## Effects of the Changing Security Landscape for Military Installations, Operations and Personnel

Moderator:

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UK MOD

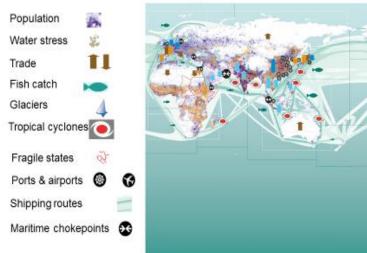
## Why is climate change important to Defence?

- Several National Security and Defence Strategies, UK DCDC Global Strategic Trends - climate change and energy insecurity endanger our people and territory, while wider environmental stresses could exacerbate potential conflict.
- Climate change = security risk multiplier
  - 2<sup>nd</sup> / 3<sup>rd</sup> order consequences: loss of land/livelihood, famine, drought.
- Affect all aspects of Defence capabilities: frequency & nature of deployments (where/how), equipment (functionality), people, planning, logistics, infrastructure.
- **Supply chains**: e.g., Thailand floods slowed EU & US automotive & IC⊤ industry.
- Energy insecurity = cost & life risk multiplier



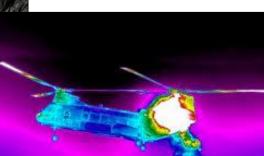


#### So how can we go from this....



#### To this?....





- By addressing the circle of insecurities.
- Maintain effective delivery of Defence capability that is robust to environmental risks but does not substantially contribute to environmental degradation.....
- Military fights as it trains....
- Start at home.... build into defence planning... then to front line operations
- Role for research & technology in military capability development.



# Climate, energy, military & civilian society

- At higher temperatures air has lower density (thinner) = reduced lift generated on aircraft's wings = engines need to generate more thrust to get airborne = more fuel.
- Chinook helicopter (loads & search/rescue): 714 engine developed and introduced to improve performance, specifically around the requirement to operate hot / high.
- Helicopter: <u>80% torque</u> is available <u>50% of time</u> in today's climate... reducing to <u>45% of time in 2050s</u>: Central Asiatic
- What does this mean for mission / infrastructure energy profiles?
- Use of artificial intelligence in centralized power management?
- Joined up civilian-military response
- Opportunity in National Planning?
- Opportunity for **joint civ-mil workshops / events**?

Phoenix flights cancelled because it's too hot for planes

3 hours ago US & Canada

na the temperatures are high - hot e Summa ns steppe, arid or semi-arid conditions with warm and hot temperatures i s. A few deserts are found in the south. Precipitation highly seasona acts of climate change. It makes a number of assumptions about the onter torque under certain conditions and for certain platforms. For this

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## Climate Change and decision support

- Energy and environmental considerations are not routinely factored into defence capability development to maximum effect.
- Often dealt with as a bolt-on / afterthought.
- At worst they are not dealt with at all.
- Leading to **increased through-life costs and risks** in acquisition cycle.
- Verify Eco-design for minimal footprint and Manufacture for both product increased energy efficiency whilst meeting function and supply chain operational requirement and environmental with minimal environmental parameters. footprint Scrutiny & Main Gate | Minimize environmental Assurance of footprint through-life / mid-life sustainability Demonstration Manufacture Initial Gate upgrade metrics Migrate In Service Assessment Sustainability criteria incorporated in capability Disposal Concept refresh Sustainability Terminate criteria and Kev User Requirements (KURs) specified Minimal environmental footprint at disposal recycle and reuse preferred to sending Sustainability criteria to refuse incorporated in Capability Planning and Delivery
- Develop tools which support integration of climate security considerations at appropriate capability development stages and during the development of force mix options for military tasks including training and forward operations.

### Questions at the panel session...