016, 2018 and 2019 respectively. |
| | Climate Change Adaptation | To develop a robust approach to adaptation to climate change, shared across Government. |
| | Water | To assist with the Future Water vision to reduce per capita consumption of water in the home through cost effective measures, to an average of 130 litres per person per day by 2030, or possibly even 120 litres per person per day depending on new technological developments and innovation. |
| | Biodiversity | That the conservation and enhancement of biodiversity within and around construction sites is considered throughout all stages of a development. |
| | Waste | By 2012, a 50% reduction of construction, demolition and excavation waste to landfill compared to 2008. |
| | Materials | That the materials used in construction have the least environmental and social impact as is feasible both socially and economically. |

# 3 Procurement

## OVERARCHING TARGET:

**To achieve improved whole life value through the promotion of best practice construction procurement and supply side integration, by encouraging the adoption of the Construction Commitments[10] (See Construction Commitments pages at the end of this chapter) in both the public and private sectors and throughout the supply chain.**

## Context

Good procurement practice is crucially important to reduce the overall cost of projects, to improve the economic efficiency of the construction industry and to ensure that projects, when complete, are fit for purpose, thereby securing whole life value.

For the public sector, there is an extensive range of standards, advice and guidance which forms the procurement framework. This material is generally considered to be of high quality. While the public sector will never be a single, uniform client, and Government has made a great deal of progress, it is clear that more needs to be done to ensure best practice is more widespread. This was reflected in the April 2007 National Audit Office (NAO) report "Building for the future"[11].

The 2005 NAO report "Improving public services through better construction"[12] identified significant benefits to the public purse (£2.6 billion annually) through the adoption of best practice procurement. This represents a powerful business case to base procurement on whole life costs (rather than the cheapest option) and to engage at an early stage with the supply chain.

10 www.strategicforum.org.uk
11 www.tinyurl.com/ywpl4p
12 www.tinyurl.com/5yu6l

The goal of its Sustainable Procurement Action Plan[13] is for the UK Government to be among the European Union (EU) leaders in sustainable procurement by 2009 to help achieve a low carbon more resource efficient public sector. The Government is committed to driving up standards in sustainable procurement for public sector buyers. The 2008 Budget[14] announced a new policy framework for procurement including practical guidance on how to take the environment into account; and that a new Centre for Expertise in Sustainable Procurement will be established in the Office of Government Commerce (OGC).

Government recognizes the importance of innovation in procurement through market-based incentives such as Forward Commitment Procurement[15] with direct support for innovation. The Department for Innovation, Universities and Skills (DIUS) will take forward this combined approach, working closely with other departments, to support suppliers to bring forward new approaches to be developed in partnership with the public sector.

The construction industry is also seeking to drive up standards through the Construction Commitments[16].

This Strategy seeks to build on a shared commitment to procure in a more sustainable way and focuses on promoting the business case for better procurement practices in the public and private sectors. For this reason, the Strategic Forum for Construction[16] (SFfC), the Public Sector Construction Clients' Forum[17] (PSCCF), and the Construction Clients Group[18] feature extensively in the actions and deliverables table.

There are a number of enabling operations which can play a significant role in the effective delivery of a construction project. One of these is logistics (in its widest sense). Often considered a backroom function, logistics can be overlooked in terms of its contribution to the broad 'improvement' and sustainability agenda. Studies[19] have shown that improving logistics (product transport, handling, delivery and storage) can reduce up to 2.5% of a capital project cost and significantly reduce waste and transport carbon emissions. While the construction industry has been slow to challenge the status quo and look to better practices, other sectors have seen the optimum integration of logistics into the production process as central to their success.

13 www.tinyurl.com/yp9dsc

14 See full Budget 2008 Report at: www.tinyurl.com/2ethop

15 www.tinyurl.com/5hgvpz

16 See: www.strategicforum.org.uk for further details

17 www.tinyurl.com/yntusz

18 See www.tinyurl.com/4ew5hx for details

19 See: www.tinyurl.com/3ojuee for details

# Actions and Deliverables

| List of Actions & Deliverables which contribute to the Overarching Target | Body Responsible for each action/ deliverable | Timescale |
|---|---|---|
| Parts of the industry – clients, consultants, main contractors, specialist contractors*, and product manufacturers and suppliers – to be engaged in supply chains on 30% of construction projects and for 40% of their work to be conducted through integrated project teams.<br>* These targets apply to those specialist contractors involved in Mechanical & Electrical work. For other specialists, the target is to establish by 2012 a mechanism for measuring integration in their sector. | Strategic Forum | 2012 - measured using Constructing Excellence Key Performance Indicator (KPI) data |
| 35% of client activity, by value, embraces the principles of the Clients' Commitments[20]. | Strategic Forum | 2010 - Constructing Excellence using the Construction industry KPIs |
| 60% of client activity, by value, embraces the principles of the Clients' Commitments. | Strategic Forum | 2012 - Constructing Excellence using the Construction industry KPIs |
| BERR[21]/SFfC Integration Demonstration Projects. | BERR/SFfC Integration Task Group | Ongoing |
| BERR / OGC[22]/ Constructing Excellence Best Practice Roadshows. | BERR/OGC | 2009 |
| Review of Procurement Strategies set out in Achieving Excellence[23] to ensure alignment with the delivery of whole life value. | OGC and PSCCF[24] | 2008 |
| Creation of a Centre of Expertise in Sustainable Procurement. | OGC | 2008 / 2009 |
| Development of simple "how to" guidance for clients. | Construction Clients Group[18] | 2009 |

20 The Clients' Commitments refer to the support of the Construction Commitments by the Construction Clients Group[18]

21 Department for Business, Enterprise & Regulatory Reform

22 Office of Government Commerce

23 www.tinyurl.com/4thee2

24 Public Sector Construction Clients' Forum

# Measurement and Reporting

Client leadership, procurement and integration are key planks of the Egan industry improvement agenda[25]. The Strategic Forum for Construction has agreed a measurement regime for monitoring the industry's progress towards more integrated working and increasing client leadership. More widespread adoption of integrated working practices within the industry should help deliver a more sustainable end product. This will be reviewed on an annual basis and is based on Constructing Excellence's Key Performance Indicator (KPI) data[26].

As part of the Comprehensive Spending Review, a new set of Public Service Agreements[27] which incorporate the principles of sustainable development have been agreed. Permanent Secretaries are accountable for their departments' overall progress against these agreements and for ensuring, from 2007-2008 onwards, that key staff in their departments have performance objectives and incentives that drive the implementation of the Sustainable Procurement Action Plan.

The Sustainable Development Commission (SDC) reports on Departmental progress towards the targets for sustainable operations on the Government estate (SOGE)[28]. This scrutiny includes examining progress with completing BREEAM[29] assessments for new builds and major refurbishment (See the Design Chapter below) and compliance with the mandatory procurement standards published alongside the 2007 UK Sustainable Procurement Action Plan[13]. The SDC reports on progress via its annual Sustainable Development in Government Reports[30].

The Department for Environment, Food and Rural Affairs[31] (Defra) already provides guidance to construction clients on setting targets, measuring and reporting performance.

# Future Work

Government will continue to work closely with the Strategic Forum for Construction. Close collaboration is essential if we are to make real progress.

The actions and deliverables above set out a range of activities to promote best practice throughout the construction industry and its client base. Achieving a truly integrated industry remains a major challenge.

25 www.tinyurl.com/62ad7a
26 www.tinyurl.com/5yyw63
27 www.tinyurl.com/685us3

28 www.tinyurl.com/4n8ty7
29 BRE Environmental Assessment Method
30 www.tinyurl.com/3lbu5a
31 Through WRAP, Carbon Trust and the Energy Saving Trust

# CONSTRUC
# COMMITME
# IN BRIEF:

*The full text of the Construction Commitments are available from the Strategic Forum for Construction website: www.strategicforum.org.uk*

## PROCUREMENT & INTEGRATION

A successful procurement policy requires ethical sourcing, enables best value to be achieved and encourages the early involvement of the supply chain. An integrated project team works together to achieve the best possible solution in terms of design, buildability, environmental performance and sustainable development.

## COMMITMENT TO PEOPLE

Valuing people leads to a more productive and engaged workforce, facilitates recruitment and retention of staff and engages local communities positively in construction projects.

## CLIENT LEADERSHIP

Client leadership is vital to the success of any project and enables the construction industry to perform at its best.

# TION NTS

## SUSTAINABILITY

Sustainability lies at the heart of design and construction. A sustainable approach will bring full and lasting environmental, social and economic benefits.

## DESIGN QUALITY

The design should be creative, imaginative, sustainable and capable of meeting delivery objectives. Quality in design and construction utilising the best of modern methods will ensure that the project meets the needs of all stakeholders, both functionally and architecturally.

## HEALTH & SAFETY

Health and safety is integral to the success of any project, from design and construction to subsequent operation and maintenance.

# 4 Design

## OVERARCHING TARGET:

**The overall objective of good design is to ensure that buildings, infrastructure, public spaces and places are buildable, fit for purpose, resource efficient, sustainable, resilient, adaptable and attractive. Good design is synonymous with sustainable construction.**

**Our aim is to achieve greater use of design quality assessment tools relevant to buildings, infrastructure, public spaces and places.**



## Context

No building, infrastructure, public space or place can be considered genuinely well designed, or sustainable, if it does not contribute to the triple bottom line of environmental, social and economic sustainability.

A good design process requires real engagement with key stakeholders but offers the prospects of more sustainable management and maintenance of assets, and more competitive running costs.

CABE (the Commission for Architecture and the Built Environment) is clear that delivering design quality requires strong leadership and a clear vision from both clients and construction teams on what is to be achieved. Government continues to champion sustainable design through its Better Public Building initiative[32]. For example, sustainable design and procurement is recognized in the criteria for the Prime Minister's Award for Better Public Building. At Cabinet level, the Prime Minister has recently reaffirmed the importance of good design, and Andy Burnham, as Secretary of State, DCMS[33], has taken on the role of cross-Government Design Champion. At a local level, CABE supports a network of design champions in public authorities across the country. And at all levels, leadership needs to be informed by expert professional knowledge and an understanding of and engagement with the views of multiple stakeholders throughout the design and construction process, both from within the industry and beyond.

Various parties are driving forward the design agenda, including:

- The Strategic Forum for Construction and the Construction Industry Council, by promoting the Design Quality Indicator (DQI)[34], a process for evaluating design quality of buildings;
- CABE, the Home Builders Federation and the Civic Trust by developing and promoting the Building for Life scheme[35]: a process for evaluating the design quality of new homes;
- The Institution of Civil Engineers (ICE), the Building Research Establishment (BRE) and the Construction Industry Research and Information Association (CIRIA), who have developed the CEEQUAL[36] assessment and award scheme for evaluating the environmental design quality of civil engineering and infrastructure projects.
- English Partnerships (EP) and Housing Corporation[38] (HC) will continue to adopt Building for Life as a consistent design quality benchmark and to ensure that housing schemes are delivered to a high standard against this.

32 www.betterpublicbuildings.gov.uk
33 Department for Culture Media and Sport
34 www.dqi.org.uk
35 www.buildingforlife.org
36 www.ceequal.com

# Actions and Deliverables

| List of Actions & Deliverables which contribute to the Overarching Target | Body Responsible for each action/ deliverable | Timescale |
|---|---|---|
| 10% increase year on year from 2007 levels in the proportion of projects using DQI in public buildings (custodial, police, fire, courts and other public projects), housing, and education projects. | Strategic Forum | 2010 - CIC[37] measurement of number of DQI projects |
| 10% increase year on year in the number of times the projects above use DQI. | Strategic Forum | 2010 - CIC measurement of number of DQI events |
| Continued 10% per annum growth from 2010 levels in both of the first 2 targets. | Strategic Forum | 2012 - CIC measurement of number of DQI projects and events |
| 80% of projects to achieve at least 50% demand side representation at all workshops. | Strategic Forum | 2010 - CIC measurement of ratio at DQI events |
| Full compliance with targets set in 2006 to achieve BREEAM 'excellent' for new builds and 'very good' for major refurbishments procured by Central Government, supported by the Centre for Expertise in Sustainable Procurement within OGC. | All Government Departments (SDC monitoring[89]) | Immediate |
| All public sector funded housing is built to Lifetime Homes Standards[40a]. | Communities and Local Government (CLG) | By 2011 |

37 Construction Industry Council

38 During 2008/9, English Partnerships and the Housing Corporation will transfer to a new body, The Homes and Community Agency. See www.tinyurl.com/6k5d66 for further details.

# Measurement and Reporting

On behalf of the Strategic Forum for Construction, the Construction Industry Council will measure progress towards the Design Quality Indicator targets and report on an annual basis.

The Sustainable Development Commission gathers information from Departments on their use of BREEAM and reports annually via its annual Sustainable Development in Government Reports[39]. The latest report was published on 18th March 2008[40].

# Future Work

The Office of Government Commerce (OGC) Property Benchmarking Service[41], which captures a number of key sustainability metrics at building level, became mandatory from 1 April 2008, for all Government offices over 500 square metres. This will allow all Government departments and their sponsored bodies to benchmark the performance of their property against industry best practice, informing strategic decisions about buildings and their impact on departmental delivery. The central database of civil estate properties, holdings and occupations (e-PIMS[42]) is being enhanced in order to accommodate this data.

It is crucial that sustainable urban and landscape design is integrated into the design and construction process to ensure that the environmental, social and economic capacity of the physical and natural environment and the Green Infrastructure[43] of sustainable towns and cities, is protected, maintained and enhanced.

39 www.tinyurl.com/3lbu5a

40 www.tinyurl.com/5zlo84

40a Lifetime Homes, Lifetime Neighbourhoods, Feb 08, DCLG, Chapter 7, page 87, www.tinyurl.com/37btps. Lifetime Homes standards is an element in the Code for Sustainable Homes

41 www.tinyurl.com/6898tc

42 See www.tinyurl.com/3rfc7g for further details

43 www.greeninfrastructure.co.uk

# 5 Innovation

## OVERARCHING TARGET:

**To enhance the industry's capacity to innovate and increase the sustainability of both the construction process and its resultant assets.**

## Context

Innovation is the successful exploitation of new ideas to obtain competitive advantage. It is integral to developing new products for the market and new processes and ways of working. Greater sustainability should be at the heart of policy (like the Code for Sustainable Homes[44]) and of standards and procurement to provide the signals to which the market can respond in an innovative and flexible manner.



44 www.tinyurl.com/5hg4n7

The challenge for Government, industry and the knowledge base is to establish a framework within which innovation, research, development, demonstration, and knowledge transfer can thrive. The industry-led National Platform for the Built Environment[45] is developing a Strategic Research Agenda identifying future research priorities for the industry. One of its three priority themes is reduced resource consumption. This is also one of the priority themes for the Strategic Research Agenda to 2030, developed by the European Construction Technology Platform[46], within which a major Joint Technology Initiative on Energy Efficient Buildings is being developed[47].

The Technology Strategy Board (TSB) has developed an Innovation Platform in Low Impact Buildings[48] to enable industry to deliver more sustainable buildings though collaborative research and development (R&D), demonstration programmes, and design competitions. The Platform will address a number of key themes such as the integration of technologies into viable buildings; design tools for future climate change; the use of new materials and components; building management and the use of low-carbon energy sources. The Platform will draw on the Knowledge Transfer Network for the Modern Built Environment (MBE-KTN)[49] which aims to intensify technological innovation in the built environment and promote knowledge transfer.

BERR and the TSB are working closely with overseas partners on the innovation needs of a sustainable construction industry in the new European Research Area network for the construction and operation of Buildings (ERACOBUILD) due to commence in Autumn 2008.

The Government first published "Quick Wins"[50] procurement standards, which are mandatory for Government departments, in 2003. These standards were updated and extended in 2007. Further updates will be published later this year. They include minimum specifications for central heating, air conditioning, glazing and water appliances. BSI[51] has also published its revised standard: "Design management systems: guide to managing innovation", (BS 7000-1:2008).

The Government Chief Information and Chief Technology Officers' Councils have produced two toolkits for Green Information and Communications Technology (Green ICT). A Green ICT Scorecard is available to aid the review and improvement of existing installations and there is also guidance, materials and information on best practice for the construction of sustainable data centres and the procurement of Green ICT[52].

45 www.nationalplatform.org.uk
46 www.tinyurl.com/4djaoa
47 www.tinyurl.con/53nh7d
48 www.tinyurl.com/4ucnet
49 www.mbektn.co.uk

50 www.tinyurl.com/5o4bzz
51 www.bsi-global.com
52 www.tinyurl.com/56nme2

# Actions and Deliverables

| List of Actions & Deliverables which contribute to the Overarching Target | Body Responsible for each action/ deliverable | Timescale |
|---|---|---|
| Complete and publicise the National Platform's Strategic Research Agenda shaping medium to long term research priorities in Reduced Resource Consumption; Client orientated value; and information technology and automation. The aim is to promote awareness and engagement with the research agenda and influence Research & Development (R&D) direction and support. | National Platform; MBE-KTN. | By September 2008 |
| Low Impact Building Innovation Platform - 1st stage – the development of collaborative R&D and Design challenge competitions.<br>2nd stage activities will develop demonstration and procurement opportunities. | TSB | Commenced in May 2008. Initial activity to 2011 |
| To ensure the Knowledge Transfer Network attracts a critical mass of construction businesses, and identifies areas where it has added value with members successfully exploiting new technologies and techniques including learning from overseas and other industries. | TSB and MBE-KTN Consortium | to Summer 2009 |
| NESTA[56] to create a new annual innovation index to "measure British innovation in the round". | NESTA | Pilot published 2009 |
| Develop a third phase of the Sustainable Urban Environment Research Programme[53]. | Engineering & Physical Sciences Research Council (EPSRC) | 2008 |
| Eco-towns initiative[54]. Creating 10 new socially, economic and environmentally sustainable (zero-carbon) new settlements of up to 20,000 homes. | Department for Communities and Local Government (CLG) & Local Authorities | 2016 (up to five Eco-Towns)<br>2020 (10 expected) |
| The Carbon Challenge Programme[57a] will help accelerate the home building industry's response to climate change by fast-tracking the creation of a number of new zero carbon communities initially on EP owned sites which will meet the zero carbon, water, waste and other targets of Code level 6. | English Partnerships (EP) | 2009 (first completed units). 2011 (First completed development) |
| Ensure UK co-develops relevant research studies and co-ordinates collaborative R&D support on sustainable construction with partners in the proposed new European Construction Research Area network: ERACOBUILD. | TSB, BERR | Autumn 2008 to Autumn 2011 |

53 www.tinyurl.com/6lbtxd

54 Companies may commit to higher and earlier targets than the national target for 2012. The Construction Waste Commitment includes setting procurement requirements for good practice and measuring and reporting performance.

55 www.tinyurl.com/5dvelg

# Measurement and Reporting

Ongoing indications of the state of innovation will be gauged by the biennial DIUS Community Innovation Survey, and the TSB, Regional Development Agencies (RDAs) and European Commission statistics on R&D grant awards.

A desire for better indicators of the state of innovation in the sector will be explored in the context of the DIUS and NESTA[56] - led work to develop an innovation index progress on wich will be reported in the first annual innovation report to be published in autumn 2008.

# Future Work

- The European Union's Lead Markets Initiative[57] on sustainable construction (one of six pilot markets chosen), which aims to influence and promote demand for the supply of innovative products and services, through reviewing regulation, procurement and standards. The Comité Européen de Normalisation (CEN) has established a Working Group under the aegis of BSI, with the task to carry out an inventory of existing standards to identify possible further contributions to the initiative.
- The Foresight project (sponsored by DIUS, CLG, Defra and BERR) on "Sustainable Energy Management and the Built Environment" which will report in autumn 2008.
- The Government response[58] to the Commission for Environmental Markets and Economic Performance report60 undertook to examine the product approvals regime for innovative products in the construction sector to understand better the barriers to introducing innovative, sustainable products.
- The Energy Technologies Institute[59], with a focus on supporting development programmes contributing to low carbon, secure energy supplies, may also consider support for projects on improving energy efficiency of the existing build stock in the context of its proposed work programme on Energy Efficiency in Domestic and Commercial Buildings.

56 National Endowment for Science, Technology and the Arts: www.nesta.org.uk

57 www.tinyurl.com/4qp8e3

57a www.tinyurl.com/3jpsen

58 www.tinyurl.com/553b5b

59 www.energytechnologies.co.uk

# 6 People

## OVERARCHING TARGET:

**An increase in organisations committing to a planned approach to training (e.g. Skills Pledges; training plans; Investors in People or other business support tools; Continuous Professional Development (CPD); life long learning).**

**The various built environment Sector Skills Councils (SSCs) are at different stages in developing their Sector Skills Agreements, and developing strategies in this area. The members of the Built Environment Skills Alliance (BESA) have agreed to embrace the principle of the approach (driving a training culture) set out here. For instance ConstructionSkills[60] (building / civil engineering) aims to increase the number of organisations adopting training plans or committing to Investors in People (or other business support tools) to 6,400 by 2010 and 9,400 by 2015. The aim is that other sectors' SSCs, or industry training bodies would be added, with their associated targets, as soon as possible.**

**Reduce the incidence rate of fatal and major injury accidents by 10% year on year from 2000 levels.**





60 www.constructionskills.net

# Context

The training and development scene for the built environment is characterised by a large number of players: various Sector Skills Councils (SSCs); bodies such as the Academy for Sustainable Communities (ASC)[61] and the Green Building Council (UK - GBC)[62]; and training providers. The SSCs have developed, or are developing, their Sector Skills Agreements and other high level skills strategies. The ASC is a centre of excellence working at a strategic level, supporting the construction sector to deliver sustainable communities.

A number of responses to the consultation on the draft Strategy highlighted training supply aspects, such as the perceived need for more accessible training provision in particular areas. Others focused on the need to encourage customer demand for skills development among both companies and individuals. Unless demand is nurtured, training products and services will not be used, and the knowledge/skills base will not develop.

Although suppliers may think a training need exists, it is not always clear that firms or individuals want a specific training product or service. This is why it is so important that the skills system is shaped around the needs of employers.

Fostering demand by promoting and instilling a culture of training and life long learning / continuous professional development, is at the heart of this Strategy. This is intentionally a high level, generic approach, which gives scope on which a wide range of sustainability-specific skills organisations can build. Championing effective brokerage mechanisms, and working with the training/ development supply side to create a better understanding of the benefits of training/development, especially sustainability aspects, will be important. Work to drive improved health and safety in the industry will also feature.

Generating demand and uptake for learning and training will require increased awareness, understanding and engagement at community and individual levels, particularly among children and young people. This should generate a supply of motivated people interested in further training and development.

61 www.ascskills.org.uk
62 www.ukgbc.org

# Actions and Deliverables

| List of Actions & Deliverables which contribute to the Overarching Target | Body Responsible for each action/ deliverable | Timescale |
|---|---|---|
| Net increase of 230,000 qualified people recruited and trained in the industry compared with 2006 | Strategic Forum | 2010 - from Annual Labour Force Survey |
| Net increase of 260,000 qualified people recruited and trained in the industry compared with 2006 | Strategic Forum | 2012 - from Annual Labour Force Survey |
| To achieve 13,500 apprenticeship completions in England, Wales and Scotland by 2010 and to increase this to 18,700 a year by 2012 | Strategic Forum | 2012 - Information from CS Managing Agency. |
| Promotion of Investors in People, other business support tools, and Skills Pledge through Company Development Advisors (ConstructionSkills), and CS central marketing. | ConstructionSkills | 2008 and continuing |
| Development and promotion of sector-specific Skills Pledge | Proskills | August 2008 |
| Development of Action Plan for driving a training culture in the building products sector. | Proskills | August 2008 |
| Promotion of the value of CPD, and facilitating access to suitable developmental training on sustainability aspects. | Construction Industry Council, professional institutions, BERR. | 2008 and continuing |
| Influencing the development of the Construction Qualifications Strategy (CQS). The CQS Action Plan includes: Strategy Strand 20: Identify and implement strategies to support cross cutting themes important to the development of a sustainable, inclusive construction industry. | ConstructionSkills | 2008 and continuing |

| List of Actions & Deliverables which contribute to the Overarching Target | Body Responsible for each action/ deliverable | Timescale |
|---|---|---|
| Fully trained, qualified and competent workforce on all projects | Strategic Forum | 2010 - Annual Labour Force Survey and trade association site audits |
| Reduce the incidence rate of fatal and major injury accidents by 10% year on year from 2000 levels | Strategic Forum | 2010 - Information[64] provided by HSE |
| Reduce the incidence rate of cases of work-related ill health by 20% from 2000 levels | Strategic Forum | 2010 - Constructing Better Health, HSE Surveys |
| 50% increase in projects offering a route to Occupational Health support from 2008 | Strategic Forum | 2012 - Constructing Better Health, HSE Surveys |
| 10% year on year reduction in the incidence rate of fatal and major injuries from 2010 levels | Strategic Forum | 2012 - Information provided by HSE |
| 30% increase from 2007 level of micro-SMEs (Small and Medium Sized Enterprises) and SMEs taking up Health & Safety training and education at an organisational level | Strategic Forum | 2012 - Surveys undertaken by ConstructionSkills, Working Well Together, Constructing Excellence, HSE |

63 Universities and Colleges Admission Service; and the Higher Education Funding Council for England.

64 Health and Safety Executive

# Measurement and Reporting

The main built environment SSCs will organise and maintain systems to track progress against targets as part of their ongoing role. Reporting will be done annually.

# Future Work

- Work in this area is part of the wider Government Skills Strategy, World Class Skills[65].
- There is a programme of ongoing work being pursued by HSE and the industry to improve health and safety in construction.
- Activities relevant to developing sustainable communities are covered in the programmes and strategies of the Academy for Sustainable Communities (ASC). It is important that the SSCs and the ASC continue to work together on this agenda.
- Additional specific interventions which will support the overall agenda are likely to emerge over time. Some of the ideas that emerged from the consultation on the draft Strategy will be helpful in this respect. The role of the Regional Development Agencies will be crucial, and they will be closely involved in the implementation of this Strategy. Many of the skills issues are seen in other industry sectors, and in some cases there may be shared solutions.
- As part of the National Skills Academy for Construction activity based on the Olympic site, the Olympic Delivery Authority (ODA) will be piloting a way of linking up the support offered through Learning and Skills Council's Train to Gain and Employability funds and DWP[66] City Strategy Pathfinder funding.
- SummitSkills[67], industry, CLG and Defra will take forward work on the development of codes and standards for the training of plumbers on the installation of water-efficiency systems.
- SummitSkills, industry, CLG and Defra will take forward work concerning the development of training programmes for Facilities Managers and plumbers on the need for, and operation of water-efficient buildings.

65 World Class Skills: implementing the Leitch Review of Skills in England, July 2007, DIUS, see: www.tinyurl.com/66gz4u

66 Department for Work and Pensions

67 www.summitskills.org.uk

# 7 Better Regulation

## OVERARCHING TARGET:

**A 25% reduction in the administrative burdens affecting the private and third sectors, and a 30% reduction in those affecting the public sector by 2010.**



## Context

The Government is committed to cutting red tape for business, the public and voluntary sectors. Proportionate, risk based regulation can help provide protection and deliver significant benefits for businesses. Better Regulation is about striking the right balance between regulation and protection without disproportionately increasing costs or deterring compliance.

The need to present policy and legislative requirements coherently is integral to the Better Regulation agenda. The Climate Change Bill currently (June 2008) before Parliament will provide, amongst other things, a clear framework for the UK to achieve its long-term goals of reducing carbon dioxide emissions and to ensure that steps are taken towards adapting to the impact of climate change.

The Better Regulation agenda is also being taken forward by the Environment Agency, which is working with stakeholders to develop a Construction Sector Partnership Plan. This will be a collaborative document that identifies jointly agreed environmental priorities with contractors in the sector and voluntary mechanisms to promote better environmental outcomes. This will complement existing initiatives within the sector and be the subject of consultation during the summer of 2008.

Given the role that Building Regulations[68] play in setting requirements for standards of construction, and improving compliance, Government is:

- working to improve the building control system in England and Wales. A consultation was published in March 2008[69];
- looking at ways to make the Building Regulations[68] system deliver better compliance, with reduced burdens to industry;
- planning a degree of certainty for the construction industry by introducing, subject to consultation, a cycle of three yearly reviews of Building Regulations[68], rather than the current continual changes, which will help industry's forward planning.

68 In the context of this Strategy, references to Building Regulations apply to England and Wales.

69 The Future of Building Control: Consultation Paper. Published by Department for Communities and Local Government, March 2008, see: www.tinyurl.com/3bsk89

# Actions and Deliverables

The Actions & Deliverables required to meet this overarching target are reflected in individual Government Departmental plans[70]. New construction-specific initiatives have not been introduced and so a table of Actions and Deliverables has not been presented in this chapter.

# Future Work

- Any new policy will have risk based evidence to support its implementation, and will be informed by consultation and Impact Assessment. Any new regulation will be proportionate, transparent, accountable, consistent and targeted, and will not produce perverse incentives or unintended consequences.
- Following a commitment in the recently published Enterprise Strategy, Enterprise: unlocking the UK's talent[71] all new regulatory requirements will be examined to assess whether small firms can be exempted from or be subject to simplified enforcement. If this is not possible for legal or policy reasons departments will seek to work with small firms to design specific approaches for them. The Government will also consult on the introduction of a new system of "regulatory budgets" for departments which will provide a means of controlling the totality of new costs from the regulation Government introduces over a period.
- Regulation will be supported by high quality and timely guidance, and effective communication of change.
- Regular Government reviews will be conducted to examine how to improve compliance, maintain safeguards and keep people well-informed, while reducing costs and administration wherever possible.

70 www.tinyurl.com/5g2zr4

71 www.tinyurl.com/2mhpkp

# 8 Climate Change Mitigation

## OVERARCHING TARGET:

**Reducing total UK carbon dioxide ($CO_2$) emissions by at least 60% on 1990 levels by 2050 and by at least 26% by 2020. Within this, Government has already set out its policy that new homes will be zero carbon from 2016, and an ambition that new schools, public sector non-domestic buildings and other non-domestic buildings will be zero carbon from 2016, 2018 and 2019 respectively.**



## Context

In response to the threat of climate change, the Government has already committed to a number of actions including setting legally binding $CO_2$ reduction targets, and will introduce five year carbon budgets through the Climate Change Bill[72]. Other actions are included in the Planning White Paper[73] and the Energy White Paper[74] to be taken forward by the Planning Reform and Energy Bills respectively, the Housing Green Paper Policy package[75] and Planning Policy Statements (PPS)[76]. The PPS Climate Change, as a supplement to PPS1: Delivering Sustainable Development, is of particular significance in ensuring that tackling climate change becomes a primary objective of the planning system.

72 www.tinyurl.com/25j33o
73 www.tinyurl.com/yukna5
74 www.tinyurl.com/594gr3
75 www.tinyurl.com/2gsgoo
76 www.tinyurl.com/ydw9ch

There are also the commitments to Building Regulations[70] and the Code for Sustainable Homes[46] to deliver increasing levels of energy efficiency of homes over the coming decade, with the target for all new homes to be zero carbon from 2016. It is also the Government's ambition that all new public sector buildings will be zero carbon from 2018, and all new non-domestic buildings will be zero carbon from 2019[14]. The feasibility of these ambitions is currently being explored and will be subject to consultation later in 2008.

The Department for Innovation, Universities and Skills (DIUS) sponsored Learning and Skills Council has announced that all new college buildings will be zero carbon by 2016[77]. DIUS has also announced over £30m of capital funding for the Higher Education Funding Council for England (HEFCE) in the 2008 grant letter that will enable them to launch their Revolving Green Fund - supporting invest-to-save projects to make universities more energy efficient. And the Department for Children, Schools and Families (DCSF) is establishing a task force to determine whether new school buildings could be zero carbon from 2016. That task force will release its first report by the end of 2008.

77 www.tinyurl.com/4jfe4w

All products used in the construction industry have embodied environmental impacts - whether from raw materials, manufacture or transportation. The amount of embodied carbon is generally far less than the energy consumed during the lifetime of the building or infrastructure project. Nevertheless, embodied carbon is addressed in the BRE Green Guide to Specification[78] and the EU Emissions Trading Scheme encourages materials manufacturers to reduce emissions.

# Existing Buildings

In terms of the built environment, it is the existing building stock that accounts for by far the most carbon emissions and where the greatest opportunities for savings can be found. Buildings that pre-date 1985, when energy efficiency was first introduced to the Regulations, are on average particularly energy inefficient.

Given that around two thirds of the building stock that will still be standing in 2050 has already been built, improving the energy efficiency of the existing stock will be a critical element in delivering the Government's long term carbon emission reduction targets.

Many of the technologies that are needed to make significant energy savings in the existing stock are already cost-effective and widely available. The challenge for Government and industry is to put in place policies, programmes and products that will roll out those technologies in a way that will take us towards our long term carbon reduction targets.

78 Further details on The BRE Green Guide to Specification can be found at: www.tinyurl.com/6jx4lu

The Government has consistently recognized this challenge and has in place a wide range of mutually reinforcing policies and programmes which are designed to tackle emissions from the existing stock. This policy framework comprises of:

- minimum standards for building work on existing homes;
- action to inform, support and incentivise those who are prepared/ able to change their behaviour and/or take action in their own homes;
- obligations on energy suppliers to realise energy and carbon savings from their customers;
- financial incentives to tackle issues such as split incentives, encourage innovation and improve the uptake of low and zero carbon technologies;
- action to ensure that the most vulnerable in society - those who are least likely to be able to improve their own homes and those who are most likely to suffer from fuel poverty - are assisted.

Specific schemes include the introduction of energy efficiency requirements for thermal elements into the Building Regulations[70] and key programmes such as the Carbon Emissions Reduction Target (CERT)[79], the introduction of Energy Performance Certificates[80], the Energy Saving Trust's Act on $CO_2$ advice line[81], Warm Front[82] and Decent Homes[83]. These are expected to deliver reductions in emissions from existing homes of around 23Mt$CO_2$ by 2020 and represent a total investment by Government and energy companies of over £1 billion a year.

The above policies mean that carbon reductions from existing buildings are on a trajectory consistent with our 2020 targets. However, Government fully recognizes the importance of a strategic approach that continues to deliver savings beyond 2020. That is why, for example, Government is exploring policies which go beyond current mainstream programmes – for example the green neighbourhoods programme[84] announced by Defra, which will demonstrate what can be achieved in 'hard to treat' homes at a neighbourhood scale. Government will also continue to look closely at what can be done to make best use of levers such as Energy Performance Certificates[82] to improve the most inefficient homes. This includes difficult to treat and hard to target homes, including those in the rented sector.

The Government will continue to analyse such issues in preparing its response to the Climate Change Committee's carbon budgets by spring 2009 and will announce any additional policies and programmes in this area in light of these budgets.





79 www.tinyurl.com/26sm48
80 www.tinyurl.com/36rgk5
81 www.energysavingtrust.org.uk
82 www.energysavingtrust.org.uk
83 www.tinyurl.com/5banqt
84 www.tinyurl.com/6grq8l

# Actions and Deliverables

| List of Actions & Deliverables which contribute to the Overarching Target | Body Responsible for each action/ deliverable | Timescale |
|---|---|---|
| All new homes to be zero carbon from 2016, with Building Regulations[70] locking in improvements in 2010 and 2013[87]. | CLG | 2016 |
| Consultation on programme and timetable for achieving zero carbon non-domestic buildings by 2019. | CLG | Summer 2008 |
| Establish a task force to establish whether new school buildings could be zero carbon from 2016. | DCSF | 2008 |
| The Carbon Reduction Commitment will apply mandatory emissions trading to cut carbon emissions from large commercial and public sector organisations by 1.1 million tonnes of Carbon (MtC) per year by 2020. | Defra | 2010 |
| Departments to increase their energy efficiency per square metre by 15% by 2010 and 30% by 2020[88]. | All Government Departments (SDC monitoring[89]) | 2010 |
| Reduce carbon emissions on the central Government office estate by 12.5% by 2010/11 and 30% by 2020 relative to 1999/2000 levels[28]. | All Government Departments (SDC monitoring) | 2010/11 |
| Central Government's office estate to be carbon neutral by 2012[28]. | All Government Departments (SDC monitoring) | 2012 |
| 15% reduction in carbon emissions from construction processes and associated transport compared to 2008 levels. | Strategic Forum | 2012 - Aim to establish mechanism for measurement |

85 www.tinyurl.com/2gsgoo

86 UK government Sustainable Procurement Action Plan, 2007 See: www.tinyurl.com/yp9dsc

87 Sustainable Development Commission is monitoring via annual Sustainable Development in Government Reports

# Measurement and Reporting

**The Committee on Climate Change:** a new independent, expert body being established by the Climate Change Bill will advise the Government on the optimum pathway to the 2050 target. The Committee will report annually to Parliament on progress towards budgets and targets. The Committee is currently (June 2008) operating in "shadow" form ahead of Royal Assent of the Bill and has begun work on the statutory review of the 2050 target and will report by 1 December 2008.

**The Sustainable Development Commission:** provides an independent assessment of the performance of Government departments against the targets for the Sustainable Operations of the Government Estate[88], and publishes annual Sustainable Development in Government Reports[89]. The latest report was published on 18th March 2008[90].

# Future Work

The Committee on Climate Change is required to report its findings on the review of the 2050 target and provide advice on the level of the first three carbon budgets (covering the period 2008-2022) by 1 December 2008. The Government will announce the carbon budgets alongside Budget 2009, together with proposals and policies for meeting them.

In light of these requirements, a Government wide project has been set up to provide Ministers with the advice they require to set and meet the first three carbon budgets. This will include consideration of:

- The technical potential for the cost effective abatement across a range of sectors;
- Possible budget scenarios and gap analysis;
- Further policies and measures for reducing emissions; and
- Carbon accounting and budget management.

88 www.tinyurl.com/4jt6xe
89 www.tinyurl.com/3lbu5a
90 www.tinyurl.com/5zlo84

Government will be consulting later in 2008 on options for improving the energy performance of new non-domestic buildings. This follows the Chancellor's announcement in the 2008 Budget that the Government's ambition is to achieve zero carbon new non-domestic buildings by 2019.

Government will be consulting early in 2009 on the amendments to Building Regulations[70] necessary to deliver the next steps in improving energy efficiency improvements from all buildings in 2010.

Government is considering what further measures may be needed to reduce the carbon emissions from existing buildings as part of its wider strategies on improving energy efficiency generally, and for renewable energy and renewable and low carbon heat. These include a range of ideas which industry has been proposing and will cover emissions from both domestic and non-domestic buildings.

As part of the consideration of existing buildings, Government will look at ways in which the energy efficiency of existing non-domestic buildings might be improved. During 2008 English Heritage is launching a research project to measure the energy use and embodied energy of Victorian terraced homes and to lead the enhanced advice on the cost-effectiveness of various energy-saving measures.

Government will be publishing a consultation later in 2008 on the rules that should underpin the zero carbon definition for new homes.

The Carbon Reduction Commitment (CRC), beginning in 2010, will apply mandatory emissions trading to cut carbon emissions from large commercial and public sector organisations (including supermarkets, hotel chains, all Government departments, large Local Authorities) by at least 1.1 MtC / year by 2020. This commitment will affect the construction sector directly (by targeting emissions from construction companies whose emissions are large enough to be included in the CRC) and indirectly (by influencing the demand for lower carbon buildings by CRC participants). The industry will have the opportunity to comment on the proposed regulations as part of a consultation later in 2008[91].

91 For full details see: www.tinyurl.com/3nb69c

# 9 Climate Change Adaptation

## OVERARCHING TARGET:

**To develop a robust approach to adaptation to climate change, shared across Government. (Comprehensive Spending Review 2007, Public Service Agreement (PSA) 27: Tackling Climate Change)[92].**

## Context

In the UK, we can expect future changes to seasonal rainfall (wetter winters and drier summers), higher temperatures, rising sea levels and coastal erosion. It is also expected that the UK is likely to experience increased extreme events, such as high winds, heavy prolonged rainfall, flooding, drought and heat waves[93]. All of these have direct impacts – but also secondary ones, such as the stability and moisture of soils.

92 www.tinyurl.com/44fuml
93 www.tinyurl.com/42nzuj

It is essential that we build the potential for adaptation into design and construction methods – whether this is new development, refurbishment or regeneration. Green Infrastructure[94], for instance, has a key role to play in ensuring developments are resilient and adaptable to the likely impacts of climate change. Government is helping to shape places resilient to the impact of climate change[95] and is also looking at what levers might be used to provide greater adaptability when buildings are built or altered. This includes looking at ventilation and limiting the effects of solar gain alongside energy efficiency in Building Regulations[70], to avoid buildings with higher levels of energy efficiency overheating in our warming climate. Government is also improving the standards of efficiency of water fittings through Water Fittings Regulations, Building Regulations[70] and the Code for Sustainable Homes[46].

Delivery of adaptable developments and urban environments, including the refurbishment of existing buildings and infrastructure, will require improved skills and multi-disciplinary working. The Sector Skills Councils and the appropriate professional bodies will therefore be working with industry and skills providers to ensure that both new entrants and existing professionals have developed the skills necessary to respond to climate change and keep pace with policy and technology advancements.

Government has issued PPS *Climate Change* as a supplement to PPS1: *Delivering Sustainable Development* to ensure that tackling climate change becomes a primary objective of the planning system, helping to speed up the shift to renewable and low-carbon energy, supporting its ambitions on zero carbon development and helping to shape places resilient to the impact of climate change. PPS25 *Development and Flood Risk* helps planners to avoid, manage and reduce future flood risk to communities through the location, layout and design of development. There is draft practice guidance supporting the PPS on climate change[96] and a Practice Guide supporting PPS25.

Through the Climate Change Bill[97], the Government is putting in place a national framework for tackling climate change impacts and is continuing to fund research in this area – notably through the Hadley Centre and UK Climate Impacts Programme[98].



94 www.greeninfrastructure.co.uk
95 www.tinyurl.com/ypdd2y
96 www.tinyurl.com/552n3q
97 www.tinyurl.com/25j33o
98 www.tinyurl.com/6fde79

# Actions and Deliverables

| List of Actions & Deliverables which contribute to the Overarching Target | Body Responsible for each action/ deliverable | Timescale |
|---|---|---|
| Adaptation Policy Framework: National Policy Framework. | Defra/Government | 2008 |
| National Programme on Adaptation. | Defra/Government | 2011 |
| UK Risk Assessment. | Defra/Government | 2011 |
| Regional spatial and Economic strategies to take account of adaptation. | Regional Planning Bodies and Regional Development Agencies | ongoing |
| Reviews of Building Regulations[70] which will include consideration of impacts such as temperature change and flooding. | CLG | Ongoing, periodic reviews planned for every three years |
| Review of water fittings Regulations to maximize water efficiency | Defra | 2009 |



# Measurement and Reporting

A range of measures is in place to report on the actions and deliverables. These include the Local Government Performance Framework[99], scrutiny by the Committee on Climate Change and the assessment, led by Defra, of UK climate change risks, which is reported to Parliament. There is also the biannual reporting (annual report and Autumn Performance Report) led by Defra on the Public Service Agreement (PSA) target on Climate Change[100].

99 www.tinyurl.com/4l2xmf
100 www.tinyurl.com/4o54p2

# Future Work

The Government's programme on improving the knowledge of climate change and its impacts is developing, and it is an issue that the Government takes seriously. It is vital that other stakeholder organisations – including trade and professional bodies – are properly engaged and recognize their roles and responsibilities and the part they can all play in this. Many have begun this process – others need to develop their understanding.

For the Government's part:

- The UK Climate Impacts Programme 08 is due to be available in November 2008. This will help organisations adapt to inevitable climate change;
- The Government will be publishing the Adaptation Policy Framework document once the Climate Change Bill's provisions are confirmed;
- The Climate Change Bill will allow for a statutory National Risk Assessment to be developed, and a programme of action flowing from this;
- Government is also looking at what opportunities might exist to provide greater resilience and resistance to climate change impacts, such as flooding, when buildings are built or altered, e.g. through Building Regulations[70];
- Within the context of delivering the Government's Strategy for Trees, Woods and Forests, the Forestry Commission will continue to develop the contribution which trees, woods and forests can make to sustainable housing growth, including climate change adaptation;
- Through the publication of Future Water[101]: the Government's water Strategy for England, the Government is placing climate change adaptation at the heart of water policy development;
- The Government is developing a portfolio of possible options for facilitating the adoption of sustainable flood and coastal erosion risk management approaches to enable communities to adapt to both short term and longer term changes, working with natural processes where possible.

101 Future Water, the Government's water Strategy for England, Defra, February 2008, see: www.tinyurl.com/ynk96x for further details

# 10 Water

## OVERARCHING TARGET:

**To assist with the Future Water[101] vision to reduce per capita consumption of water in the home through cost effective measures, to an average of 130 litres per person per day by 2030, or possibly even 120 litres per person per day depending on new technological developments and innovation.**

## Context

Future Water, the Government's Water Strategy for England[101] was published in February 2008 and sets out the Government's vision for the water sector by 2030. Future Water maps out how the above overarching target of reducing domestic water usage to 130 litres per person per day, can be achieved from a current estimate of 150 litres of water used by every person in Britain per day[102].

102 See page 14 of the OFWAT 2006/07 Security of Supply report
See: www.tinyurl.com/5dkls9

Household water demand accounts for more than half of all public water supply use in England and Wales, and many of the new homes to be built in the next decades are in areas currently designated as water-stressed; hence, encouraging efficient water use in the home is crucial. The Government is introducing Building Regulations[70] to improve the water efficiency of new homes from April 2009. This will require a whole building standard of 125 litres per person per day. It has also integrated water usage targets into the Code for Sustainable Homes[46] and will be working to encourage wider uptake of the Code over the coming years[103].

One method to encourage households to save water is to install a water meter. Changes to legislation in 2007 will allow companies in areas of serious water stress to install meters in households, where there is a resource case to do so. Government will be commissioning an independent review of metering and water charging that will look at how to progress metering beyond current arrangements[104].

The Government as client is leading the way. From April 2008, water use in all new domestic property financed by Government must reach level three of the Code for Sustainable Homes46, equal to 105 litres per person per day. This will allow flexibility about the choice of individual water fittings whilst still enabling the achievement of an overall performance level for the home.

The Water Saving Group[105], chaired by the Minister for the Enviroment, has led the work to reduce the demand for water in households in England. Established in 2005, the group brings together key water industry organisations in order to combine their skills and experience to work together on a package of measures to promote the efficient use of water in households. The Group is currently (2008) reviewing water efficiency measures in the industrial and commercial sector, and is also working with BSI and others to develop a code of practice for non-potable water use in rainwater harvesting systems.

103 The Code for Sustainable Homes, Setting the standard in sustainability for new homes, Communities and Local Government, February 2008. Available at: www.tinyurl.com/25qz4o

104 Paragraph 28, Page 12, Future Water, the Government's water Strategy for England, Defra, February 2008, www.tinyurl.com/ynk96x

105 See www.tinyurl.com/5vqse8 for further details of this group

The Department for Communities and Local Government (CLG) is currently undertaking a study into the water efficiency of new non-domestic buildings, including the possibilities for whole building performance standards for non-domestic buildings.

Over the coming year (2008/9), Defra will consult on revisions to the Water Supply (Water Fittings) Regulations. These regulations set out the maximum permitted water usage of toilets, urinals, washing machines and dishwashers. The review will consider enforcement issues, advances in technical standards and water conservation, and the case for setting new performance standards for key water using fittings. Subject to consultation, any revised regulations will be issued in 2009. These will work alongside the new Building Regulations for water efficiency of new homes by discouraging the replacement of water efficient fittings installed in new homes by ones that use more water, and will work to improve water efficiency in existing and non-domestic buildings.

In due course, there may be European standards and labelling schemes for some categories of water using products, as the European Commission develops proposals to take forward the measures in its Communication on Water Scarcity and Drought[106]. Defra will continue to work with the Commission and other Member States on the proposals, including the establishment of minimum water efficiency standards for products such as dishwashers and washing machines via the Framework Directive for the Eco-design for Energy Using Products[107]. Defra will encourage the Commission to do the same for other water using products within its wider proposals for eco-design requirements under the Integrated Product Policy Framework[108].

In early 2008, Defra completed a consultation on improving surface water drainage, which incorporated a discussion regarding the future development of Sustainable Drainage Systems (SUDS). The uncertainty surrounding the responsibility for the ownership and long term maintenance of SUDS constitutes one of the key barriers to their implementation on a wider scale. The consultation considered potential options for resolving this uncertainty. Defra will publish a summary of the responses to the consultation in July 2008 and a Government response is anticipated later in the year.

106 www.tinyurl.com/4tjeao

107 www.tinyurl.com/ya9543

108 See: www.tinyurl.com/5g5jor for details of this framework

# Actions and Deliverables

| List of Actions & Deliverables which contribute to the Overarching Target | Body Responsible for each action/ deliverable | Timescale |
|---|---|---|
| All new homes built with English Partnerships and Housing Corporation support to meet Code for Sustainable Homes Level 3 standards for water efficiency (from April 2008), and (subject to funding) Level 4 standards from 2011 (105 litres per person per day). | English Partnerships, Housing Corporation[38] and CLG | From April 2010 |
| Development of standards for non-potable water use. | Water Saving Group/ BSI | Standard in place for rainwater harvesting systems by the end of 2008. |
| Defra will review the Water Supply (Water Fittings) Regulations 1999 in 2008 with a view to setting new performance standards for key fittings. | Defra | 2009 |
| A reduction in water consumption to an average of 3 cubic metres per person per year for all new office builds or major office refurbishments on the Government Estate. | All Government Departments (SDC monitoring[89]) | Ongoing |
| Reduce water consumption by 25% on the office and non-office estate by 2020 relative to 2004/5 levels. | All Government Departments (SDC monitoring) | 2020 |
| Water usage in the manufacturing and construction phase to be reduced by 20% compared to 2008 usage. | Strategic Forum | 2012 - Sample surveys of water usage measured by water metering |
| Introduction of changes to Building Regulation to improve the water efficiency of new homes, with a whole building performance standard of 125 litres per person per day. | CLG | From 2009 |

# Measurement and Reporting

The Government's progress towards the targets regarding water efficiency in its own estate is monitored by the Sustainable Development Commission (SDC).

Progress towards the ambition to reduce per capita consumption to an average of 130 litres per person per day by 2030 will be tracked through the information water companies submit annually to Ofwat, which is published in Ofwat's annual Security of Supply report[109].

# Future Work

- As announced in Future Water[101], the Government will commission an independent review to advise on how metering and charging should progress beyond the existing arrangements.
- Defra will respond to the consultation on SUDS by end of 2008.
- CLG will conduct research and analysis looking at how a whole building performance standard might be used and improve water efficiency for non-domestic buildings.
- Defra will continue to work with the European Commission and other Member States on the proposals to establish minimum water efficiency standards for products such as dishwashers and washing machines, via the Framework Directive for the Eco-design for Energy Using Products.



109 www.tinyurl.com/5e99q9

# 11 Biodiversity

## OVERARCHING TARGET:

**That the conservation and enhancement of biodiversity within and around construction sites is considered throughout all stages of a development.**



## Context

The UK Biodiversity Action Plan was published in 1994 as part of the UK Government's response to the Convention on Biological Diversity[110] signed at Rio de Janeiro in 1992. Since the Rio de Janeiro meeting, Heads of State at the United Nations World Summit on Sustainable Development in 2002 committed themselves to achieve by 2010 a significant reduction in the current rate of biodiversity loss. The European Union has gone further, agreeing in 2001 that biodiversity decline should be halted with the aim of reaching this objective by 2010.

110 See: www.cbd.int for further details

From a public policy point of view the planning system is an important tool in biodiversity conservation. Planning authorities have the power to prevent developments that are damaging to biodiversity, to secure biodiversity enhancement through attaching conditions or to defer decisions until more information is available. Additionally, planning authorities have a statutory duty to "further" or "have regard to" the conservation of biodiversity in the exercise of their planning functions. This includes an obligation to consider protected species, protected sites and species and habitats of primary importance.

In England, Planning Policy Statement 9[111] sets out the Government's policy on protection of biodiversity through the planning system. It is against this background that the construction industry has set the above target.



# Actions and Deliverables

| List of Actions & Deliverables which contribute to the Overarching Target | Body Responsible for each action/ deliverable | Timescale |
|---|---|---|
| All construction projects over £1m to have biodiversity surveys carried out and necessary actions instigated. | Strategic Forum | 2012 |
| Biodiversity Toolkit for planners and local biodiversity officers. | Defra/CLG/ALGE[114] and Statutory nature conservation agencies | Summer 2008 |
| Set up a cross-sectoral workshop and task group to develop a roadmap for the industry to maintain and enhance biodiversity in support of the target. | UK Green Building Council | End of 2008 |

111 www.tinyurl.com/65nyfz
112 Association of Local Government Ecologists

# Measurement and Reporting

The overarching target will be measured through a sample survey of projects.

The UK Green Building Council's cross-sectoral workshop will develop a roadmap and will report on progress by the end of 2008.

# Future Work

The responses to the consultation on the draft Strategy highlighted a number of areas where industry indicated that further work should be undertaken to support the enhancement of biodiversity. In addition, the joint BERR/ Defra Biodiversity in Construction workshop of November 2007 identified some ideas and actions that the industry could take to raise awareness and improve the ecological impact of construction. The UK Green Building Council will take responsibility for setting up a cross-sectoral industry workshop and manage a time-limited task group to develop a roadmap for the industry and its clients to maintain and enhance the biodiversity of the built environment in support of the above target.

Examples of key themes are:

- The role of Planning Guidance in implementing Green Infrastructure[113] initiatives;
- The role of training throughout the supply chain;
- The development of simple guidance and quick wins providing clarity and coherence to support the industry.

Furthermore, CIRIA intend[114] to develop guidance on enhancement of biodiversity within large civil infrastructure projects. This will provide those involved in large civil infrastructure projects with the techniques and opportunities for biodiversity conservation and enhancement.

As noted in the above table, the Association of Local Government Ecologists and the Planning Portal[115] are collaborating on a web-based Biodiversity Toolkit for planners and local biodiversity officers. The toolkit will offer guidance and advice on handling forward planning and development control matters in relation to biodiversity. The guidance will focus on species and habitats and link to key legislation and policy as well as other third party information resources. The toolkit will be delivered through the Planning Portal117 and will be available from summer 2008.

113 www.greeninfrastructure.co.uk
114 www.tinyurl.com/4qe2ca
115 www.planningportal.gov.uk

# 12 Waste



## OVERARCHING TARGET:

**By 2012, a 50% reduction of construction, demolition and excavation (CD&E) waste to landfill compared to 2008.**

**This 2012 target, agreed by the Strategic Forum for Construction, does not include aggregates used for backfilling quarries, site restoration or legitimately spread on exempt sites. For limited types of CD&E waste, landfill is likely to remain the least environmentally damaging option. Further work over the next few years on, for example, life cycle assessments, increased capacity and alternative disposal options, will allow industry to assess better how much more ambitious it could be beyond 2012 and how close we might get to ending the disposal of CD&E waste in landfill in the longer-term.**

# Context

The construction industry in England uses around 400 million tonnes of materials every year. Around 90 million tonnes of CD&E inert waste is produced, with half of this recycled as aggregates, including at the site of production. Estimates suggest at least a further 20 million tonnes of non-inert and mixed CD&E waste is also produced annually. The overarching target focuses on the total amount of CD&E waste being disposed of via landfill, estimated at over 25 million tonnes a year in England. Work is underway via Defra's Waste Data Strategy[116] to strengthen understanding of CD&E waste production, recovery and disposal. With data expected to be more robust in 2008 than previous years, this is taken as the baseline year for measuring progress towards the 2012 target.

Given the scale of the construction industry's resource use and the quantity of CD&E waste entering landfill, the Waste Strategy for England 2007[117] identified construction waste as a priority sector for action. A number of fiscal and legislative tools are already driving up resource efficiency in the construction sector and driving down waste production. These include the landfill tax, the standard rate of which for non-inert material will increase to £48/tonne in 2010/11, the aggregates levy which encourages the use of recycled rather than virgin materials, new legislation making Site Waste Management Plans (SWMPs) mandatory for construction projects in England worth over £300,000 and the Code for Sustainable Homes[46] against which ratings were made mandatory for all new homes from May 2008[118].

In order to meet the challenging target of halving CD&E waste to landfill by 2012 (as a result of reduction, reuse, recycling and recovery) complementary, action by industry will be needed through all elements of the supply chain. While the overarching target of halving waste to landfill may not automatically translate at a sector or individual business level, all of the actions detailed below will provide an important contribution to cutting CD&E waste to landfill. In addition, some companies have already set their own challenging waste targets based on a clearly demonstrated business case.

116 www.tinyurl.com/5w6a96
117 www.tinyurl.com/39rxgb

118 Implementing a SWMP is a mandatory element of the Code, and credits are available for waste reduction and recovery actions.

# Actions and Deliverables

| List of Actions & Deliverables which contribute to the Overarching Target | Body Responsible for each action/ deliverable | Timescale |
|---|---|---|
| Construction Waste Commitment: individual organisations commit to waste to landfill targets[119] at company level. | Waste & Resources Action Programme (WRAP), working with client and contractor sector bodies and Government Estate | Formal Launch in September 2008, then ongoing |
| Develop guidance on waste reduction for small builders. | National Federation of Builders (working with WRAP & Envirowise) | By 2009 |
| Sector resource efficiency plans prepared and implemented by trade associations. | Construction Products Association* | Three begun by end 2008 |
| Setting an overall target of diversion of demolition waste from landfill. | National Federation of Demolition Contractors* | By 2009 |
| Extension of Plasterboard Voluntary Agreement to rest of the supply chain. | Construction Resources and Waste Platform and WRAP | By 2009 |
| 20% reduction in construction packaging waste. | Construction Products Association | By 2012 |

119 Companies may commit to higher and earlier targets than the national target for 2012. The Construction Waste Commitment includes setting procurement requirements for good practice and measuring and reporting performance.

# Measurement and Reporting

Sector level organisations(*) will monitor delivery of actions for which they are responsible and progress against their own commitments and targets, collating aggregated data from individual businesses where appropriate. Similarly, WRAP will co-ordinate progress against the Construction Waste Commitment. Measurement of the overall volumes of CD&E waste going to landfill will be conducted by Defra, drawing on a range of available data sources including the CLG aggregates survey, landfill operator returns and other data streams identified in the Waste Data Hub Strategy[120].

# Future Work

Even if all agreed actions are met, there will still be a large amount of CD&E waste arising from construction activities, with landfill likely to remain a necessary outlet for significant quantities of CD&E waste beyond 2012. Reducing these quantities will require an integrated supply chain approach which addresses both waste minimisation and recovery.

Defra, in conjunction with a new construction waste group representing all sectors of the industry along with WRAP and Envirowise, will look at the following areas for further work:

- incorporating waste minimisation principles into building design and throughout the supply chain;
- improving our knowledge base via life cycle assessments of construction products and encouraging them to be used efficiently;
- obtaining better waste data and evidence;
- developing and rolling out necessary tools; and
- improving take back or exchange opportunities for unwanted and waste materials.

120 www.tinyurl.com/5v8p8n

# 13 Materials

## OVERARCHING TARGET:

**That the materials used in construction have the least environmental and social impact as is feasible both socially and economically.**



## Context

The rapidly increasing demand for greener buildings provides both challenges and opportunities in relation to the materials used. Accurate, accessible and timely information on the environmental and social impact of using different materials is increasingly desired by designers, contractors and procurers. The 2006 Code for Sustainable Homes[46] awards credits based on the environmental impact of materials and for materials responsibly sourced[121]. The aim in doing so is to encourage the use of materials with lower environmental impacts over their lifecycle and to recognize and encourage the specification of responsibly sourced materials for basic building and finishing components.

121 A Responsible Sourcing Scheme is a documented set of criteria setting out the obligations of an organization in managing the supply of construction products in accordance with a set of agreed principles of sustainability.

As a result of significant work in the 1990s funded by Government, the Building Research establishment (BRE) and the manufacturing trades associations, developed a system for Environmental Profiling of construction products and common building elements (later incorporated into the BRE Green Guide to Specification[80]). More recently, the surge in demand for greener construction products is stimulating the manufacturing sector to invest and innovate in the hope of capturing more market share as procurers adopt more sustainable procurement policies.

Government, through the policy of procuring only legal and sustainable timber and timber products has, for this material, altered the market demand and changed the behaviour of the timber trade. From the 1st of April 2009, all timber and timber products used on the Government estate must be from legal and sustainable sources or licensed under the EU Forest Law Enforcement, Governance and Trade initiative[122]. Other material sectors are now beginning to think about establishing responsible sourcing schemes with input from relevant stakeholders and establishing performance levels.

There is now a growing industry emerging using renewable construction materials which in the right context, can deliver buildings with enhanced environmental properties – for example through performance in use (energy consumption, thermal properties, ease of maintenance) and at "end of life" (how the material is recycled, recovered or disposed). However, further work is needed to gain a better understanding of the overall impacts of using such materials - from the growing and processing of the raw materials, through to the decommissioning and disposal stages. Government is investing in this area through the Defra Renewables and Low Carbon programme in collaboration with BERR[123].

122 In Europe, CEN (TC350) has been mandated to develop voluntary standards to address the application of life cycle methodologies to the environmental performance assessment of construction products and buildings.

123 www.tinyurl.com/3s8fe4

A fuller understanding of the sustainability of materials entails consideration of a complex and interconnected set of environmental, economic and social factors. Considerable work is now underway through a variety of initiatives, both public and private, to develop tools to aid industry to lower its impact across a broader range of environmental and social issues. Particular emphasis has been placed on attempting to understand better which parts of the life cycle have the greatest impacts, and where and how interventions can be focused to improve the environmental and social performance of products and services.

As a pilot project, in collaboration with relevant industry partners, the Sustainable Products and Materials Division[124] within Defra , has begun work on three construction product roadmaps (plasterboard, window systems and toilets), among ten products being considered overall. The intention of the roadmaps is to collect evidence about impacts of the products across the full product lifecycle, to identify and prioritise any particular problems and then develop the most effective solutions for improving sustainability. The Progress Report on Sustainable Products and Materials, to be published by Defra in Summer 2008, will outline the work to date and discuss a vision of the future[125]. Other tools are being developed by BRE and industry.





124 The Sustainable Products and Materials Division was established in September 2007. Its aim is to:

- focus attention on high impact products and services
- encourage business and consumers to take account of the full range of lifecycle environmental impacts
- drive solutions that achieve environmental and economic benefits through improving resource efficiency

125 Progress Report on Sustainable Products and Materials, Defra, June 2008, available at: www.tinyurl.com/5765k5

# Actions and Deliverables

| List of Actions & Deliverables which contribute to the Overarching Target | Body Responsible for each action/ deliverable | Timescale |
|---|---|---|
| Pilot product roadmaps to assess impacts of products across the full product lifecycle, to identify and prioritise any particular problems and then develop the most effective solutions for improving sustainability. | Government and relevant industry supply chain partners | Initial mapping exercises - completed summer 2008; agreement on next steps - second half of 2008 |
| Finalising Framework Standards to facilitate the development of sector Responsible Sourcing schemes. | Construction Products Association with BRE and BSI | 2008 / 2009 |
| 25% of products used in construction projects to be from schemes recognized for responsible sourcing. | Strategic Forum | 2012 - Sample survey of products used in projects. |
| To develop means of improving access for designers to product Life Cycle Inventory information. | Construction Products Association / BRE/ designers and other certification bodies | 2008 - 2010 |



# Measurement and Reporting

Considerable further work needs to be done to decide on the best means of measuring the uptake of sustainable products within the building sector. The development of the standards for responsible sourcing is currently underway by both BRE and the BSI.

# Future Work

The development of roadmaps for improvement, framework standards for responsible sourcing and improved access to Life Cycle Assessment information, will provide essential next steps towards further improving the sustainability of materials used in construction. Government and industry will collaborate to consider what additional tools and mechanisms are needed to promote both increased use of sustainable materials in construction and improvements in materials themselves.

# 14 Embedding and Reporting Progress



The construction industry and Government will have key roles in implementing this Strategy.

For instance, all 30 member organisations of the Construction Industry Council (CIC) will be developing and delivering a work programme in support of sustainable construction. The CIC will also be developing a Sustainability Charter to which all members would be required to sign up as a condition of membership.

The Construction Products Association has embedded sustainability thinking within its organisational objectives and is encouraging the industry to develop products and processes that contribute to a more sustainable built environment. It convenes numerous working groups, workshops and work programmes with its members to take forward the necessary activities. It promotes the uptake of Key Performance Indicator measurement by its members.

The UK Green Building Council (UK-GBC) is working with members and other stakeholders to create a 'Roadmap to Sustainability', a shared vision of a sustainable built environment that provides a path for the industry, its clients and policy makers to follow[126].

CIRIA will provide a means through which the many different stakeholders in construction can work together to promote this Strategy throughout industry. This will be performed using member contacts, networks and events (including CIEF[127]), where appropriate, to promote the Government's targets for sustainable construction.

Constructing Excellence will use its extensive network of organizations and businesses from across the built environment to communicate and promote the Strategy. It will also engage its local club network to promote the Strategy to SMEs and regional offices of major players.
To aid uptake of sustainable practise, the Construction Clients Group has produced a Plain English Guide to Sustainable Construction[128].

Regional Development Agencies (RDAs) will support this Strategy through strategic alignment and working in partnership with the rest of the public sector while understanding the needs of business. RDAs will:

- Apply the Common Minimum Standards[129] for all construction works carried out directly or with RDA financial support - these include the standards set out in the OGC's Achieving Excellence[23] initiative;
- Require that where RDA investment relates to housing development they will require achievement of at least the same levels of the Code for Sustainable Homes46 and complementary housing quality standards now required by English Partnerships[39];
- Support innovation in partnership with the Technology Strategy Board and align their investments to achieve this;
- Support Small and Medium Sized Enterprises with a particular focus on resource efficiencies;
- Support sustainable development in their regions through the Integrated Regional Strategies;
- Be signatories to the Construction Commitments[130].

126 For details see: www.ukgbc.org
127 Construction Industry Environmental Forum
128 For details see: www.tinyurl.com/67y8es

129 See: www.tinyurl.com/3kou3w for details
130 See: www.strategicforum.org.uk for further details

Industry, Government and its agencies will continue to work together – primarily by the actions outlined in the preceding chapters. As an example of activity within the public sector, the Department of Health promotes the Strategy across the health and social care sector and has developed the BREEAM Healthcare environmental assessment tool. This is supported by guidance[131], to ensure that in future NHS healthcare facilities are built and operated in accordance with these sustainable construction principles.



# Reporting and Monitoring

The Strategic Forum for Construction will be monitoring industry's progress in regard to the actions and deliverables contained in this Strategy.

BERR will be undertaking a similar function for actions and deliverables relating to the public sector.

The intention is to publish reports on progress at two year intervals and to hold conferences in 2009 and 2011. Targets, actions and deliverables will be reassessed and refreshed at these times.

Constructing Excellence collects the key performance indicator data for the industry. A number of Key Performance Indicators are relevant to the chapters within the Strategy and would help organisations to measure their performance against industry averages. Further information is available at: www.kpizone.com

The Sustainable Development Commission will continue to monitor the performance of central Government operations against the targets of the Sustainable Operations on the Government Estate[132]; this framework covers energy, biodiversity and consumption/production[133].

131 Health Technical Memorandum 07-07 "Sustainable Social and Healthcare Buildings: planning, design, construction and refurbishment"

132 www.tinyurl.com/4jt6xe

133 www.sd-commission.org.uk/sdig2007

# 15 Acknowledgements



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# 16 Contact Details



Copies of the Strategy are available at:
www.tinyurl.com/yua68g

For further information or questions please contact:

**Department for Business, Enterprise & Regulatory Reform**
**Construction Sector Unit**
1 Victoria Street
London SW1H 0ET

E-mail: john.newman@berr.gsi.gov.uk

Phone: 020 7215 0994

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