Ministry of Defence

Sustainable MOD Annual Report 2013/14

Sustainable Development in the Ministry of Defence

Foreword by Mark Hutchinson

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I am pleased to introduce the 2013-14 Annual Sustainability report for the Ministry of Defence. Sustainability is an evolving agenda in the department, and this year the report also represents an evolving approach to our reporting.

Previous reports have focussed on the specific greening government targets and their predecessors. We have published this separate sustainability report, to update MOD's performance since 2009/10 against the Greening Government Commitments and targets, to expand on the sustainable development annex in the 2013/14 MOD Annual Report and Accounts, and to begin to expand on progress against some of the wider activities of the department that contribute to sustainable development. Our reporting against the sustainability agenda will continue to evolve in future years.

MOD's approach to sustainability is driven by our recognition of the clear link and the benefits to both current and future defence business, and our ongoing programme of Defence Reform. Our focus of effort is for continuous improvement in efficient, economic, resilient and adaptable business, and particularly prioritised where it supports defence capability. As a responsible Department, we recognise the need to achieve excellence in this area to support the Government's Sustainable Development agenda.
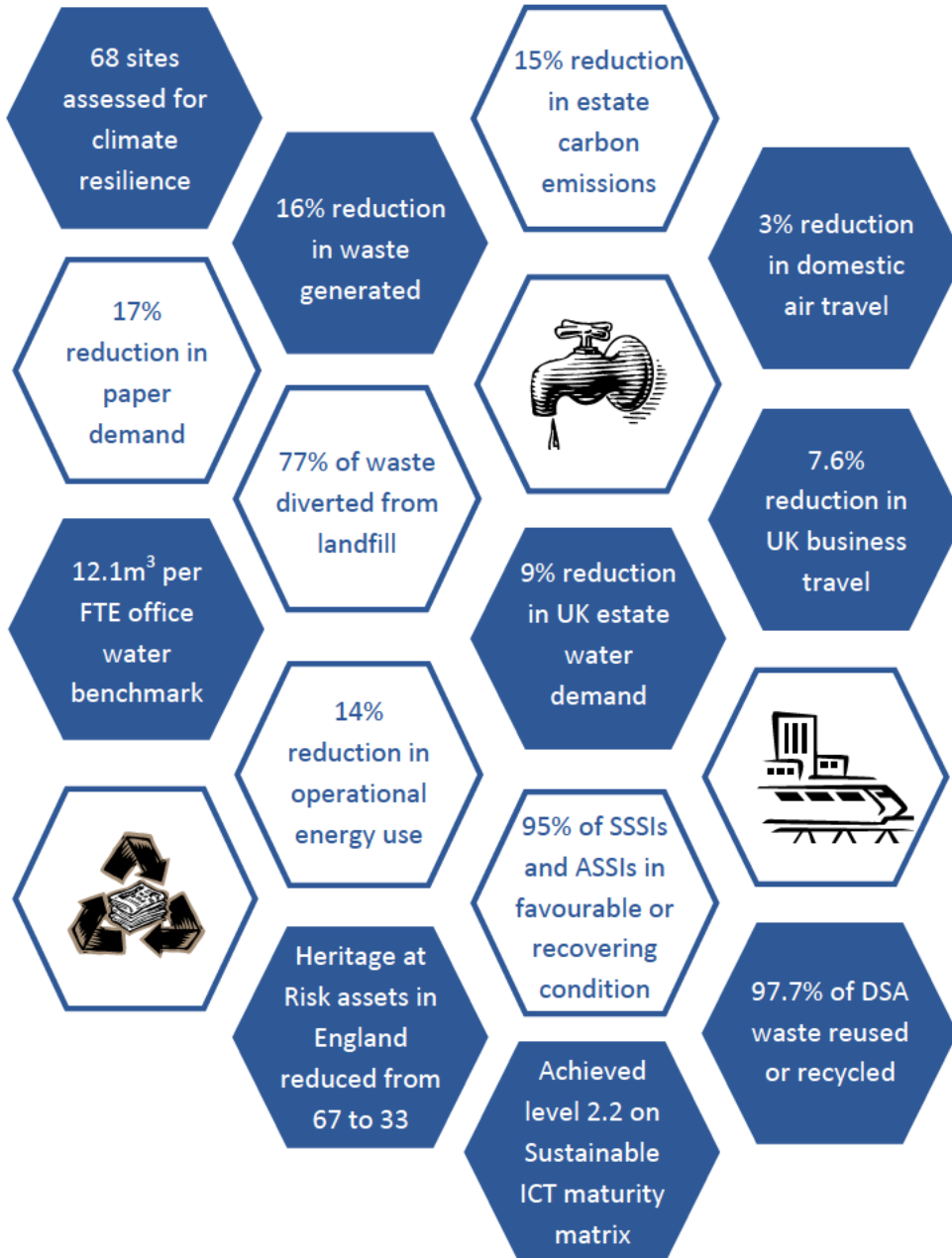
Mark Hutchinson

Acting Chief Executive
Defence Infrastructure Organisation

Performance At A Glance

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68 sites assessed for climate resilience

16% reduction in waste generated

17% reduction in paper demand

15% reduction in estate carbon emissions

3% reduction in domestic air travel

77% of waste diverted from landfill

7.6% reduction in UK business travel

12.1m^3 per FTE office water benchmark

9% reduction in UK estate water demand

14% reduction in operational energy use

95% of SSSIs and ASSIs in favourable or recovering condition

Heritage at Risk assets in England reduced from 67 to 33

97.7% of DSA waste reused or recycled

Achieved level 2.2 on Sustainable ICT maturity matrix

Contents:

List of Figures

List of Tables

1. Introduction

This report provides an overview of the Department's progress against both the Sustainable MOD requirements and the greening government targets and commitments during 2013/14. It also fulfils requirements to report sustainability performance under the department's Annual Report and Accounts.

Why Sustainability Matters to Defence

The importance of sustainable development within the MOD is not purely for its own sake. It is important because managing environmental and social-economic effects at an organisational level supports a modern military and helps deliver defence capability. It provides benefits in making the Department more efficient, resilient and adaptable for future requirements.

The significance of Sustainability to Defence is recognised by the inclusion of Sustainability as one of the Defence priorities in the MOD's Business Plan (2011-2015 and Defence Strategic Direction 2011**:**

> **'Defence Priority 7:** *Deliver Defence in the most effective, efficient and sustainable way by meeting benchmarking, efficiency and Government sustainable development targets, building on the Defence Reform Unit's review'.*

The MOD's approach to sustainability is driven by the recognition of the clear link between sustainability and the benefits to both current and future defence business.

Environmental, social and economic pressures on a global scale have major implications for Defence's ability to meet its strategic objectives. Challenges such as climate change, natural resource depletion, water scarcity in addition to energy and resource security are potential catalysts for increased unrest or armed conflict. Embracing sustainability throughout Defence will ensure that it is prepared for and adapts to these challenges. It also certifies the MOD plays its part in reducing the severity of any environmental, social or economic threats to Defence capability in the first place[1].

2. Embedding Sustainable Development

2.1 Governance and Leadership

Defence Reform continues to change how the MOD operates. A new Sustainable MOD Steering Group was established in 2013, responsible for overseeing and direct Departmental priorities and requirements for MOD's sustainability agenda. In 2013, the MOD also reviewed its use of sustainability champions across the different parts of the department, with the champions being members of the steering group.

Working groups which focus on specific aspects of the sustainability agenda were also aligned with the steering group, including the Sustainable ICT Working Group, the Sustainable MOD Working Group, and the Energy Programme Board, and Waste Working Group.

2.2 Strategy, Plans & Decision-making

Greening Government Commitments (GGC) targets have been embedded within the MOD's Business Plan and other departmental plans. Additionally work has begun to update the MOD's sustainability strategy, with the aim of focussing effort on continuous improvement in efficient, economic, resilient and adaptable business, particularly prioritising where it supports defence capability.

The MOD conducts sustainability appraisal of its plans, programmes and projects to consider wider environmental and socio-economic impacts and opportunities. There is increased emphasis on embedding sustainability into submissions and approvals to ensure proper consideration of implications are included within decision making.

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[1] See: Sustainable Development Strategy A Sub-Strategy Of The Strategy For Defence 2011 – 2030
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/27615/20110527SDStrategyPUBLISHED.pdf

3. Reducing Environmental Impact

3.1 Greenhouse Gas Emissions

The MOD is on track to deliver its commitment to a 19% reduction from the estate and business travel emissions by 2015 as part of the contribution to the Greening Government Commitment (GGC) GHG target. In 2013/14, the MOD achieved a 15% reduction in emissions from estate energy and domestic business travel as shown in table 1.

The MOD has invested £105m in an 'Energy Spend to Save Programme' across the estate which has delivered energy efficiency measures across the UK and Overseas estate during the past three years, and will deliver £70m per annum of enduring savings against estate energy running costs. The programme has delivered 15% reduction and provided carbon savings of over 200,000 tCO_2 in estate Green House Gas (GHG) emissions as at March 2014 against the 2009/10 baseline.

Table 1: Green House Gas data analysis

GHG - tonnes CO_2e	2009/10	2010/11	2011/12	2012/13	2013/14
Estate Energy [2]	1,359,043	1,364,055	1,210,328	1,168,036	1,141,033
Domestic Business Travel[3]	89,748	78,338	75,347	76,447	76,956
GHG Total	1,432,006[4]	1,442,393	1,285,675	1,244,483	1,217,989
% reduction from 2009/10		0%	-11%	-14%	-15%
Target[5] (75% of 2009/10 actual) = 1,086,593.					

223 sites have benefited from this investment with approximately 1,500 energy projects delivered by Regional Prime Contracts (RPC), Infrastructure Service Providers (ISP) and PFI over this three year period. Examples of these projects include:
- Building Energy Management Systems (BEMS)
- Boiler Controls
- Combined Heat and Power (CHP) systems
- Insulation and Draught proofing
- Lighting replacement / upgrades / passive infrared sensors
- Water / Desalination (specifically Overseas)
- Strategic Energy Management Services (SEMS)
- Small scale renewables

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[2] Estate energy refers to emissions from mains electricity, natural gas, gas oil and LPG – annex D item 9

[3] Domestic business travel: emissions from air flights, white fleet, grey fleet and rail travel. See annex D item 10 for definitions
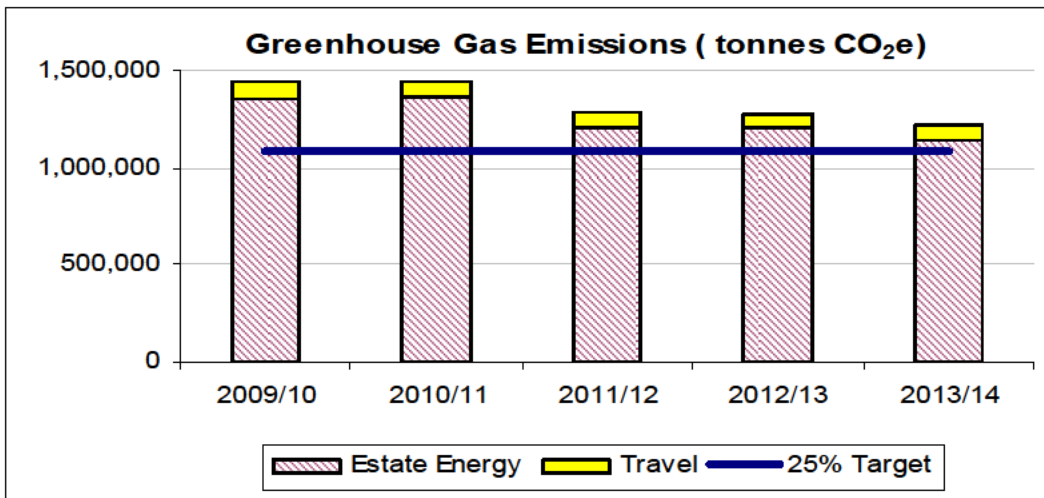
[4] This is a revised GGC baseline figure – actual total for 2009/10 is 1448791. % changes for 2010/11 to 2012/13 were calculated using the 2009/10 actual figure

[5] This includes 6% saving to be achieved through decarbonisation of the grid, see Annex D item 9a

- Building rationalisation

Figure 1: Total GHG emissions – % reduction compared to 2009/10 baseline

Greenhouse Gas Emissions (tonnes CO$_2$e)

Legend: Estate Energy | Travel | 25% Target

Annex B shows MOD GHG emissions performance in detail, including Operational and equipment energy emissions.

Photovoltaic arrays at Sennybridge Training Camp © Landmarc

In 2013, the Defence Infrastructure Organisation (DIO) deployed a team of 33 Area Utility Managers (AUM) across the UK and overseas estate to work with users of the estate and Industry Partners. Together they worked to drive down energy and water consumption as well as minimise waste in support of GGC through the implementation of Site Utilities Management Plans, with focus on local behavioural initiatives during 2014/15.
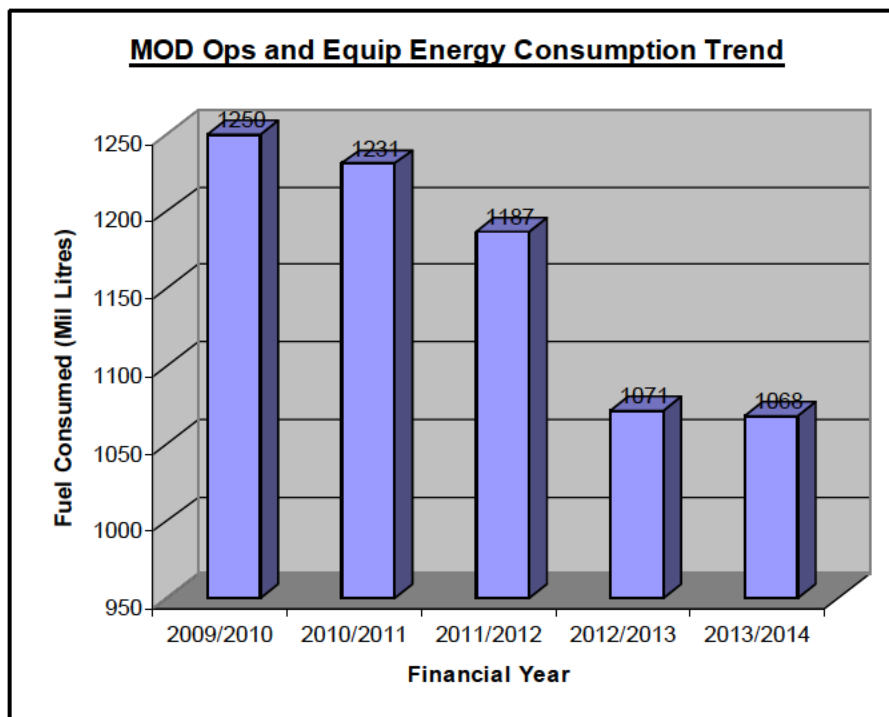
3.2 Operational and Equipment Energy Consumption

In 2012, the MOD set a target to reduce the volume of fossil fuel consumed by the Armed Forces for equipment and operations by 18% by 2020/21 (against a 2009/10 baseline). Over the past year MOD has continued to develop the governance and processes for operational and equipment energy and new direction has been provided to:

- deliver the current target,
- evolve processes and practices to better consider energy,
- build a fuller understanding of future energy consumption and implications of fuel price rises, and
- develop intelligent new targets for the future.

Figure 2: Operational & Equipment Energy

The provisional fossil fuel consumption data for 13/14 shows a 14%[6] reduction, This equates to approximately 180 million fewer litres of fuel. To meet the reduction target, a further 4% will be found by 2020/21. The reduction in operation and equipment energy consumption will remain heavily dependent on the UK's involvement in military operations, and as new equipment comes into service.

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[6] The data for financial year 2013/2014 is still provisional and there are some indications that the level of consumption has actually reduced further. MOD is currently awaiting confirmation of the consumption data.
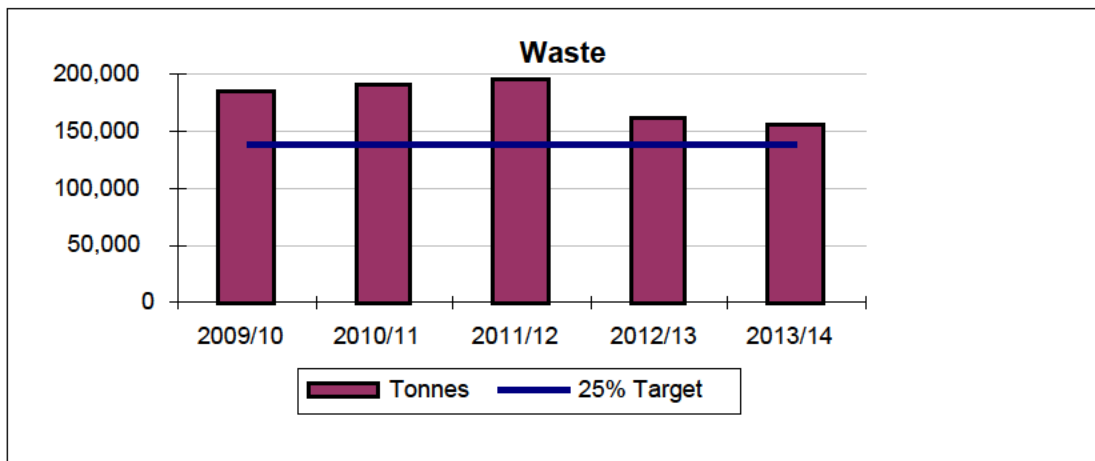
3.3 Waste Management

The MOD has improved its performance in reducing waste generated from a 13% reduction in 2012/13 to 16% in 2013/14. Implementation of Defence Reform and recommendations from the Strategic Defence and Security Review (SDSR) 2010 are continuing to cause the amounts of waste generated to fluctuate, and rationalisation of the estate generate high levels of waste. Reasons for this fluctuation include the closing of the sites in Germany and the re-provisioning of estate in the UK to enable the return of troops to the UK. Efforts to reduce the amount of stores and storage space have also increased levels of waste generated in the short term. In addition to overall waste reduction, the figures around disposal of waste are very positive. Currently, 77% of waste diverted from landfill through reuse and recycling and 97% of assets disposed of through the Disposal Services Authority (DSA) is diverted from landfill.

Table 2: Waste data analysis

Waste	2009/10	2010/11	2011/12	2012/13	2013/14
Tonnes	185,437	189,713	197,034	161,346	155,596
Comparison with 2009/10		2%	6%	-13%	-16%
Target (75% of 2009/10 figure): 139,078					

Figure 3: Waste - % reduction compared to 2009/10 baseline

Work is continuing across the MOD estate to embed standardised waste management and reporting practices. The successes to date include:

- A new waste working group has been set up with pan-MOD representation to helping to bring a coordinated approach to waste management in the MOD.
- Development of the Infrastructure Management System (IMS) to hold estate-wide waste generation information.

Plans for 2014/15 include, ensuring that all baseline sites in scope for Greening Government Commitment (GGC) targets have a Site Waste Management Plan in place; population of the IMS with waste generation data and Revision of the MOD Waste Strategy and associated Delivery Plan.

ICT Waste

The principles of applying the ICT Waste Hierarchy are embedded in MOD business with policy in place and relevant assurance actively sought and reported. Decisions on re-use and recycle are made centrally by MOD's Top Level Budget-holders (TLBs) with reuse and recycling the preferred options to procurement. All new procurements are scrutinised with a view to future upgrade rather than replacement on a fixed life cycle. Disposals are mandated through the Disposal Services Authority (DSA), the Single Support Maintenance (SSM) contract and contracts to accommodate for secure disposal of assets bearing sensitive data. Potential for further savings through rationalising some of our separate ICT disposal contracts is being explored.

3.4 Water Consumption

In 2013/14, estate-wide water demand increased very slightly, but overall MOD has maintained its 9% reduction, and exceeding the self-imposed target to achieve a 7% reduction in estate-wide water consumption.
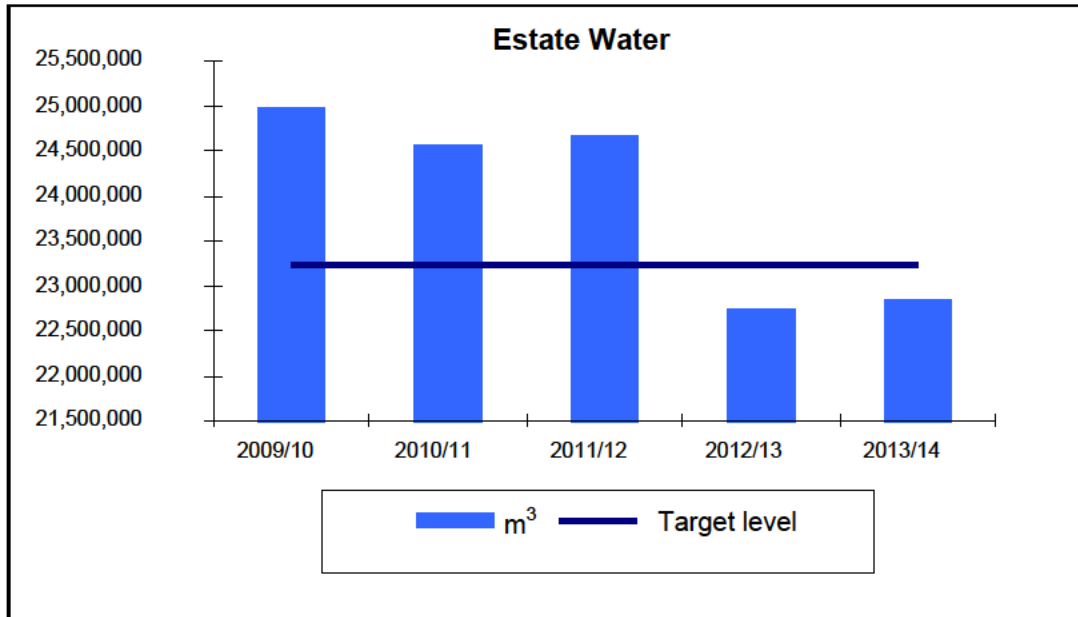
Table 3: Estate Water Data Analysis

Water -Estate	2009/10	2010/11	2011/12	2012/13	2013/14
Water consumption m^3	24,973,623	24,549,642	24,659,000	22,724,099	22,826,349
Comparison with 2009/10		-2%	-1%	-9%	-9%
Target: (90% of 2009/10) 23,225,469m^3					

Working with its industry partners, the Defence Infrastructure Organisation (DIO) within the MOD has continued to actively manage water use across the Department. To further support water efficiency measures in MOD, a Water & Waste Policy Implementation (W&WPI) team has been established. The W&WPI team will oversee, support and monitor performance in relation to water management across the defence estate as well as driving further work across those parts of the estate not included in the Aquatrine contract. During 2013/14, work took place to improve information capability in the DIO Infrastructure Management System (IMS) with the aim of improving water consumption data management. This includes capturing water consumption data for sites in the UK and overseas (Germany, Cyprus, Gibraltar, British Forces South Atlantic, Brunei and Nepal).

Figure 4: Estate water consumption -% reduction against 2009/10 baseline

In 2013/14, the DIO and Aquatrine partnership initiated a Water Consumption Reduction Programme (WCRP) to reduce water consumption in support of GGC targets and improve water efficiency and costs. This programme will target 150 high demand sites across the 3 Aquatrine private finance initiative (PFI) contracts, with 3 key deliverables.

- Site survey reports for each site outlining current water performance and recommendations for implementation of water efficiency measures;
- Work with other part of the MOD to develop and implements site-specific Water User Behaviours Strategy; and
- Demonstrate and monitor the proposed cost savings.

The site surveys began at the end of 2013, and the programme is scheduled to be completed by the end of 2016. At this stage it is too early to forecast a potential percentage reduction in water consumption as a result of the WCRP. However, early indications from site surveys completed so far, suggest that further water efficiencies can be implemented to further drive out inefficient water use across the 150 sites.

3.5 Environmental Management Systems

An Environmental Management System (EMS) is a structured framework for managing an organisation's significant impacts on the environment. The MOD's EMS is used to manage and improve environmental performance and help compliance with environmental legislation and the MOD regulations. An EMS can also generate financial savings for the Department through helping instigate efficient practices. The MOD is committed to ensuring all sites are covered by an appropriate EMS by 2015; and is currently on track to meet that commitment.

4. Sustainable Workplaces and Business Travel

4.1 Modern ways of working

MOD is working with the Cabinet Office on implementing initiatives from "The Way We Work: Smart Working in Government" agenda, launched earlier this year, and its aim is to improve work space efficiency and flexibility.

Smart working principles include flexibility available for all – in one form or another which is seen as applying to tasks rather than whole jobs or roles. Desk-based work is seen as something that can, for the most part, happen anywhere, and the other activity-based work setting are more numerous and acquire increased importance. The significance of the 'main office' decreases, and becomes more equal as a venue for work alongside other places where people can work, both physical and online.

Enabling all this is a strong drive to have seamless electronic processes, use of cloud-based services, greater freedom of choice in IT devices and extensive use of unified communications, conferencing technologies and social media applications.

There are targets for resource reduction and travel reduction, for performance at every level in the organisation. The impacts of Smart Working spill over into wider social, environmental and economic benefits, and have the potential to make a substantial contribution to 'smart economic growth' and to quality of life for workers. During 2014/15 MOD will be building a 'future office' in one of the training suites at MOD Main Building which will trial, test and demonstrate innovative IT and showcase furniture and office space arrangements.

4.2 Sustainable Information and Communications Technology

Linked to 'the way we work', the MOD is committed to deliver against the Government's Green ICT Strategy. Performance on sustainable ICT continues to be varied but overall good progress has been made during 2013/14 for greening the MOD's ICT infrastructure and exploiting ICT to 'Green' its operations.

We have made significant progress towards achieving the target to achieve level 3 on the Sustainable ICT Maturity Model by 2015. At March 2013/14, the MOD had reached a maturity level of 2.2, but some risks remain, due to constraints and resource limitations affecting progress in identifying and completing planned sustainable ICT activities.

The MOD's ICT energy consumption is reported using the Defence Information Infrastructure (DII) Carbon Footprint Model (covering DII assets only). The MOD shows an overall reduction in carbon output from 53,492,029 kg CO_2e to 49,148,687 kg CO_2e, representing a 4,300 tonnes reduction and a cost saving of approximately £1 million.
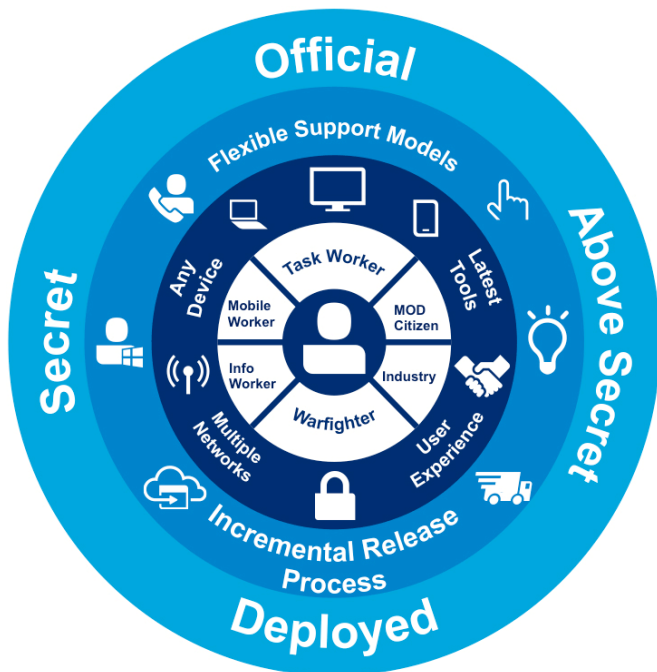
The MOD has achieved nine of the 14 key areas for implementation that were set out in the Government's Roadmap for improving its Green ICT practices (target of achieving ten by 2015). The MOD's Information Systems and Services (ISS) continues to work to influence the future ICT provision such as the Defence Core Network Services Programme (DCNS) with Top Level Budgets (TLB) and Trading Fund Agencies (TFAs) needing to prioritise and resource improvement activities that most directly support the achievement of the Green ICT strategy and Greening Government Commitments. There remains a risk that reduced investment due to current austerity measures will make it particularly challenging to achieve subsequent savings through Green ICT resource improvements by 2015.

Work is also continuing through the Sustainable ICT Working Group to embed sustainability awareness into everyday ICT thinking, practices and processes. These include management, governance and change processes to realise further sustainable benefits.

The MOD has a programme to deliver a number of improvements to ICT capability by September 2016 across the department and the deployable community which will improve efficiency and collaboration, reduce the need for users to travel for meetings and help reduce paper consumption.

Examples include:

- an audio/video conferencing capability facilitating online meetings;

- an improved agility in digital application delivery for business and mobile apps; i.e. filing and approving Joint Personnel Administration (JPA) expenses via a mobile app, or modifying the process of applying for a medal from paper based to digital;

- a tablet device for mobile electronic data store with simple access to technical data, manuals and drawings for deployed military personnel;

- an internal social media platform enabling virtual collaboration for specific communities in the MOD service personnel, civil servants and permitted contractors.

4.3 Office water

Office water accounts for less than 1% of the MOD's total water consumption and therefore the focus is primarily on the reduction non-office water consumption. However, the MOD has reduced water consumption in offices by 16%.

The Greening Government office water benchmark target applies to eight MOD office sites, and the current combined benchmark across these sites is 12.1m^3 per full time equivalent (FTE).

One of the obstacles that the MOD has with water consumption reduction is that the office estate is primarily (but not exclusively) leasehold offices. This means the MOD has limited ability to implement major water saving projects and relies more on behavioural change. Part of the MOD's approach is therefore to look at the overall efficiency of all of its office estate, not just the water consumption, and to rationalise onto fewer office locations. This is linked to the wider workplace transformation policies being driven by the Cabinet Office (Government Property Unit). In addition the MOD is currently developing

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a strategy for all of its office estate which will have knock-on benefits for the office water consumption.

4.4 Business Travel Including UK Domestic and International Flights

The MOD is a UK-wide and internationally based department therefore business travel is an essential part of how MOD conducts its business. To ensure a clear overall picture of Department GHG emissions, business travel figures are included in the total GHG figures and analysed in their own right.

For 2013/14 the MOD has achieved a 7.6% reduction in carbon emissions against all travel types (table 4). However, reduction performance on specific aspects such as domestic air travel has declined due to the impacts of Defence Reform and the transformation and rationalisation of the defence estate. Futher impacts also include:

- Drawdown from Germany and Army rebasing in the UK;

- The Navy's shipbuilding programme in Scotland, including the Queen Elizabeth Carrier;

- Organisation change programmes in Defence Infrastructure Organisation, and Defence Equipment and Supply.

Some of these programmes will continue until after 2015, but in the meantime, the MOD will continue to strive towards improving its efforts to avoid business travel and increase its efficiency, through ways of working and investment in ICT.

Table 4 : All Travel GHG Emissions - tCO_2e

All Travel - tCO_2e	2009/10	2010/11	2011/12	2012/13	2013/14
Domestic Air Travel	10,508	8,310	8,310	8,390	8,382
International Air Travel Short Haul	6,008	4,761	8,345	5,904	6,985
International Air Travel Long haul	40,215	32,269	42,184	42,435	42,419
Rail Travel	4,546	2,937	3,210	2,747	2,553
Lease Hire	27,842	27,229	26,706	26,715	26,360
Hire Cars	14,920	13,090	14,013	19,517	17,386
Grey Fleet	31,931	26,773	23,107	19,078	21,606
Total	135,971	115,368	125,876	124,785	125,691
Comparison with 2009/10		-15.2%	-7.4%	-8.2%	-7.6%

Figure 5: All Travel 2013/14 GHG Emissions - tCO_2e

Table 5: Domestic Flights data analysis

	2009/10	2010/11	2011/12	2012/13	2013/14
No. of Flights	66,274	53,300	56,656	60,524	64,467
% reduction from 2009/10		-20%	-15%	-9%	-3%
Target: 53,019 flights (80% of 2009/10 flights)					

Figure 6: Domestic flights % reduction compared to 2009/10 baseline

4.5 Paper Demand

Paper demand was reduced by 17% in 2013/14 compared to the baseline year 2009/10. The DIO is working with HMRC to increase the proportion of paper recycled back into the closed loop system. This will be achieved through looking at legacy Soft FM contracts (over 200) to identify opportunities to implement Closed Loop where there is a Value for Money case. Closed Loop requirements has also being reflected within the Soft FM element of future contract e.g. Total FM elements of the South West regional contract (go live in Feb 15) and Hestia which aims to streamline legacy Soft FM contracts into 9 regional contracts. This work is supported by improving the robustness of waste data, including paper.

Table 6: Paper Consumption data analysis

Paper Consumption	2009/10	2011/12	2012/13	2013/14
Reams of Paper	1,242,363	1,099,866	1,206,435	1,030,417
Comparison with 2009/10		-11%	-3%	-17%
Target (90% of 2009/10 reams) 1,118,127				

5. Sustainable Procurement

The MOD commercial policy mandates that all sustainability objectives within contracts must comply with Government Buying Standards (GBS) and that GBS requirements are appropriately addressed in the specification.

Defence Equipment & Support (DE&S) is working jointly with suppliers to develop and embed Sustainable Procurement (SP) principles, processes and activities into acquisition and through life capability management practices.

The MOD's priorities on sustainable procurement are;
- understanding and addressing the risks of resources security (materials and energy) and climate change / geopolitical developments on capability performance and supply chain vulnerabilities; and
- Developing the scope for mitigation and adaptation strategies. Examples include exploring alternative options for scarce materials and maximizing recycling opportunities; and increasing the profile of energy usage during equipment design and technological refresh/upgrade to deliver more energy efficient outputs while maintaining military readiness and effectiveness.

As such, addressing sustainability in the procurement of equipment and support solutions will reduce through life-costs and risks, while realising benefits including increasing operational effectiveness and enhancing mission endurance.

Key activities during 2013/14 included:
- working with suppliers on addressing sustainability risks and opportunities in the supply chain;
- sponsoring the resource security (materials security and energy base-lining) and climate resilience elements of the Defence Science and Technology Laboratory's Operational Resilience Research Portfolio;
- sponsoring the Sustainable Procurement Training programme delivered by the Defence Academy;
- strengthening sustainability requirements in procurement business case approvals documentation;

As part of efforts to increase awareness of sustainability is hosting a Sustainable Procurement Industry Day in Sept 2014 aimed at bringing together Defence Industry partners, other suppliers, and senior MOD decision-makers to address the challenges of delivering sustainable operational capability to meet front line requirements.

5.1 Supply Chain Impacts

The MOD is working collaboratively with key suppliers to develop and embed sustainable procurement principles, processes and activities into acquisition and through life capability management practices.

The Sustainable Procurement Working Group (SPWG) was set up to provide a forum for the MOD and its suppliers to consider jointly how best to embed SP into both purchaser and supplier business practices. Defence Equipment and Support (DE&S) is currently consulting with key suppliers to provide assurance that they have their own corporate performance management arrangements on sustainability which are reported publicly.

5.2 Government Buying Standards

Work is continuing to build on the measures that have previously been introduced to raise awareness of the mandatory requirements of Government Buying Standards (GBS). This includes featuring GBS in the Sustainable Procurement section of the Acquisition Operating Framework (AOF) Guidance and in the Commercial Manager's tool kit together with the development of online training. DE&S are also investigating whether suitable GBS performance information can be included as part of the wider improvements currently being developed for public procurement reporting.

In terms of the GBS for timber, the MOD's estate suppliers have reported that 96.4% of timber from contracts come from sustainable sources.

6. Sustainable Estate

6.1. Sustainable Construction

All new builds and major refurbishments are subject to the MOD's Defence Related Environmental Assessment Method (DREAM) or Building Research Establishment's Environmental Assessment Methodology (BREEAM) assessment. DREAM is a MOD-developed tool that is specific to the defence estate and defence projects allowing the MOD to assess the environmental impacts of its construction activities. The target DREAM rating for new build projects is "excellent" and for major refurbishments is "very good." In 2013/14, 78% of new builds and 91% of major refurbishments achieved their respective target ratings across all assessments, a small rise in the percentage for each.

A previous review of DREAM assessments for projects that did not meet the target rating has identified two common reasons:

- The scope of the project meant that insufficient credits were available to achieve the target rating within value for money criteria (e.g. energy credits not available for an indoor firing range)

- Assessments started late in the project delivery process missing the opportunity to influence decision making on the environmental performance of the building. To address this processes have been introduced as part of the DIO Enhanced Operating Model (EOM). To further encourage early engagement newly appointed Requirement Managers have received briefings on DREAM and other environmental assessments. The inclusion of sustainability into the DIO business case scrutiny process is under trial and testing with a view to being presented to the DIO Investment Appraisal Committee (IAC) in June 2014.

The DREAM tool is available via a website; the website has been refreshed and a Minor New Works tool developed and released. The new websites will be officially launched, alongside an accompanying Policy Instruction, in summer 2014.

6.2. Biodiversity and Ecosystems Services

The MOD has continued the proactive management of its protected sites. Targets for Sites of Special Scientific Interest (SSSI) vary between devolved powers. In England, 99% of the MOD SSSI area is now assessed to be in favourable or recovering condition; with 38% considered to be in favourable condition (against a modelled trajectory of achieving 60% favourable condition by 2020). In Wales, reported performance is at 95% of SSSIs to be 'Under Appropriate Conservation Management', and this includes some additional land added into the SSSI series at Castlemartin. In Northern Ireland, Areas of Special Scientific Interest

(ASSI) performance is maintained at 100%; Scotland SSSI performance is 89% (a decline from 94%). To ensure further progress the MOD continues to use EMS, integrated management plans and sustainability appraisals to address natural environment impacts and opportunities.

Sanctuary Magazine

Sanctuary is an annual publication about sustainable development in MOD, and the sustainable management of the natural and built assets across the Defence estate. It illustrates how the MOD is undertaking its responsibility for stewardship of the estate in the UK and overseas. It is designed for a wide audience, from the general public, to the people who work for us or volunteer as members of the MOD Conservation Groups. Copies of the magazines are available on the internet at:

https://www.gov.uk/government/publications/sanctuary

6.3 Climate Resilience and Adaptation

To ensure a joined up approach to climate resilience and adaption across government, active and ongoing bilateral discussions between the MOD and other governmental bodies have been ongoing since 2007. These include particularly close engagement with The Department of Environment, Food and Rural Affairs (Defra). Other examples include engagement within:

- The Cross-Government Adaptation Framework;

- The Cross Whitehall Domestic Adaptation Board;

- The National Adaptation Programme;

- The Joint Defra/Environment Agency National Flooding and Coastal Erosion Risk Management Stakeholder Forum;

- The UK Climate Change Risk Assessment Expert Working Group.

In addition to cross-department engagement, the roll-out of the Climate Impact Risk Assessments Methodology (CIRAM) is continuing in order to meet departmental target of all priority sites by 2015. As at the end of March 2014, 68 of the target 80 sites had CIRAM assessments completed. In addition to supporting individual site resilience planning, these assessments are informing a strategic risk assessment of Climate Resilience to advise estate planning.

6.4 Historic Estate

The MOD has a significant and varied historic estate across the UK. The Department has continued its commitment to maintaining and improving the heritage assets within its stewardship including the 846 Listed Buildings and 769 Scheduled Monuments in addition to some large scale projects to transform historic listed buildings.

This past year has continued to be one of change as Defence Transformation has moved into its implementation phase This resulted in continuing estate rationalisation proposals as well as the re-configuration of the retained estate to meet future defence needs such as the Army Rebasing Programme which is re-locating Army units from Germany to the UK.

Where these changes have impacted the historic estate the MOD has taken a proactive approach. We have well established processes with the heritage Statutory Bodies to enable the identification of any heritage issues to inform disposal strategies and ensure that historic elements are maintained and cared for by the new owners. This approach has proved beneficial on a number of sites including the Old War Office, Shorncliffe and Waterbeach. With the Army Basing Programme a Master Plan approach has been adopted which has allowed early external consultation on proposed MOD developments and again has enabled

impact assessments on heritage assets to be identified at an early stage and safeguards to be implemented.

The MOD is also committed to reducing the structures on the Heritage at Risk (HAR) register which, for England, is published by English Heritage every two years. The most recent English Heritage Biennial Conservation Report has recorded a significant improvement and reduction in the Heritage at Risk items, this improvement includes substantial improvement to Scheduled Monuments through conservation and excavation measures. Within this reporting period, the number of MOD assets on the at risk register were significantly reduced from 67 assets at risk to 33.

External Refurbishment of Former Army Staff College

Refurbished former Army Staff College © Crown

The Staff College within the RMAS campus at Camberley was built following pressure in the mid 19th century to reform the British Army and to invest in officer training. The architect Sir James Pennethorne was commissioned to design the building in 1857, and construction was completed in 1862. However, by the end of the 20th century, the building's exterior had deteriorated. Comprehensive work has now been carried out, and in many instances using traditional methods and recycled materials. Internally, the top floor has been refurbished to provide 27 rooms for single living accommodation, 11 with en-suite shower rooms.

Source: Sanctuary Magazine issue 13, 2013.

The DIO has also assisted the Joint Casualty and Compassionate Centre (JCCC) in assessing some 20 applications for licenses to recover historic military air frames protected under the Protection of Military Remains Act 1986. This has led the recovery of a WW2 Spitfire on Salisbury Plain, which has provided a best practice case study for the Statutory Bodies revision of recovery guidance.
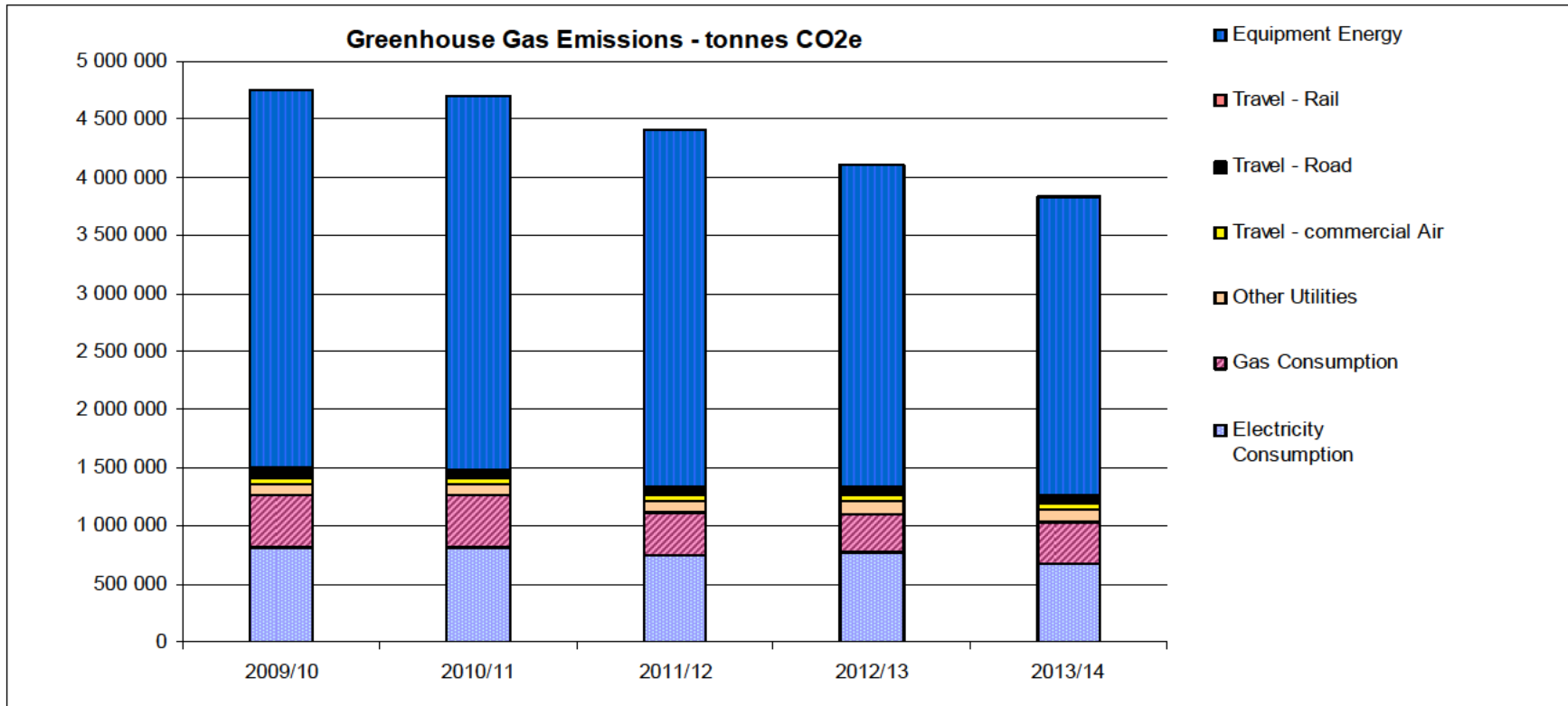
Annexes

Annex A: Sustainable development data [7]

GREENHOUSE GAS EMISSIONS		2009/10	2010/11	2011/12	2012/13	2013/14	Note
Non-Financial Indicators tCO2e 000's	Total gross emissions for scopes 1, 2 & 3	1,495	4,696	4,406	4,109	4,275	a
	Total net emissions for scopes 1, 2 & 3	1,484	4,685	4,331	3,338	3,659	a
	Total gross emissions scope 1	578	3,796	3,557	3,238	3,558	a
	Total gross emissions scope 2 & 3	917	900	849	871	717	a
Related Energy Consumption KWh 000's	Electricity: Non-renewable	1,460,770	1,464,106	1,282,421	0	0	b
	Electricity: Renewable	20,440	20,486	142,491	1,481,564	1,384,227	
	Gas	2,482,020	2,475,352	1,952,488	1,740,426	1,971,184	
	LPG	80,070	80,403	82,000	79,391	79,425	
	Other	290,598	289,877	314,428	337,572	338,153	
Related Equipment Energy Consumption Litres 000's	Aviation fuel	827,800	792,400	767,100	693,097	627,420	
	Diesel (retail blend & mineral blend)	340,500	354,300	339,300	see below	see below	c
	Diesel (retail blend)	-	-	-	118,394	105,318	
	Diesel (100% mineral)	-	-	-	214,154	215,965	
	Gas oil	74,300	79,700	74,900	40,602	34,329	
	Petrol	7,000	4,600	5,800	4,462	8,882	
Financial Indicators £ 000	Expenditure on energy	195,715	280,563	294,676	243,266	261,124	d
	CRC license expenditure (2012 onwards)	-	-	1	16,000	17000	
	Expenditure on GCOF offsets	220	78	12	12	12	e
	Expenditure on official business travel	198,747	165,467	161,632	161,632	163,107	d
	Expenditure on equipment energy (fuel)	481,934	627,850	635,354	758,809	731,045	
Normalisation	Total scopes 1, 2 & 3 - tCO$_2$e 000	1,495	4,696	4,406	4,109	4,275	a
	Defence total Spend £000	37,994,285	38,116,370	37,176,648	35,210,412	37,383,571	
	Normalisation - Scope 1 & Scope 2 emissions '000 / budget '000	0.00004	0.00012	0.00012	0.00012	0.00011	

[7] The Sustainable Development Data must be read in conjunction with the explanatory notes - see Annex D item 13.

Annex B: GHG emissions including operational & equipment energy [8]

Greenhouse Gas Emissions - tonnes CO2e

Legend:
- Equipment Energy
- Travel - Rail
- Travel - Road
- Travel - commercial Air
- Other Utilities
- Gas Consumption
- Electricity Consumption

Years: 2009/10, 2010/11, 2011/12, 2012/13, 2013/14

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[8] Please note that operational and equipment energy is outside the GGC remit.

Annex C: Water and Waste in Detail

FINITE RESOURCE CONSUMPTION - Water		2009/10	2010/11	2011/12	2012/13	2013/14
Non-Financial Indicators M³ 000	Water consumption (office estate)	206	186	193	172	183
	Per FTE	12.4	11.8	12.3	11.8	12.1
	Water consumption (office & non office estate)	24,974	24,550	24,659	22,724	22,826
Financial Indicators £ 000	Water supply costs (whole estate)	100,236	98,667	107,369	104,804	101,043
Normalisation	Department total spend £000	37,994,285	38,116,370	37,176,648	35,210,412	37,383,571
	Normalisation - emissions m³ '000 / budget '000	0.00066	0.00064	0.00066	0.00065	0.00061

WASTE			2009/10	2010/11	2011/12	2012/13	2013/14
Non-Financial Indicators tonnes 000	**Total waste**		185	190	197	161	156
	Hazardous waste		14	11	6	4	18
	Non hazardous waste	Landfill	55	48	43	29	35
		Reused/Recycled	91	95	122	101	94
		Composted	8	9	9	8	1
		Incinerated with energy recovery	10	18	12	18	5
		Incinerated without energy recovery	8	8	5	2	2
Financial Indicators £ 000	Total disposal cost (see notes)		NK	NK	NK	NK	NK
Normalisation	Department total spend £000		37,994,285	38,116,370	37,176,648	35,210,412	37,383,571
	Normalisation - waste arisings tonnes / total spend '000		0.000005	0.000005	0.000005	0.000005	0.000004

Annex D: Sustainable MOD Data Explanatory Notes

1. The data in these tables are not National Statistics because they have not been assessed as such by the UK Statistics Authority.

2. GGC data contained in this report is based on agreed baselines. The GGC targets are for UK data. The MOD has tried to include as much of the UK data as possible and for some data sets, we have included data from our overseas estate.

3. Definition of emission scopes:
   a. Scope 1 emissions occur from sources owned or controlled by the organisation. Examples include emissions as a result of combustion in boilers owned or controlled by the organisation. This includes emissions from organisation-owned fleet vehicles.
   b. Scope 2 emissions result from energy consumed which is supplied by another party (e.g. electricity supply in buildings or outstations), and purchased heat, steam and cooling.
   c. Scope 3 relate to official business travel directly paid for by an organisation (i.e. not business travel re-charged by contractors).

4. DEFRA conversion rates have been used to account for carbon. A conversion factor review took place in 2013 and MOD updated all of its GHG figures back to the baseline year at the request of Defra.

5. Carbon data in this report is shown as CO2e; this is the six greenhouse gases covered by the Kyoto Protocol. They are: Carbon Dioxide (CO2); Methane (CH4); Nitrous Oxide (N2O); Hydro fluorocarbons (HFCs); Perfluorocarbons (PFCs) & Sulphur Hexafluoride (SF6).

6. GGC and HM Treasury 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.

7. 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 covers from around 75% to 90% of the Defence estate. The finance data covers spend for a budget item and this may exceed the scope of the SD data being reported.

8. SD data for: (1) travel, (2) waste and (2) water includes data from MOD's Trading Fund Agencies i.e. Defence Support Group, Defence Science and Technology Laboratory and United Kingdom Hydrographic Office.

9. Estate Energy
   a. The Department of Energy and Climate Change agreed that the 25% Greenhouse Gas target should apply to the 398 core establishments which MOD has decided to retain for the long term. DECC have stated that 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.

10. 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. Greenhouse gas 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

        i. Leased fleet vehicles: This data includes some non-business administrative use because it is 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 CO_2 emissions of all the vehicles in the fleet.

        ii. 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.

        iii. Hire car fleet emissions are based on an estimated journey of 250 miles per hire (based on sampled data) and DEFRA GHG conversion factors for the size of vehicle hired. If a vehicle type is unavailable any upgrade is not recorded.

    c. 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.

    d. The travel data is from live databases. The data is correct on the date the report was made and cannot be replicated.

    e. The data given is for commercial air travel, it does not include:

        i. Military aircraft or

        ii. Charter aircraft i.e. used for troop transport.

    f. 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).

    g. 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.

11. 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.

f. Where data has not been provided then suitable estimates have been used based on historic data for that business area.

12. Water

   a. Water is provided by Aquatrine, an MOD-wide Water and Wastewater Private Finance Initiative (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).

13. Sustainable Development Performance Data, Annex A

   a. Air travel data - due to data improvements this data has been revised for all years
   b. All purchased electricity is from a renewable source
   c. Data improvement has allowed us to report separately retail diesel and mineral diesel from 2012/13
   d. This data has been estimated
   e. Offsets for 2012/13 and 2013/14 are not available in time for this report. 2011/12 figures have been restated

Key Performance Indicators	Target (baseline year 2009/10)	2013/14 performance compared to baseline year
Reduce GHG emissions from estate energy & domestic business travel.	25%	-15%
Reduce number of **domestic air flights** (commercial air travel)	20%	-3%
Reduce **water** consumption on the estate	7%	-9%
Reduce the amount of **waste** generated	25%	-16%
Reduce the amount of office **paper** procured.	-	-17%
Sustainable Procurement (1) embed GBS in procurement contracts and report progress (2) Improve and publish data on supply chain impact.	Qualitative	

Annex E: List of Acronyms

AOF	Acquisition Operating Framework
AUM	Area Utility Managers
BEMS	Building Energy Management Systems
BREEM	Building Research Establishment's Environmental Assessment Methodology
CESO	Chief Environmental Safety Officer
CHP	Combined Heat and Power
CIRAM	Climate Impact Risk Assessments Methodology
DE&S	Defence Equipment & Supply
DII	Defence Information Infrastructure
DIO	Defence Infrastructure Organisation
DREAM	Defence Related Environmental Assessment Method
DSA	Disposal Services Authority
EMS	Environmental Management System
EOM	Enhanced Operating Model
GBS	Government Buying Standards
IAC	Investment Appraisal committee
ICT	Information and Communications Technology
IMS	Infrastructure Management System
ISP	Infrastructure Service Provider
ISS	Information Systems and Services
JCCC	Joint Casualty and Compassionate Centre
MOD	Ministry of Defence
PFI	Private Finance Initiatives
RPC	Regional Prime Contract
SDSR	Strategic Defence and Security Review
SEMS	Strategic Energy Management Services
SHE	Safety Health Environment
SP	Sustainable Procurement
SPWG	Sustainable Procurement Working Group
SSM	Single Support Maintenance
SSSI	Sites of Special Scientific Interest
TLB	Top Level Budget
TFA	Trading Fund Agency
VTC	Video Tele Conference
VSD	Variable Speed Drives
W&WPI	Water & Waste Policy Implementation
WCRP	Water Consumption Reduction Programme