



Ministry
of Defence

Sustainable MOD

Annual Report 2014/15

Sustainability in the
Ministry of Defence





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Ministry of Defence

OGI

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... we had particularly notable success in reducing our operational and equipment energy consumption...

our performance
in 2014/15

Foreword by **Jonathan Slater**

As the MOD's sustainability champion, I am pleased to report on the Department's progress and achievements against our sustainability programmes and our contributions towards the cross-Government agenda.

We have published this report to update on our performance against the Greening Government Commitments and targets, to supplement the sustainability annex in our Annual Report and Accounts 2014/15, and also to update on progress against our own sustainability objectives.

Sustainability is even more relevant to Defence at this time when we are

going through a period of significant change and of tough decisions. We are expected to deliver more, for longer, with fewer resources. We are currently changing the size and shape of our Armed Forces and business, which continues to affect our performance. In 2014/15 we had notable success in reducing our energy consumption, greenhouse gas emissions, estate-wide water demand, and estate stewardship. We have also updated our sustainability strategy to set out the key areas for focus for the next 10 years.

As Sustainability Champion, I am clear about the importance of embedding sustainability thinking in the way we do business.

Sustainability supports a modern military and helps us achieve our strategic objectives, and I commend this report to you.

I would also like to take this opportunity to invite you to read [Sanctuary Magazine](#), an annual publication which will next be published in October, and showcases individuals and initiatives that have benefitted sustainability, energy management, environmental improvement and conservation across the Defence enterprise.

Jonathan Slater

Director General of Head Office and Commissioning Services and Defence Authority for Acquisition Systems and MOD Sustainability Champion

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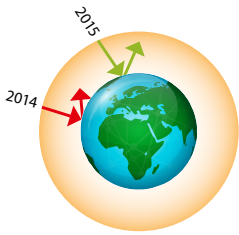
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Performance at a glance

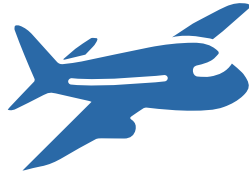


19% reduction
in GHG emissions from estate
and business travel*
up from 15% reduction in 2013/14



26% reduction
in operational & equipment energy*,
up from 14% reduction in 2013/14

29% reduction
in domestic air travel by
our Administrative parts*,
exceeded the GGC target



Current benchmark of 12m³ per FTE
in office water use
against a GGC target of <6m³ per FTE



9% reduction
in carbon emissions from
all UK business travel*,
up from 7.6% in 2014/15



10% increase
in domestic air travel by
Front Line Commands*,
GGC target missed

88% of waste
diverted from landfill,
*up from 77%
diversion last year*



10% reduction
in water consumption*,
*up from 9% reduction in 2014/15,
exceeding our revised target
of 9% reduction*



Achieved maturity level 3
on the Sustainable ICT
maturity matrix
up from level 2.2 in 2013/14



12% reduction
in waste generated*,
down from 16% reduction in 2013/14

% of Sites of Special Scientific Interest (SSSI)
and Areas of Special Scientific Interest (ASSI)
in favourable or recovering condition

UK average 98.65%
up from an average of 95% in 2013/14

18% reduction
in paper consumption,
*up from 17% reduction
in 2013/14*



11 sites assessed for
climate resilience,
*reaching target of 80
priority sites as stated in the
UK National Adaptation Programme*

* compared to 2009/10



1. Introduction

1. Introduction

1.1 Sustainability in the Ministry of Defence

This report provides an overview of the Department’s progress against both the Sustainable MOD requirements and the Greening Government Commitments (GGC) and Targets during 2014/15. It also fulfils requirements to report sustainability performance under the Department’s Annual Report and Accounts and looks beyond the GGC targets, to wider activity within MOD that supports creating a more sustainable Department.

Sustainability continues to be important to support a modern military and achievement of the Department’s strategic objectives. During 2014/15, we reviewed our priorities and the future direction of our sustainability agenda, updated our sustainability strategy, and identified our key areas for focus over the next 10 years. We have continued to integrate our sustainability principles into Departmental business, and restructured our governance to align with the new Departmental operating model.

1.2 Greening Government Commitments

During 2014/15 we also continued work on progressing the GGC targets.

<p>Greening Government Targets 2010/11-2014/15 The Greening Government Commitments are a set of 5 year targets (April 2010-March 2015 with 2009/10 as baseline) that central government departments and their agencies must strive to achieve.</p>
<p>Reduce greenhouse gas emissions from estate energy & domestic business travel by 25% compared to the 2009/10 baseline by 2014/15.</p>
<p>Reduce number of domestic air flights (commercial) by 20% compared to the 2009/10 baseline by 2014/15.</p>
<p>Reduce water consumption on the estate by 9% compared to the 2009/10 baseline by 2014/15.</p>
<p>Reduce the amount of waste generated by 25% compared to the 2009/10 baseline by 2014/15.</p>
<p>Reduce the amount of office paper procured by 10% compared to the 2009/10 by 2011/12.</p>
<p>Ensure that environmental, social and economic impacts are fully taken account of in Defence decision</p>
<p>Adapt the estate to a changing climate</p>
<p>Promote conservation an enhance biodiversity</p>
<p>Improve the sustainability of food and catering services procurement</p>
<p>Sustainable construction</p>

We have delivered a 19% reduction in Greenhouse Gas emissions that MOD committed to in 2011 as its contribution to the 25% target; and are continuing to improve our data. Whilst our overall performance on domestic air travel has declined due to the requirements of the military and change programmes, the administrative parts of MOD where we have had greater flexibility to reduce demand, have exceeded the target achieving a 29% reduction.

We have exceeded our 9% reduction target for estate water demand which accounts for 99% of MOD’s water demand, achieving a 10% reduction. However our performance against the office water benchmark declined in 2014/15 (although this represents just 1% of MoD water use).

Our performance against the waste generated target remains mixed as we continue to deliver against the main Defence reform and rationalisation programmes, and operations which have created short term increases in waste. The target does not fully reflect improvements in our waste management and recycling, and we have diverted 88% of our waste away from landfill; and exceeded the 10% reduction in paper demand target achieving an 18% reduction.



... ensuring that sustainability governance and performance reporting are in line with internal policies

19%
reduction in
Greenhouse Gas
emissions

1.3 Governance

To support the Department's sustainability agenda and align with the new Departmental operating model, we made a number of changes to our sustainability governance structures in 2014/15. The Director General of Head Office and Commissioning Services, Jonathan Slater became MOD's sustainability champion and lead for the sustainable MOD agenda. He is supported in this role by the Sustainable MOD and Energy Steering Group, which he co-chairs with the Deputy Chief of Defence Staff, (Military Capability) Air Marshal Sir Stephen Hillier. The steering group members are drawn from across the Department's business areas including Arms Length Bodies and Trading Funds. The steering group is in turn supported by a number of working groups (listed) that focus on specific sustainability programmes;

- Sustainable MOD Working Group
- Waste Management Policy Working Group
- Sustainable Information and Communication Technology (ICT) Working Group
- Energy Programme Board
- Equipment Energy Working Group
- MOD-Industry Sustainable Procurement Working Group

1.4 Assurance

The Defence Internal Audit works with the Sustainable MOD team providing assurance to MOD's sustainability champion and senior managers by ensuring that sustainability governance and performance reporting are in line with internal policies, follow government policy and continuously evolve in line with industry best practice. In addition, our GGC reports are scrutinised by Carbon Smart on behalf of the Department for Environment, Food & Rural Affairs (Defra).



2. Sustainability Strategy

2. Sustainability Strategy

2.1 MOD Sustainable Development Strategy 2011-2030

The last MOD strategy was published in 2011 in response to the new Greening Government Commitments and targets. This report shows the progress we have made against these objectives, as we draw to the close of the current Greening Government Commitments.

2.2 Development of Sustainable MOD Strategy 2015-2025

The second edition of the MOD's sustainability strategy will represent an evolution of the Department's approach, bringing increased focus on the contribution sustainability can make to supporting Defence capability and outputs. The two principles that will guide us will be to:

- **Act** to make our resource use and assets sustainable; and
- **Evolve** to make our business resilient to the current and future social, economic and environmental threats.

To inform strategy development, during 2014-15 we conducted a pan-Department materiality analysis, based on the Global Reporting Initiative (GRI)¹. This analysis looked into what are the most important, most influential and high priority issues within MOD that contribute to the sustainable running of our Department. The results can be seen in Table 1.

Table 1: Material issues for Defence

Equipment Longevity
Personnel Health and Safety
Energy Security
Capital Costs
Maintenance Costs
Department Reputation
Resource Management
Supply Chain
Personnel Resilience
Estate Longevity
Estate Security
Working environments and practices
Disposal Costs
Defence Learning/Training
Defence Research/Technology
Land Stewardship
Domestic Economic Impact

Of these priority areas, many already have mature strategies and programmes which contribute to the successful and sustainable functioning of the Department. The Sustainable MOD Strategy will select priority areas that are either not already a focus for other Departmental strategies and programmes or where an additional focus of activity can provide additional benefits.

2.3 Related Strategies and Programmes

2.3.1 Waste

Our waste strategy was updated in 2014/15 and will be published shortly. The strategy sets out the vision and strategic direction on waste reduction. It sets the framework to drive continuous improvement in waste management, along with effectively contributing to MOD's drive to become a more resilient organisation.

The Department's waste management vision is:

To be an organisation where resources are fully valued, financially and environmentally and where we continually drive and incentivise improvement to maximise resource efficiency

2.3.2 People


Defence People are of critical importance to the MOD, including the Armed Forces, their families, civilian personnel, and the communities within which we live work and train. There are a number of strategies and initiatives that focus on our people and the communities where we live, our Service Personnel and their families, Defence training and learning, equality and diversity, and the health and resilience of personnel (both military and civilian).

The Defence People Organisation, headed by the Chief of Defence People is responsible for delivering MOD's civilian and service personnel policy. The Defence People and Training Strategy, articulates the strategic framework for the Top Level Budgets² (TLBs) and Trading Funds to deliver the right mix of capable and motivated people across the Whole Force of regulars, reserves, civilians and contractors. An associated Defence People and Training Plan, published annually, provide the detailed execution of the strategy, setting out the Defence People & Training Board's priorities for action.

The strategy acknowledges that MOD needs to develop and retain its people in such a way that enables them to deliver both operationally and to meet their needs to grow as individuals through appropriate career paths within the organisation.

¹ www.globalreporting.org/reporting/reporting-framework-overview/Pages/default.aspx

² See 'How Defence Works; the Defence operating model' available at: www.gov.uk/government/publications/how-Defence-works-the-Defence-operating-model



3. Performance 2014/15

3. Performance 2014/15

3.1 Energy Efficiency and Security

Energy security, now and in the future, is critical to our business and military capability. We have targets in place to ensure equipment, estate and infrastructure energy performance continues to improve.

3.1.1 Operational and Equipment Energy

In 2012, the MOD set itself 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 we 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;
- understand better future energy consumption, and
- develop intelligent new targets for the future.

Provisional fossil fuel consumption data for 2014/15 shows a 26%³ reduction when compared to the 2009/10 baseline. This equates to approximately 322 million fewer litres of fuel. The provisional data shows that we're on course to exceed the target set in 2012.

Whilst welcome, this is largely a result of a reduction in large-scale operational activity since the drawdown in Afghanistan and the removal of some ships and aircraft following the 2010 Strategic Defence and Security Review. Forecasting currently shows that we will struggle to maintain this level of performance as new equipment, in particular the Queen Elizabeth Aircraft Carrier, come into service. Work is in hand both to better quantify this risk and to minimise it.

Table 2: Operational & Equipment Energy Consumption

Operational & Equipment Energy ⁴	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Fuel in million Litres	1,250	1,231	1,187	1,071	974	928
% change compared to 2009/10 baseline		-2%	-5%	-14%	-22%	-26%

Target: Reduce operational and equipment energy consumption by 18% compared to 2009/10 baseline

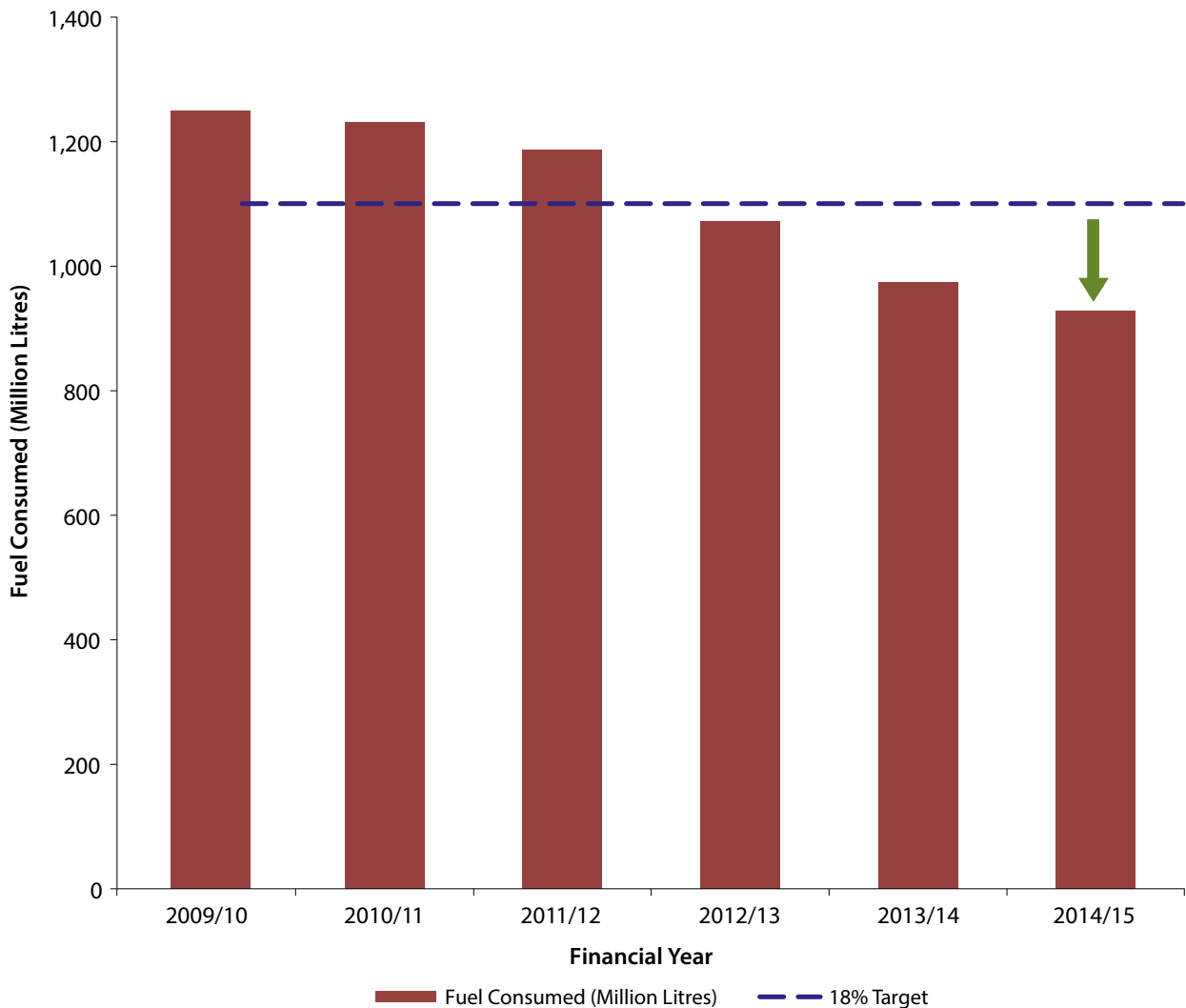
³ The data for financial year 2014/15 is provisional as we await final confirmation of the consumption data.

⁴ Previous performance figures may differ with those in this table due to improvements in data availability



Energy security now and in the future is critical to our business and military capability.

Figure 1: Operational & Equipment energy consumption



Work on a methodology to determine future targets continues. The aim is to provide a challenging target to each of the MOD's Frontline Commands⁵. The target will consider the differing operating demands and capabilities of FLCs.

3.1.2 Estate Energy and Greenhouse Gas Emissions

A dedicated Energy Management Team was established within the Defence Infrastructure Organisation (DIO) in 2013 to lead on energy management across the Defence estate. The team carried out awareness campaigns aimed at reducing energy consumption and carbon emissions.

During the period 2011-15, working with our industry partners, we invested £105M as part of an award

winning⁶ 'Energy Spend to Save Programme' across 223 UK and Overseas sites, delivering 1,400 energy efficiency measures. The programme and the behaviour change campaigns in 2014/15 helped MOD reduce estate energy emissions by over 266,000 tCO₂e between 2009/10 and 2014/15.

The behaviour change campaign included:

- energy pledges;
- targeted monthly site campaigns;
- local Utility Action Forums and Site Utilities Management Plans were put in place to identify and target opportunities and
- The implementation of estate-wide action plans to turn off non-essential equipment in response to a high TRIAD alert (1 November

2014 - 28 February 2015) and RED Distribution Use of System (DUOS) periods. This was a first in MOD and we managed to save £164,000.

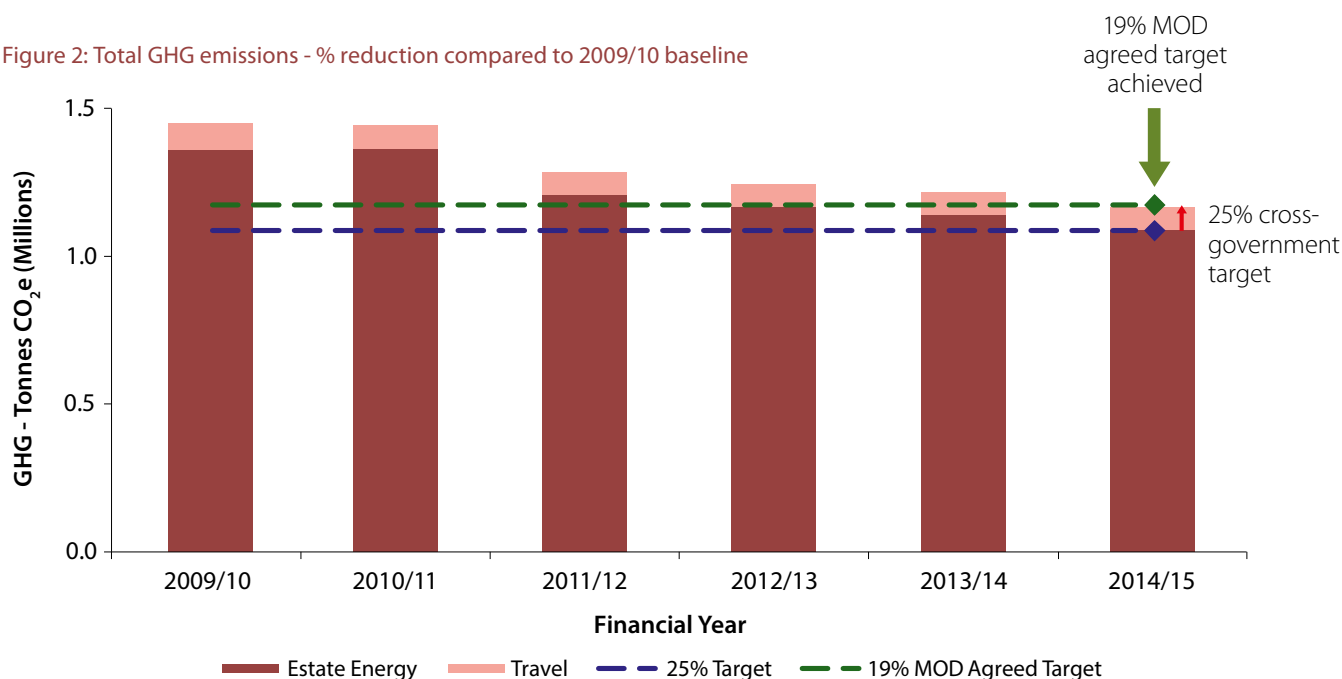
The MOD has delivered its commitment to reduce carbon emissions by 19% from the Defence estate and business travel by 2015⁷ as part of our contribution to the GGC greenhouse gas (GHG) emissions target. At the end of 2014/15 we reduced emissions from estate energy and domestic business travel by over 266,000 tCO₂e relative to a 2009/10 baseline (Table 3). The results have been achieved during a period of considerable fluctuation in personnel numbers as they transfer back from overseas bases and operational theatres.

Table 3: Greenhouse Gas GGC target performance

GHG - tonnes CO ₂ e	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Estate Energy ⁸	1,359,043	1,364,055	1,210,328	1,168,036	1,141,033	1,090,872
Domestic Business Travel ⁹	89,748	78,338	75,347	76,447	76,956	75,116
GHG Total	1,432,006¹⁰	1,442,393	1,285,675	1,244,483	1,217,989	1,165,988
% change compared to 2009/10 baseline		0%	-11%	-14%	-15%	-19%

Target: Reduce GHG emissions by 25% compared to 2009/10 baseline

Figure 2: Total GHG emissions - % reduction compared to 2009/10 baseline



⁵ Royal Navy, Army, Royal Air Force, and the Joint Forces Command

⁶ Winner of the Energy Institute 'Energy Excellence Award' 2014.

⁷ The GGC GHG emissions reduction target is 25%. MOD committed to achieving 19% as contribution to the cross government target.

⁸ Estate energy refers to emissions from mains electricity, natural gas, gas oil and LPG - annex C item 8

⁹ Domestic business travel: emissions from air flights, white fleet, grey fleet and rail travel. See annex C item 9 for definitions

¹⁰ This is a revised GGC baseline figure – actual total for 2009/10 is 1,448,791. % changes for 2010/11 to 2012/13 were calculated using the 2009/10 actual figure

3.2 Climate Resilience

3.2.1 Estate and Infrastructure Adaptation

We are working to improve our understanding of the risks and opportunities related to our estate and infrastructure from a changing climate. In 2014/15, a further 11 sites were assessed for climate impact, completing the target of 80 priority sites as stated in the UK National Adaptation Programme. The assessments were done using our Climate Impact Risk Assessment Methodology (CIRAM). We also completed the first strategic climate impact risk assessment. The results of these assessments have been used to inform decisions being taken at both the individual site level and strategic planning.

Strategically, climate resilience is considered by the Army Basing Programme, the Footprint Strategy and the MOD must also deliver on wider Government policy objectives, which shape both approach and outcomes of daily operations. These include delivering on Housing Land Release and office utilisation targets, as well as contributing to wider Government sustainability and construction agendas. At the site level, identified climate risks are incorporated into site Management Plans and local Environmental Management Systems.

Additionally, climate resilience adaptations are also being addressed through the improved scrutiny of business cases as part of the Defence investment appraisal process.

3.2.2 Equipment

As operating environments change, it is essential that MOD plans for the impacts of climate change regarding both equipment and personnel. Hotter climates and increasing frequencies of extreme weather events mean that equipment may need to tolerate significantly different environments, and as such upgrades and new acquisitions will need to understand these factors to ensure capability is delivered and maintained to the required levels of effectiveness. The Puma Engine

Upgrade case study illustrates some of the work we have been doing to make our equipment more climate resilient.

3.3 Sustainable Construction

The MOD uses the Defence Related Environmental Assessment Method (DREAM) tool¹¹ to assess all new builds and major refurbishments. DREAM provides an equivalent to the industry standard Building Research Establishment's Environmental Assessment Methodology (BREEAM), specific to the Defence estate and Defence projects and allows us to assess the environmental impacts of our construction activities.

Over 93% of assessments carried out in 2014/15 reached their target DREAM rating. The target for new build projects is "excellent" and for major refurbishments is "very good."¹² The most common reason for project not reaching target rating is when doing so conflicts with the obligation to achieve through life value for money. This is a particular challenge when applying DREAM to novel MOD buildings.

DREAM modules are designed to be used for assessment of new builds and major refurbishments but are unsuitable for partial refurbishments/minor new works. To address this issue a suite of new modules were developed and launched in 2013.

In 2014/15 our main focus was on:

- reducing construction costs without impacting on quality

through cost led procurement and using benchmarking;

- ensuring that the DIO are embedding process changes that will deliver more sustainable solutions such as use of post occupancy valuation and Government Soft Landings¹³ and
- reviewing of construction related policy documents (such as the Joint Service Publications 315 and 850), aimed at bringing industry standards into our procurement.

3.4 Waste and Water

Ensuring our utilities are efficient not only helps us meet government commitments but also helps the Department to save money and improve its facilities.

3.4.1 Waste

In 2014/15, the MOD diverted 88% of waste from landfill through reuse, recycling or recovery. This was a substantial improvement from the 77% reduction achieved in 2013/14. Greening Government Commitments consider all items disposed of by the Department, including those sold for re-use or recycled as waste. Implementation of Defence Reform following recommendations from the Strategic Defence and Security Review (SDSR) 2010 continues to cause amounts of waste generated to fluctuate, and rationalisation of the estate is generating high levels of waste. Consequently the GGC target (reducing waste generated by 25% compared to the 2009/10 baseline) was missed.



Royal marines pump floodwater into the River Parrett at the Saltmoor Pumping Station near Burrowbridge in Somerset.

¹¹ www.dreamassess.com

¹² The Government Buying Standard for Construction Projects and Buildings

¹³ www.bimtaskgroup.org/gsl-policy-2/

Case Study: Puma Engine Upgrade

The improved efficiency of the Puma HC2 is primarily underpinned by two parts of the Life Extension Programme: the new engines and the new autopilot / mission planning system.

The replacement of the Turbomecca Turmo III C4 engine with the Makila 1A1 has provided approximately 35% more available power. The new engines give the aircraft enhanced 'Hot and High performance' and extended range for the same amount of fuel used.



A Royal Air Force Puma Mark 2 helicopter lands at RAF Honington, Suffolk

Case Study: Fighting food waste at MOD sites

Background

Waste and Resources Action Programme (WRAP) are a not-for-profit company backed by Government to help organisations reduce waste and use resources more efficiently. WRAP launched the Hospitality and Food Service Agreement (HaFSA) in 2012; a voluntary agreement with the DIO to support the MOD in reducing waste and recycle more. As a supporter of HaFSA, the MOD through DIO and Finance Military Capability (FMC) is working in collaboration with WRAP at five MOD sites to identify how food waste can be reduced.

What did we do?

A preliminary WRAP study in 2013 suggested that changes could be made to the way food is managed to reduce the amount of waste produced. To examine this further and in support of HaFSA we conducted a MOD specific study with our customers, consumers and each of our suppliers to examine ways to reduce food waste. The MOD catering providers measured and monitored the food waste produced over a four week period. The different areas measured were Spoilage – food that has expired or been damaged, Preparation – food waste produced during preparation (e.g. egg shells, vegetable peelings), Plate – uneaten food that has come back from the customer and Over Production – excess food that was uneaten after service which cannot be used for future service. This starting point

defined and established a baseline against which progress could be measured. Next the reason why food was being wasted was reviewed and ways in which it could be reduced were identified.

What did we find?

While there is much good practice already happening to reduce food waste, the project identified opportunities to make efficiencies. These will be shared with other sites and tailored to specific site operations.

What progress have we made?

By working together we have identified the main areas for action, and developed a 'Reducing food waste at Ministry of Defence sites' guide which is currently being made available to all caterers at UK sites. The guide explains the value of food waste, ways to take action, and provides practical 'how to' information (including comprehensive checklists, waste tracking sheets and action plans) to help caterers tackle food waste.

What will we do next?

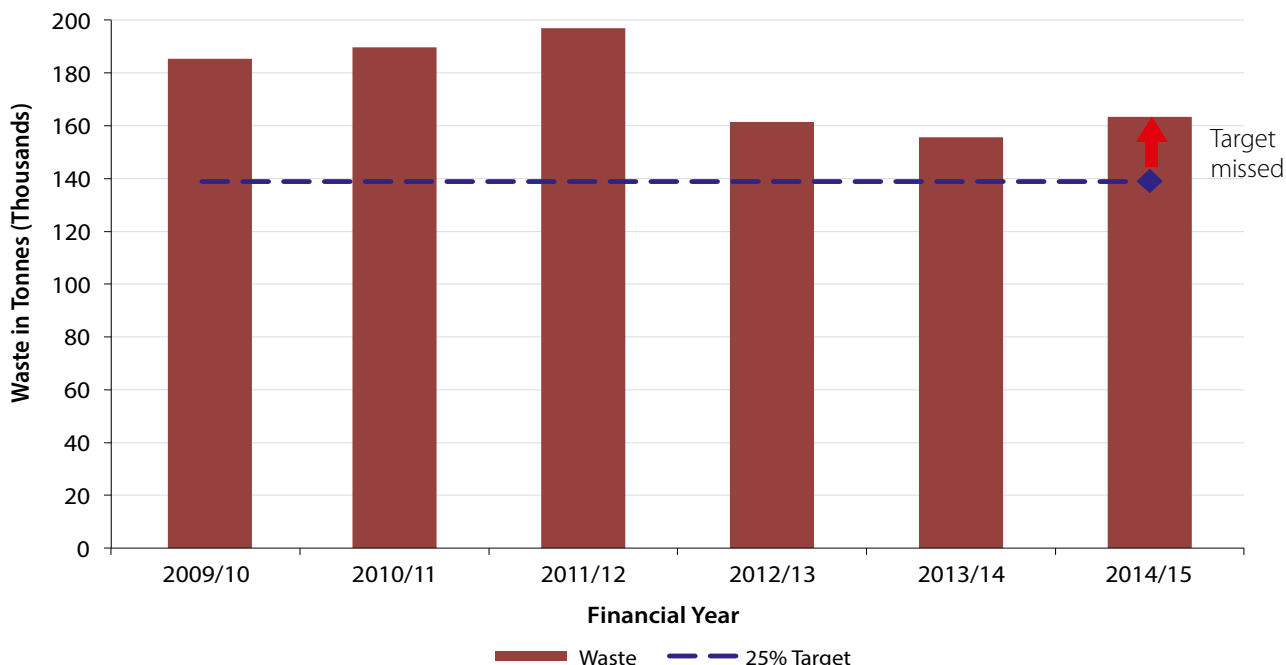
Recommendations from the work will be incorporated within facilities management guidance at all UK MOD sites. This will include measuring and monitoring food waste - to continue to build our understanding of effective actions and improvements, and sharing lessons learned across all our locations. DIO is using the findings from this project to help inform its wider work programme to reduce waste, improve waste data and inform a behaviour strategy.

Table 4: Waste data analysis

Waste	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Tonnes	185,437	189,713	197,034	161,346	155,596	163,303
% change compared to 2009/10 baseline		2%	6%	-13%	-16%	-12%

Target: Reduce waste generated by 18% compared to 2009/10 baseline

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



To improve our waste management further, in 2014/15, our focus was to update the MOD waste management strategy and to embed a consistent and collaborative approach to waste management and reporting practices across the Defence estate. The strategy's objective is to significantly reduce waste production and increase waste recovery by:

- Having a full understanding of MOD resource use and through life management options and activities;
- Ensuring that waste prevention is part of normal day to day business; being thoroughly embedded into decision making processes and procedures;
- Ensuring that where the production of waste is unavoidable, it is managed in line with the waste hierarchy; and

- Ensuring that all MOD personnel appreciate the environmental, social and economic value of resources, and how their actions can influence and/or impact the efficient use of resources.

To embed good waste management practices:

- We identified roles and responsibilities on site and including site waste documentation. This has resulted in regular and productive collaboration between TLBs; and
- Continued work to centralise estate wide waste management data within the DIO for capture on the Infrastructure Management System (IMS).

In 2015/16 we plan to:

- Make waste management data available centrally for users and standardise the data capture formats within MOD and from

Industry Partners and Service Providers;

- Run pilots across the estate; engage with site users and partners to understand existing waste management practices, share best practice, centralise facilities and undertake audits, test and monitor the findings locally at first before implementing across the estate; and
- Embed in contracts the need for waste management and data capture across key sector supply chain.

3.4.2 Water

The MOD monitors water consumption and reports on performance quarterly as part of the GGC targets. We exceeded our revised 9%¹⁴ water consumption reduction target (Table 5). Our performance is due to a combination of estate rationalisation and the ongoing effect of previous spend-to-save efficiencies.

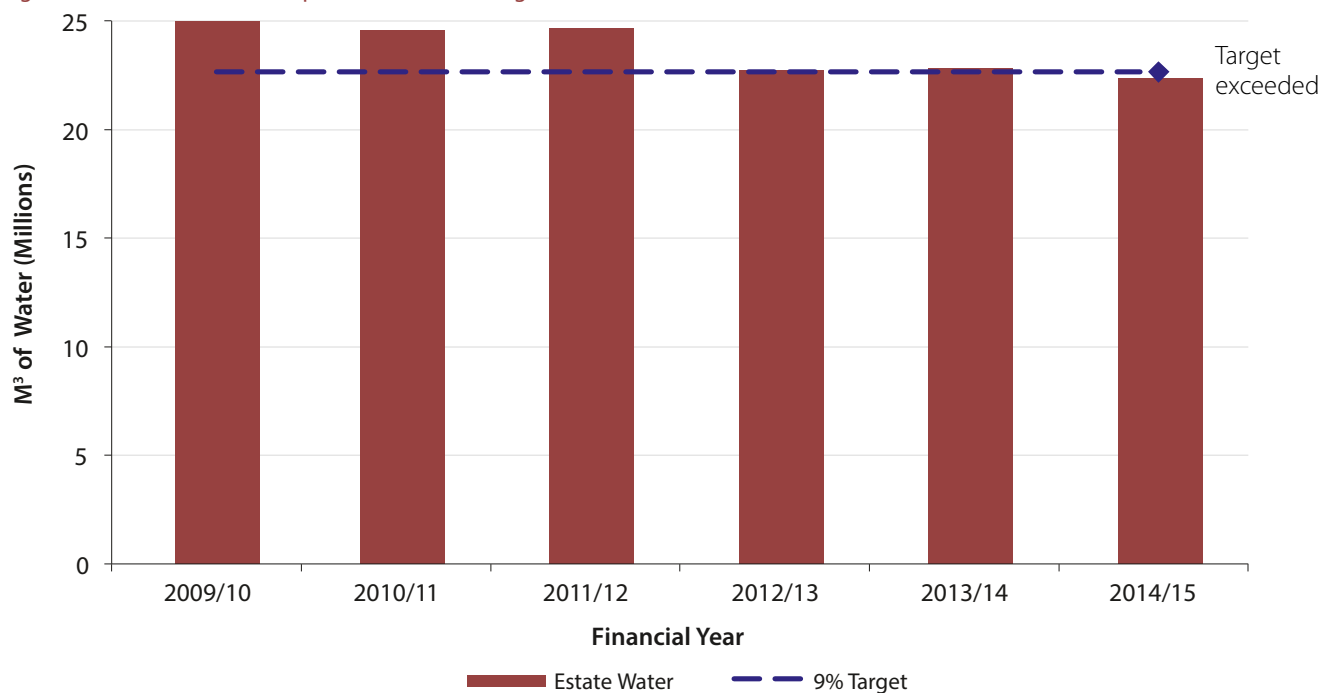
14 The internally set target increased from 7% to 9% last year, to stretch ourselves further and ensure we do not rest on our laurels

Table 5: Estate Water Data Analysis

Water - Whole Estate	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
consumption m ³	24,973,623	24,549,642	24,659,000	22,724,099	22,826,349	22,357,625
% change compared to 2009/10 baseline		-2%	-1%	-9%	-9%	-10%

Target: Reduce water consumption (from whole estate) by 9% compared to 2009/10 baseline

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



Fundamental to understanding MOD's water consumption, is the availability of consistently accurate data. The MOD has continued to work during 2014/15 to obtain, validate and upload water consumption data to the IMS. It is anticipated that by end the of July 2015, the data for UK and Overseas sites will be uploaded to the IMS.

The DIO has continued to drive forward a Water Consumption Reduction Programme (WCRP) to reduce water consumption in

support of the GGC targets and also to support water efficiency and costs. The programme is targeting 150 high demand (>10,000m³ per annum) Aquatrine Private Finance Initiative contracts.

Site surveys began at the end of 2013 and are due to be complete in late 2016. At the end of 2014/15, 55 site surveys had been completed.

Looking forward to 2015/16, improvements identified in site surveys are currently being progressed onto the in-year

Additional Works Services programme. The focus is the replacement of large numbers of faulty cistern control systems which have contributed to unnecessary water consumption. At this stage, it is difficult to accurately forecast cost savings until the WCRP works begin to be implemented. However, it is feasible that implementation of the WCRP works could lead to cost savings of between £15 million and £65 million over the next 15 years of the Aquatrine contracts which expire between 2028 and 2030.

3.4.3 Office Water

Although we exceeded our water reduction target from whole estate, we did not meet the GGC office water use Benchmark of <6m³ per full time equivalent (FTE) per year in offices as shown in Table 6.

The GGC office water benchmark target applies to eight MOD office sites, and the current combined benchmark across these sites is 12m³ per full time equivalent (FTE) per year. Office water accounts for less than 1% of the MOD's total water

consumption. During 2014/15, our focus has been on reducing estate wide water consumption, due to the potential to accrue greatest benefit and water savings.

Table 6: Office Water Consumption

Water consumption - Office	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Consumption in m ³	206,029	186,101	193,075	172,354	183,490	193,780
FTE	16,629	15,710	15,710	14,658	15,111	16,158
% change compared to 2009/10 baseline	12.4%	11.8%	12.3%	11.8%	12.1%	12%

There are a number of factors why the GGC office water benchmark target has not been achieved:

- The Abbey Wood Main site has three man-made lakes which were designed as a security feature. During 2014/15, the lakes were topped-up on one occasion with 11,000m³ of potable water.
- The MOD Main Building site has six cooling towers powering a combination of the climatic environment system and the IT servers in the Defence Crisis Management Centre (DCMC). However, it has been difficult to identify the precise volume of the top-ups because the meters originally installed on the cooling towers were removed due to Legionella risk.
- The Tomlinson House site is a five-storey building leased to the Department of Works & Pensions (DWP) and the MOD sub-leases a single storey. As such, there is little scope for the MOD to influence any technical interventions in the building.

Notwithstanding these factors, there are plans to try to address office water consumption during 2015/16 as follows:

- The Abbey Wood Main, Abbey Wood North and Kentigern House (Glasgow) sites are included on the DIO PFI Aquatrine funded Water Consumption Reduction Programme (WCRP). The three sites were surveyed during 2014/15 and it is anticipated that follow-up works will be implemented during

2015/16, and should lead to a reduction in water consumption.

- The MOD Main Building, Cheadle Hulme and Blandford House (Aldershot) sites are not part of the WCRP and, therefore, it is intended to secure funding during 2015/16 to undertake water surveys to identify the potential to reduce water consumption.
- In addition, for the MOD Main Building (MB) site, the DIO has recently secured access to an automated water meter installed by Thames Water will be able to monitor water consumption during 2015/16 more closely to identify unusual trends in consumption, including any non-legitimate usage such as high nightlines. Furthermore, the DIO is liaising with Modus Services, the MOD PFI contractor to obtain historical consumption data for the cooling towers in order to model approximate process use.

3.5 Estate Stewardship

3.5.1 Biodiversity

Whilst populations of many of the UK's varied species of plants and wildlife have seen dramatic falls and or disappeared from some areas of the country, the protection that the MOD has been able to afford to the 1% of the UK landmass that it manages has meant that for many species the MOD Estate has proven both a safe haven and one of the last locations where such species can be observed. The variety of terrain required for Military training has also complemented the opportunities for

biodiversity across the estate in terms of grasslands, forests, meadows, farmland, rivers, lakes, heathland and moorland. The MOD estate support 127 Sites of Special Scientific Interest (SSSI) sites in England, 22 in Scotland, 20 in Wales and 2 Areas of special scientific interest (ASSI) in Northern Ireland.

The ongoing work that we have undertaken together with our partners has seen further progress and enhancement of the protected sites we manage. Targets for SSSIs remain variable between Devolved Administrations. The last assessment report of condition shows that;

- in England, 98.7% of the MOD SSSI area remains assessed as favourable or in recovering condition (up from 98% last year);
- In Wales, performance has risen to 98.3% of SSSIs to be 'Under Appropriate Conservation Management' (up from 95% last year);
- In Northern Ireland, ASSI performance 100% up to the March 2015 data deadline submission; and
- Scotland SSSI performance is 97.6% (an improvement of 8.6%).

MOD continues to strive to improve these figures through sustainability appraisals, Environmental Management Systems and with stakeholders through integrated management plans.

Case Study: Next Generation Estate Contracts and Utilities

The MOD implemented the Next Generation Estate Contracts (NGEC) for Hard Facilities Management service delivery during 2014/15 as a replacement for the previous Regional Prime contracts. In addition, the Department also implemented a National Training Estate Prime (NTEP) contracts. The contracts require our Industry Partners, CarillionAmey and Landmarc to establish Utilities Management Bureaus for each of the four regions

in order to monitor and report energy and water consumption. The provision of water consumption data to Establishment level will provide Heads of Establishments with a better understanding of how their Establishment is performing and support greater awareness. More importantly, CarillionAmey and Landmarc are required to use trend data to identify opportunities to implement technical interventions to reduce water consumption across their sites.

3.5.2 Heritage

Heritage is of the fabric of the MOD. The Department takes its responsibilities for around 850 listed buildings, 750 scheduled monuments and over 10,000 archaeological monuments very seriously.

Stewardship not only extends to iconic facilities such as the Royal Naval Dockyards, MOD Main Building in Whitehall, Royal Military Academy or well recognised Battle of Britain heritage and RAF airfields but to many accommodation blocks, historic Keeps, museums, castles and houses which MOD aspires to remain in modern use whilst protecting the Historic features. Other designated assets include conservation areas, battlefields and registered parks and gardens.

In 2014/15 we completed the three year Barrow Clump Archaeological Excavation Project as part of Operation Nightingale initiative.

The year also saw a reduction in the numbers of Listed Buildings from 846 to 825 through disposals. The number of scheduled Monuments under our management also reduced

from 763 in 2013/14 to 762 in 2014/15 (Table 7). Mitigating Heritage at Risk remains an important part of our work with the MOD closely liaising with Historic England and other devolved administrations about these important, but often difficult, issues. MOD's Heritage report 2013-15 will be published later this year. Since the last report there have been extensive works to some heritage at risk assets, namely scrub clearance on barrows and development works on the Cambridge Military Hospital.

3.5.3 Access and Recreation

The MOD's Estate Policy team and Access and Recreation officers closely collaborate with a broad range of stakeholders and parties with an interest in accessing the MOD Estate to ensure they and those they represent get as much access and consequential benefit as feasible. Although Health and Safety of the public is always the top priority for the MOD, policy has focussed on opening up access to the estate whenever it is not required for Defence Operations or training.

Some sites can only occasionally be accessed by the public for safety or

security reasons. There are a number of significant projects which we have been working on to open up further areas, particular coastal paths around the periphery of sites and as part of the development falling out of rebasing of troops from Germany to sites around Salisbury Plain.

One example is the creation of a cycleway linking Salisbury Plain basing developments, with the new garrisons in the Larkhill and Tidworth regions which began in 2014/15.

3.6 Ways of Working

The MOD continues to work collaboratively with industry partners and other government departments to make improvements to the work place through improvements in technology and our ways of working.

3.6.1 Information and Communication Technology (ICT)

Performance on sustainable ICT continues to improve with this year's active participation of the MOD's Top Level Budgets and Arms Length Bodies in completing Sustainable ICT annual assessment.

Table 7: Condition of MOD Scheduled Monuments

Year	Good		Fair		Poor		Unknown		Total
2009/10	364	49%	222	30%	149	20%	2	<1%	737
2010/11	357	49%	224	30%	151	21%	2	<1%	734
2011/12	359	48.7%	222	30%	155	21%	2	<1%	738
2012/13	355	46.5%	250	32.8%	158	20.7%	0	0	763
2013/14	355	46.5%	250	32.8%	158	20.7%	0	0	763
2014/15	363	47.6%	244	32%	155	20.3%	0	0	762



In 2014 we completed the three year barrow Clump Archaeological Excavation project...

The Department has achieved maturity level 3 - Practising on the Sustainable ICT Maturity Model, meeting the Greening Government ICT strategy¹⁵ target published in 2011. We have also completed ten of the 14 key Government Roadmap activities for improving our Green ICT practices.

There has been greater adoption of mobile working with staff working from home using corporate Information Technology systems where applicable or via the Defence Gateway Services. Defence Science and Technology Laboratories (Dstl), in addition to its site rationalisation programme, have been promoting home working extensively, which

has won them the Cabinet Office the way we work (TW3) award for smart working project. Wider adoption of corporate tablet technologies is planned for 2015/16.

We have been exploiting technologies with extensive use of internet content and social media to deliver public facing services such as recruitment and public relations/ Media. Various services have also been introduced and made available that supports alternative ways of working, allowing collaborative working and reducing greatly the requirement to attend on-site meetings and travel. These include: Defence Connect (also referred to as JIVE), MODBOX, and SharePoint.

3.6.2 Business Travel

The MOD travel policy discourages unnecessary business travel and encourages personnel to use video conferencing and or telephone conferencing wherever practicable. If travel is necessary, the cheapest/ most cost effective available means should be used.

Table 8 below shows CO₂e emissions performances by different modes of transport used by our people

In 2014/15, we reduced GHG emissions from all travel including international air travel by 9% compared to 2009/10.

All UK domestic travel achieved a 17% reduction in GHG emissions.

Table 8: All Business Travel

Business Administrative Travel tCO ₂ e	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Domestic Air Travel	10,508	8,310	8,310	8,390	8,382	7,380
International Air Travel - short haul	6,008	4,761	8,345	5,904	6,985	7,492
International Air Travel - long haul	40,215	32,269	42,184	42,435	42,419	41,365
Rail Travel	4,546	2,937	3,210	2,747	2,553	2,529
Lease Hire	27,842	27,229	26,706	26,715	26,360	28,128
Hire Cars	14,920	13,090	14,013	19,517	17,386	17,065
Grey Fleet ¹⁶	31,931	26,773	23,107	19,078	21,606	19,408
Total	89,748	78,338	75,347	76,447	76,288	74,510

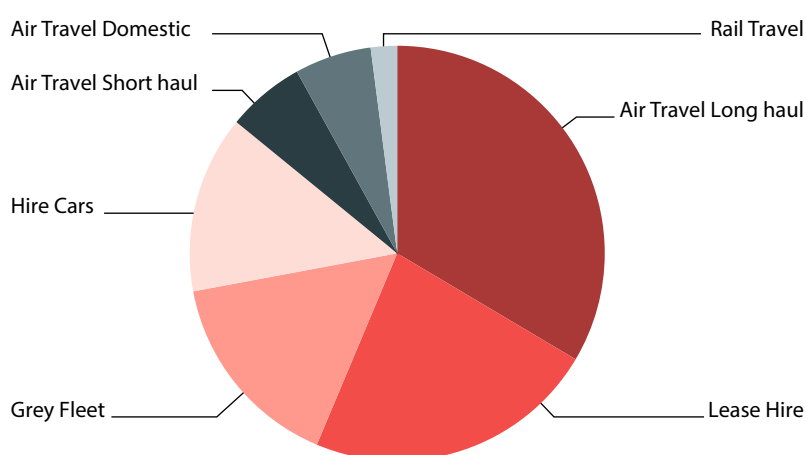
¹⁵ www.gov.uk/government/uploads/system/uploads/attachment_data/file/155098/greening-government-ict-strategy.pdf

¹⁶ Business travel by civilian and Armed Forces personnel using their own vehicles



MOD Abbey Wood buildings include offices, restaurants, library, sports facilities, training rooms, auditoria and conferences rooms, support facilities and a crèche.

Figure 5: All Business Travel tCO₂e - Comparison



3.6.3 Domestic Air Travel

The administrative parts of MOD reduced domestic air travel by 29% in 2014/15, exceeding the GGC target by 9% as shown in Table 9 below.

Our Front Line Commands (who contributed over 78% of domestic flights in 2014/15) have seen an increase in domestic air travel due to major organisational changes

resulting from SDR 2010 including army rebasing and ship building programmes in Scotland.

Table 9: Domestic Air Travel

Domestic Air Travel (tickets)	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
MOD Total	66,274	53,110	56,656	60,524	64,467	64,910
% change compared to 2009/10 baseline		-20%	-15%	-9%	-3%	-2%
MOD Administrative	19,807	15,868	16,756	14,675	15,677	13,990
% change compared to 2009/10 baseline		-20%	-15%	-26%	-21%	-29%
MOD Front Line Commands	46,467	37,242	39,900	45,849	48,790	50,920
% change compared to 2009/10 baseline		-20%	-14%	-1%	5%	10%

Target: Reduce domestic air travel by 20% compared to 2009/10 baseline

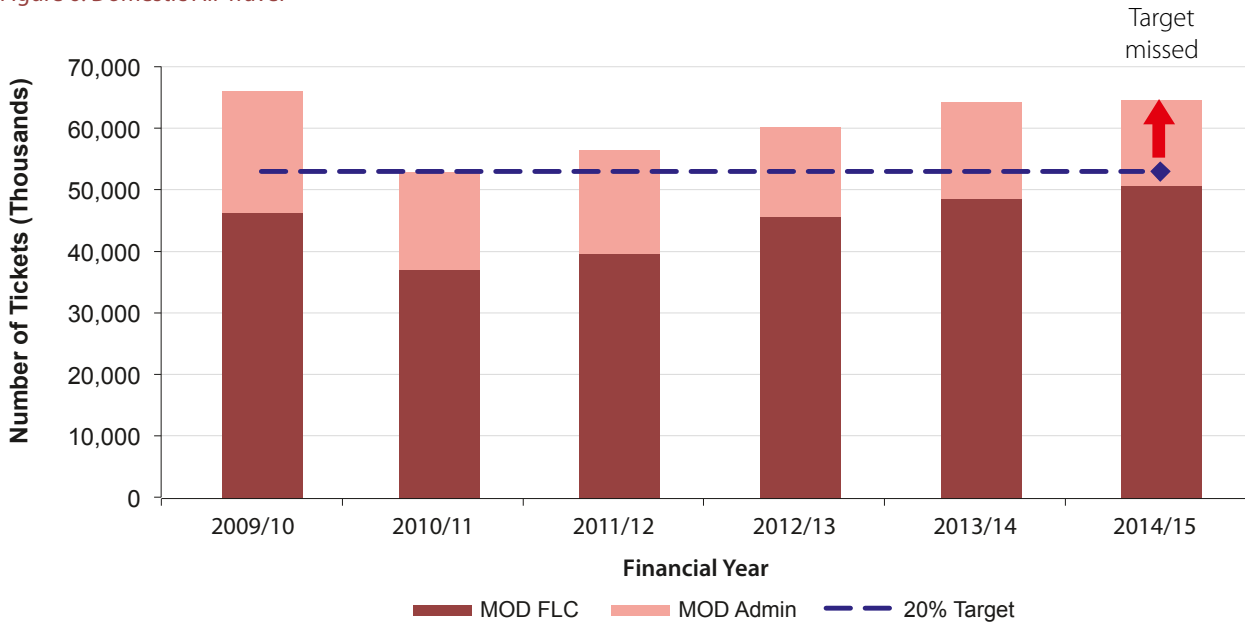
Performance 2014/15

92% of our domestic air travel is to Scotland and Northern Ireland where it remains value for money taking account of both the ticket cost, and the consequent costs of

accommodation, subsistence and time. Air travel represents a return journey that can be completed in one day, compared to a rail, or car journey which would lead into

overnight stays. Where we have had greater ability to affect flights, we have achieved a good reduction.

Figure 6: Domestic Air Travel



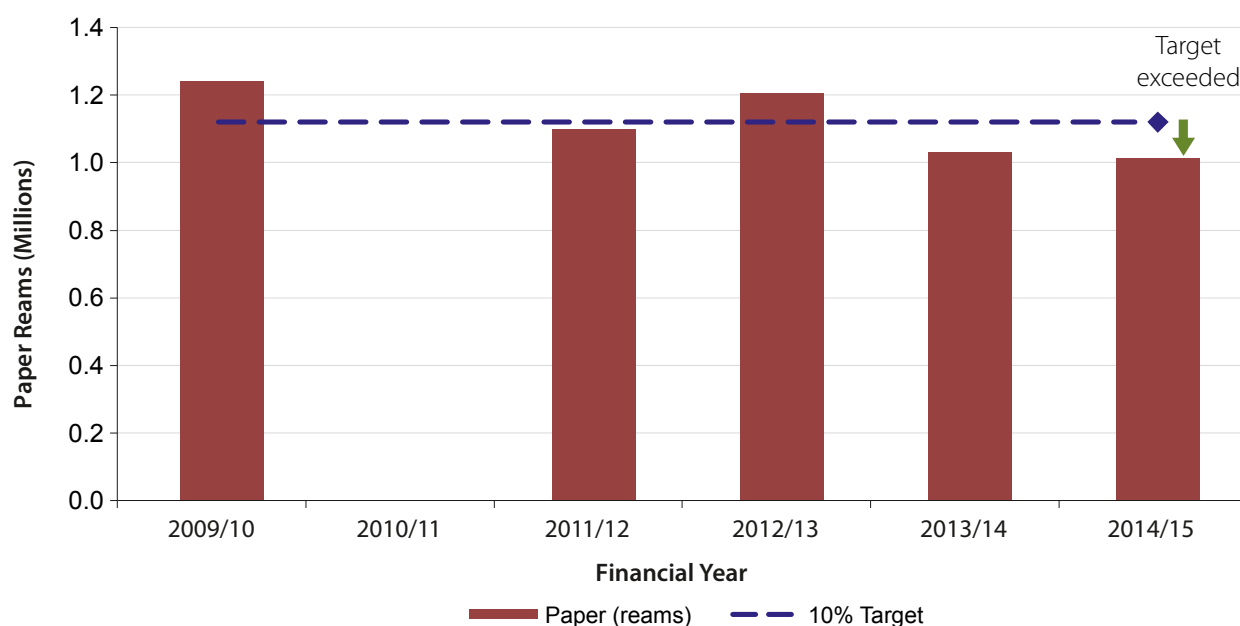
3.6.4 Paper Demand

In 2014/15, the MOD reduced paper demand by 18% compared to the 2009/10 baseline, improving on the 17% reduction achieved in 2013/14.

Table 10: Paper Demand

MOD Paper Purchased	2009/10	2011/12	2012/13	2013/14	2014/15
Paper (reams)	1,242,363	1,099,866	1,206,435	1,030,417	1,012,637
% change compared to 2009/10 baseline		-11%	-3%	-17%	-18%

Target: Reduce paper demand by 10% compared to 2009/10 baseline

Figure 7: Paper Demand¹⁷

In 2015/16 we plan to carry out a review of paper consumption performance over the last five years with the view to identify further room for improvements in metrics and or reduction in consumption.

3.7 Acquisition System

Addressing sustainability in the acquisition of equipment and support solutions at the earliest opportunity reduce through life-costs and risks, while realising potential benefits which include increased operational effectiveness and enhancing mission endurance / freedom of action.

Defence Equipment & Support (DE&S) is working jointly with Industry to consider how Sustainable Procurement principles, processes and activities can be integrated more universally into acquisition and through life capability management practices.

Our priorities on sustainable procurement are:

- Understanding the risks of resources security (materials and energy) and climate change / geopolitical developments on capability performance and supply chain vulnerabilities; and

- Developing mitigation and adaptation strategies. Examples include exploring alternative options for scarce materials and maximising recycling opportunities; and increasing the profile of energy usage and sustainable options during equipment design and technological refresh/upgrade to increase awareness about options to deliver more energy efficient outputs while maintaining military readiness and effectiveness.
- Enhancing communications at acquisition interfaces particularly between the Front Line Command capability directorates and DE&S operating centres / delivery teams, and Industry on the through life benefits of developing sustainable solutions.

Key activities during 2014/15 included:

- Amending the Sustainable Procurement section of the on-line Acquisition System Guidance, previously known as the Acquisition Operating Framework, to reflect recent organisational and policy developments;
- Strengthening the sustainability requirements in our Investment Approvals policy;



The Airbus A400M, the RAF's future transport aircraft, which was on display at the Farnborough Air Show.

¹⁷ Paper consumption data was not collected in 2010/11

Case Study: Munitions Packaging

Defence General Munitions continues to work on delivering specialist packaging required for munitions in a more sustainable and cost effective way. Ensuring all munitions packaging can be quickly identified, removed and returned for reuse/recycling improves MOD's operational and training, logistical and budget effectiveness; at the same time it reduces our impact on the environment from raw material use and from sending packaging to landfill sites and / or for incineration. Currently, munitions packaging where practicable is being refurbished allowing multiple re-use, saving hundreds of tonnes of new packaging from being produced which saves an estimated £10 million a year for the taxpayer

based on current levels of munitions manufacturing and use.



- Working with suppliers to understand and address sustainability risks and opportunities in the supply chain;
- Starting a programme of engagement with Operating Centres and Delivery Teams to ensure that sustainability requirements are better understood and integrated as early as possible;
- Sponsoring the resource security and wider resilience of the supply chain (climate change, natural hazards, and geopolitical developments) elements of Dstl's Operational Resilience Research Portfolio;
- Developing and sponsoring the Sustainable Procurement Training programme delivered by the Defence Academy;

As part of increased efforts to raise awareness of sustainability across a large stakeholder community, DE&S hosted a Sustainable Procurement Industry Day in September 2014 aimed at bringing together Defence Industry partners, other suppliers, and senior MOD decision-makers to consider the challenges of delivering

sustainable operational capability to meet front line requirements. This well-received event will now be run on an annual basis with the next event scheduled for October 2015.

3.7.1 Government Buying Standards and Procurement

Our 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.

3.7.2 Supply Chain

We continue to work collaboratively with suppliers to develop and embed sustainable procurement principles, processes and activities into acquisition and through life capability management practices.

The MOD-Industry Sustainable Procurement Working Group was set up to provide a forum for the MOD and its suppliers to consider jointly how best to promote and embed sustainability into procurement activities. DE&S has been consulting with key suppliers about the most appropriate methodologies to

provide effective assurance that corporate performance management arrangements on sustainability are publicly reported.

The DIO has improved the sustainability elements of Capital Infrastructure project business cases via implementing robust scrutiny management practices. They have also launched a MOD wide Infrastructure Sustainable Development Working Group to share best practice with both Hard and Soft Facilities Management suppliers to work collaboratively to develop sustainable procurement activities, including supply chain resilience.

Case Study: Sustainability in Contracts

Sustainability is part of the Portfolio Management Agreement between MOD and MBDA Missiles Systems. This includes a Sustainable Procurement Plan which incorporates the requirement to initiate a Materials Stewardship Programme designed to understand current legislative and availability risks which could affect the security of supply of materials.



4. Next Steps

4. Next Steps

4.1 Future of Defence and Sustainability

With the Government decision to roll forward the current 2010-2015 Greening Government Commitments for one year, we will continue to drive improvements against the target areas. Our work during 2014/15 to take stock of MOD's sustainability agenda, has led us to update the Department's "Sustainable MOD Strategy 2015-2025". The strategy identifies priority areas where we consider an additional focus of effort during the next 10 years will provide benefits to Defence business, and which are split into two areas of focus - areas where we can deliver specific projects to improve our sustainability, and areas where we can continue to evolve our Departmental systems to be more sustainable.

Our priority areas are:

ACT

- Energy security and reducing our reliance on fossil fuels, particularly in relation to operational energy
- Resilience to climate change
- Estate utilities and management of our energy water and waste across the estate.

EVOLVE

- Acquisition systems and Infrastructure systems.
- Modern working environments.

Work to address these priority areas is already underway, though the updated strategy will not be finalised until 2016 in order to take account of the Strategic Defence and Security Review 2015, Spending Review, and any future requirements from the Government's sustainability agenda.



Annexes

Annex A: Sustainable development data ¹⁸

GREENHOUSE GAS EMISSIONS		2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	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	2,997	a
	Total net emissions for scopes 1, 2 & 3	1,484	4,685	4,331	3,338	3,659	2,339	a
	Total gross emissions scope 1	578	3,796	3,557	3,238	3,558	2,236	a
	Total gross emissions scope 2 & 3	917	900	849	871	717	761	a
Related Energy Consumption KWh 000's	Electricity: Non-renewable	1,460,770	1,464,106	1,282,421	0	0	0	b
	Electricity: Renewable	20,440	20,486	142,491	1,481,564	1,384,227	1,223,272	
	Gas	2,482,020	2,475,352	1,952,488	1,740,426	1,971,184	1,804,037	
	LPG	80,070	80,403	82,000	79,391	79,425	53,247	
	Other	290,598	289,877	314,428	337,572	338,153	324,558	
	Aviation fuel	827,800	792,400	767,100	693,097	627,420	584,022	
	Diesel (retail blend & mineral blend)	340,500	354,300	339,300	see below	see below	See below	c
	Diesel (retail blend)	-	-	-	118,394	105,318	85,125	
	Diesel (100% mineral)	-	-	-	214,154	215,965	157,390	
	Gas oil	74,300	79,700	74,900	40,602	34,329	33,976	
Related Equipment Energy Consumption Litres 000's	Petrol	7,000	4,600	5,800	4,462	8,882	3,975	
	Expenditure on energy	195,715	280,563	294,676	243,266	261,124	317,074	d
	CRC license expenditure (2012 onwards)	-	-	1	16,000	17,000	16,500	
	Expenditure on GCOF offsets	220	78	12	12	12	18	
	Expenditure on official business travel	198,747	165,467	161,632	161,632	163,107	163,859	d
	Expenditure on equipment energy (fuel)	481,934	627,850	635,354	758,809	731,045	574,681	
	Total scopes 1, 2 & 3 - tCO ₂ e 000	1,495	4,696	4,406	4,109	4,275	2,997	a
	Defence total Spend £000's	37,994,285	38,116,370	37,176,648	35,210,412	37,383,571	34,567,604	
	Normalisation - Scope 1 & Scope 2 emissions '000 / budget '000	0.00004	0.00012	0.00012	0.00012	0.00011	0.0009	

¹⁸ The Sustainable Development Data must be read in conjunction with the explanatory notes Annex C item 12

Annex B: Water and Waste Further Analysis

FINITE RESOURCE CONSUMPTION - Water		2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Non-Financial Indicators 000's m³	Water consumption (office estate)	206	186	193	172	183	194
	Per Full Time Equivalent	12.4	11.8	12.3	11.8	12.1	12
	Water consumption (office & non office estate)	24,974	24,550	24,659	22,724	22,826	22,358
Financial Indicators £000's	Water supply costs (whole estate)	100,236	98,667	107,369	104,804	101,043	112,869
Normalisation	Department total spend £000's	37,994,285	38,116,370	37,176,648	35,210,412	37,383,571	34,567,604
	Normalisation - emissions m ³ / budget £000's	0.00066	0.00064	0.00066	0.00065	0.00061	0.00065
WASTE		2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Non-Financial Indicators tonnes 000's	Total waste	185	190	197	161	156	163
	Hazardous waste	14	11	6	4	18	19
	Non hazardous waste	55	48	43	29	35	18
	Reused/Recycled	91	95	122	101	94	99
	Composted	8	9	9	8	1	1
	Incinerated with energy recovery	10	18	12	18	5	24
Financial Indicators £000's	Incinerated without energy recovery	8	8	5	2	2	3
	Total disposal cost	Not known	Not known	Not known	Not known	Not known	Not known
	Department total spend £000's	37,994,285	38,116,370	37,176,648	35,210,412	37,383,571	34,567,604
Normalisation	Normalisation - waste generated tonnes 000's/total spend £000's	0.000005	0.000005	0.000005	0.000005	0.000004	0.000005

Annex C: Caveats and 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. The MOD is large and complex with around 400 main sites and around 4,000 sites in total. A site may contain a single building or dozens of buildings. MOD's 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 data being reported.
7. Sustainability 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.
8. **Estate Energy**
 - a. The Department of Energy and Climate Change agreed that the Greenhouse Gas target should apply to the 398 core establishments which MOD has decided to retain for the long term end include 6% savings 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 administrative 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 CO₂ 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.

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 2010/11 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.

11. 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 4,000 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 8 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).

12. 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

Annex D: List of Acronyms

ARAc	Annual Report and Accounts
ASSI	Areas of Special Scientific Interest
BREEAM	Building Research Establishment's Environmental Assessment Methodology
CIRAM	Climate Impact Risk Assessment Methodology
DCMC	Defence Crisis Management Centre
Defra	Department for Environment, Food and Rural Affairs
DE&S	Defence Equipment & Supply
DIO	Defence Infrastructure Organisation
DREAM	Defence Related Environmental Assessment Method
Dstl	Defence Science 7 Technology Laboratory
FTE	Full Time Equivalent
GBS	Government Buying Standards
GGC	Greening Government Commitments
GHG	Greenhouse Gas
HaFSA	Hospitality and Food Service Agreement
ICT	Information and Communications Technology
IMS	Infrastructure Management System
MB	Main Building
MOD	Ministry of Defence
NGEC	Next Generation Estate Contracts
NTEP	National Training Estate Prime
PFI	Private Finance Initiative
SDSR	Strategic Defence and Security Review
SSSI	Sites of Special Scientific Interest
tCO₂e	Tonnes of carbon dioxide equivalent
TLB	Top Level Budget
TW3	The Way We Work
VTC	Video Tele Conference
WCRP	Water Consumption Reduction Programme
WRAP	Waste and Resources Action Programme