Ministry of Defence

Sustainable MOD

Annual Report 2017/18

Sustainability in the Ministry of Defence

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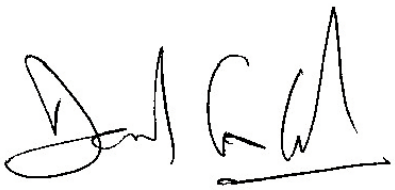
Foreword

We are pleased to welcome you to the Department's annual sustainability report. This year you will see a greater emphasis on how our activities support the governments Global Sustainable Development Goals, (to end poverty, protect the planet and ensure that all people enjoy peace and prosperity) alongside the traditional reporting areas including our progress towards the Greening Government Commitment targets.

Successes this year included our reduction in carbon emissions, where we have exceeded the estate carbon target, and the reduction in our water consumption across the offlce estate has decreased. There has been a large decrease in the waste we generate with the majority of our ICT waste either reused or recycled.

Operationally we have met the UN target for the number of women deployed on UN peacekeeping missions, and deployed over 2,000 personnel and (plus equipment) to aid in the recovery of the Caribbean after Hurricanes Irma and Maria. Closer to home we provided aid and assistance to the Civil Authorities during the winter snow storms.

The breadth, scope and complexity of defence activity sets the Department apart from many other Government Departments. Our challenge going forward is to ensure that we optimise our estate and continue to investigate cost-effective solutions to improve our sustainability during equipment procurement. Key to this is understanding where our risks and opportunities lie, and how best to leverage the outcomes to meet our sustainability objectives.



David Goldstone COO

Lt Gen Mark Poffiey FinMilCap

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TWIGA Training Area, Kenya

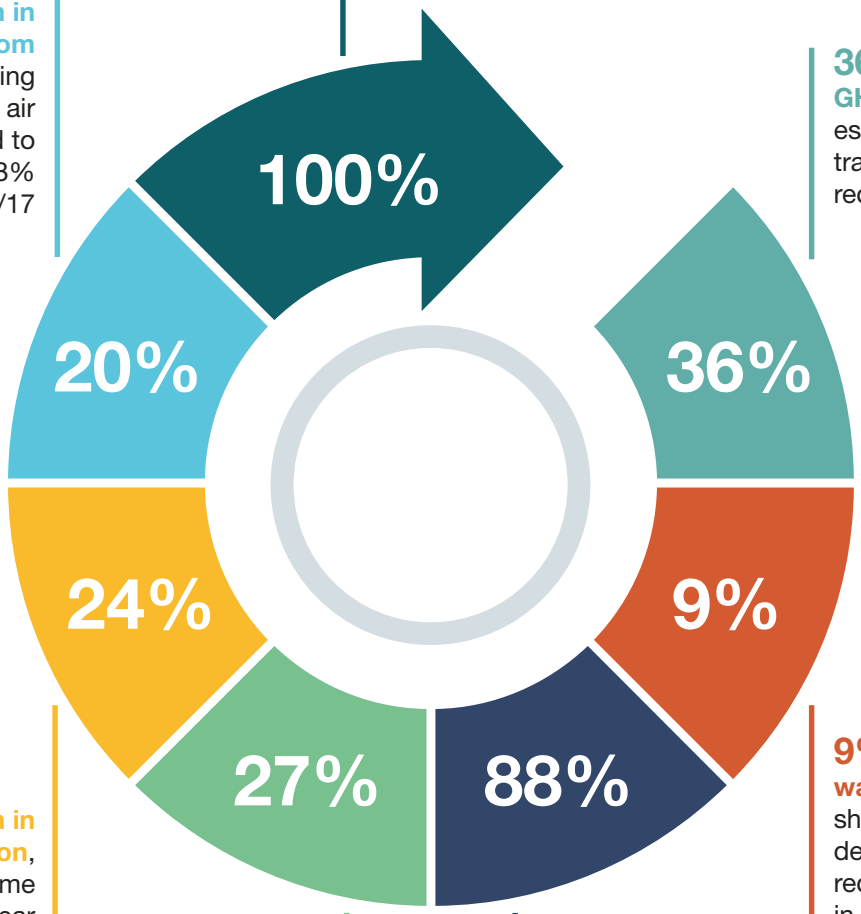
Performance at a glance[1]

100% of DREAM assessments undertaken met target rating 82% Excellent (new Build) 18% Very Good (refurbishment)

14m³ per Full Time Equivalent office water benchmark, showing decreased use from 17m³ in 2016/17

20% reduction in GHG emissions from all travel including international air travel compared to 2009/10, up from 18% reduction in 2016/17

36% reduction in GHG emissions from estate & business travel, up from 27% reduction in 2016/17



24% reduction in paper consumption, remaining the same as last year

9% reduction in water demand, showing decreased demand from 8% reduction achieved in 2016/17

27% reduction in waste generated, increased from 11% reduction in 2016/17[2]

88% of waste diverted from landfill, down from 91% diverted last year

Over 99% of ICT waste reused or recycled

1 Figures rounded up to nearest whole number

2 There was an error in last year's information which wrongly reported a 27% reduction in waste generation. The correct figure was 11%.

Site visit to Battlebury Hill Fort

1. Introduction

This annual report provides an overview of the Department's progress against both the Sustainable MOD Strategy and the Greening Government Commitment Targets (GGC) during 2017/18, and fulflls our obligations to report sustainability performance under the Department's Annual Report and Accounts. It also looks beyond the GGC targets, to wider activity within MOD that supports creating a more sustainable Department and how Defence activity contributes towards the UN Global Sustainable Development Goals.

1.1 Sustainability in the Ministry of Defence

At its most simple, sustainability in the MOD is about being efflcient in the use of assets and resources, our material security and supply chain, and planning for the long term to take account of environmental and socio-economic risks and opportunities whilst maintaining Defence capabilities. Managing socio-economic and environmental effects in the MOD supports the achievement of the Department's strategic objectives and the contribution the MOD makes to the UN Global Sustainable Development Goals. This was reiterated in the National Security Strategy and Strategic Defence and Security Review 2015.

With major change programmes underway to how we manage the defence estate, alongside the "Better Defence Estate" strategy (announced in November 2016), a key focus of effort has been to drive further improvements in our management information, and embedding sustainability in decision-making processes

"Our challenge is to design, build, operate and then dispose of buildings and land in as sustainable a way as possible - a challenge that we are only just beginning to grip. The opportunity is immense.

As we renew building systems, let new contracts, and rationalise just how many of our assets we actually need, environmental and flnancial sustainability go hand in hand. Then by exploiting flexible and more modern ways of working many of us can become more productive, reduce transport carbon and congestion, and reduce demand on offlce space and consumables".

Graham Dalton
CEO DIO

Case Study:
Army Energy Review

29 Regiment Royal Logistics Core (29Reg RLC) formed an Energy Management Team and established an Energy Management Action Plan. Members of staff were empowered by their managers with the responsibility to take control of their own workplace areas. Building Custodians were issued with detailed Terms of Reference and were assisted by Energy Wardens who had completed the online Defence Learning Environment environmental awareness course. Department Heads were also issued with Terms of Reference to help reduce costs during periods of high network transmission and distribution charges.

Regular site meetings were held by 29Reg RLC with all onsite agencies. The Station Sustainable Development Adviser delivered sustainable development presentations to the Building Custodians, based on their Terms of Reference, to reinforce the importance of the role that they play. Staff engagement and support throughout the project was paramount to enhance the levels of trust and integrity. Awareness training was also delivered to all levels of management and employees during the Workplace Induction Package.

Members for 29Reg RLC winners of EMA 'Energy Management Team of the Year'

The regiment were recognised for their combined efforts and were awarded the "Army Safety Environmental Award" for 2018, and the Energy Managers Association (EMA) Award for "EMA Energy Management Team of the Year". The Award was presented by Lord Redesdale, CEO EMA at the Energy Management Exhibition that took place in the ExCel Centre, London November 2017.

to ensure we are able to take account of sustainability opportunities and risks in decision making. In parallel to this, we have continued to drive improvements to deliver the GGC targets, and our estate stewardship.

In addition, Defence is going through a prolonged period of change and restructuring following the National Security Capability Review and through programmes such as the Better Defence Estate and Modernising Defence. In addition, the Government's 25 Year Environment Plan and Industry Strategy need to be incorporated into the way we do business.

The key focus of effort continues to be to drive further improvements in our management information, and embedding sustainability in decision-making processes to ensure we can take account of sustainability opportunities and risks in decision making. In parallel to this, we have continued to monitor our performance against the GGC targets, and drive improvements in our estate stewardship.

1.2 Global Sustainable Development Goals

The Ministry of Defence is not a lead Department on any of the UK's commitments to the UN Global Sustainable Development Goals (SDGs), but the Department supports several of the goals in numerous ways.

The Armed Forces protect the UK, as well as UK citizens and industries abroad and carry out many international tasks that support the SDGs including; taking a leading role in NATO's collective assurance and deterrence posture; along with international partners they support multinational peacekeeping missions and build stability overseas; they assist with delivering humanitarian aid internationally to provide relief and help to those affected by emergencies and disasters. (See section on International Engagement)

In the UK the Armed Forces stand ready to provide military aid to civilian authorities (MACA). (See section on MACA)

UK Defence and our Armed Forces make a huge contribution to UK prosperity. Defence procurement supports local economies and jobs throughout the UK on a large scale, and we provide direct support to Defence exports. Further, we make signiflcant investments in science, technology, and innovation, which has notable secondary and tertiary beneflts to other companies and sectors.

MOD contributes to up-skilling the UK national workforce, as a part of a whole-of-government approach, both when highly-skilled Defence personnel leave and enter the wider employment market, and through supported schools, Cadet and University Units, and the largest apprenticeship scheme in Britain.

A recent review of the goals against defence activities identifled links to many of the SDGs. In an international context numerous Defence Tasks link to Goal 16, Peace and Strong Institutions.

Throughout this report you will see an icon where the relevant goal is supported.

Table 1: Defence support to the UN Global Sustainable Development Goals

1.3 Greening Government Commitments (GGC)

Work has continued towards meeting the 2020 Greening Government Commitments, however, progress towards meeting the individual targets remains mixed. We can report increased reductions in carbon emissions from our estate and domestic business travel. There has been a slight decrease in water reduction and there have been increases in domestic flights and waste to landflll. Paper usage remains static.

Table 2: Greening Government Commitments and 2020 Targets[3]

Target	Performance[4]
Carbon – reduce estate carbon emissions by 30% by 2020	36% reduction
Carbon - Reduce the number of domestic business fiights by at least 30% from the 2009 to 2010 baseline[5]	17% reduction
Waste – send less than 10% waste to landfill	12% to landfill
Paper - Reduce government's paper use by at least 50% from a 2009 to 2010 baseline	24% reduction
Continue to further reduce water consumption. Each department will continue to improve on the reductions they had made by 2014 to 2015	9% reduction

1.4 Governance

The MOD Chief Operating Offlcer (COO) and the Deputy Chief of Defence Staff for Military Capability (DCDS (Mil Cap)) are the Department's sustainability champions.

The sustainability agenda is managed via a senior Steering Group, co-chaired by COO and DCDS (Mil Cap). The Group is responsible for setting the direction for MOD's sustainability agenda and priorities; and for monitoring and driving progress against our sustainability priorities, as set out in the Sustainable MOD Strategy 2015-2025 – Act and Evolve, and the Capability Energy Strategy.

The Steering Group members are drawn from across the Department's business areas including key Arm's Length Bodies and Trading Funds. The steering group is in turn supported by working groups (listed below) that focus on speciflc sustainability programmes;

- Sustainable MOD Working Group;
- Defence Utilities Group;
- Sustainable Information and Communication Technology (ICT) Working Group; and
- MOD-Industry Sustainable Procurement Working Group.

3 The targets apply to 22 core Ministerial and non-Ministerial departments and their executive agencies and executive non-departmental public bodies (but not advisory NDPBs) employing more than 250 staff or occupying 1,000m^3 of floor space. Full details of the GGC targets can be found at: https://www.gov.uk/government/publications/greening-government-commitments-2016-to-2020/greening-government-commitments-2016-to-2020.

4 See performance section for more detail.

5 This excludes front line military flights; departments which are already exceeding a 30% reduction will be expected to set their own internal targets for further reductions.

Case Study:
Energy Efficiency Initiative: The Great Christmas Turn Off

British Forces Cyprus (BFC) reduced their energy consumption during the festive period by an average 8% via promotion of the "Great Christmas Turn Off". Their aim was to empower all energy users with the skills and knowledge to assess their workplace requirements and switch off all non-essential items before departing on leave. With an average annual BFC utility spend of €14m, and most of their infrastructure reliant on manual controls for heat, light and power, they have historically saved signiflcant amounts of money by turning off non-essential equipment during holidays. €14m equates to around €38,000 per day so when the core staff, contractors and local site users turned all non-essential items off it had a signiflcant impact. All at the flick of a switchfl

All consumers, from dependants to industry partners, were encouraged to complete turn off action before they departed on leave via a range of communication modes. These included instructions from building custodians, Standing Orders, updates via staff meetings/ brieflngs/emails, radio reminders, social media posts and electronic poster sharing. This prompted BFC users to take action that brought beneflts at pace, with minimal resource input, back to the Department.

The behavioural campaign resulted in an impressive 1,130,240kWhs reduction in consumption over the same period as the previous year.

Lessons learnt

- Efflciency savings can be achieved when the whole force is engaged via good communication.
- When users have an awareness of how they can help MOD avoid unnecessary consumption they demonstrate the desired consume with care behaviours.
- Use what you need but don't waste resources is an effective resource management tool which helps reduce our environmental impact and saves taxpayers money.

Participation demonstrated the BFC commitment to the Joint Force Command (JFC) Sustainable Delivery Plan and the MOD Sustainable Strategy "Act" objective, as well as evidencing good governance pan-island.

1.5 Delivery and Assurance

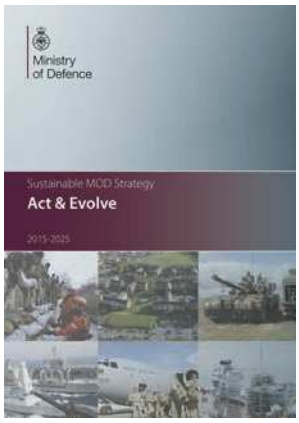
The Department has a delegated model for delivering defence business and outputs. Within this model, strategy objectives and targets, including the Greening Government Commitments, are included in the annual Defence Plan, which is then cascaded into Command Plans by the different parts of the Department, known as Top Level Budget Holders (TLB). These set out the outcomes and standards for each TLB to plan and deliver against in the short, medium and longer term, within agreed resources, and TLBs are then required to report their performance on a quarterly basis against their Command Plan.

A Sustainable MOD team provides focussed scrutiny and oversight of performance against our sustainability objectives and priorities, which is monitored by the Steering Group. Our 2016/17 GGC reports were also scrutinised externally by Building Research Establishment (BRE) on behalf of Defra to validate our reported performance.

Richmondshire Lines SLA, Catterick

2. Sustainable MOD Strategy

2.1 Sustainable MOD Strategy 2015-2025 – "Act and Evolve"



The second edition of the strategy was published in February 2016. It evolves our approach, bringing increased focus on the contribution sustainability can make to supporting Defence capability and outputs.

There are two principles that guide us:

- 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 changes.

It sets out short term objectives where we can act now, including energy, waste and water savings. Given much of our infrastructure and equipment capability have long in-service lifecycles, the longer-term objectives aim to evolve our equipment and infrastructure systems to embed sustainability into our decision making, and to enhance our business through modern working environments.

To ensure the strategy remains extant against changing defence activity, a full review will be conducted in 2018/19 to take account of internal and cross-government initiatives and strategies to include but not limited to; 25 Year Environment Plan, global SDGs, modernising defence and Infrastructure System Operating Model (ISOM).

2.2 Related Strategies and Programmes

Many of MOD's strategies and programmes contribute, either directly or indirectly to, MOD's sustainability priorities. Some of the key strategies and programmes are covered in this report. Where a UN SDG is supported, the appropriate icon is shown.

2.2.1 Capability Energy Strategy

Capability Energy is deflned as: the energy required to train, deploy, sustain, recover and recuperate UK flghting forces and support elements globally now and into the future. This deflnition excludes the fuel and energy required to power domestic utilities. It is critical to delivering military capability.

A strategy for our capability energy was developed in 2015/16 to provide a framework for the direction of, the priorities, and strategic objectives for the management of our energy portfolio.

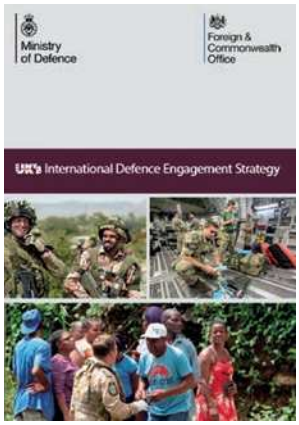
The strategy sets out a range of short, medium and long-term objectives to improve our understanding of our energy demand and ability to forecast, increase the use of alternative energy, and increase the energy efflciency of our current and future equipment capabilities, and construct stringent departmental energy targets (see also Section 3.1).

These include a broad range of analysis to capture everything from cost modelling through to future fuels technology and the continued development and use of synthetic training.

Work is in hand to bring together the Sustainable MOD and Capability Energy Strategies to drive greater coherence to our approaches to sustainability and equipment energy use.

2.2.2 International Defence Engagement Strategy

This strategy sets out how defence engagement contributes to delivering our vision of security and prosperity with strengthened influence to further our interests across the world.



Defence engagement is the use of our people and assets to prevent conflict, build stability and gain influence. The **2015 Strategic Defence and Security Review (SDSR)** directed MOD to make defence engagement a funded, core task for the flrst time, meaning that the Armed Forces will prioritise it alongside other core responsibilities. In 2017 the Defence and Foreign Secretaries launched an updated **International Defence Engagement Strategy (IDES)**. This outlined the scope and scale of defence engagement, based on growing central MOD funding, (around £80m per annum and rising), a wider network of Defence Attaches and Loan Service personnel (we now have 86 defence sections covering over 160 countries) and the provision of additional training for foreign partners both in the UK and overseas.

Op RUMAN (hurricane relief)

- Over 2,100 UK military personnel provided immediate relief and emergency aid to people who saw their homes destroyed.
- Royal Fleet Auxiliary (RFA) Mounts Bay arrived at Anguilla within 24 hours of hurricane Irma, deploying her disaster relief specialists, embarked helicopter and emergency supplies.
- The relief effort involved personnel from all three Services, including specialist engineers and logisticians, and provided emergency support and repairs to infrastructure as well as distributing medical supplies, emergency shelter kits, rations and clean water.
- The MOD deployed strategic and tactical air transport and flve support helicopters with the lead company of Royal Marines. This was followed by HMS Ocean, with nine further helicopters, and the remainder of the Commando Group. Lead elements deployed from the UK was within 24 hours of tasking.
- The task force provided the Overseas Territories and their Governors with pivotal support to enable governance, disaster relief, security and reconstruction. It also provided surge support to the Commonwealth of Dominica, also severely affected by Hurricane Maria. The Task Force assisted with the departure of 270 Entitled Persons, as well as medical evacuations from the British Overseas Territories, and from St Martin and Dominica.
- MOD transported 109 tonnes of aid on behalf of DFID, over one flfth of the total, via RFA Mounts Bay and HMS Ocean and via an air bridge of C17 and Voyager aircraft from the UK. Landing craft, helicopters and transport aircraft enabled the flnal leg. In addition, RFA Mounts Bay distributed her own HADR stores and replenished them with local purchases, as well as loading and distributing DFID shelter kits.

Case Study:
Defence Engagement

Funded by the Conflict, Stability and Security Funds (CSSF) the £7.28m three-year Afghan National Defence and Security Force (ANDSF) Professionalisation. Programme seeks to sustain support for a cadre of capable, professional military leaders in the Afghan Security Sector through UK-based training opportunities, short courses run in Afghanistan using instructors from the UK Defence Academy, and provision of English Language Training (ELT) at the Afghan National Army Offlcer Academy (ANAOA). Since 2014, the UK's influence at ANAOA has helped the Afghan National Army (ANA) train 3,000 offlcer cadets, including over 100 women. Indeed, in November 2017, the top ranked cadet was a woman. While women remain a relatively small but growing percentage of the overall output, in the context of Afghanistan this is a signiflcant achievement and the programme has seen consistent improvement from a position of struggling to flll female places on the course, to one where places are now oversubscribed. This has been influenced by the strong focus that the UK mentors put on the offlcer selection process at ANAOA, including selection of female offlcer cadets, but has also been attributed to the positive feedback from female graduates from their own experiences at ANAOA encouraging others to apply and join. Although all offlcer cadets at ANAOA already receive ELT under the ANDSF Professionalisation Programme, the UK is now expanding the training available for female cadets with a new project, delivered by the British Council, to provide ELT facilities exclusively for female cadets with a dedicated female instructor. We are also providing capacity building support to the Interior Ministry to encourage deeper understanding of gender issues and to increase the number of women police recruits.

Female cadets at the November 2017 ANAOA Graduation ceremony

Defence engagement activity varies widely in its nature. In recent years it has included:

- The provision of military medical expertise and logistics support in response to the Ebola outbreak in Africa. In West Africa, the British Defence Staff is overseeing a growing programme of UK advice and capacity building.
- We are providing training to Nigeria and its neighbours to develop the capabilities they need to face down security threats such as the Boko Haram terrorist group.
- In Lebanon we have provided training and specialist technology to assist the Lebanese Armed Forces in securing the border against threats from Syria.

In September 2017, the UK deployed over 2,000 military personnel, the helicopter carrier HMS Ocean and a range of other vessels and aircraft to assist in the response to devastating impact of Hurricanes Irma and Maria. Work included medical support, reinforcement of local government capacity, evacuation of vulnerable persons and the delivery of over 100 tonnes of emergency aid. Support was provided to British Overseas Territories in the region, but also to French and Netherlands overseas territories and to neighbouring states such as Dominica.

In collaboration with the Foreign and Commonwealth Office and the Department for International Development, Defence is also delivering the National Action Plan on Women, Peace and Security (see case study). Amongst other elements of this, we are delivering pre-deployment training on gender and international humanitarian law, to more than 7,000 peacekeepers from African countries annually; we have provided gender-sensitive training to over 7,500 Kurdish security force personnel in Iraq; we have launched a global Women Peace and Security Chiefs of Defence Staff network to spread experience and best practice. In terms of our own approach to military operations, the UK has met the UN target for doubling the number of women deployed on UN peacekeeping missions (7% for the UK compared to an average of around 3% for the UN as a whole). We are working to increase this further to a target of 15%.

2.2.3 Military Aid to the Civilian Authorities (MACA)

The support of the armed forces to civil authorities in the UK is officially termed **Military Aid to the Civil Authorities (MACA)**.

MOD's role is concentrated on 2 main areas:

- Providing niche capabilities, which MOD needs for its own purposes and which would not be efficient for the rest of government to generate independently, for example Explosive Ordnance Disposal (EOD).
- Standing ready to support the civil authorities when their capacity is overwhelmed. The armed forces provide this support from spare capacity, so it is subject to the availability of resources, without affecting core MOD objectives. The MOD does not generate and maintain forces specifically for this task.

MACA may include assistance provided by the armed forces to other government departments for urgent work of national importance, responding to emergencies or in maintaining supplies and essential services. Also, the armed forces may be asked to provide assistance to communities for special projects or events of significant value, or through the attachment of volunteers. Support provided during 2017/18 includes the following.

2.2.4 Armed Forces Families Strategy

In early 2016, MOD launched the first **UK Armed Forces Families' Strategy** aimed at improving the lived experience of the families of serving personnel; an important factor in retaining personnel and improving the Service Offer. The strategy aims to coordinate activity to support Service families in having greater

Op BOOMSTER
(snow relief – the Beast from the East)

- 20 RAF personnel and 10 4x4 RAF vehicles transported health staff to hospitals and communities in Lincolnshire.
- The military assisted Greater Manchester Police to enable them to access and assist motorists on the M62.
- Army soldiers and 10 4x4 vehicles transported NHS Scotland staff needed to deliver critical care services to and from Edinburgh Royal Inflrmary and the Western General Hospital. Reservists from the Scottish and Northern Irish Yeomanry were utilised alongside a further 20 4x4s from across the three services in Tayside and Fife to support NHS Scotland.
- 20 Army soldiers and 10 4x4s transported health staff to hospitals and supported health workers in visiting vulnerable people in the community in Shropshire.
- Over 40 Royal Marines and Army Commandos from 3 Commando Brigade Royal Marines were deployed in 20 4x4 vehicles to transport health staff to hospitals in Devon, Cornwall and Fife, as well as assisting relief efforts in Cumbria.
- The military provided 10 vehicles and personnel to transport NHS workers in the Salisbury and Swindon area.
- A Chinook was deployed to deliver supplies to communities in Cumbria that were cut off due to snowdrifts.
- In total, 328 personnel helped with the snow response, 124 4x4 vehicles were mobilised and 1 Chinook was deployed.

choice, removing disadvantage, empowering them, and engendering resilience in transition to civilian life. The supporting Families Strategy Action Plan details priority areas of activity including childcare, partner employment and accommodation, which have consistently remained areas of interest for both the Families' Federations and the Department.

Spousal Employment has remained in focus this year. 2017 Families Continuous Attitude Survey results show that UK employment rates for UK based Service spouses are on a par with their civilian equivalents however employment rates are lower for those posted overseas. The picture for families overseas is of particular interest to the MOD chaired Partner Employment Steering Group, which was established in October 2017 drawing together organisations offering bespoke employment support to Service families, charities and academia. The group is exploring this issue further to better understand the speciflc barriers and consider initiatives that might assist Service spouses seeking employment overseas or who wish to enhance/further their skill set through, for example, volunteering in readiness for a return to work in the UK. We are also considering in what other ways we can support spouses and partners to gain and sustain employment in the UK.

A Domestic Abuse Working Group was established in May 2017, which is taking forward work to launch, in the Spring, the flrst Defence Domestic Abuse strategy 'No Defence for Abuse'. The strategy aims to build on the existing good work being delivered by each of the Services and their welfare organisations to support survivors of domestic abuse, and their children, and to proactively tackle perpetrator behaviour.

Efforts towards improving support for families transitioning to civilian life and exploring new initiatives around childcare have also gathered momentum this year. Additionally, we have awarded more than £2.5M to a futher 14 programmes of work under the Covenant Fund 'Families in Stress' priority for 2017/18 which will provide support for a range of issues that might impact families with young children as well as supporting several domestic abuse projects.

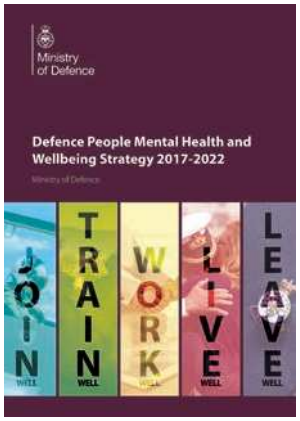
2.2.5 Defence People Health and Wellbeing Strategy

The health (physical and mental) and wider wellbeing of our people contributes directly to our operational capability. Improving both is a priority. The aim is to create the conditions for Defence People to enjoy a level of health and wellbeing that maximises the capacity of people for work and this applies to all Defence People and not just Service Personnel for whom maintaining health and wellbeing is a major contributor to the moral and physical components of flghting power.

"Sustainability is not a 'thing' or an agenda item. We do not 'do' sustainability. We should conduct our business as sustainably as we can. Everyone can do something and the best people to identify ways to do a job better is, often, the job holder. We must educate, empower and listen.

A sustainable military ethos and capability is resourceful, imaginative, accepting of and resilient to global change, maximises resources, minimises waste, is aware of its' impacts, morally strong, cost effective, a good neighbour, responsible employer and accountable to the people it serves. Above all, it continually strives to be better."

Neil Durance Air Safety Centre CESO(RAF) RM EPS



The **Defence People Mental Health and Wellbeing strategy 2017-2022** was launched on 20 July 2017. One of its key strategic tasks is to 'Optimise the health, well-being and where appropriate, the fltness of Defence People to develop resilience and improve the health of the Whole Force'. Recognising that many Defence People rely on external services to access health and wellbeing support, in particular, the provision of healthcare services, the Strategy is mapped with the Government's national focus and its delivery by the National Health Service in England and the Devolved Administrations which reflect the healthcare needs of their local communities.

The two highest causes of medical downgrade for Service personnel are musculoskeletal injury and mental health illness. Mental health disorders are usually multifactorial, with pre-disposing, triggering and maintaining factors where one person's stress may be another's stimulus. We are committed to ensuring that the approach to promote, prevent, detect and treat mental health and wellbeing is flexible, diverse, suited to individual needs, well-communicated and available to all.

Studies into the behaviour of military personnel have also revealed some poor lifestyle choices and our aim is to promote healthier choices, promote positive behaviour and better awareness. The Defence People Health and Wellbeing Strategy, identifles 5 Epochs of Health; Join Well, Train Well, Live Well, Work Well and Leave Well.

Since the publication of the strategy, the Defence People Health and Wellbeing Board and its subordinate groups have convened on a 6-monthly basis, attended by all three Services, and identifled a set of priorities measured against agreed Key Performance Indicators.

Case Study:
Hero Garden, Plymouth Recovery Centre

The Hero Garden at Help for Heroes' Plymouth Recovery Centre, within Devonport Naval Base (and on the site of a neglected, private garden) was designed by former Royal Marine Commando Martin Payne, who was injured in Afghanistan in 2011. The garden has produced 47 varieties of fruit, vegetables and herbs, including more than 50kgs of potatoes. Its 480,000 bees have prepared 100lbs of honey and 129 litres of apple juice was made from the apple trees on the plot.

Beyond the visible success, the garden has produced more important, often hidden, beneflts. Horticulture has long been advocated as a therapeutic pursuit, promoting physical activity in a relaxing environment where the focus is on plants and nature. In recent years awareness of the psychological beneflts of gardening has risen after a UK-based 2007 study by the University of Bristol and University College London found that microbes in soil affect the brain in a similar way to antidepressants.

The veterans who use the garden speak highly of the peace and tranquil environment that supports their recovery in the middle of a busy naval base. There are hard, wide paths to enable easy access for all, raised beds make reaching the soil easier for those in a wheelchair or with back problems, and there are benches and lawns to sit and chat or enjoy the peace. Activities include all manner of gardening tasks such as raising plants, weeding and tending to the bees. The garden also bustles with people at times: it has been used for the annual garden party, spring, summer and Christmas activities, and this year's family Easter egg hunt was a real success. There are plans to bring the garden to the attention of the naval base support agencies to promote the garden and encourage others to use the facility.

Help for Heroes Garden Party. © Help for Heroes

Many of these priorities have been achieved and are in the process are being updated for 2018/19 associated key areas of progress include:

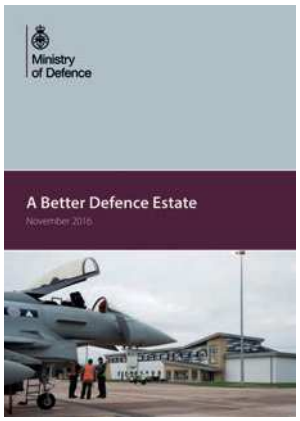
- The publication of a 'Commanders Guide' to provide guidance to personnel on the prevention on Heat and Cold injury, together with updated policy;
- The publication of the Defence People Mental Health and Wellbeing Strategy in 2017;
- A partnership agreement with the Royal Foundation to update and raise the profile of the mental health and wellbeing;
- With the backing of the Secretary of State for Defence a new 24-hour freephone mental health helpline 0800 323 4444 was introduced In February 2018 for Serving personnel and their families who need to seek advice;
- A new weight and nutrition policy which aims to target help at those that need it the most;
- A new Smoking and Tobacco Control Strategy, introducing a phased no smoking policy for the working environment;
- Single Service initiatives aimed at reducing the number of Musculoskeletal Injuries during recruit training;
- Prioritisation of research in Musculoskeletal Injury and Mental Health and Wellbeing;
- Introduction of a Defence-wide Unit Alcohol Advisor's course;
- A new online learning programme delivered by Civil Service Learning which includes modules on Resilience and Wellbeing, Mental Health at Work and Becoming Disability Confident for Line Managers of civilian staff to undertake; and
- Introduction of the Speak Safe helpline which offers MOD civilian employees a safe space to discuss issues relating to bullying, harassment and discrimination in the work place.

2.2.6 Defence Estate Optimisation Programme

The Defence Estate Optimisation (DEO) is a programme to implement changes to achieve a smaller but better estate by 2040, as set out in "A Better Defence Estate" announcement in November 2016, and to release land for housing in support of the Government's target to reduce the housing deficit.

The Programme aims to contribute to the defence target of a 30% reduction in the MOD Built Estate and deliver £4.0bn of capital receipts by 2040. To date 8 sites have been disposed of.

The Strategic Business Case (SBC) noted that DEO would contribute £1.1Bn to the MOD target for £1.9Bn of receipts over the next ten years. The latest forecast of the DEO contribution has increased to £1.3Bn. Opportunities will be sought to increase receipts and, where feasible, to bring disposals forward for earlier delivery.



The programme also aims to contribute towards Public sector land release and the MOD target is to release sufficient land to deliver 55,000 potential housing units by 2020. The MOD has signalled the risks in deliverability of this target. The Ministry of Housing, Communities and Local Government (MHCLG), who leads the Public-Sector Land Programme, has initiated work to review the apportioned targets.

A smaller but more modern estate will reduce MOD running costs and the Programme aims to save over £4Bn by 2040. More specifically, the SBC identified £3.1Bn of lifecycle replacement cost avoidance, and scored running cost

"My role requires that I take a view across the whole defence estate, understand the state of the estate and consider the trajectory of the estate with regards size, condition, cost, utilisation. How sustainable we are – and whether we are improving – is a key aspect. While trying to manage, and achieve coherence across, so much change on the estate it is vital that we aim for an estate that is as sustainable as possible, whether that is protecting biodiversity or being good neighbours. To me it is about knowing we have an estate that is contributing in a positive manner."

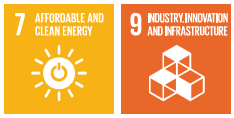
Gerry Maw
DH Strategic Asset Management (DIO)

savings of £2.9Bn. The Programme will contribute to sustainability by reducing the number of built assets and thereby the carbon footprint of the estate. By renewing the estate with modern building methods and standards we will be able to ensure that the estate is more sustainable and environmentally friendly. Waste will be reduced and the buildings will be more efflcient and flexible in their use. The laydown will be optimised for efflcacy and modern working practices. Much of the defence estate is over 50 years old and extremely inefflcient and not optimised for heating, lighting and other water use. This programme will go some way to addressing this.

Whilst substantial progress has been made it is a large scale, complex programme that remains in its infancy in life cycle terms. Although the key enablers and activities to deliver are being put in place, signiflcant risks and issues will remain for some time.

RAF Marham, Construction of new runway

3. Performance 2017/18



3.1 Energy Efficiency and Security

Without secure and efficient energy supplies it would not be possible to meet defence commitments, both now and in the future. We have metrics and targets in place to ensure operational, equipment, estate and infrastructure energy performance improves.

3.1.1 Capability and Equipment Energy

Energy is critical to the delivery of military capability, to aid this the MOD is working to improve the efficiency of use and in the longer term reduce reliance on fossil fuels. Having exceeded the original target of an 18% reduction in fuel consumption from a 2009/10 baseline, a new 10% efficiency improvement target by 2025/26 from a 2015/16 baseline target has been set.

In 2017/18 the MOD consumed 664 million litres of fuel, a 10% reduction from a 2015/16 baseline, making good progress towards the 2025/26 target. This reduction was contributed to by a variety of efficiencies and initiatives such as synthetic training and equipment modernisation but mainly due to a reduction in operational tempo.

"Sustainability and long-term efficiency goes hand in glove together but it is not limited to this. Sustainability is the umbrella which unites a global agenda across a spectrum encompassing local issues of habitat preservation to global issues of carbon reduction and plastics control.

To be seen, to be significant and to make a difference is how I must approach my role. There are many elements of sustainability and therefore a choice of where to focus effort has to be made. For me that means sustainable infrastructure, sustainable energy and sustainable behaviour."

William Barker-Wyatt
Army Infra SD SO1

Case Study:
Devonport's Combined Heat and Power Plant

This is a great example of where exploiting synergies has delivered signiflcant environmental, economic and societal gains. The Devonport combined heat and power (CHP) facility is a large-scale, highly efflcient waste plant. It began operations in 2015, and diverts 245,000 tonnes of south Devon's waste away from landflll every year, including about 2000 tonnes of waste from the dockyard. The facility saved 78,000 tonnes of Carbon Dioxide Equivalent (CO_2e) in 2016/17 in comparison to disposal to landflll.

The facility uses this waste to supply Devonport – the largest naval base in western Europe – with electricity and heat. There is only a very minimal need for back up from the national grid and gas boilers. The naval base's district heating system enables the CHP to operate at a high level of efflciency, making this plant one of the most efflcient in Europe. The MOD also beneflts from a desirable and secure energy rate for 25 years, which delivers flnancial savings of 20% compared with the cost of grid energy. Emissions from the chimney are treated to control pollution and are subject to tight control and monitoring according to regulations. Bottom ash is screened to remove all metals for recycling, and then the ash is processed into aggregates, reducing the need for quarrying.

The size of this project and the interdependencies mean that partnerships have been at the heart of this project. The South West Devon Waste Partnership addressed the need for a facility to deal with South Devon's domestic and business waste in a sustainable manner; MVV Environment Ltd. designed, constructed and now operate the plant; it is built on MOD land and the MOD and Babcock utilise the heat and electricity. Other agencies and contractors also supported the project to make it a success.

Achieving the new target will be challenging. The MOD's fuel demand is heavily dependent on our operational activity and subsequently capability energy is and will continue to be affected by operational requirements. The introduction of new equipment into service such as the introduction into service of the Queen Elizabeth Class aircraft carriers and the associated carrier Strike group will also impact upon demand levels.

The MOD will continue to drive efflciencies in fuel consumption, such as identifying potential modiflcations to existing platforms, to utilising them in a more efflcient manner. The MOD also continues to work alongside NATO partners and the European Defence Agency along with other partner nations to promote collaborative working on energy and environmental issues in military capability.

Table 3: Capability & Equipment Energy Consumption

Capability & Equipment Energy[6]	2015/16	2016/17	2017/18
Fuel in million Litres	738	713	664
% change compared to 2015/16 baseline		-3.4%	-10%

6 Previous performance flgures may differ with those in this table due to improvements in data availability.

Case Study:
Type 23 Hydrodynamic Improvements

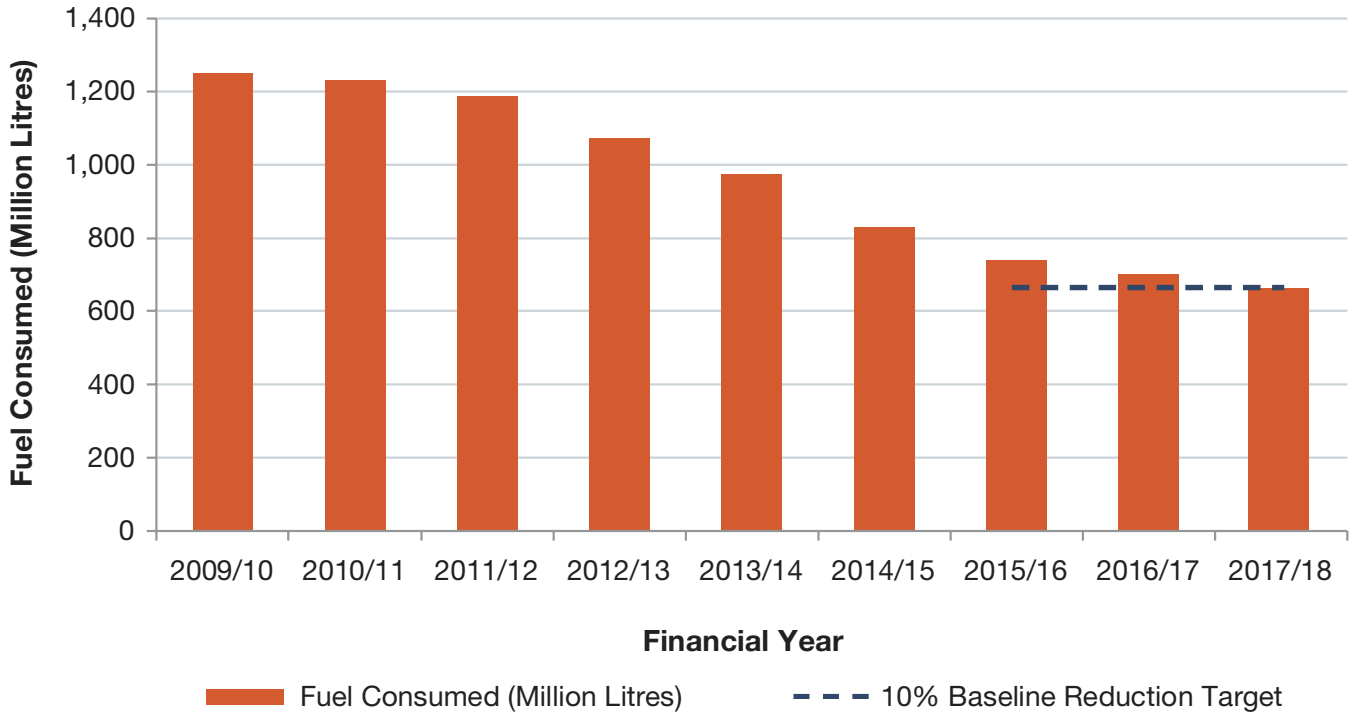
The Type 23 Frigate will remain in service until the mid-2030s. Fuel efflciency was a key tenet of its original design, and the class has proven remarkably fuel efflcient thus far. Increasing focus on reduction in the use of fossil fuels, reducing budgets and new understanding of hydrodynamic techniques, has enabled an in-depth review of the hull and underwater appendages of the Type 23 Frigate. This review led to some surprising discoveries and the opportunity to reduce drag substantially, so reducing fuel usage, and increasing operational endurance.

A number of candidate modiflcations were identifled. The fltting of an additional bulbous bow, the addition of adipose flns between the hull and propeller shafts, and modiflcations to the propeller shaft supporting brackets all offered potential reduction in underwater drag, and associated savings, albeit involving considerable work below the waterline so necessitating a docking. A new propeller design could enhance efflciency by 2.5% at cruising speed, and as an additional beneflt reduce the ship's underwater signature, an essential characteristic of an Anti-Submarine warfare frigate. The installation of Vaned Propeller Boss Caps and a modifled rudder design offered the greatest potential saving of up to 3%, and this saving can be further enhanced by re-alignment of the rudder toe-in angle to better suit the operational profile.

Taking into account installation opportunities, initial cost and the associated pay-back period reduced the practicality of some of these options, but the Royal Navy is currently investigating fltting and trials opportunities to install Vaned Propeller Boss Caps, and new twisted rudders on a Type 23 frigate before the end of 2018.

HMS Iron Duke moored at Liverpool Docks (Type 23 Frigate). © Crown Copyright

Figure 1: Capability & Equipment Energy Consumption- Annual Performance against baseline[7]



3.1.2 Estate Energy and Greenhouse Gas Emissions

The Greening Government Commitment (GGC) target is for a reduction of 30% of greenhouse gas emissions by 2020 relative to the 2009/10 baseline year. Current performance shows a reduction of 36%,[8] exceeding the target by 6%, two years ahead of the target date. This reflects a variety of energy efflciency programmes, and decarbonisation of the National Grid. Current consumption equates to 1,117,098 MWh compared to a usage of 4,333,897 MWh for the baseline year. The drive to greater energy efflciency was obtained by a combination of targeted investment together with co-ordinated awareness and behaviour change campaigns.

The Built Environment Improvement Measures (BEIM) Programme for 2017/18, invested over £2M in physical energy efflciency projects, including: building energy management systems (BEMS), combined heat and power (CHP), solar and heating ventilation and air conditioning (HVAC). Investment targeted opportunities with the most advantageous payback periods with an anticipated enduring emissions savings of 650 tCO_2e. A further 31 designs with an average payback of 5.4 years have been identifled for implementation when funding is available covering; heating; lighting; building (energy) management systems; variable speed drives; combined heat & power; gas; and heating ventilation & air conditioning.

Data is a key enabler in terms of targeting future investment and interventions along with measuring improvements in efflciency and consumption. We are developing better analytical and forecasting tools, and sub-

7 A new target has been set for a 10% reduction against the 15.16 baseline.

8 Percentages have been rounded to the nearest whole number.

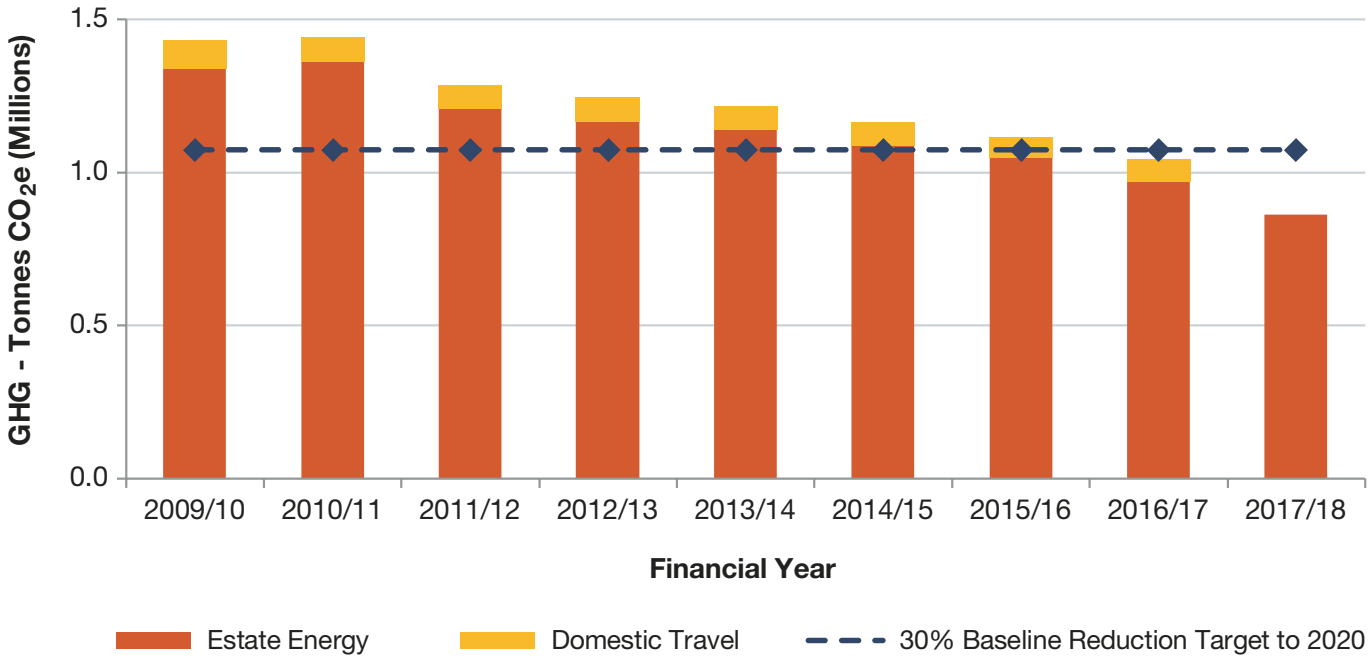
metering programmes as well as progressing the roll out of Automated Meter Reading. Key to success has been the network of Area Utilities Managers who have driven behaviour change at local and regional levels and supported the investment in improved energy efflciency.

The main challenge is to reduce consumption and increase efflciency whilst maintaining operational effectiveness. The energy savings achieved in the UK have in part be offset by increased demand and consumption from new assets and an increased use of virtual training. Looking forward, we are working with: Local Partnerships (Re:Fit); BEIS; Cabinet Offlce; and Crown Commercial Services to assess the feasibility of third party investment in energy efflciency using flnancial vehicles such as Energy Performance Contracts.

Table 4: Total GHG emissions –– Comparison against 2009/10 baseline

GHG - tonnes CO_2e[9]	2009/10 baseline	2015/16	2016/17	2017/18
Estate Energy	1,342,257	1,050,627[10]	973,802	861,375
Domestic Business Travel[11]	89,748	69,486[9]	68,684	80,908
GHG Total	1,432,006	1,112,113[9]	1,042,487	942,283
% change compared to 2015/16 baseline		-22%	-27%	-34%

Figure 2: Total GHG emissions – Comparison to 2009/10 baseline



9 Conversion factors for estate energy and GHG are calculated and set by BRE on behalf of Defra.

10 The flgures have been updated.

11 Domestic business travel: emissions from air flights, white fleet, grey fleet and rail travel. See Annex C item 10 for deflnitions.

3.2 Climate Resilience

3.2.1 Estate and Infrastructure Adaptation

Delivering an estate that can maintain operational capacity and defence output as well as being resilient to withstand the predicted effects of a changing climate remains a priority for Defence. The Climate Impacts Risk Assessment Methodology (CIRAM) is the MOD's key tool for improving climate resilience of the estate, by flrstly identifying and scoring the potential climate risks to a site, and then assigning each risk a suitable action to mitigate the risk.

MOD has continued towards strengthening the resilience and adaptive capacity of the estate to climate-related hazards. Our climate resilience strategy within Sustainable MOD Strategy supports the Greening Government Transparency Commitments and the United Nations Sustainable Development Goals.

To improve the implementation of CIRAM we developed an improvement plan including; clear climate resilience roles and responsibilities; improved climate data and evidence and access to it; and improvements to the inclusion of climate risks in the risk management processes.

During 2017/18 we made progress in delivering the objectives within this plan.

This has included enhancing the CIRAM process, delivering targeted training and establishing closer relationships internally to identify skill gaps and training needs across the organisation. Further work will be carried out during 2018/19

Overall, MOD has completed over 100 CIRAMs and has started to review past CIRAMs. In addition, we have integrated CIRAM into the wider risk management process, to inform risk reduction strategies at the organisational and local level.

Case Study: Met Office UK CIP Development

DIO has been supporting the Met Offlce and wider Government in the update of the UK Climate Projections. This has involved participation at the UKCP18 Government Group and UKCP18 User Panel meetings and webinars. Support provided has included deflning UKCP18 products e.g. identifying data needs such as heavy rainfall events in summer and testing UKCP18 products. DIO has taken the experience of using previous UK Climate Projections published in 2009 and the support needed by others in the organisation less familiar with climate data to input into the development of UKCP18, and specifically the website and data interface prototypes.

The new data interface will be easier to use, the guidance clearer and the efflciency and options for data download will be improved. The release of the UKCP18 is expected to be in Nov 2018 which will include a package of tools and case studies that will meet the needs of a wider range of users and high-resolution projections that will provide information on extreme events.

The Beast from the East Colchester Training Area. © Crown Copyright

Progress has been made to improve the process by which contractors' report on how severe weather affects their activities. This has resulted in better data being reported quarterly by our infrastructure partners which is being used to complete a strategic analysis of the data to identify trends; though it is not possible yet to identify trends for costs. In the longer term we will be correlating this information with observed and projected climate data.

We have evaluated how climate resilience is integrated into infrastructure maintenance contracts and identifled improvements to be incorporated into future contracts. We have also acted to ensure climate resilience is integrated into infrastructure planning e.g. 65 Sustainability Appraisals have been peer reviewed for climate resilience. At national level we have continued to support the wider Government in the upgrade of the UK Climate Projections (UKCP2018 Project). Once published we will be incorporating the upgraded projections into the CIRAM process.

3.2.2 Equipment

Climate change is likely to affect the environments in which the Armed Forces operate now and in the future. Equipment will need to be capable of operating in harsher climatic and environmental conditions. For example, higher ambient temperatures will alter equipment performance in aircraft, ships and vehicles, leading to an improved cooling demand. The increasing frequency of extreme weather events could disrupt manufacturing facilities and supply chains.

The approach to the design of climate resilient equipment varies across equipment platforms and supporting infrastructure projects. Recent examples of good practice include work on the Type 26 Global Combat Ship and power improvement project for the Type 45 Destroyer.

Case Study: Submarine Enterprise Climate Resilience Working Group

This working group is led by Facilities Group (Submarine Delivery Agency) for the Submarine Enterprise Infrastructure Forum, and has representatives from the Ministry of Defence and industrial partners. Representatives have a range of experience and responsibilities, with complementing operational and strategy skills. The group focuses on ensuring that the infrastructure and assets of today can still perform robustly when faced with the differing climate challenges of the future.

The group explores what risks a changing climate might pose to the Submarine Enterprise. For instance, understanding the impact of extreme weather on critical infrastructure and business processes; and what action might be required to manage such risks. Specifllc examples include building future-climate tolerant infrastructure, or de-risking key areas such as utilities or supply chain. Topics such as high winds, heat waves, flooding, business continuity, and MOD climate policy and support networks have been covered. The group works in the spirit of collaboration, so technical sessions are led by those with information to share or experience/ lessons learnt to disseminate.

Benefllts to the Submarine Enterprise include:

- Raised awareness of climate change and environmental issues;
- Improved asset and infrastructure sustainability;
- Coherent approach to improve planning and communication;
- Better sharing of information and benchmarking;
- Better decision making through improved knowledge and analysis capability;
- Reduction in risk exposure;
- Improved business resilience; and
- Improved value from assets.

Both have been designed and tested against higher seawater and ambient air temperatures based on Met Office climate change predictions.

Other examples include measures to improve energy efficiency and reduce fuel costs and greenhouse gas emissions. For example, the Hydrodynamic Improvement Programme has resulted in significant improvement in the fuel efficiency of Type 23 Frigates and has subsequently been introduced on other classes. Design improvements include changes to the transom flap, rudder and a new propeller boss cap. The aim of this project is to make it possible to achieve an overall reduction in resistance and increase fuel efficiency without detrimentally affecting other aspects such as manoeuvrability and stability.

The Green Ships Capability Planning Working Group is an established stakeholder forum led by Navy Command HQ to share good practice and plan environmental and waste treatment activities for naval vessels.

3.3 Utilities

Ensuring our utilities are used efficiently not only helps the Department improve facilities and reduce operating costs, but also helps us reduce our environmental footprint and achieve our GGC targets. A Strategic Behavioural Change Programme spanning energy, waste and water use has been delivering a range of initiatives since 2015. Examples include:

- Development of a Utilities Consumption Awareness (UCA) e-learning module comprising Energy, Renewables, Water and Waste elements; and
- Research, to design a Practical alternative to the wide range of existing behavioural models and theories, whilst maintaining an underpinning theoretical model of behaviour.

2018 will see the delivery of the UCA training programme and results will be monitored.

3.3.1 Waste

The amount of waste and surplus material the MOD generates has continued a general downward projection in 2017/18 with an overall reduction of 27% against the GGC baseline. The total amount of waste and surplus material produced has reduced by 18% compared to last year (166,000t down to 135,150t).

In 2017/18 we diverted 88% of waste and surplus material from landfill with 41% of our waste going to recycling, (23% reuse and 5% to compost) the remaining 24% went to incineration. Compared to 2016/17, the recycling rate has lessened by 12%, and the landfill rate has increased by 3%. This change in trend is due to a variety of reasons, including but not limited to:

- the inclusion of waste from our overseas estate, where landfill is the primary disposal route; and
- Ships decommissioning in 2016/17 which saw an extra 25,000t of recycling, skewing the 2016/17 data.

Overall our waste management performance has improved and to deliver these improvements we have:

- Included a zero to landfill requirement in new contracts;
- Conducted road shows, presentations and workshops, met with site users and waste producers, to understand their views on waste management and educate where appropriate;
- Engaged with stakeholders through the MOD Waste Working Group, where waste issues are discussed and common approaches agreed with TLBs and suppliers;
- Supported teams across the MOD by regular briefs and updates on activities;

Table 5: Waste generated – Annual Performance against 2009/10 baseline[12]

Waste Generation (Tonnes) and Disposal Route	2009/10 Baseline	2015/16	2016/17	2017/18
Reuse and Recycle	97,814			
Reuse		30,994	26,315	24,556
Recycle		68,544	88,102	54,853
Composted	8,233	2,801	2,715	7,275
Waste incinerated with energy recovery	10,176	37,311	33,496	31,159
Waste incinerated without energy recovery	11,673	1,781	879	1,286
Landfill	57,542	14,956	14,282	16,021
Total waste generated	185,437	156,387	165,787	135,150
% change compared to 2009/10 baseline		-16%	-11%	-27%

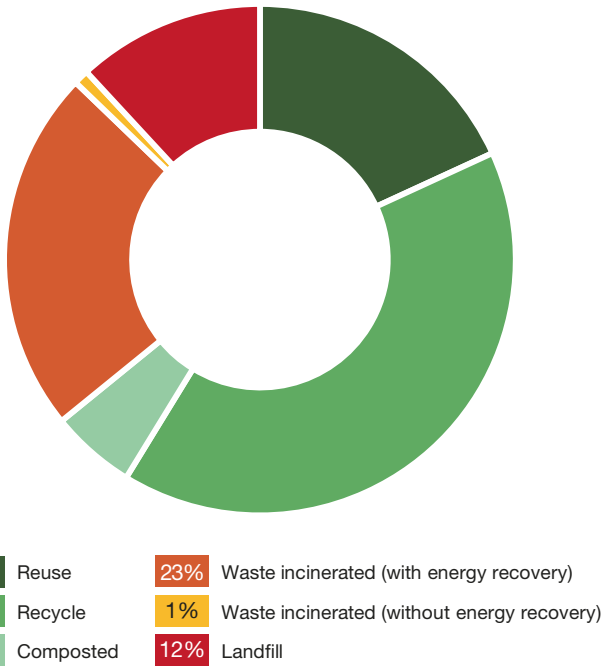
- Construction has commenced at RAF Mount Pleasant on a new facility that will support segregation of waste and is due to be operational later in the year; and
- At HMNB Devonport the Stores department employ portable containers on wharfs to collect and return serviceable items to stores.

Operational requirements and ongoing estate rationalisation will always challenge our ability to reduce the amount of waste and surplus material we produce, we remain confldent that the GGC target of less than 10% to landflll by 2020, can be met.

We will continue work to increase recycling rates, whilst aiming to reduce the amount of waste we produce in total. Efforts to support this include continuing to ensure the standard reporting requirement is embedded into new contracts and delivered by data providers. Our focus of effort over the coming year will be to continue improving waste management requirements in our contracts; working with our industry partners on data improvements and effective stakeholder engagement.

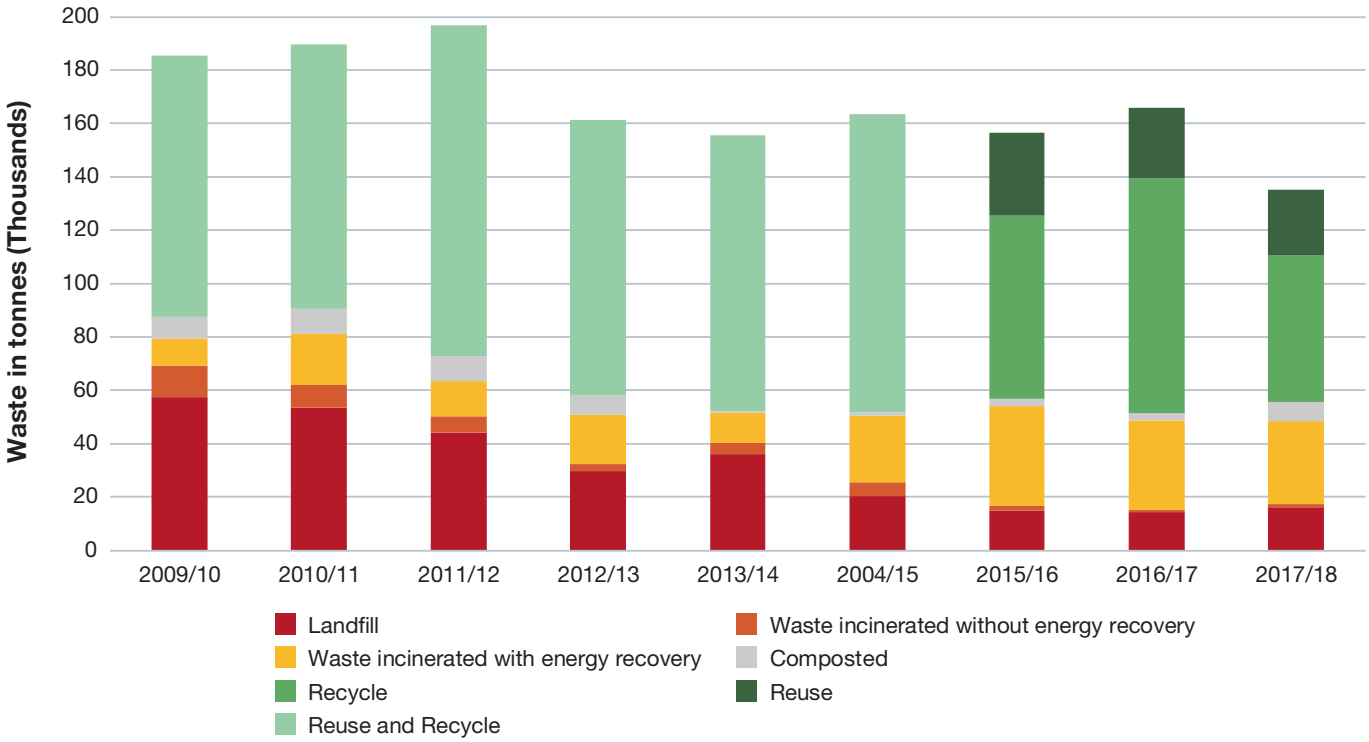
The improvements being made across the estate together with the activities identifled above support the UN Global Sustainability Goals to make estate users aware of their responsibilities with regards to the use of items that may become waste.

Figure 3: Waste Disposal Routes - 2017/18



12 We were not able to separate reused from recycled waste data until 2015/16.

Figure 4: Waste Generated – Comparison to 2009/10 baseline



Case Study:
Defence General Munitions Sustainable Munition Packaging

Packaging is a fundamental part of ensuring munition safety, preservation and environmental protection. As such, designing munition packaging can often be costly due to the special features and level of quality required. As both a cost-saving and a waste-minimising measure, it is common for munition packages to be refurbished and reused many times. Generally crafted from metal, wood or robust plastic containers, general munition containers lend themselves well to reuse, simply requiring redesign of the inner assembly/conflguration to suit, while maintaining a generic outer container. An example is the H83 steel ammunition container, used widely across Defence to hold a range of ammunition natures from 5.56mm right through to fuse assemblies and other explosive components for larger weapons and torpedoes. Between 500,000 and 800,000 H83 containers get refurbished and reused each year.

Complex weapons often require new packaging designs that are special to type. However, some of these containers may be refurbished to take newer variants, especially where there are no signiflcant changes in missile design so the existing packaging can continue to be used following a modiflcation or upgrade. A recent example of this is the upgrade from the Advanced Short-Range Air-Air Missile Block 4 to Block 6; in this case, the containers are being reworked to house the new munitions. This approach has also signiflcantly reduced the environmental impact by reducing both the overall raw materials usage and cutting the volume of packaging waste without compromising the necessary safety and quality requirements. While packaging for complex weapons has a longer life cycle than smaller containers like the H83, it can also be returned for reuse. The recovery and refurbishment of different types of munitions packaging over the procurement of new stock has signiflcant cost savings for the MOD.

3.3.2 Estate Wide Water Use

MOD has a strategic objective to reduce water consumption on the MOD estate by 15% on MOD sites in Great Britain by 2019/20 against a 2009/10 baseline (with interim targets of 9% reduction by 2014/15, and a further 6% by 2019/20).

The reduction in water consumption will be achieved by a combination of technical and behavioural interventions. Two key water efflciency initiatives have contributed to water consumption reduction: The Water Consumption Reduction Programme (WCRP); and The Metered Points of Reduction Savings Opportunities (MPRSO).

The WCRP is aimed at reducing visible constant flows of water at 150 high demand Aquatrine Public Finance Initiative (PFI) sites that have a typical annual consumption of >10,000m^3. Delivery of technical interventions has been completed at 74 sites, involving the replacement of circa 2,150 faulty water management systems with Cistermiser Infrared Control (IRC) units. By the end of the project, a total of 4,500 to 5,000 Cistermiser IRC units are likely to have been replaced. The WCRP also includes a behavioural change component aimed at raising awareness of the importance of reducing water consumption through a range of communication media.

The MPRSO is aimed at reducing non-visible constant flows of water in relation to circa 100 water meters. These non-visible constant flows represent water leaks under buildings of >5 litres per minute, requiring investigation to determine the root cause and the most cost-effective means of repair.

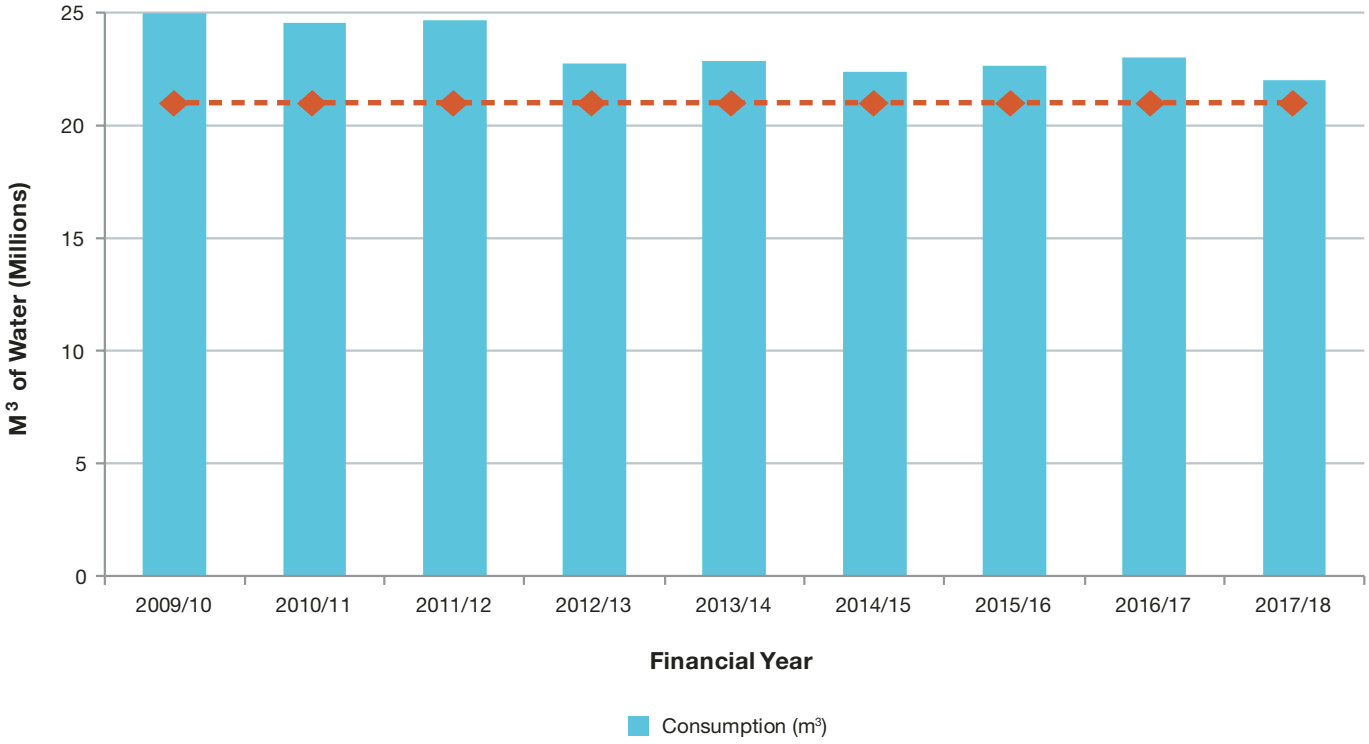
The trend in recent years of increasing water demand has been turned-around. In 2017/18, performance improved, achieving a 9% reduction against the 2009/10 baseline. While the WCRP and MPRSO water efflciency initiatives continue to deliver water consumption reductions, these beneflts have been offset by two principle issues: flrstly, continued wastage from constant flows associated with dilapidations; and secondly, wastage from signiflcant occurrences of bursts as a direct result of the severe cold weather at the beginning of March 2018. Moving forward, the following will support further water consumption reduction:

- Conclusion of the WCRP;
- Water leak detection and repair under MPRSO to become a business as usual water conservation activity; and
- Identiflcation of 91 sites by the Defence Estate Optimisation Programme for disposal by 2040. This will reduce consumption in some areas, although receiver sites where occupancy is increasing may also see an increase in water demand.

Table 6: Estate-wide water consumption – Comparison to 2009/10 baseline

Estate Water Demand	2009/10 baseline	2015/16	2016/17	2017/18
Consumption (000 m^3)	24,974	22,643	23,004	22,835
% change compared to 2009/10 baseline		-9%	-8%	-9%

Figure 5: Estate-wide water consumption – Comparison to 2009/10 baseline



3.3.3 Office Water Use

Water consumption at seven MOD offlce sites is included in the GGC Offlce Benchmark reporting. The Offlce water target is to achieve consumption of less than 6m^3 per full-time equivalent (FTE) member of staff per year. At the end of 2016/17, the average consumption per FTE was 17m^3. At the end of 2017/18, performance had improved to an average consumption per FTE of 14m^3. The most notable improvements were:

- Abbey Wood (North and Main) decreasing from 15m^3 to 10m^3;
- Cheadle Hulme decreasing from 25m^3 to 15m^3.

The savings at Abbey Wood are attributable to the replacement of flush systems on the toilets used across the site and the upgrading of the toilets during a reflt.

For the other offlce sites (Kentigern House, DIO HQ Sutton Coldfleld, MOD Main Building and Tomlinson House), performance in 2017/18 was similar to 2016/17. The overall average performance for the seven sites remains more than double the 6m^3 per FTE per year target.

Table 7: Office Water Consumption per Full Time Equivalent (FTE)

Offlce Water consumption	2009/10 baseline	2015/16	2016/17	2017/18
Consumption (000m^3)	206,029	220,535	275,835	243,262
FTE	16,629	15,990	16,239	17,698
Cubic metres (m^3) use per FTE	12	14	17	14

Table 8: Offices in scope for GGC office water reporting

Offlce Water consumption
Abbey Wood North, Bristol
Abbey Wood Main, Bristol
Cheadle Hulme, Cheshire
Kentigern House, Glasgow
MOD Main Building, London
St Georges House, Sutton Coldfield
Tomlinson House

3.4 Acquisition and Infrastructure Systems

3.4.1 Supply Chain

Defence industry suppliers have a key role to play in making procurement processes more sustainable including improving their own processes and supply chain education.

On the equipment side a notable initiative undertaken in 2017/18 has been the publication of Defence Standard 00-051 - Environmental Management Requirements for Defence Systems, which will help to assure MOD that contractors are operating suitable systems for managing environmental requirements.

MOD continues to work through the Sustainable Procurement Working Group for equipment and support to share good practice and maintain a dialogue with industry partners on how best to enable Sustainable Procurement into both MOD and supply chain practices. Recent initiatives include work to identify material supply chain risks, industry case studies and the development of a Sustainable Procurement strategic plan.

MOD has also contributed to the development of the Government Code of Conduct, published in 2017, that lays out the standards and behaviours expected from suppliers and includes a requirement for sustainable procurement.

The Infrastructure Suppliers Sustainability Working Group is a strong mechanism for engaging with Industry Partners to share best practice and guide consistent delivery. Monthly meetings are held with our main Hard Facilities Management partners, and there have been signiflcant improvements in the scores obtained in annual audits of Sustainability and Environmental Management in the Hard FM regions.

We are preparing a Sustainability Charter between MOD and Facilities Management/ Industry Partners, demonstrating our joint commitment to collaborate on continuous improvement in Sustainability performance. Over 2018 we plan to broaden our engagement to embrace all major estate partners, and reflne a set of objectives and actions that we can progress jointly. This collective innovation will help support the UN SD Goal 9 (Industry, Innovation & Infrastructure).

3.4.2 Sustainable Acquisition

3.4.2.1 Equipment

At a time when all parts of MOD are being challenged to deliver more with limited resources there is a need to understand and address current and longer-term sustainability risks affecting the delivery of defence capability. Climate change, resource depletion and competition for energy have been identifled as signiflcant challenges for national security. Addressing Sustainable Procurement in the acquisition of military equipment, services and systems enables greater effliciency, resilience and adaptability.

During 2017, a major refresh of the Acquisition Safety and Environmental Management System (ASEMS) and its underlying Project Orientated Environmental Management System (POEMS) was published. This provides a framework for establishing an Environmental Management System. POEMS is based on ISO 14001, tailored to the defence acquisition process, and is mandated for all equipment acquisition projects to ensure they are compliant with MOD and Government policy.

Sustainable Procurement is being incorporated into POEMS and we are developing new guidance and a five-step tool kit for use by Defence Equipment and Support (DE&S) project teams. These will strengthen the way we incorporate Sustainable Procurement into the acquisition process for the procurement of a range of military equipment including weapons, armoured vehicles, aircraft and naval vessels.

Case Study: Land Equipment Operational Infrastructure: General Service Tents

General Service tents continue to be an important military requirement both for training in the UK and on forward operations overseas. The MOD's existing canvas tents have been in service for many years and the material is no longer cost effective. At a time of constrained resources, a new approach was needed.

A contract has now been placed for replacement tents made from PVC. Unlike cotton which absorbs water and becomes heavy, PVC is waterproof and dries more quickly, making it easier to take down, transport and store. Any dirt can be washed off and damage, such as rips and tears associated with heavy use, can now be repaired in the field. Individual replacement fabric panels can be easily incorporated.

General Service Tent Mk 4- internal. © ColPro Utilis

Another distinguishing feature is that the new material is coloured white inside which provides better light reflection and can reduce reliance on artificial lighting. Depending on the operational environment, insulation liners can be added which will significantly reduce energy consumption. This is an important consideration as the costs and resources involved in providing energy and power to forward operating bases can be a significant challenge.

The new PVC material has greater strength and the lifespan has been significantly extended due to its ultra violet and mildew resistant properties; this reduces through life costs. To ensure compatibility with existing equipment, although the cover material has changed, current patterns and frame design configurations remain unchanged. This is more cost effective to the MOD because of reduced maintenance and replacement costs, and at the end of its life, the new material complies with environmental disposal standards.

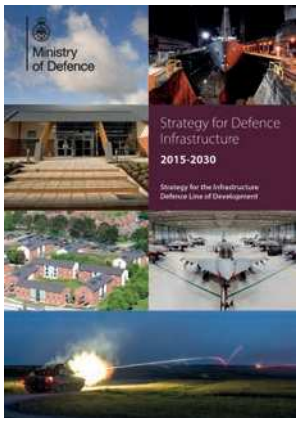
This through life support is expected to significantly reduce the requirement for replacement tents and provides a valuable example of how the DE&S Operational Infrastructure team is driving forward sustainability and environmental benefits.

The tool kit is designed to complement existing environmental management processes to enable DE&S project teams to undertake a risk assessment and translate any signiflcant sustainable procurement risks and opportunities into the commercial process. The Acquisition Systems Guidance has been updated to reflect policy guidance for these improvements.

A major activity in 2017/2018 has been the continued development of policy and processes to deal with hazardous materials that are contained in a wide variety of equipment. This includes the introduction of new hazardous materials training to support project teams and strengthen practitioner competencies around the need to manage and mitigate environmental risks associated with substances covered by legislation such as Registration, Evaluation, Authorisation & Restriction of Chemicals (REACH); Restriction of Hazardous Substances (RoHS) and the Montreal Protocol agreement on substances that deplete the ozone layer.

3.4.2.2 Infrastructure

The Strategy for Defence Infrastructure, published Nov 16, provides the direction to address challenges faced by MOD's estate and infrastructure to maximise its contribution to defence military capability and its people in a way that is more efflcient, affordable, adaptable and offers the best value for money.



The focus this year has been integrating the MOD Infrastructure Management System (IMS) with the Contracting, Purchasing and Financing (CP&F) IT system, to ensure that all core infrastructure business can be ordered, receipted and paid for in IMS.

This more streamlined approach facilitates evidence-based decision making. Additionally, the following has taken place:

- DIO Chief Operating Offlcer appointed DIO Sustainability Champion, improving the proflle and visibility of sustainability;
- Development of strategic guidance and an intranet reference hub for the delivery of sustainability and SP initiatives;
- Establishing a Sustainability Working Group, to co-ordinate delivery across MOD's infrastructure business areas; and
- Sustainability Appraisal training for industry and internal staff, particularly on the defence training estate.

Looking forward to 2018/19 include work is planned to improve the regime and metrics for assurance of infrastructure sustainability delivery, based on an understanding of estate sustainability risks. Also, updating sustainable procurement policy and guidance, to support TLB operation under the ISOM.

3.4.3 Sustainable Construction

The requirement for Government Buying Standards compliance is embedded in existing estate contracts, and a priority for 2017/18 has been to strengthen the sustainability. A full suite of planning capabilities has been delivered, including requirements capture in collaboration with the user through to asset disposals, supporting MOD's infrastructure vision of a better estate, better service and better business.

We continue to work to embed sustainability and efflciency objectives into the asset management of the estate, whether it be through optimisation activities, construction, refurbishment or maintenance projects, to support a more sustainable infrastructure system as required by both the Government Construction and Government Estate Strategies. Over the past year, effort has centred on 6 key lines of activity:

- Aligning the supply and specifIcation of our built assets with industry norms, and updating specifIc Defence infrastructure standards, has seen the publication of MOD Building Performance Standards to replace the Accommodation Scales. These standards better align the supply and specifIcation of our built assets with today's military capability demand. By updating and providing more certainty in requirements, we can reduce designer and contractor's risks, provide more accurate estimating information to inform early decision making and reduce the time and cost of projects.
- Improving the understanding of how military capability and outputs drive the demand for and on these assets, their spatial and performance characteristics, capacity and utilisation.
- Delivering improvements in in-house and supply chain effIciency and productivity to drive value for money improvements through the whole asset lifecycle.
- Building greater asset knowledge, understanding and the associated tools within MOD to leverage this knowledge to deliver more productive and sustainable investment and operational outcomes.
- Acquiring, managing and using high quality data through all our procurement activity to support our business understanding, the through life management of our assets and consequently our decision making and performance measurement.
- Embedding Asset Management principles and practice in the operation and management of our property assets.

3.4.4 Appraisal Tools

To identify and manage the sustainability impacts of its business, and improve decision making, the MOD Sustainability and Environmental Appraisal Tools Handbook (SEAT) was flrst published in 2003. The handbook covers a range of tools from broad sustainability appraisal, to specifIc assessments such as Defence Related Environmental Assessment Method (DREAM) or Strategic Environment Appraisal, to assess the effects of programmes, plans and projects, and provide guidance on application.

During 2017/18 we have been reviewing and updating all the tools in the SEAT Handbook to ensure it remains aligned with changes to legislation and policy and reflects the roles and responsibilities detailed within the Infrastructure System Operating Model.

To increase awareness of Sustainability across the organisation a training roadshow was produced and implemented, covering the UK and overseas estate. In total 228 personnel took part in practitioner training with an additional 30 personnel attending awareness sessions. Participants included personnel involved in major projects and regional delivery and industry partners. The training focused on Sustainability Appraisals and scrutiny requirements.

"To me, sustainability means considering impacts on individuals, communities and the environment. For projects this should begin as early as possible with sustainability appraisal identifying potential project impacts and associated actions to mitigate constraints, enhance opportunities and minimise project risks.

Sustainability appraisal should identify legal and policy requirements that must be met for a project to proceed and to identify DIO specialist teams who are available to provide support and assistance.

Sustainability appraisal properly and fully integrated into project process is a useful tool to support and enhance projects going far beyond the simple requirement to pass business case scrutiny."

Mark Sanderson
DIO SEE-EPS PEnv2

Table 9: DREAM assessments undertaken in 2017/18

Result	Number	Percentage
Excellent	24	82%
Very Good	5	18%
Good	0	0%
Total	**29**	**100%**

Due to a combination of increased training and support from the engagement Team 198 out of 251 business cases (78%) that were received for scrutiny were rated as having no issues before proceeding to IAC. This is an improvement on the 67% of 218 business cases in 2016/17, indicating that sustainability is being increasingly embedded at the early stage of projects.

"The MOD spends more on computer services than it does on weapons and ammunition for the Armed Forces. This surprising fact, coupled with the increasing trend of buying cloud-based services, means we need to increase our focus on Sustainable ICT, ensure our suppliers are meeting their obligations and are providing us with data to show how they are improving service provision. We have embedded Sustainable ICT into our policy, working with the major ICT projects to include Sustainable ICT into their requirement sets and working with our Commercial teams to include new terms and conditions into the contracts we let."

David Hawken
ISS Des-Strat-BA DepHd-Str

DREAM is used to assess all new builds and major refurbishment construction activities. It provides an equivalent to the industry standard Building Research Establishment's Environmental Assessment Methodology (BREEAM) for Defence-specifIc buildings. In 2017/18 the 29 DREAM assessments at building completion stage all met or exceeded the target standard which is Excellent for new build and Very Good for major refurbishment.

3.5 Smarter Working

The roll-out of new ICT operating systems and the introduction of improved hardware continues to make improvements to the work place and supports flexible working practices. This enables MOD to deliver business more sustainably and to help meet our GGC target commitments.

3.5.1 Information and Communication Technology (ICT)

The MOD is working towards a cost effective and energy efflcient ICT estate, which is fully exploited, with reduced environmental impacts to enable new and sustainable ways of working for the public sector. Through the introduction of MODNET and Offlce 365 functionality, currently available to over 120,000 users across the Defence Estate, and other ICT programmes, we are changing our ways of working to become more efflcient in our use of resources and reducing our need to travel. For example, the increasing use of mobile devices is reducing the need to print and the introduction of Skype for Business and video conferencing facilities in addition to teleconferencing, reduces the need for people to travel while still allowing them to fully participate in meetings. MODNET also allows for multiple users collaborating on the same document as well as collaborating on a project using teamsites, which was piloted this year. We maintain a learning portal related to these developments.

Case Study:
DIO Smarter Working

Smart Working is a strategic goal across the Civil Service. A Cabinet Office led cross-departmental programme - The Way We Work - has been designed to help realise the Civil Service Reform Plan's vision of creating a more efficient and a better place to work, that has supported the implementation of Smarter Working across several Government Departments.

Smarter Working adopts a strategic business-focused approach that integrates the design of the workspace, with technology and behaviours and culture, to create a flexible working environment that: offers the employee greater autonomy as to when, where and how they do their role; and creates an agile organisation, where multi-disciplinary teams can break and re-group as required. In doing so, this delivers a range of financial and productivity benefits in addition to external benefits to the environment.

DIO have achieved the following Smarter Working key deliverables:

- Defined the Smarter Working Principles;
- Defined the scope of the change required to move to a Smarter Working environment in terms of people, place and technology;

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- Delivered a Smarter Working pilot to test and establish our approach;
- Raised awareness and support for the need to move to a Smarter Working approach;
- Developed a cost and benefits model to aid future Smarter Working implementations;
- Developed a Smarter Working Handbook to provide an easy access tool for all staff experiencing the implementation of Smarter Working.

We ran an innovative, digital disruption pilot called 'Paper Free February' to assess methods through which the Greening Government Commitment of achieving a 50% paper usage reduction by 2020 against a 2010 baseline could be achieved. Through a campaign of behavioural change ('think before you print'), sharing good practice and increased use of mobile devices, a reduction of some 3000 sheets of paper was achieved when compared against January's usage.

This year we have been continuing to embed Sustainable ICT into our acquisition system through updates to policy and process documentation and have been working with commercial staff to place standard Sustainability terms and conditions into contracts. We assess projects for Sustainability factors as they pass through the Defence ICT Design Authority Board as part of their approval process. With the appointment of a new Chief Information Officer, we are about to revise the Defence Information Strategy, which will include Sustainable ICT. Through these we are feeding sustainability principles into our future ICT solutions, for example in EMPORIUM, the future Defence applications hosting programme.

Given the fast-changing nature of ICT we are actively horizon scanning with innovation teams to exploit emergent technologies that could help sustain Defence business in the digital age.

3.5.2 Infrastructure Management System (IMS)

The MOD's Infrastructure Management System (IMS) IT system has been implemented incrementally across the organisation since 2014 and supports strategic and more efflcient management of the Defence estate. A full suite of planning capabilities has been delivered, including requirements capture in collaboration with the customer through to asset disposals, supporting DIO's vision of a better estate, better service and better business. Focus last year has been integrating the IMS with MOD's Contracting, CP&F IT system, to ensure that all DIO core business can be ordered, receipted and paid for in the IMS. This more streamlined approach facilitates evidence-based decision making, providing invaluable support to the TLBs following the delegation of infrastructure funding on 3 April 2018.

At the operational level, new initiatives introduced in the last year include a pan-MOD e-Learning module UCA launched to encourage and innovate energy conservation and saving measures across the Defence estate. It is hoped that this tool created by staff in the fleld, will promote a culture of ownership and personal responsibility for energy management, and possibly even some healthy competition between the TLBs. Results will be monitored throughout 2018/19.

3.5.3 Business Travel

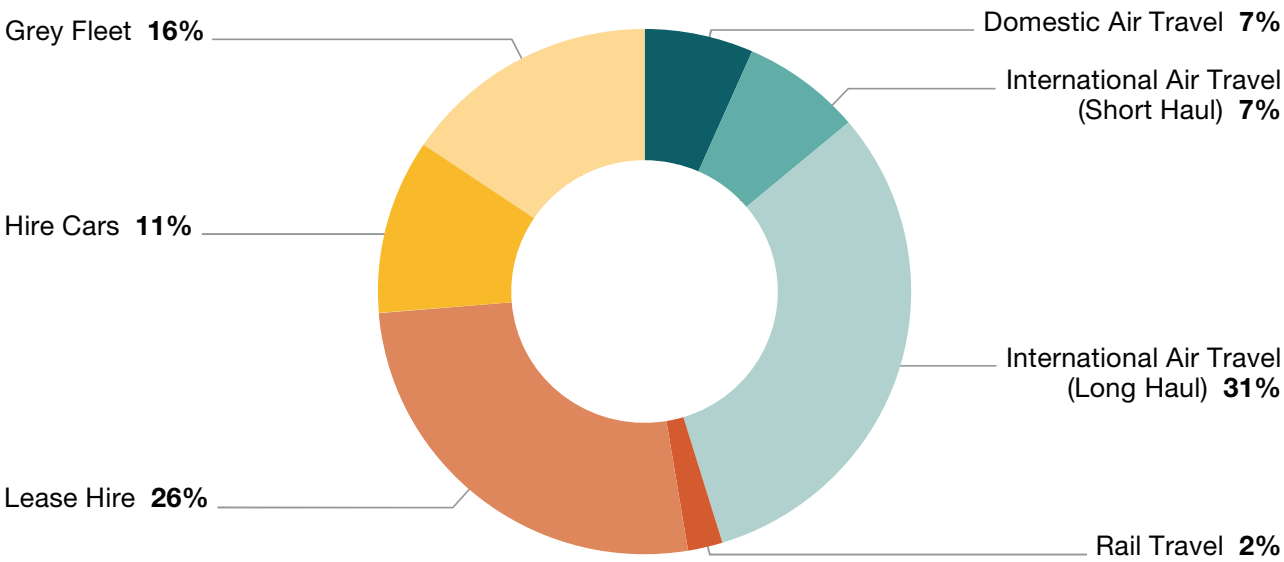
With the roll out of the new Defence MODNET IT system during 2017/18, improvements in remote collaborative working our being embedded in smarter ways of working. As the use of these technologies is embraced by personnel the need for business travel can be reduced. However, the challenge remains in balancing travel avoidance methodologies against the need to meet face-to-face where there is a genuine business benefIt.

Due to the geographical spread of MOD locations there will always be a level of travel that cannot be avoided. Where this is the case, MOD travel policy requires the overall best value for money to be achieved.

Table 10: Carbon Emissions from Administrative Business Travel - All

Type of Business Travel (tCO_2e)	2009/10 baseline	2015/16	2016/17	2017/18
Domestic Air Travel	10,508	7,246	7,719	7,148
Rail Travel	4,546	2,477	2,542	2,272
Lease Hire	27,842	28,078	26,506	28,464
Hire Cars	14,920	14,248	11,230	11,654
Grey Fleet	31,931	17,974	14,637	16,806
GGC Reportable	**89,747**	**70,023**	**62,634**	**66,344**
International Air Travel - short haul	6,008	7,651	8,189	7,853
International Air Travel - long haul	40,215	40,940	40,501	34,003
Other Business travel	**46,223**	**48,591**	**48,690**	**41,856**
All	**135,971**	**118,616**	**111,324**	**108,200**

Figure 6: All Business Travel tCO_2e - Comparison



To ensure MOD is best placed to meet the Cabinet Office's 2017 Autumn statement on intended electric vehicle fleet volumes by 2021, MOD is engaged with the Office for Low Emission Vehicles (OLEV) and is pilot running a small sample fleet of zero-emission electric vehicles to evaluate suitability. The team has engaged with Crown Commercial Services to augment the new Traffic Management contract, making electric charging pillars easier, faster and cheaper to source. Also engaged with other government departments, to understand their activities to embed sustainable procurement activity in their vehicle fleets.

In 2017/18, we reduced GHG emissions from travel including international air travel by 20% compared to 2009/10. UK domestic travel achieved a 26% reduction in GHG emissions compared to 2009/10 and increase of 5% on the previous year.

3.5.4 Domestic Air Travel

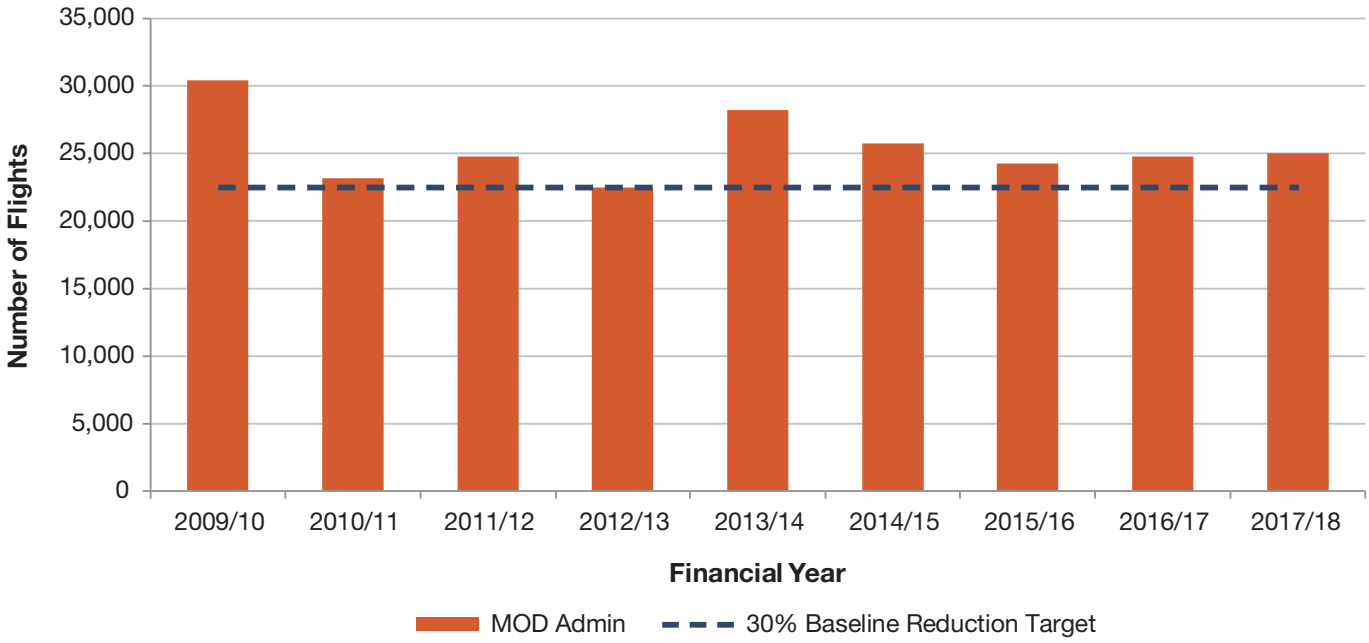
The ongoing business and operational requirements continue to affect our domestic air travel performance, most notably for the Front Line Commands (FLCs) which has seen an increase of 12% against the previous year and a 3% increase against the baseline year. Similarly, the administrative part of MOD has seen a slight increase of 2% against last year's performance now standing at 17%.

MOD secured an agreement with Defra to exempt flights taken by FLCs, as these are often for reasons outside of business as usual, and therefore cannot easily be reduced without compromising military capability. Despite this exemption, it is acknowledged that there is still a lot of work to do to reach the GGC 30% reduction target. We remain committed to reducing flights taken and with the introduction of improved remote collaborative working an improvement in performance will be seen.

Table 11: Domestic (UK) Air Travel – number of fiights split between the FLCs and the Administrative organisations in MOD

Domestic air travel (no. of flights)	2009/10	2015/16	2016/17	2017/18
MOD Front Line Commands	79,064	86,973	90,672	81,683
% change compared to 2009/10 baseline		10%	15%	3%
MOD Administrative	30,422	24,247	24,756	25,018
% change compared to 2009/10 baseline		-20%	-19%	-17%
Total	109,486	111,2201	115,428	106,701
% change compared to 2009/10 baseline		2%	5%	-3%

Figure 7: Domestic air travel (administrative organisations in MOD) – Comparison to 2009/10 baseline



3.5.5 Paper Demand

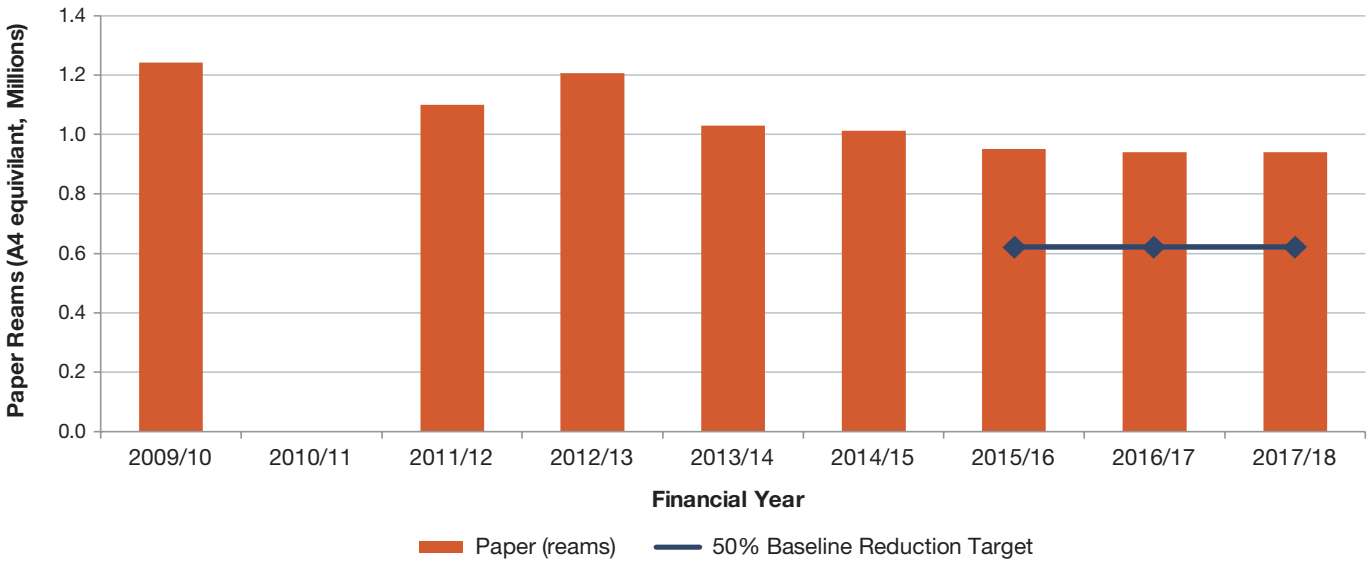
In 2016/17 a more ambitious GGC target for paper demand was introduced. The new target is for government to reduce its paper demand by 50% replacing the previous target of 10%. There has been a slight increase in performance during 2017/18 against the target. This remains a reduction of 24% compared to the 2009/10 baseline.

Work has progressed with ISS to identify a cost-effective solution to enable paper demand to be broken down by TLBs. Implementation of the solution will be introduced in 2018/19. This will enable TLBs to monitor performance and identify measures to reduce demand.

Table 12: Paper demand – Comparison to 2009/10 baseline[13]

MOD Paper Purchased	2009/10 baseline	2015/16	2016/17	2017/18
Reams (A4 equivalent)	1,242,363	951,072	940,487	941,751
% change compared to 2009/10 baseline		-23%	-24%	-24%

Figure 8: Paper demand – Comparison to 2009/10 baseline



Case Study:
Reducing paper usage through behaviour change and modern ICT

Information and Communication Technologies (ICT) can have a signiflcant environmental impact. However, when ICT is effectively managed and exploited, ICT can also become a sustainability enabler, for example by supporting Government Departments in meeting the 50% paper reduction from 2010 levels required by the Greening Government Commitments.

Information Systems and Services (ISS) delivers information capabilities to the UK MOD at its sites across the world. During the 12 months to January 2018, it used approximately 3 million sheets of paper. In February 2018, the ISS Design Strategy Sustainable ICT team launched a "Paper Free February" initiative to demonstrate how the tools already available through the corporate IT system MODNET, of which Microsoft Offlce 365 is an integral part, can help reduce paper consumption. Crucially, the pilot sought to understand why people needed to print and identify barriers to paper reduction (e.g. access to information away from one's desk, policy obligations and reviewing complex documents).

Through a combination of simple changes to ways of working and a general awareness programme encouraging people to "think before you print", an offlce of around 80 people saved nearly 3,000 sheets of paper in four weeks. The same success, replicated across ISS HQ, would equate to a saving of approximately 1 million sheets, equivalent to a 33% reduction, if these changes could be embedded into business as usual.

13 Paper consumption data was not collected in 2010/11.

3.6 Estate Stewardship

3.6.1 Biodiversity

MOD biodiversity policies and delivery, both in the UK and throughout the overseas defence estate, make signiflcant contributions to the implementation of two UN Sustainable Development Goals:

Goal 15 "Life on Land: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertiflcation, and halt and reverse land degradation and halt biodiversity loss"; and

Goal 14 "Life Under Water: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

As part of its Conservation Stewardship Fund MOD directly invested £0.98m to improve the condition of Sites of Special Scientiflc Interest (SSSIs) and sites protected under the EC Habitats Directive (i.e. Special Areas of Conservation and Special Protection Areas) in 2017/18. The condition of SSSIs is assessed, monitored and reported by the statutory conservation bodies and Country Biodiversity Strategies include speciflc SSSI condition targets for England, Wales and Scotland and Areas of Special Scientiflc Interest (ASSI) targets for Northern Ireland. The recently published DEFRA 25 Year Environment Plan indicates there will be more stringent targets for SSSI condition in England post 2020. MOD continues to make good progress against the target for Favourable condition of SSSIs in England with an increase of 3%[14] in the 2017/18 flnancial year. This included improvements at Otterburn, Salisbury Plain, Pirbright and Longmoor training Areas. The SSSI condition statistics for all countries are given below:

The MOD Conservation Stewardship Fund also delivers biodiversity enhancements outside designated sites, and in 2017/18 nearly £250k was spent on UK projects. This was focussed on the species and habitats identifled as a priority in the different Biodiversity Strategies such as ancient woodland, ponds and red squirrels. This also contributes towards local and regional biodiversity partnership projects delivering beneflts across the defence estate and wider landscapes. A further £300k was spent in the Sovereign Base Areas in Cyprus, removing acacia trees that had been planted by illegal bird trappers; and purchasing surveillance equipment to support prosecutions.

MOD conservation and sustainable use of the marine environment includes management and development of coastal infrastructure; and management of maritime training, trials and operational activities. For major coastal infrastructure projects such as proposed new or refurbished jetties in Portsmouth, Gosport, Devonport and Loch Long, specialist DIO ecologists and engineers work closely with consultants and regulators to identify and avoid or mitigate all potential biodiversity impacts, with assessments usually focusing on protecting overwintering birds, marine mammals and migratory flsh from noise disturbance; and ensuring sensitive marine habitats are protected from contamination. Specialists from the Royal Navy, DIO and contractors such as QinetiQ undertake detailed environmental appraisals for all maritime training, trials and operations.

In 2017/18 MOD ecologists and consultants have been heavily involved in the DEO program studies to identify and manage potential biodiversity constraints and opportunities on proposed 'receiver' and 'disposal' sites. Preliminary Ecological Appraisals are being commissioned to inform development concept designs and disposal planning and marketing strategies, and to ensure that seasonal surveys for species and habitats are correctly programmed and undertaken. Data from surveys is also fed into site management plans to support long-term protection and management of the biodiversity and ecosystem resources on the defence estate.

Sanctuary Magazine highlights many of our other recent biodiversity achievements, initiatives and projects.

14 Figures have been rounded to the nearest whole number throughout this report.

Case Study:
Mason Bees at DE&S Donnington

DE&S Donnington have been working with the charity 'Praise Bee' for several years. Praise Bee was conceived to reverse the decline in the UK's bee population and has been working in partnership with the MOD as a major land owner. Pollinating insects, particularly bees, are vital to support all plant life through pollination and ultimately underpin much of the food production in Britain.

The charity identifled the Mason Bee as an ideal species to use in an introduction programme, given that it has no sting and does not produce honey or require a managed hive. Equally, the Mason Bee does not cause any damage to buildings and can safely be encouraged on MOD Sites with no adverse effects. DE&S Donnington was asked to host a Mason Bee nest which has been done successfully for a number of summers. Praise Bee return in late summer to remove the bee pupa at the end of the insect's life cycle. These pupae are then carefully examined for any sign of parasites, before being moved to other MOD sites working with the Charity. Mason Bees from Donnington will now be waking up in RAF Halton; this sort of work continues to strengthen the Mason bee gene pool and subsequently promote a healthy population at each site.

Plans are now in place to develop a bee meadow at DE&S Donnington. This will be the flrst meadow that Praise Bee has seen created on MOD land. While the project may take some years, it is hoped that this may be a successful enterprise by Summer 2019. The Praise Bee charity has also been working at other MOD locations. See Praise Bee website for details.

Mason Bees at DE&S Donnington.
© Lee Sanderson

Table 13: The proportion of MOD owned SSSIs/ ASSIs achieving current management objectives

Country	2009/10	2015/16	2016/17	2017/18
England	97	99	98	98
Scotland	94	98	96	97
Wales	76	98	98	80
N. Ireland	70	100	100	100

3.6.2 Heritage

The MOD is steward of the largest historic estate in Government ownership and is responsible for a wide range of heritage and historic assets across our UK and overseas estate. The range of designated structures is extremely varied, from small bollards and milestones, to the massive Georgian roperies of Portsmouth Naval Base and the Victorian Palmerston forts of Tregantle and Scraesdon. The date range is also very wide ranging, from the Neolithic structures on Salisbury Plain, to the World War II crashed aircraft and Cold War structures such as the Thor missile sites at North Luffenham. Other designated assets include conservation areas, battleflelds and registered parks and gardens.

In 2017/18 there continued to be a major focus on ensuring that the archaeological and historic built environment requirements have been integrated into the many MOD programmes, whether disposals or major redevelopment sites covered by the Army Basing Programme, DEO Programme, or major Defence disposal projects. During 2017/18, the overall number of Scheduled Monuments under our management increased from 769 to 777 last year and Listed Buildings have increased from 839 to 856.

Protecting and improving Heritage at Risk remains an important part of our work, and we have been working with Historic England and other devolved administrations to address these important, but often difflcult, issues. The Historic England Heritage at Risk (HAR) register is published every two years, and in their 2013/15 report, the MOD had 65 assets on the register.

Further details of the MOD's heritage management can be seen in the MOD Biennial Heritage report for 2013-2015.

Table 14: Condition of MOD Scheduled Monuments - Comparison[15]

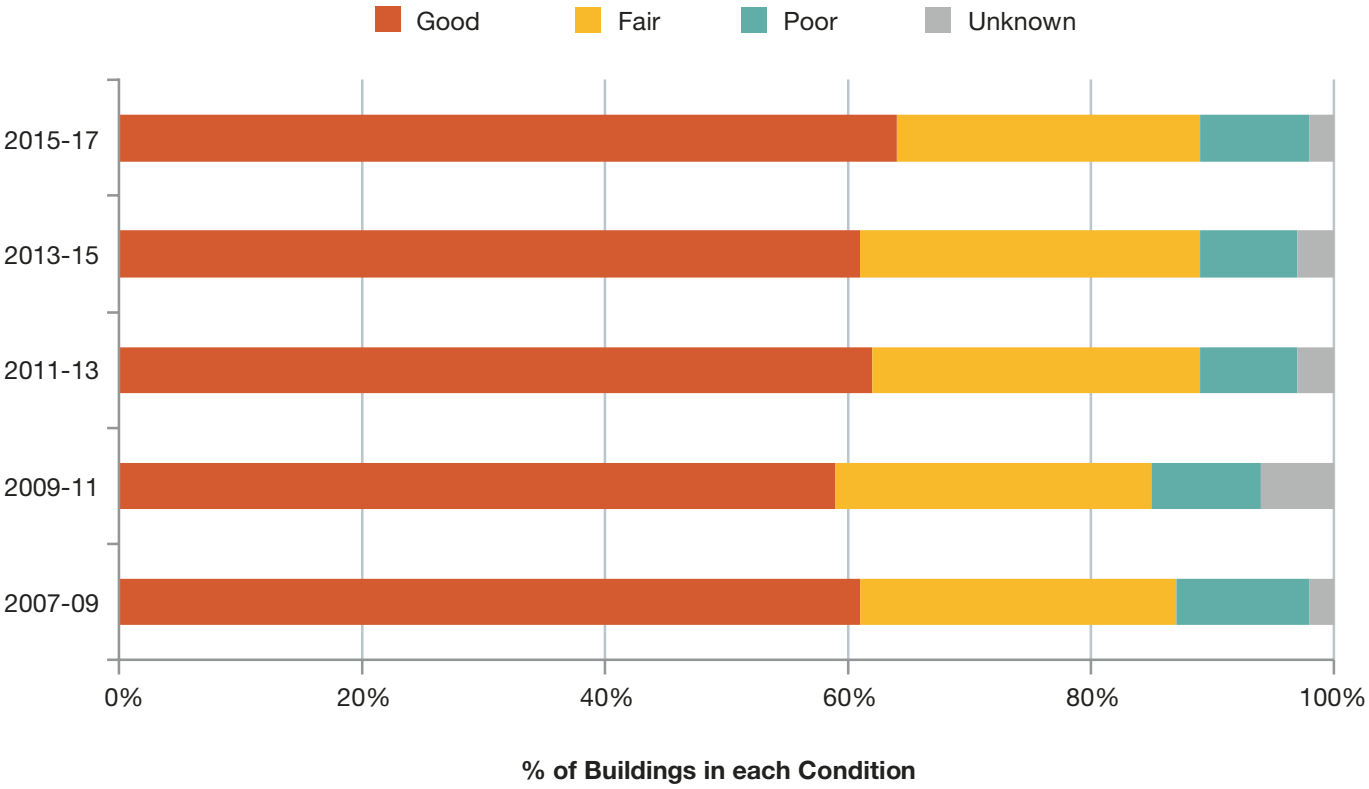
Year	Good		Fair		Poor		Unknown		Total
2009/10	364	49%	222	30%	149	20%	2	<1%	737
2015/16	311	41%	295	38%	164	21%	0	0	770
2016/17	314	41%	292	38%	159	21%	4	<1%	769
2017/18	309	40%	296	38%	161	21%	11	1%	777

Table 15: Condition of Listed Buildings – Comparison

Year	Good		Fair		Poor		Unknown		Total
2007-09	489	61%	206	26%	87	11%	15	2%	797
2009-11	477	59%	210	26%	77	9%	51	6%	815
2011-13	519	61%	231	27%	69	8%	26	3%	845
2013-15	507	61%	232	28%	64	8%	22	3%	825
2015-17	536	64%	213	25%	72	9%	18	2%	839

15 Percentages may not add to 100% due to rounding.

Figure 9: Condition of Listed buildings - Comparison



3.6.3 Access and Recreation

MOD follows a policy presumption in favour of public access wherever this is compatible with operational and military training uses, public safety, security, conservation and the interests of tenants.

Collaborative working frequently underpins access and recreation work, delivering positive outcomes through the pooling of resources and expertise. January 2018 marked an historic moment in the South East as MOD and Natural England joined forces through a joint access agreement for the beneflt of the Thames Basin Heaths Partnership. The agreement enables Partnership staff to warden areas of MOD land falling within the Thames Basin Heaths Special Protection Area as part of the Strategic Access Management and Monitoring (SAMM) project.

The SAMMs project is fundamental to progressive, sustainable management of public access, but it was recognised that the MOD training estate is a niche working environment. Consequently, a joint access agreement was regarded as important to ensure wardens were appropriately briefed and engaged to provide safety to the wardens, security to the MOD estate and easy lines of communication between all parties.

The agreement will allow the SAMM project to dramatically increase its reach. Natural England wardens will raise public awareness of environmental sensitivity and encourage responsible recreational behaviour. They will also act as extra eyes and ears across the sites and raise public awareness of the dangers associated with visiting military land and how to minimise risk.

Further collaborative working continues in the ongoing restoration of visitor access to the coastal Fossil Forest at Lulworth Ranges. MOD has been working with the Dorset Council Jurassic Coast Team, Dorset Council, the Lulworth Estate and Natural England to deliver a solution that is in keeping with the natural environment. The landscape and restricted time frames have proved challenging but new infrastructure, including a new seating platform and interpretation are planned to be installed autumn 2018.

Keeping with the coastal theme, MOD will continue to work with Natural England to support in the delivery of the England Coastal Path and in turn contribute to the UK commitment to Sustainable Development Goals. Coast Path roll out is considered on a site by site basis to ensure its presence is compatible, as instructed under our Access Policy. Where possible advantage has been taken of the national project to improve public access through the installation of new infrastructure and information, thus ensuring coastal access is created in a safe and secure environment.

Repairing the Grade II listed Drummer's Boy Post in the middle of Salisbury Plain

4. Next Steps and Challenges

The UK is committed to the delivery of the Sustainable Development Goals. The most effective way to do this is by ensuring that the Goals are fully embedded in planned activity and the most effective mechanism for coordinating implementation is the departmental planning process. Further work will be carried out to identify where defence activities support the goals.

Introduction of the new ISOM (Apr 18) along with the implementation of the DEO programme, means that challenges lie ahead to ensure sustainability is fully incorporated when key decisions are taken. Key to this challenge is access to accurate management information and we shall continue to address this during 2018/19. Work will continue to support TLBs to develop sustainable infrastructure plans. Compliance with the new Defence Standard 00-05 and updates to the new Acquisition Operating Model, will be monitored.

The current round of GGC targets concludes in 2020. Work will soon begin on developing replacement targets. Defence shall review its understanding of the material sustainability aspects that impacts on its business and people, to ensure full dialogue to aid Government to develop meaningful targets.

Outside of the GGC targets the introduction of the Industrial Strategy, 25-Year Environment Plan and the drive towards Natural Capital principles and the circular economy will need to be closely monitored and the impacts on key defence programmes understood, enabling us to respond as necessary. In addition, the incorporation of the UN Sustainable Development Goals requires further work to identify where defence activity supports the goals. MOD's use of plastics will be reviewed with the priority initially on single use plastics.

Plastic is a very versatile material that forms a key component of many products and will continue to be the best option for some products for the foreseeable future. However, there are opportunities to reduce plastic waste and improve recycling rates. Working with our Industry Partners and focussing on customer consumables, MOD will start the process of reviewing how defence utilises plastics and implementing measures to reduce avoidable plastic waste.

As such, the focus of activity during 2018/19 will be on reviewing and revising the Sustainable MOD Strategy; Act & Evolve, to ensure it remains relevant and drives forward sustainability across all areas and merges with the Energy Capability Strategy.

Naturalised Bees on SPTA
© Helen Sheridan

5. Annexes

Annex A
Energy and Carbon Emissions data 2009/10 – 2017/8

Greenhouse Gas Emissions		2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	Note
Non-Financial Indicators tCO_2e 000's	Total gross emissions for scopes 1, 2 & 3 (Estate)	1,432	1,442	1,286	1,244	1,218	1,166	1,114	1,043	942	&14d
	Total gross emissions for scopes 1, 2 & 3 (Capability)	Not known	3,217	3,069	2,780	3,060	2,208	1,935	1,811	Not known	14a
	Total net emissions for scopes 1, 2 & 3	1,420	1,430	1,211	507	549	509	1,114	1,043	942	14a &14d
	Total gross emissions scope 1	593	579	487	476	514	477	472	471	458	14a &14d
	Total gross emissions scope 2 & 3	839	900	849	768	709	689	648	572	484	14a
Related Energy Consumption KWh 000's	Electricity: Non-renewable	1,460,770	1,464,106	1,282,421	0	0	0	1,235,763	1,208,524	1,189,820	
	Electricity: Renewable	20,440	20,486	142,491	1,481,564	1,384,227	1,223,272	0	0	0	
	Gas	2,482,020	2,475,352	1,952,488	1,740,426	1,971,184	1,804,037	19,463,671	1,992,575	1,911,438	
	LPG	80,070	80,403	82,000	79,391	79,425	53,247	40,187	50,555	36,532	
	Other	290,598	289,877	314,428	337,572	338,153	324,558	238,802	193,242	160,183	

Greenhouse Gas Emissions		2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	Note
Related Equipment Energy Consumption Litres 000's	Aviation fuel	827,800	792,400	767,100	694,652	628,601	566,943	503,395	481,338	458,793	
	Diesel (retail blend & mineral blend)	340,500	354,300	339,300	0	0	0	0	0	Not known	14b
	Diesel (retail blend)	0	0	0	121,951	114,410	73,070	60,371	44,501	49,512	14c
	Diesel (100% mineral)	0	0	0	254,387	232,023	191,909	174,598	177,290	155,609	14c
	Gas oil	74,300	79,700	74,900	40,602	34,329	33,976	Not known	Not known	Not known	14c
	Petrol	7,000	4,600	5,800	4,462	8,882	3,975	Not known	Not known	Not known	14c
Financial Indicators £000's	Expenditure on energy	195,715	280,563	294,676	243,266	261,124	317,074	267,979	292,201	306,897	14a
	CRC license expenditure (2012 onwards)	-	-	17,925	16,082	18,046	16,522	17,536	16, 229	16,229	
	Expenditure on GCOF offsets	220	78	12	12	12	18	Not known	Not known	Not known	14c
	Expenditure on official business travel	198,747	165,467	161,632	161,632	163,107	163,859	Not known	Not known	Not known	14c &14d
	Expenditure on equipment energy (fuel)	481,934	627,850	635,354	758,809	731,045	574,681	332,502	295,993	324,262	
Normalisation	Total scopes 1, 2 & 3 - tCO_2e 000	1,432	1,442	1,286	1,244	1,218	1,166	1,114	1,043	943	14a
	Defence total Spend £000's	37,994,285	38,116,370	38,946,782	37,740,973	36,448,452	35,105,038	35,252,526	35,422,775	35,804,000	
	Normalisation - Scope 1 & Scope 2 emissions '000 / budget '000	0.00004	0.00004	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	

Annex B
Water and Waste data 2009/10 – 2017/18

Finite Resource Consumption – Water		2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Non-Financial Indicators 000's m^3	Water consumption (office estate)	206	186	190	172	183	228	220	276	243
	Per Full Time Equivalent	12.4	11.8	12.1	11.8	12.1	14.3	13.8	17	14
	Water consumption (office & non office estate)	24,974	24,550	24,659	22,726	22,826	22,392	22,643	23,004	22,835
Financial Indicators £000's	Water supply costs (whole estate)	100,236	98,667	107,369	104,804	101,043	112,869	116.6	109.2	124.3
Normalisation	Department total spend £000's	37,994,285	38,116,370	38,946,782	37,740,973	36,448,452	35,105,038	35,252,526	35,422,775	35,804,000
	Normalisation - emissions m^3 '000 / budget £000's	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006

Waste			2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Non-Financial Indicators tonnes 000's	**Total waste**		185	190	197	161	156	1631	156	177	111
	Hazardous waste		14	11	6	4	18	19	0.6	0.5	0
	Non-hazardous waste	Landfill	55	48	43	29	35	18	15	12	16
		Reused/ Recycled	91	95	122	101	94	99	100	91	62
		Composted	8	9	9	8	1	1	3	2	7
		Incinerated with energy recovery	10	18	12	18	5	24	37	30	31
		Incinerated without energy recovery	8	8	5	2	2	3	2	0.8	1
Financial Indicators £000's	Total disposal cost		Not known	Not known	Not known	Not known	Not known	Not known	Not known	Not known	Not known
	Department total spend £000's		37,994,285	38,116,370	38,946,782	37,740,973	36,448,452	35,105,038	35,252,526	35,422,775	35,804,000
Normalisation	Normalisation - waste generated tonnes 000's/ total spend £000's		0.000005	0.000005	0.000005	0.000004	0.000004	0.000005	0.000004	0.000005	0.000003

Annex C
Caveats and Explanatory Notes

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

2. GGC data contained in this report is based on agreed baselines. The Government 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. A double line separating years in a table indicates a break in the series. In a graph a break in the series is indicated by a dashed line.

4. An 'R" indicates that a table has been revised due to improvements in data availability.

5. Deflnition 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 offlcial business travel directly paid for by an organisation (i.e. not business travel re-charged by contractors).

6. DEFRA conversion rates have been used to account for carbon.

7. Carbon data in this report is shown as CO_2e; this is the six greenhouse gases covered by the Kyoto Protocol. They are: Carbon Dioxide (CO_2); Methane (CH_4); Nitrous Oxide (N_2O); Hydro fluorocarbons (HFCs); Perfluorocarbons (PFCs) & Sulphur Hexafluoride (SF_6).

8. The MOD is large and complex department, MOD's baselines include as much of the estate as possible but, for reasons that include insufflcient manpower and old contracts that do not provide the data required, our baselines cover around 75% to 90% of the Defence estate. The flnance data covers spend for a budget item and this may exceed the scope of the data being reported.

9. Sustainability data from MODs Arm's Length Bodies.

10. **Estate Energy**

    a. At the point of issuing the GGC targets there were 398 core sites (UK and Overseas) which accounted for 80% of MODs energy consumption. Defra agreed that the GHG target should apply to these core sites.

    b. Estate energy data is not weather corrected.

11. **UK Business Travel**

    a. The GGC target is for administrative business travel by Departments. We have deflned 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. 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.

c. Rail travel. We monitor rail travel mileage booked centrally using the mandated contract.

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 Arm's Length Bodies.

g. The number of UK domestic flights includes journey that start and flnish in the UK. Domestic flights for onward connection to international flights have also been reported.

12. **Waste**

a. Waste data shown is based on actual data received from the entire MOD estate. This is approximately 80% of known waste and contains most main establishments. The 20% not captured is due to:

   i. The waste is collected by Local Authorities and accurate site data is not available.

   ii. Where no data for an establishment is available estimated data using a site of a comparable size is not used. This is to ensure data reported is quantiflable at site level.

   iii. Data from some waste streams is not currently captured.

   iv. Data is not yet provided.

b. The majority of the data provided from contractors is actual weighed data, some however, if the collection method being based on bin/container lifts (for example sanitary waste) the contractor provides an indicative weight.

c. The data does not include construction and demolition waste. Due to the high tonnage and variations depending on the projects being undertaken, this would skew the data.

d. Waste data covers UK, Germany, Cyprus and the South Atlantic Islands.

e. Disposal routes and access to recycling may be dependent on factors outside of MOD control for example nature of the waste or geographic location restricting access to suitable waste management facilities.

f. Equipment replacement is captured based on flgures from the Defence Equipment Sales Authority and is directed by replacement programmes.

g. The 16/17 and 17/18 data includes for the disposal of ships.

13. **Water**

a. The scope of the Estate-wide Water target relates to the circa 2,800 Aquatrine Site Groups plus the 7 GGC Offlce Benchmark Sites. Water is provided by Aquatrine, an MOD Great Britain-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 represents approximately 90% of the Department's consumption.

b. The Department's GGC Offlce Benchmark Sites (administrative buildings that are either part of a Military establishment or located separate to a Military establishment) is comparatively small. The Full Time Equivalent (FTE) is the number of Military and civilian personnel established at these sites and includes visitors, but does not include on-site contractors. In 2017/18, the scope of the GGC Offlce Water target comprised 7 sites.

c. For 2017/18, where data has not been provided, suitable estimates have been used based on comparable historic data for that business area.

d. The water data covers Arm's Length Bodies.

e. A small amount of water data is based on estimates as actual consumption was unavailable at the time of publication. This does not have a material impact.

14. **Sustainable Development Performance Data, Annex A.**

a. Air travel data - due to data improvements this data has been revised for all years.

b. Data improvement has allowed us to report separately retail diesel and mineral diesel from 2012-13.

c. This data is unavailable at this time.

d. 2009/10 and 2015/16 do not include emissions from operational energy.

15. **MOD Arm's Length Bodies in scope for GGC.**

MOD ALBs	Status	GGC Reporting status	Notes
Defence Academy of the United Kingdom	N/A	Full within MOD core	The Defence Academy ceased to be an Executive Agency in Apr 2012, and forms part of Joint Forces Command.
Defence Science and Technology Laboratory (Dstl)	Executive NDPB	Full within MOD core	
Defence Storage and Distribution Agency (DSDA)*	N/A	Full within MOD core	DSDA ceased to be an executive agency in 2010 when it became part of the Joint Support Chain Services. Now called Logistic Commodities and Services (LCS) Logistic Services.
Defence Support Group (DSG)	Executive NDPB & Trading Fund	Full within MOD core	DSG ceased to be an Executive Agency in 2015, when it formed part of DECA.
Defence Electronics and Components Agency (DECA)	Executive NDPB & Trading Fund	Full within MOD core	DECA was formed as a 'trading' Executive Agency on 1 Apr 2015.
Ministry of Defence Police and Guarding Agency (MODPGA)	N/A	Full within MOD core	MODPGA ceased to be an Executive Agency on 1 Apr 2012.
People, Pay and Pensions Agency (PPPA)	N/A	Full within MOD core	PPPA ceased to be an executive agency in Jul 2011, and subsumed back into MOD. Now called Defence Business Services (DBS).
Service Personnel and Veterans Agency (SPVA)	Executive NDPB	Full within MOD core	
UK Hydrographic Office (UKHO)	Executive NDPB & Trading Fund	Full within MOD core	

Annex D
List of Acronyms

29Reg RLC	29 Regiment Royal Logistics Core
ANA	Afghan National Army
ANAOA	Afghan National Army Offlcer Academy
ANDSF	Afghan National Defence and Security Force
ARAc	Annual Report and Accounts
ASEMS	Acquisition Safety and Environmental Management System
ASG	Acquisition Systems Guide
ASSI	Area of Special Scientiflc Interest
BEIM	Built Environment Improvement Measures
BEIS	Department for Business, Energy and Industrial Strategy
BEMS	Building Management Energy System
BFC	British Forces Cyprus
BRE	Building Research Establishment
BREEAM	Building Research Establishment Environmental Assessment Methodology
CEO	Chief Executive Offlcer
CIRAM	Climate Impact Risk Assessment Methodology
CDP	Chief of Defence People
CHP	Combined Heat and Power
CIO	Chief Information Offlcer
COO	Chief Operating Offlcer
CP&F	Contracting, Purchasing and Financing
CSSF	Conflict, Stability and Security Funds
DCDS(MilCap)	Deputy Chief of Defence Staff (Military Capability)
DECA	Defence Electronics and Components Agency
Defra	Department for Environment, Food and Rural Affairs
DE&S	Defence Equipment and Support
DEO	Defence Estate Optimisation Programme
DIO	Defence Infrastructure Organisation
DREAM	Defence Related Environmental Assessment Method
Dstl	Defence Science and Technology Laboratory
EDA	European Defence Agency
ELT	English Language Training
EMA	Energy Management Assoication
EPC	Energy Performance Contract
EOD	Explosive Ordnance Disposal
FTE	Full Time Equivalent
FM	Facilities Management
FamCAS	Families Continuous Attitude Survey
FLC	Frontline Command
GGC	Greening Government Commitments
GHG	Greenhouse Gas
HAR	Heritage at Risk

HMNB	Her Majesty's Naval Base
HMS	Her Majesty's Ship
HVAC	Heating, Ventilation and Air Conditioning
IAC	Investment Appraisals Committee
IDES	International Defence Engagement Strategy
ICT	Information and Communications Technology
IMS	Infrastructure Management System
IRC	Infrared Control
ISOM	Infrastructure System Operating Model
ISS	Information Systems and Services
JFC	Joint Force Command
kWh	Kilowatt Hour
MACA	Military Aid to Civilian Authorities
MHCLG	Ministry of Housing, Communities and Local Government
MOD	Ministry of Defence
MPRSO	The Metered Points of Reduction Savings Opportunities
MWh	Megawatt Hour
NDPB	Non-Departmental Public Bodies
NHS	National Health Service
OGDs	Other Government Departments
OLEV	Offlce for Low Emission Vehicles
PFI	Private Finance Initiative
POEMS	Project Orientated Environment Management System
PVC	Polyvinyl Chloride
QEC	Queen Elizabeth Class
RAF	Royal Air Force
REACH	Registration, Evaluation, Authorisation & Restriction of Chemicals
RFA	Royal Fleet Auxiliary
RM	Royal Marines
RoHS	Restriction of Hazardous Substances
SAMMS	Strategic Access Management and Monitoring
SD	Sustainable Development
SDG	Sustainable Development Goals
SDSR	Strategic Defence and Security Review
SEAT	Sustainability & Environmental Appraisal Tools
SSSI	Sites of Special Scientiflc Interest
SBC	Strategic Business Case
tCO_2 e	Tonnes of carbon dioxide, equivalent
TLB	Top Level Budget
UCA	Utilities Consumption Awareness
UKCP 18	United Kingdom Climate Projections 2018 Project
UKHO	United Kingdom Hydrographic Offlce
UV	Ultraviolet
WCRP	Water Consumption Reduction Programme

Male and Female Fairy Shrimp