Cranfield University Climate Change Adaptation Strategy

This document sets out recommendation for Climate Change Adaptation planning and actions for Cranfield University up until 2030.

UN SDG (United Nation Sustainable Development Goal) 13 sets out the need to “strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries”. The UK Department for Education set out a strategy in 2022 that by 2025 “all education settings will have nominated a sustainability lead and put in place a climate action plan” which includes climate adaptation.

Background

According to the met office, climate change is already having adverse effects on buildings and infrastructure in the UK, particularly in the South East. By 2080, it is predicted that the UK temperature would have risen by 3.3 degrees, the average summer rainfall level will decrease by -50%, and winter rainfall levels would have increased by 10-30%. As well as high temperatures, it is predicted that the Gulf Stream, which brings warm weather to the UK is likely to slow down. This could mean winter storms and cold snaps may increase in the UK.

The UK is therefore expected to experience a complex change in temperature, increase in extreme precipitation, very dry summers, change in wind patterns, loss of biodiversity, increase in humidity and an increase in winter cold snaps. According to the UK Committee on Climate Change report 2017, climate change impacts are likely to increase on a temporal scale; flood damage to businesses is expected to increase to £1 billion by 2050s, higher temperature are expected to cause business losses of £400-500 million, and it is predicted that water demand by 2050 is likely to outstrip supply by 50% in many places in the UK.

Cranfield University has experienced what was very likely a climate change impact event in 2016, when an intense rain event created a flash flood causing widespread flooding of the campus with significant damage and costs. Subsequent work to investigate this and other possible risks included two student research projects which undertook extensive research on climate change adaptation, risks and management for infrastructure and buildings on campus at Cranfield University. The studies involved conducting interviews and focus group with relevant staff and student stakeholders.

It was determined that the main threats of climate change to the University were: overheating of research equipment and failure of experiments, power outages from equipment damage, extreme cold, spread of pollutants from the sewage treatment works and overheating of building spaces which were rated as extreme high risks. Medium risks included flooding events, drought/water shortages and increase of pest species on campus. All of which pose threats to buildings, infrastructure and occupants physical and mental health, causing delays in operations, high costs and loss of business altogether.

Aim

The overarching aim of the climate change adaptation strategy is to ensure Cranfield University can build resilience against the threats of extreme weather caused by a changing climate within its existing and future planning. This will be achieved by:

- Identifying measures to mitigate flood risk and to protect against storm damage.
- Considering options for cooling overheated spaces and equipment (including with blue/green methods).
- Water conservation efforts and drought protection
- Incorporating design to provide protection against extreme low temperatures.
- Controlling the increasing number of pest species and spread of disease in an environmentally sustainable manner.
- Considering the impacts of climate change when planning off campus activities (UK and Abroad)
- Capitalising on opportunities, for example by embedding climate change adaptation/mitigation into research and teaching.

Recommendations

Action taken towards climate change adaption should complement the 'Net Zero' target for carbon dioxide by 2030 and have minimal adverse impacts on the environment. Options which help improve environmental performance will be favoured.

The key recommendations are:

- Ensure that climate change adaptation is incorporated into University forward planning and review how it is included in the corporate risk register.

- Develop a climate change impacts register and create a 'climate change adaptation plan' with relevant targets in line with SDG 13 and UK Government strategy for climate action.

- Review existing policies, procedures and operational documents such as snow and ice, pest control and construction design guide to ensure they are taking into account climate change

- Monitor off campus activities (UK and Overseas) and the potential disruption which climate change may cause.

This document was approved by EEC (Energy and Environment Committee) and University Executive on the 07.11.2023.