

Presentation given at SGR conference (online); 16 October, 2024 (All references listed in final slides)



[image credit: DoD]



- 'Core' carbon emissions highlighted in bold
- 'Carbon footprint' covers (black) items to the left of dotted line and is comparable with impacts seen in civilian sectors
- 'Carbon bootprint' is broader and also includes the items to the right of dotted line
- Data quality is poor
- For more analysis, see (e.g.) SGR (2020).

[image credits: MOD; Gerd Altmann; Free Photos]



- NATO data estimates for 2023 based on economic and supply chain data (Transnational Institute et al, 2023)
- Ukraine war data for one calendar year from 24 Feb 2022 (de Klerk et al, 2023)
- Lifecycle emissions data from arms industry very likely to be incomplete



- Data from 2019 (i.e. before COVID-19 pandemic and Russian invasion of Ukraine)
- Proxy data includes: number of military personnel; ratio of stationary to mobile emissions
- NB Supply chain multiplier significantly higher than in country-level studies due to discovery of gaps in earlier data
- Source: SGR/CEOBS (2022)



- Graph from: Climate Action Tracker (2022)
- Examples of recent increases in military spending/ expansion Transnational Institute et al (2023)
- Rise of 1% in military spending share of GDP leads to rise in national GHG emissions of around 1%: Marko (2024)

What measures are likely to reduce military & conflict carbon emissions?



[image credit: DoD]



- For data on reductions in emissions due to reduction of war, see earlier example of Ukraine
- The rest of the talk will focus on the other alternatives, which can also help reduce armed conflict

[Image credit: Arek Socha via Pixabay]



- Quotes and info from (e.g.) MOD (2021)
- Title of US DoD report shows the main motivation for energy saving measures from: Lorincz (2015)

Will these	reduce	emissions?

Option	Key obstacles	Timescale	Chance of success by 2040s
Fuel efficiency	Rebound	Ongoing	Limited
Biofuels	Sustainable resource already used; land use/ technical limits	Near term	Very limited/ negative
Synthetic fuels	Immature tech; low conversion efficiency; high costs	Medium term	Limited/ negative
More drones, Al etc	High failure rate; rebound; human rights impacts	Near/ medium term	Limited/ negative
Nuclear power	High radiation risks in battle-space; nuclear proliferation risks; high costs	Near/ medium term	Limited/ negative
Carbon offsets	Major loopholes	Ongoing	Negative
Forestry on military land	Vulnerable to climate impacts	Ongoing	Reversible
Solar/ insulation/ heat pumps at bases	Adaptation to military conditions	Near-term	Significant

- Military tech overlaps with 'hard to abate' civilian sectors: aviation; shipping; heavy-duty road freight; iron & steel; synthetic chemicals
- Any improvements will not reduce environmental impacts of weapons use
- SGR research in this area is ongoing

Reducing 'peace-time' military activities Reducing foreign military bases High carbon emissions due to heavy use of aircraft/ long distances USA has most foreign bases (by far) Few other nations have more than 10 Actual numbers unclear Reducing major military exercises/ long distance patrols NATO: Steadfast Defender; Jan-May 2024 80+ aircraft; 50+ ships; 1,100 combat vehicles; 90,000 soldiers China: near Taiwan; 14 Oct 2024 125 aircraft; 34 ships UK: Carrier Strike Group global voyage; May-Dec 2021 11 ships; 25%+ rise in annual naval fuel use

- High carbon emissions result from foreign bases due to heavy use of aircraft
 - Use as staging posts for 'power projection' (e.g. air attacks, invasion forces)
 - Often in remote locations
 - Resupply often from home nation
- No of US foreign bases: at least 128 (CRS, 2024); possibly 800 (Vine, 2019) definitions vary; some locations classified
- Russia and UK have between 10 and 20 foreign bases (Wikipedia, 2024) again, actual numbers dependent on definition; some locations classified
- Data on military exercises: NATO (2024); BBC (2024)
- UK CSG voyage figure calculated from: Annex D, MOD (2024)
- Reducing nos of foreign military bases/ major military exercises/ long-distance patrols can act as trust-building measures

[Image: Queen Elizabeth aircraft carrier; credit: MOD]

Common security, disarmament & reductions in military spending

- Common security approaches
 - Mutual respect for security considerations of all nations/ groups
 - 'Win-win approach' based on diplomacy, negotiation, mediation etc
 - Bodies include: UN; ICJ; ICC; OSCE
- Arms control & disarmament treaties
- Non-offensive defence strategies
- These improve conditions for reductions in:
 - Numbers/ capability of offensive weapons systems (long-range = high carbon)
 - Military spending (related to GHG emissions)



- In addition to the United Nations, common security bodies include:
 - ICJ International Court of Justice for violations of international law by nations;
 - ICC International Criminal Court for violations of international law by individuals;
 - OSCE Organisation for Security and Co-operation in Europe ran common security initiatives after Cold War
- Non-offensive defence strategies focus on defending national territory while avoid deploying weapons systems that threaten the territory of other nations
- For more discussion, see: Unfold Zero (2022)

[Image: UN flag; credit: UN]



Calculations based on US data from Crawford (2019) and UK data from Parkinson (2023)
 – both of which are analyses of government data



- Huge climate spending shortfall between current levels and those needed to hit 1.5C target
- Private spending on climate action is not shown on graph; private spending on climate action is roughly equal to govt spending at global level
- Shortfall in govt (and private) spending on climate is growing
- Spending data from: SIPRI (2023); Climate Policy Initiative (2023)
- Carbon emissions inequality
 - 'Champagne glass' graph from: Oxfam (2015)
 - Research updated Oxfam (2021) findings very similar; projections, based on existing international policies, show this inequality will persist to at least 2030 – with richest 1% share increasing to 16% of carbon emission by then.



- List only includes governmental and intergovernmental initiatives there is also a fast growing level of civil society activity
- TPNW Treaty on the Prohibition of Nuclear Weapons; agreed in 2017; list of signatory nations: ICAN (2024)
- For more info on Costa Rica, see: UNESCO (2017)

[image credit: Escif - https://www.facebook.com/Escif-116160785113488/]

References (p1)

BBC (2024). China 'punishes' Taiwan president remarks with new drills. October. https://www.bbc.co.uk/news/articles/cvgd4yn45qlo

Climate Action Tracker (2022). https://climateactiontracker.org/publications/massive-gas-expansion-risks-overtaking-positive-climate-policies/

Climate Policy Initiative (2023). Global Landscape of Climate Finance 2023. https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2023/

Congressional Research Service (2024). US Overseas Basing: Background and Issues for Congress. https://crsreports.congress.gov/product/pdf/R/R48123

Crawford N (2019). Pentagon Fuel Use, Climate Change, and the Costs of War. Brown University. https://watson.brown.edu/costsofwar/papers/ClimateChangeandCostofWar

De Klerk et al (2023). Climate damage caused by Russia's war in Ukraine. Initiative on GHG accounting of war. June. https://climatefocus.com/publications/climate-damage-caused-by-russias-war-in-ukraine/

ICAN (2024). TPNW signature and ratification status. https://www.icanw.org/signature_and_ratification_status

Lorincz T (2015). Demilitarization for Deep Decarbonization. Presentation. <u>https://www.sgr.org.uk/events/messages-paris-conference-forgotten-dimensions-climate-change</u>

Marko B (2024). The Green Peace Dividend: the Effects of Militarization on Emissions and the Green Transition. Bocconi University, Italy. https://arxiv.org/html/2408.16419v3

MOD (2021). Climate Change and Sustainability Strategic Approach. March. <u>https://www.gov.uk/government/publications/ministry-of-defence-climate-change-and-sustainability-strategic-approach</u>

MOD (2024). Annual Report and Accounts, 2023-24. https://www.gov.uk/government/collections/mod-annual-reports

References (p2)

NATO (2024). Steadfast Defender 24. https://www.nato.int/cps/en/natohq/222847.htm

Oxfam (2015). Extreme Carbon Inequality. <u>https://policy-practice.oxfam.org/resources/extreme-carbon-inequality-why-the-paris-climate-deal-must-put-the-poorest-lowes-582545/</u>

Oxfam (2021). Carbon inequality in 2030: Per capita consumption emissions and the 1.5°C goal. November. https://www.oxfam.org/en/research/carbon-inequality-2030

Parkinson S (2023). UK military carbon emissions: assessing the latest data. Presentation. https://www.sgr.org.uk/resources/uk-military-carbon-emissions-assessing-latest-data

SGR (2020). The environmental impacts of the UK military sector. Report. <u>https://www.sgr.org.uk/publications/environmental-impacts-uk-military-sector</u>

SGR/CEOBS (2022). Estimating the Military's Global Greenhouse Gas Emissions. Report. https://www.sgr.org.uk/publications/estimating-military-s-global-greenhouse-gas-emissions

SIPRI (2023). Trends in World Military Expenditure, 2022.

https://www.sipri.org/publications/2023/sipri-fact-sheets/trends-world-military-expenditure-2022

Transnational Institute et al (2023). Climate Crossfire: How NATO's 2% military spending targets contribute to climate breakdown. https://www.tni.org/en/publication/climate-crossfire

UNESCO (2017). Abolition of the Army in Costa Rica. https://www.unesco.org/en/memory-world/abolition-army-costa-rica

Unfold Zero (2022). Common Security. https://www.unfoldzero.org/common-security/

Vine D (2019). Lists of U.S. Military Bases Abroad, 1776-2019. American University Digital Research Archive. https://doi.org/10.17606/vfyb-nc07

Wikipedia (2024). List of countries with overseas military bases. https://en.wikipedia.org/wiki/List_of_countries_with_overseas_military_bases