



Ministry  
of Defence

# **Greening Government Commitments Annual Report 2011-12**

Defence Infrastructure Organisation  
July 2012 (amended Aug 2012)

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## Introduction

1. The current coalition government introduced the Greening Government Commitments (GGC) in 2010. The GGC targets will assist delivery of the Government's vision of having the greenest ever operations and procurement with greater transparency on performance. To make this a reality the GGC targets seek to make significant reductions of greenhouse gases, reduce waste, reduce water consumption and make procurement more sustainable. The GGC targets follow on from previous Sustainable Development (SD) targets called Sustainability on the Government Estate (SOGE), whose target year was March 2011. MOD met or exceeded all the SOGE targets, notably reducing water consumption by 29% and energy emissions by 21.5%. The GGC targets require improvements on top of the SOGE achievements.
2. The GGC targets have a common baseline year of 2009-10 and all except for paper procurement have a common target date of March 2015. This period covers the life of the current government. The paper procurement target was March 2012.
3. MOD is committed to the GGC targets and has embedded the targets into key documents to make sure the targets are shared by all the Commands. The key documents are: MOD Business Plan 2012-2015<sup>1</sup> and the Sustainable Development Strategy<sup>2</sup> and the Defence Plan<sup>3</sup>.
4. In April 2012, responsibility for SD policy in MOD passed from 2<sup>nd</sup> Parliamentary under Secretary to the Chief Executive, Defence Infrastructure Organisation (CE DIO)<sup>4</sup>. CE DIO responsibilities include the strategic management of the Defence estate in the UK and overseas. DIO's role already includes the provision and management of many SD functions such as, energy, water, biodiversity and conservation. The addition of SD policy to the CE DIO portfolio will allow DIO to champion the core and wider SD values across MOD and achieve the GGC targets.
5. The data in this report covers the MOD (civilian and Armed Forces) and the Trading Fund Agencies (Defence Support Group, Defence Scientific Technical Laboratories and the UK Hydrographic Office). The MOD's non Departmental Bodies are exempted from the GGC baseline due to their small size. The data has a number of caveats and these are listed in Annex A.
6. The data in this report is not prepared to National Statics Standard. The reporting requirements are set out in a Cabinet Office document published at: <http://www.cabinetoffice.gov.uk/resource-library/green-government/>

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<sup>1</sup> <http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/BusinessPlans/ModBusinessPlans/>

<sup>2</sup> <http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/DefenceEstateandEnvironmentPublications/SustainableDevelopment/SustainableDevelopmentStrategy.htm>

<sup>3</sup> [http://www.mod.uk/NR/rdonlyres/AB3A3278-2820-40EF-AA15-9BDA7D0A5318/0/Defence\\_Plan\\_2010\\_2014.pdf](http://www.mod.uk/NR/rdonlyres/AB3A3278-2820-40EF-AA15-9BDA7D0A5318/0/Defence_Plan_2010_2014.pdf)

<sup>4</sup> The Defence Infrastructure Organisation (DIO) was formed on 1 April 2011 when the former Defence Estates organisation was brought together with property and infrastructure functions within the other six MOD Top Level Budgets to form a single organisation.

## Performance

7. This is the MOD's first report that outlines the progress in meeting the GGC targets. A summary of MOD's performance is given below:

- a. Greenhouse Gas - This target is to reduce emissions by 25% from (1) estate energy (e.g. electricity, gas etc.) and (2) UK travel for administrative business (i.e. travelling to meetings).
  - i. Energy - MOD is confident that the reductions will be achieved by the target year. The energy baseline is for the MOD core estate, i.e. sites that MOD has a long-term interest and accounts for around 80% of MOD's total emissions. This allows energy infrastructure investment to be concentrated primarily on those sites with a long-term future. MOD has already invested in smart meters and future infrastructure upgrades will include energy efficient boilers and energy optimisation. The MOD has agreed a three year investment programme of £105M for energy efficiency initiatives in order to save a potential £110M over the spending review period, with an enduring £70M saving per annum thereafter. Strategic Energy Management Service (SEMS) have also been implemented across parts of the estate on a cost neutral basis. For 2011-12, in year savings of £7.2M have been achieved, with a total saving from both the investment programme and SEMS of £14.3M being achieved.
  - ii. Travel – Reduction in emissions from travel have benefited from spending restrictions. Further reductions will be achieved through reduction in headcount (civilian and military) and reducing the number of MOD sites.
- b. Waste – MOD is required to reduce the volume of waste by 25%. Achieving this target requires a combination of reduced packaging, buying items with a longer life or in larger volumes, reducing consumption and using equipment that requires less maintenance and parts. Progress has been difficult in 2011-12, the impacts of meeting wider Government efficiency and reform commitments, Defence Reform, and the timescales for withdrawal from Afghanistan, means that achieving the waste targets will continue to be a challenge for MOD. For 2012-13, the sale of surplus stores, equipment disposal, site closures and the Armed Forces participation in the Olympics will all increase the volume of waste. Around 77% of MOD's waste is diverted from landfill with almost 68% was recycled or reused. We have monitored the disposal of ICT waste to make sure that it is reused or recycled responsibly. MOD ICT waste is disposed of centrally, from which 99% was recycled or reused.
- c. Water – The priority has been to reduce the total water consumption across Defence. MOD is on course to achieve a 7% reduction by the end of the target period. Savings have been achieved from 'spend to save' improvements at 23 sites with consumption typically over 20,000m<sub>3</sub> per year. The savings have been delivered over the last three years. No progress has been made to meet the best practice benchmark for office buildings. MOD's office buildings consume less than 0.1% of the MOD's water consumption. Some office buildings are leased; this prevents infrastructure changes, limiting us to influence behaviour to save water. Water savings across the whole estate are giving the best return on water consumption reduction. MOD is exploring ways to procure regional contracts to deliver a Water Consumption Reduction Management Program. This

requires specific technical expertise on water conservation and innovation together with development of site water awareness training and stakeholder communication strategies. The start date is late 2012 and delivery over 3 years (including sustained management solutions to ensure savings are long term). If approved, the potential savings to MOD could be as much as £50 million (to 2028) and £6.5 million per year with potential demand reduction of up to 1.5 million m<sup>3</sup> per year at 170 targeted sites this would represent a potential total demand reduction of up to 8% based on the current total consumption across 2,800 sites.

- d. Domestic Flights – This target is to reduce commercial air flights in the UK by 20%. Domestic flights have reduced by 8%, although this is an increase on 2010-11 total. During 2010-11, budget restrictions curtailed travel, these restrictions have eased and travel has increased. MOD has challenges to meet this target due to large distances between MOD sites and flying allows day travel, which avoids overnight accommodation costs. MOD is advocating the use of video conferencing and telephone conferencing to minimize travel wherever possible.
- e. Paper – This target requires a 10% reduction in the quantity of A4 printer paper procured by 2011-12. MOD reduced paper procurement by 11% and has exceeded the target set.

8. The table below shows the first two years performance against the targets.

	Target		Baseline 2009-10	2010-11	2011-12	Performance to date	
<b>Greenhouse Gases</b>	25% Reduction by March 2014-15		Tonnes CO <sub>2</sub> e	1,440,320	1,435,608	1,278,664	-11%
<b>Waste</b>	25% Reduction by March 2014-15		Tonnes	185,437	189,713	197,034	+6%
<b>Water</b>	7% Reduction across the whole estate by March 2014-15		M <sub>3</sub>	24,973,623	24,549,642	24,659,000	-1%
	Percentage of office buildings meeting the benchmark for water consumption per FTE	• more than 6m <sub>3</sub> = poor	Best Practice Building %	0	0	0	No change
		• between 4m <sub>3</sub> and 6m <sub>3</sub> = good	Good Practice Building %	0	0	0	No change
		• less than 4m <sub>3</sub> = best	Poor Practice Building %	100	100	100	No change
<b>Domestic Flights</b>	20% Reduction by March 2014-15		Number of Flights	22,088	17,915	20,247	-8%
<b>Paper Purchased</b>	10% Reduction by March 2011-12		Reams A4 Equivalent	1,242,363	NA	1,099,866	-11%

Table 1 – MOD GGC Performance

## Sustainable Procurement

9. In 2011-12, Defence Internal Audit conducted a review of compliance with Government Buying Standards (GBS). Of the four product groups covered, it was found that one product group, textiles, was fully compliant with GBS; this included both new and amended contracts. Three product groups - Office ICT, Construction, and Electrical Goods - were considered partially compliant because of weaknesses in the controls supporting the inclusion of GBS or equivalent standards in contracts. Further action is therefore required to improve compliance, including raising awareness of GBS among commercial staff. In addition, given the volume of Defence contracts, we have focused on ensuring compliance with GBS in new contracts. Legacy contracts will be amended to include GBS only where practicable and cost effective.

10. MOD has continued to work with key suppliers to capture data on carbon emissions. A total of 19 key suppliers have disclosed data, although the reporting periods vary from supplier to supplier; so it is not yet possible to make year-on-year comparisons of trends. Based on the data available, total global emissions in metric tonnes of CO<sub>2</sub>e were:

Description	2009	2010
Scope 1	2,885,210.8	2,529,409
Scope 2	7,454,913.7	6,341,457.5
<b>Total</b>	<b>10,340,124.5</b>	<b>8,870,866.5</b>

Table 2 Key Supplier Emissions

11. The Defence Business Plan commits the Department to agreeing targets for reducing our key suppliers' greenhouse gas emissions by 2014 and water consumption and waste by 2015. Separately, the Department has set a target to reduce its reliance on fossil fuels for operational energy by 18% by 2020-21 (from 2009-10 baseline).

12. The majority of UK based MOD personnel are catered for under regional or multi-activity contracts, or catering, retail and leisure contracts. Contractors are obliged to source on the open market consistent with meeting EU competition rules and quality standards, and GBS. MOD food provision, in terms of the operational arena and in circumstances of extreme training conditions, is exempt from those GBS, which may adversely affect the nutritional status and well being of personnel. In these circumstances, it is recognised that that the personnel are operating under very different circumstances to those which the GBS criteria were developed to meet.

## **Biodiversity and the Natural Environment**

13. In 2011-12, the MOD focussed on continuing to support operations in Afghanistan, and delivering the defence transformation programme, with significant organisational changes and drives for efficiencies. Also, MOD promotion of SD has followed the Greening Government Agenda, increasingly focusing on energy, water and waste. However, there has been some significant action on biodiversity promotion:
14. Biodiversity is one of the key themes in a new online training course 'Delivering Sustainable Development', which is now mandatory for all staff with an estates function within the MOD. This impressive tool gives a thorough introduction to biodiversity issues, responsibilities and opportunities, and signposts the main tools and further information portals.
15. The 40th edition of Sanctuary, the MOD flagship conservation magazine was published in September 2011. Sanctuary and the annual Sanctuary Awards promote and illustrate MOD's commitment to SD and how we are undertaking our responsibility for stewardship of the estate in the UK and overseas. Sanctuary is published online but in 2011, some of the DIO's industry partners sponsored a small print run.
16. The headline feature in Sanctuary 2011 was "Defending Development" – giving case studies of how biodiversity conservation is integral to estate development. Recent change on the Defence Training Estate (DTE) have focused on recreating the 'Contemporary Operating Environment' for pre-deployment training, including networks of Forward Operating Bases; mock Afghan villages and compounds; and Counter Improvised Explosive Device lanes. Most of the DTE has significant biodiversity value, is protected by national and international designations, and so great care is taken to site new developments in areas of low sensitivity, or if impacts cannot be avoided, to mitigate or compensate for any damage caused, to ensure that overall there is no 'net loss' of biodiversity, and where possible continued gain.
17. The Royal Navy has published a new framework for assessing, avoiding and mitigating impacts on marine biodiversity, the Marine Environmental and Sustainability Appraisal Tool (MESAT). A report and links can be found in the 2011 Sanctuary magazine.
18. The UK defence estate is unique within government: it covers 240,000 hectares, with over 80,000ha designated as Sites of Special Scientific Interest (SSSI) or equivalent and significant biodiversity interest on the remainder. For large complex sites the MOD prepares 'Integrated Rural Management Plans' (IRMPs) to ensure that operational activities, biodiversity and other objectives, are all identified and deconflicted. Amongst the IRMPs published or revised in 2011-12 were those for Training Areas at Dartmoor, Cinque Ports, Otterburn, Bordon, Bramshott & Longmoor, and for coastal Test and Evaluation ranges at MOD Shoeburyness and South Uist. For smaller, simpler and urban sites, the MOD's various industry partners are responsible for ensuring that biodiversity is considered in grounds maintenance plans.
19. A new SSSI Champion was appointed on the DIO Operations Committee, responsible for maintaining Board commitment and reporting progress.

20. In England the MOD has management responsibility for 71,377ha of SSSI, and maintained the position of over 99% considered to be in 'favourable' or 'recovering' condition. In line with the new England Biodiversity Strategy, the MOD now also records the progress towards achieving 'favourable' condition of its English SSSIs by 2060: the 2010-11 baseline was 38%, and there was no significant change during 2011-12.

21. In Northern Ireland, we hold 1089 ha of ASSIs, and 100% of features are now considered to be favourable or recovering, reflecting recent efforts to finalise management agreements, clear scrub and introduce grazing. In Scotland, we hold 6911 ha of SSSIs and maintain the position of 95% of SSSI features favourable or recovering. In Wales (3345 ha) there are now two performance measures: 76% of SSSI features are considered to be favourable or recovering (no change); and for the new area reporting framework 2011-12 will be the baseline year and 80% of our Welsh SSSI area is considered to be in "Appropriate Conservation Management".

## **Climate Change Adaptation**

22. The MOD has worked with other Government Departments to identify and understand the global impact of climate change and the effects on UK interests and security. MOD's Defence Strategy Group has commissioned a study to consider the long-term implications for Defence of climate change, which is due to be completed by winter 2012. In addition, MOD's Envoy on Climate and Energy Security engaged in a wide range of activities to further both domestic and international understanding of these issues and of the actions necessary to reduce the risks to global stability.

23. Sustainable Procurement is a key element in the planning and delivery of military capability. This addresses resource scarcity and resilience to climate change in all capability programmes. MOD's procurement guidance requires new equipment that is resilient to long-term climate change. In addition, it is mandatory that all procurement business cases should consider sustainability.

24. MOD has also developed its Climate Impacts Risk Assessment Methodology (CIRAM), which identifies the risks and opportunities for Defence outputs from current and future climates or extreme weather events. This also identifies the adaptation actions needed to increase resilience in the short, medium and long term. MOD is on track to deliver CIRAM assessments across its most critical sites by March 2013 and other key operational sites by 2015 (80 assessments to be completed over the next four years; 22 assessments completed in 2011-12 against a MOD target of 20 sites).

25. MOD's climate change strategy is published at <http://www.mod.uk/DefenceInternet/AboutDefence/WhatWeDo/DefenceEstateandEnvironment/SustainableDevelopment/ModAndClimateChange.htm>



## **Food / Catering Services**

26. The MOD is fully committed to supporting the Government Buying Standards (GBS). The only exceptions are where operational and training requirements make this impractical. MOD food provision, in terms of the operational arena and in circumstances of extreme training conditions, is exempt from those GBS, which may adversely affect the nutritional status and well-being of personnel. In these circumstances, it is recognised that personnel are operating under very different circumstances to those which GBS criteria were developed to meet.

27. Information is not held on the proportion of food procured under contracts from UK suppliers for catering for MOD civilian personnel employed at UK Defence establishments and Armed Forces personnel 'in barracks'. Contractors appointed under these arrangements are obliged to source on the open market consistent with meeting EU competition rules and quality standards.

28. For Armed Forces personnel not covered by these contractual arrangements and those serving on operations and overseas exercises, there is a single food supply contract with Purple Food Service Ltd (PFS), which provides approximately 1,150 different food items in the core range price list. In 2011-12, the supplier estimated that approximately 60% of lines listed (excluding fresh produce) are sourced from suppliers within the UK. This compares with 43% in 2006-07 (from when data were readily available). All food procured through this contract is produced to UK and EU production and farm assurance standards or equivalent.

29. The percentage of UK produced goods changes regularly because of seasonality; value for money incentives; and changes of supplier. Some products are manufactured using a number of ingredients from various countries including the UK while others, such as fresh fruit and vegetables, are sourced from a variety of countries.

30. Under the MOD's current food supply contract, the annual pork requirement is for approximately 720 tonnes, of which 100% is British and conforms to the British Pork Executive Quality Standard Mark. In addition, the 41 tonnes (approximate) of whole gammons purchased in 2011-12 were sourced from British pork. All food purchased through this contract is already subject to exacting quality standards, including the requirement for suppliers to meet all extant EC and legislative requirements. MOD quality standards are being revised in consultation with the Cabinet Office, the Food Industry and other Government Departments. Purchasing policy is constantly reviewed, and work continues with the Meat and Livestock Commission to identify opportunities for increasing the volume of British meat whilst ensuring value for money, quality standards and availability.

31. All whole eggs are produced to UK and EU production and Farm Assurance Standards or equivalent. Liquefied eggs are not procured under the PFS contract.

## Environmental Management Systems (EMS)

32. EMS is a tool used to help achieve and demonstrate sound environmental legislative compliance while contributing to our performance in meeting GGC targets as appropriate. By 2014, all MOD sites will be covered by an appropriate EMS; all active EMS are audited and regularly reviewed as part of the EMS cycle.

## Sustainable Construction

33. The Defence Related Environmental Assessment Method (DREAM) was developed by the MOD in conjunction with industry professionals to address the particular environmental performance aspects of MOD construction projects. DREAM specifically addresses the unique nature of MOD buildings and sites and provides the MOD with an equivalent to the industry standard BREEAM. It is designed to assess construction projects impact on a wide range of environmental aspects including Biodiversity, External Environmental Quality, Energy, Internal Environmental Quality, Procurement, Travel, Water and Waste. DREAM is a web-based tool, which comprises of a series of modules for defence building types and covers new build and refurbishment projects.

34. New builds/refurbishments meeting standard in 2011-12:

- a. New Builds – 80% of construction projects met the target rating of Excellent with the remaining 20% achieving Very Good.
- b. Major Refurbishments – 100% of projects met the target rating of at least Very Good.

35. As part of our Supplier Engagement, our contracting partners report on the percentage of total timber meeting Forest Stewardship Council or the Canadian Standards Association standards. For 2011-12, the total timber used/procured that had met this standard was 94%.

36. Our contracting partners signed a Voluntary Charter in 2009 to reduce Construction Waste with the following targets:

- Aim to recover a minimum of 60% of construction waste materials, and aim to exceed 80%;
- Aim to recover a minimum of 80% of demolition and strip out waste and aim to exceed 90% (this target is dependant on the amount of hazardous material present).

37. The results for 2011-12 were:

Average % of construction materials recovered	80%
Average % of demolition and strip out waste recovered	81%
% of Construction Demolition and Excavation Waste diverted from landfill	81%

Table 3 Construction Waste

## People

38. Many MOD staff participate in a wide variety of voluntary work throughout the UK and make valuable contributions to their communities by participating in activities which includes: cadets, reserve forces, National Trust, Red Cross, RNLI, school governor, youth leadership training. The MOD volunteering strategy objective is to encourage increased volunteering activity amongst employees. In addition to giving time to the local community staff regularly raise funds for worth causes, some examples from 2011-12 are:

- The crew of HMS Pembroke, a mine hunter, raised £1,300 by holding a sponsored weight lifting event in aid of Pembroke House. Pembroke House is a Kent based care home run by the Royal Naval Benevolent Trust for former Royal Navy personnel.
- Six Royal Marine physical training instructors raised £10,000 in aid of the Royal Navy and Royal Marines Children's Fund and Children in Need. In 24 hours, the Marines completed all the tests required to become a Royal Marine.
- 7th Parachute Regiment Royal Horse Artillery sailed across the Atlantic Ocean to New York to raise money for Help for Heroes and the Royal Artillery Charitable Fund. This raised over £5,000.
- MOD bases across the UK and overseas took part in 'The Big Brew Up' to raise funds for the Soldiers, Sailors, Airmen and Families Association (SSAFA). The event was expected to raise around £100,000.
- A RAF crewman cycled to all six search and rescue stations, a 1,800 mile journey. He raised money for two charities - Combat Stress and a Suffolk based charity, St Nicholas Hospice in Bury St Edmunds.
- Teams from across the Defence Equipment and Supply organisation donated more than 2,000 boxes in aid of Operation Christmas Child. The initiative is run by international charity, Samaritan's Purse, it works by encouraging communities to donate shoeboxes filled with school items, hats and gloves, toys, games, toiletries and sweets which are delivered to disadvantaged children living in challenging conditions overseas. For Christmas 2011, the boxes went to Belarus in Eastern Europe.
- Sailor, Soldiers and Airmen took part in events such as the British Military Tournament and the Edinburgh Tattoo, raising money for Service charities.
- MODCARE raises money to contribute to the relief of hardship through small grants to support the work of charities throughout the country. It targets small organisations that are often overlooked by major donors and do not have the dedicated fundraising capabilities of large national charities. MODCARE receives funds from current and former MOD employees as well as fund raising events. During 2010-11, MODCARE made grants totalling more than £28,000 to more than 90 different charities.

39. MOD staff are also involved in projects that benefits the aims of the GGC targets and the local community, examples of projects during 2011-12 are listed below:

Climate Week at RAF Northwood. RAF Northwood organised a week of activities for climate week, each day with a different theme. The event included competitions, a free lunch and a few freebies with an environmental theme all kindly donated for the event. The week highlighted energy efficiency, water savings, reducing waste to landfill, using video conferencing instead of travel, energy saving devices, promoted sustainable commuting, and demonstrated a new telematics system fitted to the lease cars that improve vehicle utilisation, promotes fuel efficient driving and can record fuel usage and CO2 emissions.

#### 4th Regt Royal Artillery Waste

4<sup>th</sup> Regiment Royal Artillery at Topcliffe is saving over £10,000 per year after a review of local wasting handling. They first collected all the 'contracted bins' into a single waste compound where access was limited and supervised and local bins were removed from around the site. This ensured that waste was pre sorted before delivery to the waste compound. The unit also changed from black bin bags to clear bags to make recycling enforcement easier. Education was required to make sure everyone knew how to sort the waste and a zero tolerance to waste dumping policy was announced. The unit achieved a 400% increase in recycling rates, the number of 'contracted bins' required reduced and overall costs fell. Other units are also introducing similar waste reviews.

Climate Week Awards 2012 - MOD had two nominees in the Climate Week Awards, these were

- Climate Week Awards 2012 nominee - Power Forward Operating Base. On the battlefield, saving energy can save lives. Getting fuel to the UK's largest battlefield operating base, Camp Bastion in Afghanistan is a dangerous and expensive operation. The base's 250 generators use 18.2 million litres of fuel a year, which has to be transported overland through areas at high risk of attack. At a test base in Cyprus, the Defence Equipment and Support team has come up with an innovative way to reduce the use of fossil fuels. By integrating battery storage, demand management and renewable energy sources with the traditional diesel generators, it can cut the use of fuel by 46%. In the summer of 2011, the concepts tested and proved in Cyprus were put into action during British operations in Kenya, which saved 3,300 litres of fuel over a 28-day period. If all the tested technology is applied in Camp Bastion a savings of 16.7 million litres of fuel could be achieved in two years, saving £19.7 million.
- Climate Week Awards 2012 nominee - RAF Northolt Sustainable Development Plan. The base has replaced its Aerodrome Ground Lighting, airfield signage, hanger lighting and road lights with low-energy LEDs. It also has solar and wind powered security gates. A green travel plan encourages car sharing, and bicycles are provided for travel around the Station. Recycling rates have risen to 79% and 28 allotments have been provided to enable station personnel to grow their own food. RAF Northolt is the first military airfield to use rhinophalt to resurface its runways, which involves 94% less CO2 emissions than normal runway resurfacing. RAF Northolt incorporated environmental issues into its work, with a Station Sustainability

Plan developed in 2011. Sustainability is regularly reviewed at a monthly Station Sustainability Forum, which includes RAF Northolt personnel, the estate management team from Defence Infrastructure Organisation and contractors. Overall, in 2011, RAF Northolt reduced its emissions by 15% and saved over £200,000.



RAF Northolt Runway

### MOD Sanctuary and Energy Awards

The Sanctuary Awards began in 1991, they recognise and encourage group and individual efforts that benefit wildlife, archaeology, environmental improvement or community awareness of conservation on or within land and property owned or used by MOD worldwide. The awards are in four categories: Environmental Project, Heritage Project, Sustainability Project and Individual Achievement. The winner from each category is then considered for the overall winner who is presented with the Silver Otter prize. Details of the winners and runners up are published in the Sanctuary Magazine. The 2011 winner was a project to create a coastal trail to allow the local community safe access to the range linking the existing rights of way and avoiding dangerous narrow lanes. Energy Awards take place along side the Sanctuary Awards; these recognise team and individual effort to save energy across MOD's estate in the UK or overseas. The 2011 winner was RAF Northwood (see below).

Sanctuary Awards link:

<http://www.mod.uk/DefenceInternet/MicroSite/DIO/WhatWeDo/EstateAndSustainableDevelopment/SanctuaryMagazineAndAwards.htm>

Other examples of the range of sustainable development projects undertaken across MOD can be seen in Sanctuary Magazine.

Sanctuary Magazine link

<http://www.mod.uk/DefenceInternet/MicroSite/DIO/OurPublications/EstateAndSustainableDevelopment/Sanctuary.htm>

### RAF Northwood Emission Reduction

Permanent Joint Headquarters, Northwood is responsible for the planning and execution of overseas operations. As part of a major redevelopment sustainable development principles including carbon management and energy efficiency have been incorporated into the programme delivered by the PFI contractors Carillion PLC. Carillion and the MOD team worked together and delivered a range of initiatives that made carbon and financial savings. These included adjustment of the heating and air conditioning parameters; improved lighting; installation of low emission condensing boilers and replacement of a fleet of diesel vehicles with three electric buggies, two hybrid cars and two small low emission cars, all resulting in a saving of 9,723 kg of CO<sub>2</sub>. The savings achieved under the direction of the partnership with the support of the site population in one year realised an energy saving of 485,971 KWh, a reduction and a saving of £28,340 in utility costs. This project won the Energy Award Team category in the MOD Sanctuary Awards.

### Conservation Group Partnership

Longmoor and Woolmer Forest, which is a 1783 hectares training area consisting primary of a lowland heath land habitat. MOD is working with the Longmoor Conservation Group, which includes representatives from other non-government organisations and amateur naturalists to conserve and promote the local habitat. Woolmer is home to the last surviving native population of natterjack toads in the south of England and is the only site on the British Isles where all our native reptiles and amphibians can still be found, including the great crested newt and adder.

### Water Spend to Save

In 2009-10, a 'spend to save' project implemented at a cost of £80,000 resulted in a demand reduction of 140,000m<sup>3</sup> per year at five sites with savings in excess of £400,000 per year. The average payback on investment was 2 months. Following this favourable payback, work was completed on a further 5 sites in 2010-11 and 2011-12 which resulted in achieved demand reduction of 135,000m<sup>3</sup> per year and savings in excess of £527,000 per year for an investment of £166,000. The average payback on investment was 4 months. Part of this 'spend to save' programme focussed on improving domestic ablution efficiency & waste reduction, i.e.

- Urinal Control (the most significant potential savings across MOD)
- Shower head retrofit replacement efficiency
- New Showers
- WC dual flush retrofit
- Fitting new dual flush units

Tap replacement (con concussive and restrictors to flow <5l/min)

### DE&S Abbey Wood Travel Reduction

The Environmental Team at Abbey Wood implemented a programme of activities aimed at helping employees cut their transport carbon emissions and relieve local congestion. A key issue has been the need to reduce the number of single occupancy cars and encourage more sustainable travel options. The team implemented a wide range of measures including the provision of dedicated priority parking spaces for staff who car share. The team also run a successful awareness campaign with regular updates on the intranet for staff, and an on going events programme supported by local transport providers and other external partners. To encourage cycling the changing room and locker facilities were expanded along with additional space for bikes, which can now accommodate 800 cycles. The team were runners up in the Energy Award Team category in the MOD Sanctuary Awards.



The Environmental Team from Abbey Wood receive their award at the MOD Sanctuary Awards © Crown

### Waste Awareness Presentations

At RAF Waddington are trialling waste briefings to all station personnel. The briefing demonstrates the different waste disposal options and the rising cost of landfill disposal. We hope that once better informed the station personnel will avoid putting waste into the landfill bins.

### Defence Estate New Woodland

The MOD in alliance with the Woodland Trust is creating new woodland on the Defence Training Estate (DTE). The first deal with the Woodland Trust began in 2011 when 176,000 were planted at the DTE Range in Warcop in Cumbria. The range is in an area of outstanding natural beauty. Funding of around £100,000 was provided by the North Pennines Area of Outstanding Natural Beauty Partnership's Living North Pennines' project with extra funding coming from carbon reduction funders Waitrose and Eurocamp. The latest project with the Woodland Trust is to plant 84,000 native saplings as part of a Jubilee wood near Grantham. These deals move the Woodland Trust closer to meeting its target of doubling native woodland by 2050. The wood provides valuable forest

cover for military training, enhancing the landscape and improving the environment for people and wildlife, absorbing and storing carbon, as well as sheltering crops and buildings.



*The Warcop woodland creation project © Crown*

### MOD Educational Outreach Programme

The MOD's Educational Outreach Programme began in 2002, it involves more than 40 military and civilian staff across all ranks and grades volunteering to mentor students, give talks on specialist subjects, or give up a little of their time to host students who have never visited a large employer before. The programme aims to instil lifelong skills in students studying in a number of further education colleges across the UK where diversity is frequently in excess of 60 per cent and more than half the students do not have English as their first language. This skill development is achieved through a combination of initiatives including MOD mentors helping students on particular courses and hosting 'taster' visits to Whitehall. These help students improve their job prospects through training and having an insight into the workings of a major employer. Over 2,500 students who are deemed 'at risk' benefit yearly from the scheme, which in 2009 won the Race for Opportunity Mentoring Award and reached the finals of the 2009, 2010 and 2011 Civil Service Awards.

### Zero Waste to Landfill at Shrivenham

The Defence Academy Shrivenham is aiming to achieve zero waste to landfill. Part of their strategy is to remove local waste bins and provide centralised mini recycling points within common areas. To ease the way, and obtain buy-in from staff and partnering organisations, the waste contractor researched the waste being generated and agreed suitable locations for the recycling



points. The programme continues to be rolled out across Shrivenham, but currently 84% of the waste generated is being recycled. The full rollout should be complete by Feb 13 when we hope to move closer to achieving zero waste to landfill.

## **Explanatory Notes**

1. The data in the tables are not National Statistics because they have not been assessed as such by the UK Statistics Authority.
2. The data contained in this report is based on the baselines agreed for Greening Government Commitments (GGC). The GGC targets are for UK data. The MOD has tried to include as much of the UK data as possible, for some data sets, this has not been possible and for others we have included data from our overseas estate.
3. DEFRA conversion rates have been used to account for carbon
4. Carbon data in this report is shown as CO<sub>2</sub>e; this is the six greenhouse gases (GHG) covered by the Kyoto Protocol. They are: Carbon Dioxide (CO<sub>2</sub>); Methane (CH<sub>4</sub>); Nitrous Oxide (N<sub>2</sub>O); Hydro fluorocarbons (HFCs); Perfluorocarbons (PFCs) & Sulphur Hexafluoride (SF<sub>6</sub>)
5. GGC reporting rules allow Departments to leave out bodies that fall below the de-minimis criteria. The department has been granted exemption not to include Non Departmental Public Bodies and other MOD funded bodies.
6. The MOD is large and complex with around 400 main sites and around 4000 sites in total. A site may contain a single building or dozens of buildings. MOD's Sustainable Development (SD) baselines include as much of the estate as possible but for reasons that include insufficient manpower and old contracts that do not provide the data required our baselines cover from around 75% to 90% of the Defence estate.
7. SD data for: (1) travel, (2) waste and (2) water includes data from MOD's Trading Fund Agencies i.e. Defence Support Agency, Defence Science and Technology Laboratory and United Kingdom Hydrographic Office.
8. **Estate Energy**
  - a. The Department of Energy and Climate Change agreed that the 25% GHG target should apply to the 398 core establishments which MOD has decided to retain for the long term. Achievement against the target will include 6% savings, which will be achieved from decarbonisation of the National Grid.
  - b. The 398 sites are located in the UK and overseas. These core sites account for around 80% of MOD's energy consumption.
  - c. MOD's Trading Fund Agencies are not included in the 398 core sites.
  - d. Estate energy data is not weather corrected.

## 9. UK Business Travel

- a. The GGC target is for administrative business travel by Departments. We have defined business admin travel as business journeys on behalf of MOD. GHG emissions from other travel i.e. operations, support for operations, training for operations, welfare etc have been removed where possible.
- b. Road travel consists of administrative businesses car journeys in either (1) a leased fleet vehicle; (2) personnel using their own personal car (grey fleet); and (3) hire cars
- c. Leased fleet vehicles: This data includes some non-business administrative use because it not possible to separate out all journeys. Calculation of the lease fleet emissions are estimated based on an average mileage of 18,000 miles per car (from sampled data) multiplied by the average CO2 emissions of all the vehicles in the fleet.
- d. Grey Fleet includes travel by civilian and Armed Forces personnel using their own cars. Emissions are calculated using an “average” car from the DEFRA GHG conversion factors and the motor mileage distance claimed.
- e. Hire car fleet emissions are based on an estimated journey of 250 miles per hire (based on sampled data) and DEFRA GHG factors for the size of vehicle hired. If a vehicle type is unavailable, any upgrade is not recorded.
- f. Rail travel. We monitor rail travel mileage booked centrally using the mandated contract. The emissions data is calculated for all journeys but we are able to exclude travel related to armed forces recruitment. The cost of rail travel includes all rail travel regardless of reason for travel.
- g. The travel data is from live databases. The data is correct on the date the report was made and cannot be replicated.
- h. The data given is for commercial air travel, it does not include:
  - i. Military aircraft or Charter aircraft i.e. used for troop transport.
  - j. The travel data includes travel by MOD civilians, Armed Forces personnel and the Trading Fund Agencies (Defence Science and Technology Laboratory; UK Hydrographic Office and Defence Support Group).
- k. The number of UK domestic flights includes journey that start and finish in the UK. Domestic flights for onward connection to international flights have not been included.

## 10. Waste

- a. Waste data shown is against the agreed GGC baseline, this is around 75% of MOD known waste. The 25% excluded is unreliable data because:
  - i. the waste contractor does not provide weighed waste data. The current contracts were signed before weighed waste data was required
  - ii. sites have insufficient manpower to monitor waste and estimate tonnage based on volume.

- b. The waste data is from weighed waste data and volumetric conversion factors. Volumetric conversion estimates the weight of the waste based on the type of waste and size of the skip.
- c. The waste data excludes the scrapping and recycling of ships. Ship recycling is not a regular occurrence and their large tonnage would adversely skew figures in either the baseline or the reporting year.
- d. The 10/11 waste data excludes the disposal of the Nimrod aircraft fleet. This was a one-off exceptional disposal. We have included disposals that are part of fleet upgrade/replacement i.e. Hercules c-130 aircraft and truck fleet replacement.
- e. Waste data covers the UK, Trading Fund Agencies and sites in Germany.

## 11. Water

- a. Water is provided by Aquatrine, an MOD-wide Water and Wastewater PFI project delivered through three separate contracts known as 'Packages'. Package A covers the Midlands, Wales and South West England, Package B covers Scotland, and Package C covers the North and East of England. Aquatrine provides water to over 4000 site groups, which is approximately 90% of the Department's consumption.
- b. The Department's office estate (administrative buildings that are not part of a military establishment) is relatively small, being 13 sites. The full Time Equivalent (FTE) is the number of personnel established at these sites and does not include (1) on site contractors and (2) visitors (MOD/Armed Forces personnel based elsewhere, public and other contractors).

## MOD SD Data

<b>Emissions UK Business Travel tCO<sub>2</sub>e</b>	<b>2009/10</b>	<b>2010/11</b>	<b>2011/12</b>
UK White Fleet leased Cars	27 842	27 229	26 246
Grey Fleet Civilian & Military	31 931	26 773	23 107
Car Hire	14 920	13 090	14 013
Commercial Air Travel (domestic)	1 952	1 524	1 758
UK Rail Travel	4 546	2 937	3 210
<b>UK Business Travel</b>	<b>81 191</b>	<b>71 553</b>	<b>68 335</b>

<b>Travel Outside of GGC Scope tCO<sub>2</sub>e</b>			
Commercial Air Travel (International)	62 044	47 294	50 529

<b>Energy Consumption tonnes CO<sub>2</sub>e</b>	<b>2009/10</b>	<b>2010/11</b>	<b>2011/12</b>
Mains Standard Grid Electricity	794,922	798,260	672,783
Mains Green Tariff Electricity	11,123	11,169	74,754
Natural Gas	456,592	458,509	358,477
Gas Oil	74,623	74,936	83,298
LPG	17,170	17,242	17,603
Heat from Whitehall District Heating Scheme	3,112	2,789	2,411
Combined Heat & Power - Heat	1,586	1,148	1,003
Solid Fuel	1	1	0
<b>TOTAL</b>	<b>1,359,128</b>	<b>1,364,056</b>	<b>1,210,328</b>

<b>Total Green House Gas</b>	<b>1,4403,319</b>	<b>1,435,609</b>	<b>1,278,664</b>
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<b>Water</b>	<b>2009/10</b>	<b>2010/11</b>	<b>2011/12</b>
Water Consumption Office Estate m <sup>3</sup>	206 000	186,642	193,000
Office Water Per Full Time Equivalent m <sup>3</sup>	12.4	11.8	12.3
Water Consumption Total Estate m <sup>3</sup>	24,973,623	24,549,642	24,659,000

<b>Waste Metric Tonnes</b>	<b>2009/10</b>	<b>2010/11</b>	<b>2011/12</b>
Total Waste	185,438	189,713	197,034
Total Hazardous Waste	14,279	11,332	5,700
Total Non Hazardous Waste	171,159	178,381	191,334
Total Landfill	57,542	53,393	44,244
% Diverted from Landfill	69.0%	71.9%	77.5%
% Performance Against GGC Target	0.0%	2.3%	6.3%
Hazardous landfill	2652	5335	733
Hazardous reused/recycled	7254	4273	2875
Hazardous with energy reduction	454	1146	1273
Hazardous no energy reduction	3920	578	820
Non Hazardous Waste Landfill	54891	48058	43511
Non Hazardous Waste Reused/Recycled	90560	94796	121507
Non Hazardous Waste Composted	8233	9308	9062
Non Hazardous Waste with Energy Recovery	9722	18364	12094
Non Hazardous Waste without Energy Recovery	7753	7856	5159