



Defence  
Infrastructure  
Organisation

# Climate Resilience Newsletter

Issue 9: Summer 2020



**Main Picture:** The Light Dragoons provided support to the Environment Agency and Doncaster Council on 14th Nov 2019 as part of the effort to reinforce flood defences in the village of Kirk Bramwith, South Yorkshire.

# Climate Change & Water Resources

Article written by Adam Doig, Water Policy Lead, DIO RD Utilities

In March 2019, Sir James Bevan, Chief Executive of the Environment Agency publicly declared that the UK will not have enough water to meet demand within the next 20 to 25 years by 2040. The impacts of climate change combined with population growth will place greater pressure on available water resources. Sir James quoted, “*We all need to use less water, and use it more efficiently*”. He also highlighted that people in England use an average of 140 litres a day and called for people to reduce their usage by 40 litres to 100 litres a day, in-line with the target set by Waterwise, the UK organisation which campaigns for water efficiency.

The UK Met Office observations and Climate Projections 2018 show that hot summers are becoming, and projected to further become, more common. Climate change has already doubled the chance of seeing a summer as hot as 2018 to between 12-25% and by mid-century this will increase to 50%. Against this context, the significant increase in projected summer temperatures together with the increasing risks of drier periods and reduced river flows will have a direct impact on the availability of water resources to meet demand in the UK, and indeed on the MOD estate.

As a government department, the MOD is subject to the Greening Government Commitment (GGC) targets. We consume approximately 66% of all government water consumption, followed by the Ministry of Justice with approximately 26%, with other departments making up the remaining 8%.

The Government has already been taking steps over the last 10 years to reduce the demand for water by its Departments. The

MOD had an estate-wide water target to reduce consumption on sites within the scope of the three Aquatrine Water & Waste Water PFIs in Great Britain by 15% by 2019/20 against a 2009/10 baseline. This comprised interim targets of 9% between 2010/11 and 2014/15, and 6% between 2015/16 and 2019/20. At the end of 2019/20, the MOD had reduced its water consumption by 11.4% against the 15% target, a shortfall of 3.6%. Volumetrically, over the 10-year period of the target, the MOD reduced its water consumption from the 2009/10 baseline by 2.84 million cubic meters (Mm<sup>3</sup>) from 24.97Mm<sup>3</sup> to 22.13Mm<sup>3</sup>. It was anticipated that Defra would set a new target for the period 2020/21 to 2025/26 but instead decided to roll forward the extant target for a further 12 months. Therefore, the MOD has the rest of 2020/21 to try to achieve the 3.6% shortfall.

The key drivers underpinning the need for the MOD to continue to reduce consumption are legislative compliance to prevent the misuse of water resources, sustainability in line with the Sustainable MOD Strategy and UN Sustainable Development Goals and maintaining security of supply in a time of more stringent rules on abstraction volumes. The MOD has key levers to reduce consumption such as identifying and implementing initiatives to address constant flows of water caused by faulty infrastructure and utilising behavioural change to quickly identify and resolve water waste. The new suite of FDIS contracts should also support the MOD’s efforts to address faulty water infrastructure within buildings in a timely manner. With these combined efforts we expect to see a continued reduction in water consumption across the whole MOD estate.

# Exploring the Impacts of Climate Change for UK Defence & Security

A new report, commissioned by the MOD and written by RAND Europe and the University of Exeter, explores the impact of climate change for UK defence and security. The report has 2 aims – to develop a conceptual framework to identify the strategic implications of climate change for UK MOD activities out to 2035, and to support the development of an approach for assessing and responding to these implications.

The report focuses specifically on the strategic implications of climate change for UK MOD activities in relation to the Defence Lines of Development (DLODs) – concepts and doctrine; training; personnel; infrastructure; equipment; information; organisation; logistics; and interoperability. Impacts are wide and varied, examining both the physical impacts of climate change as well as the policy, strategy and operational aspects. Some of the identified impacts include:

- Increase in MACA and HADR operations can be expected in response to climate change;
- Coordination of military training activities could become more challenging, as extreme climate events could reduce the area and timeframe available for military training delivery;
- Health and safety issues related to flooding, extremely high temperatures and physically demanding training programmes may increase in severity and/or frequency;
- Personnel may have to operate in climate-degraded conditions more frequently, affecting physical and psychological well-being;
- Military infrastructure in the UK and overseas may become increasingly vulnerable to climate-related events, particularly coastal infrastructure;
- Access to critical supply chain inputs (e.g. rare minerals) could be impeded by extreme weather events which could, in turn, increase violent conflict;
- Changes in the operating environment could increase demand for climate-resilient equipment;
- Climate change could adjust the balance of existing military tasks and generate discussion of new activities and roles for the Armed Forces;
- Delivery of logistics support could be more difficult due to a lack of infrastructure or equipment capacity to access disaster-struck areas;
- Climate events may increase the need for surface vessels to access flooded areas, helicopters for rapid access to degraded areas, and mobile communication kits;
- Climate change could increase the need for cooperation between a wide range of actors including the emergency services & other government departments.

The report concludes:

*“As a defining issue of our time, climate change continues to evolve and disrupt UK defence and security. Resilience to climate change is likely to become a key focus area for the MOD and, as the findings of this study show, climate change will continue to affect a range of UK defence activities to 2035 and beyond. Personnel may have to operate in climate-degraded conditions more often – affecting physical and mental well-being – and climate events could reduce access to training sites, increase the vulnerability of military infrastructure, impede the performance of equipment, and compromise the delivery of logistics support.”*

[https://www.rand.org/pubs/research\\_reports/RRA487-1.html](https://www.rand.org/pubs/research_reports/RRA487-1.html)



**The Environmental Audit Committee convened on at the end of June 2020 to discuss the NAO Report on Sustainability in the MOD. A video of the proceedings can be found [here](#)**

# Exceeding the 40°C Threshold in the UK

Recent research published by the Met Office examines the chances of the UK [exceeding the 40°C threshold in this century](#). There is already strong evidence that hot extremes are becoming more frequent and intense. In the last few years we have seen the joint hottest summer on record for 2018 and the hottest temperature ever recorded in July 2019.

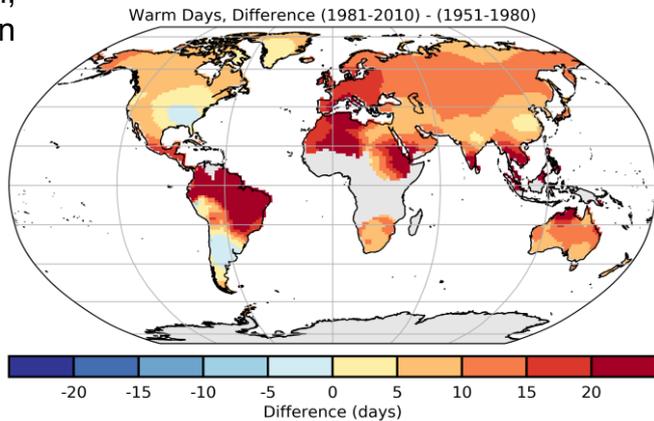
The research looked at 4 climate scenarios – the natural climate (without current human-induced climate change), the present climate, a medium greenhouse gas emissions future scenario and a high emissions scenario. It found that at present, exceeding 35°C is estimated to occur once every 5 years and almost every year by 2100. The probability of exceeding 40°C is rapidly accelerating - the return time for exceeding 40°C by 2100 in a natural climate (one without climate change) is 100-1000's of years. However, for the present climate this reduces to 100-300 years, and to only 15 years under the medium emissions climate scenario (RCP4.5). However, under the higher emissions scenario (RCP8.5), the likelihood of experiences above 40°C is once every 3.5 years by 2100. The research concluded that human induced climate change has set hot-day extremes on a course towards temperatures that would be too high to be observed in a natural climate. As the warming continues, new temperature records are expected in coming decades.

**Don't miss the new UK Committee on Climate Change website [www.ukclimaterisk.org](http://www.ukclimaterisk.org)**

## Changes in Global Extreme Weather Events

As the planet warms, [the intensity, frequency and duration of extreme weather events such as heatwaves and heavy rainfall is expected to increase](#). Understanding and quantifying this change is the focus of updated datasets examining weather data from more than 36,000 weather stations between 1901 and 2018. One of the clearest indices tracks the upward trend in daily maximum temperature, showing a clear increase in the number of warm days globally, when compared with 1961-1990. The greatest increase is observed in tropical regions of South America, Northern Africa and through Asia. Similarly, the number of warm nights in these regions have increased by over eight days per decade, leading to a doubling since the late 1970s.

Lead author of the research, Met Office's Dr Robert Dunn commented "It is extreme weather events which make the impacts of climate change real for people, and these events also present the greatest shocks to human health and well-being, financial economies and of course, the biosphere"



Recent events
<b>24 June</b> CDS Strategy Forum
<b>28 July</b> SDA CRWG
<b>13 Aug</b> NC CIRAM WG

Forthcoming key dates
<b>15 September</b> SDA CRWG
<b>17 September</b> MPP Project Delivery Webinar
<b>7-8 October</b> <a href="#">Mtg exploring future CR standards, pol., guidance</a>
<b>13-14 October</b> Adapting to UK 3°C World Conference

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