

Military greenhouse gas emissions – *the state of the military reporting gap*

Climate damage of Russia's war in Ukraine and the knowledge gap on conflict and military emissions -
COP28, 4th December 2023

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CEOBS is a UK charity working to increase the protection of people and ecosystems from the impact of armed conflicts and military activities

www.ceobs.org

www.militaryemissions.org

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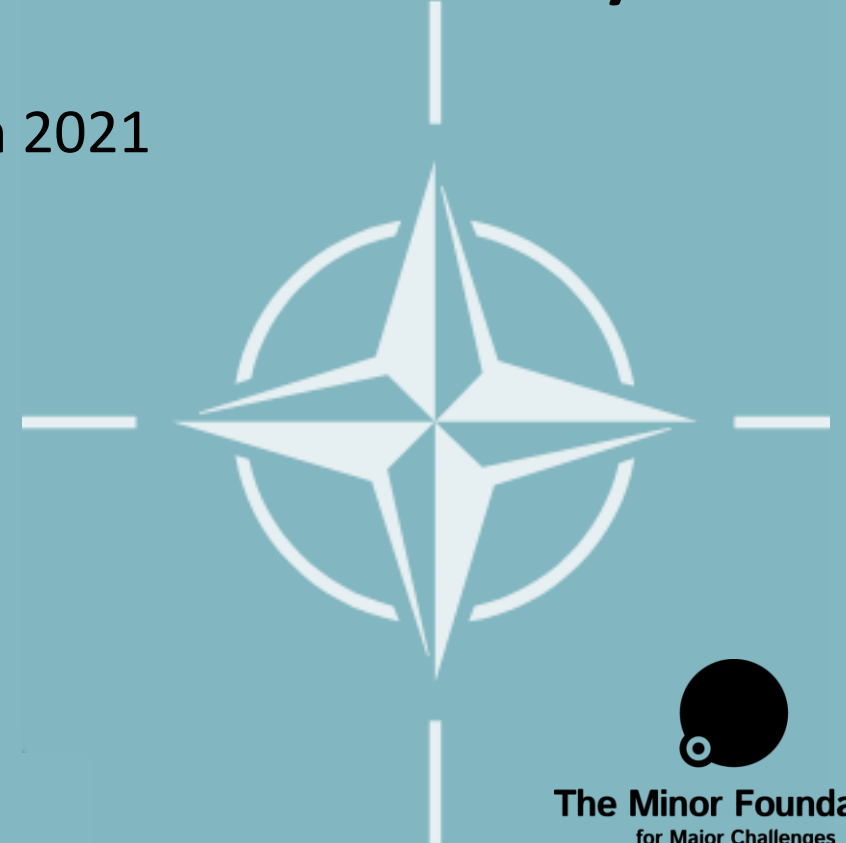
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“There is no way to reach Net Zero without also including emissions from the military”

NATO Secretary General Jens Stoltenberg, COP26 in 2021

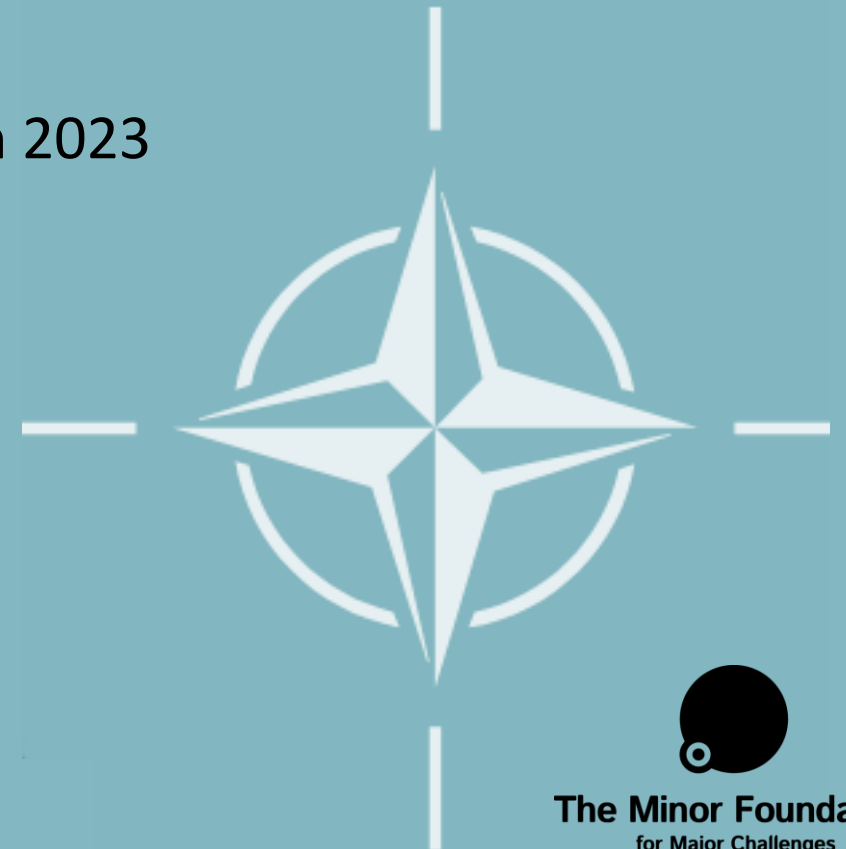


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“ and by 2050, we should be as a net zero in the armed forces.”

NATO Secretary General Jens Stoltenberg, COP28 in 2023



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Why focus on the military?

- They are huge consumers of **fossil fuels**
- We **know relatively little** about their overall impact on global GHG emissions
- This **needs to change**, with improved data, transparency and reporting

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A world map with countries colored in various shades of blue, green, and yellow, representing different levels of military emissions data. The map shows a significant gap in data for many countries, particularly in Africa, South America, and parts of Asia and Europe.

Data ▶ Evidence ▶ Policy ▶ Change

- Review of UNFCCC data submitted
- What is already being reported
- Where are the gaps?
- What is needed?

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Greenhouse Gas Inventory Data - Detailed data by Party [?]

Please select Party, Inventory Year, Category, Gas and Unit.

Annex I

Base year (Convention), 1990 and last year

.....1.A.5 Other (Not specified elsewhere)

Aggregate GHGs

Mt CO₂ equivalent

Query results for — Party: Annex I — Years: Base year (Convention), 1990 and last year — Category: 1.A.5 Other (Not specified elsewhere) — Gas: Aggregate GHGs — Unit: Mt CO₂ equivalent

Category	Base year	1990	Last Inventory Year (2020)
1.A.5 Other (Not specified elsewhere)	551.50	545.08	224.59
1.A.5.a Stationary	486.81	480.44	202.37
1.A.5.b Mobile	64.69	64.63	22.21

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Key points

- Spending up – US\$ 2.42 trillion in 2022
- UNFCCC data submitted in 2023 (2021)
- Annex 1 countries - only 4 reported in line with UNFCCC obligations
- Non Annex 1 countries included those with large military expenditure – e.g. China, India, Saudi Arabia, South Korea, Brazil, Israel

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Annex 1 countries

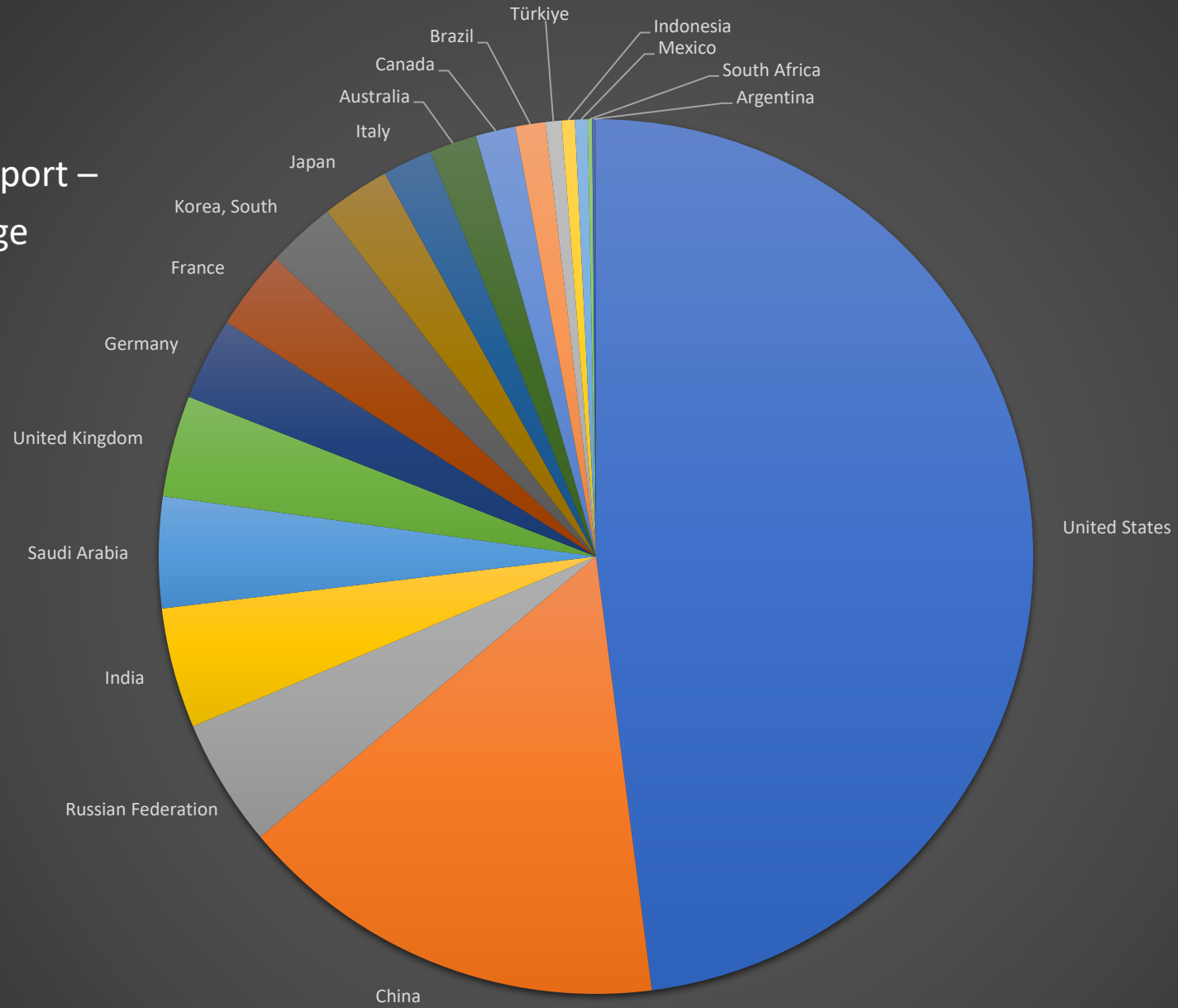
- Few report both
- Several no mobile or other fuel data
- Russia | France | Japan
Turkey | Poland
– US \$202 bn
- Inconsistencies

Australia	Germany	Poland
Austria	Greece	Portugal
Belarus	Hungary	Romania
Belgium	Ireland	Russian Federation
Bulgaria	Italy	Slovakia
Canada	Japan	Slovenia
Croatia	Kazakhstan	Spain
Cyprus	Latvia	Sweden
Czechia	Lithuania	Switzerland
Denmark	Luxembourg	Türkiye
Estonia	Netherlands	Ukraine
Finland	New Zealand	United Kingdom
France	Norway	United States

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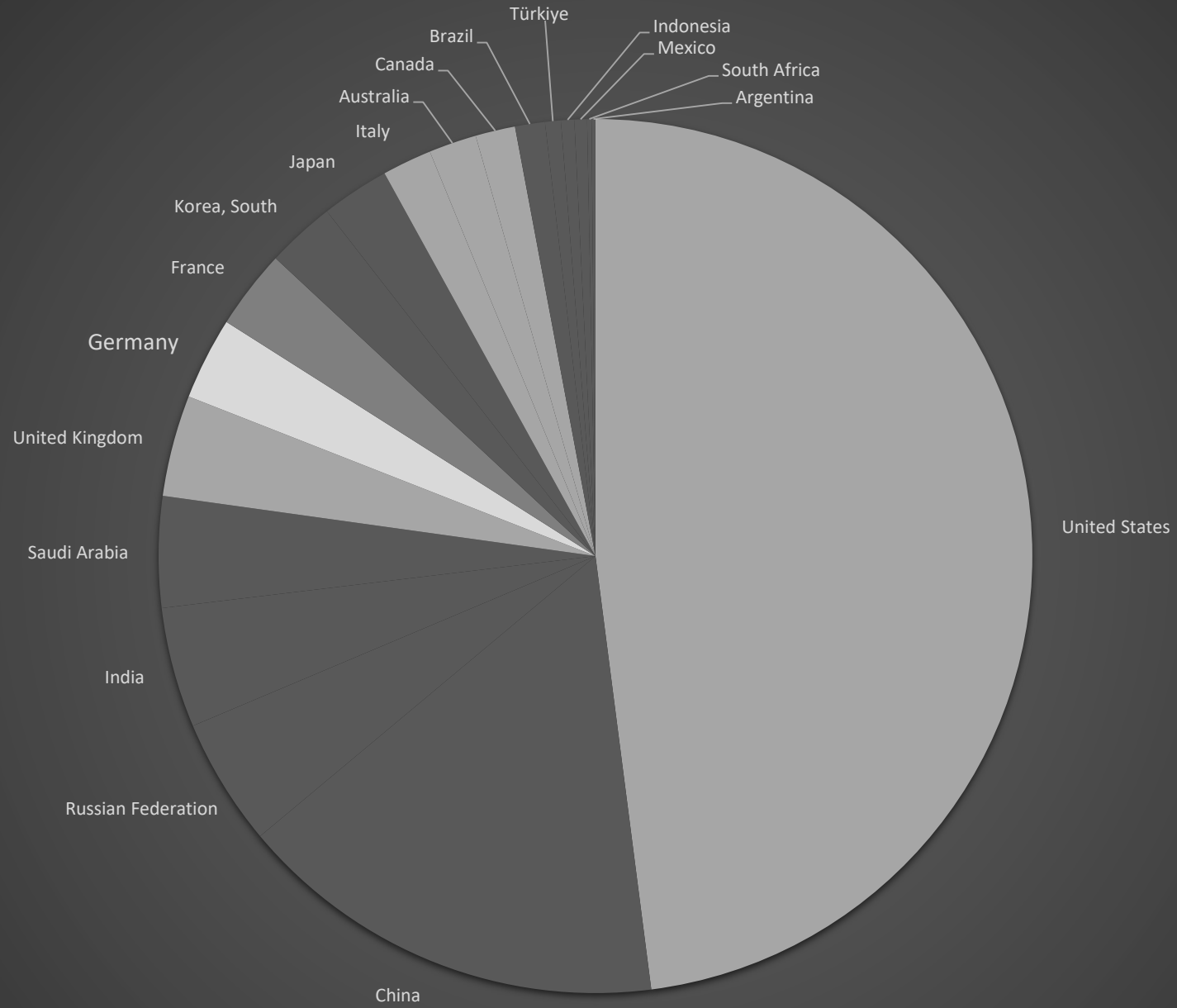
G20 Countries (19)

- UN Emissions Gap report – 80% of climate change attributed to G20 countries
- US\$ 1.83 trillion – military expenditure

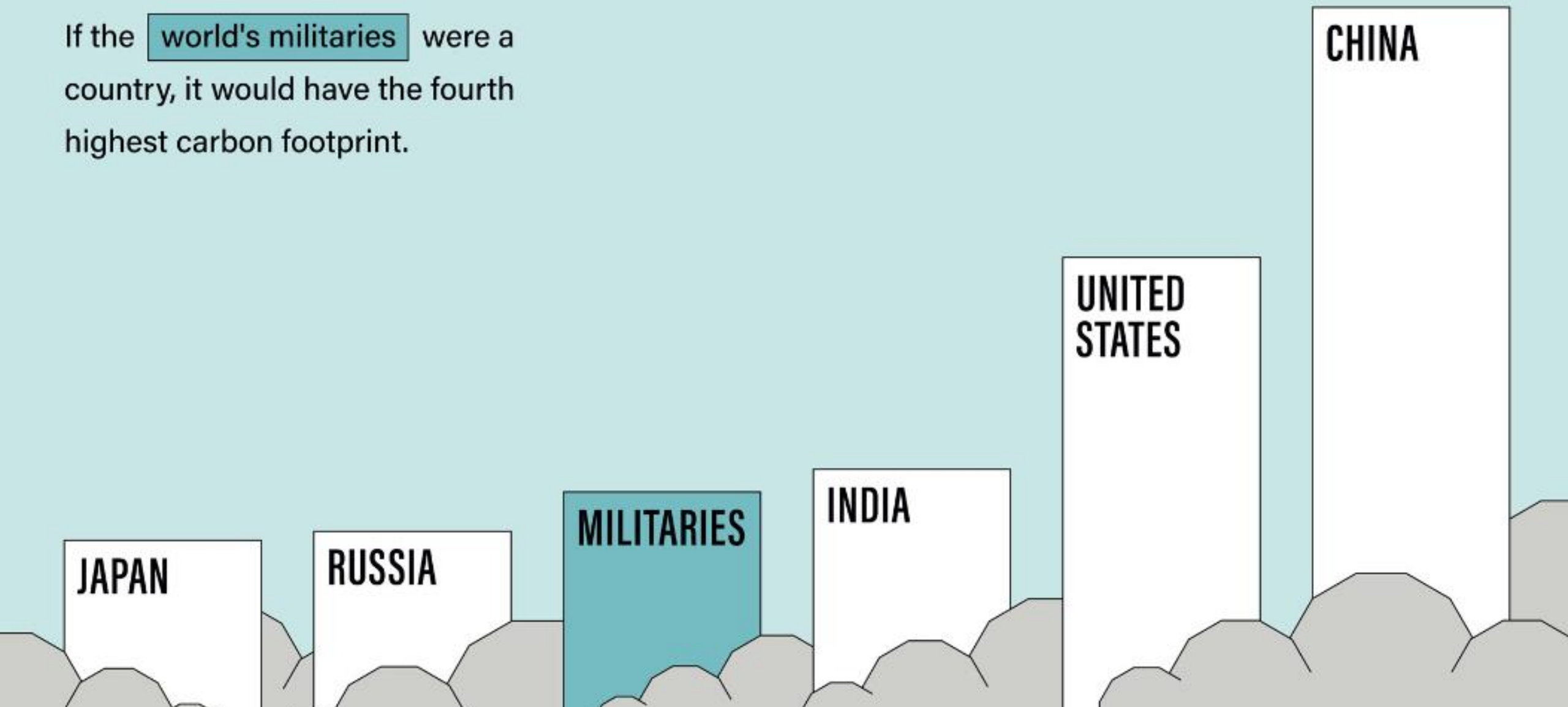


G20 Countries

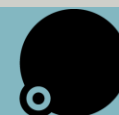
- UNFCCC data – military fuel use
- 3% - data, as requested
- 40% – no data



If the **world's militaries** were a country, it would have the fourth highest carbon footprint.



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In-country reporting

- Disparity – compared to UNFCCC disclosures
- Progress – some form of reporting 28 of 40 Annex 1 countries
- Inconsistencies on scope
- National security ?





GREENHOUSE GASES



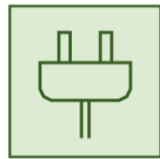
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GHG emissions from military fuel and energy use:

SCOPES	1	2
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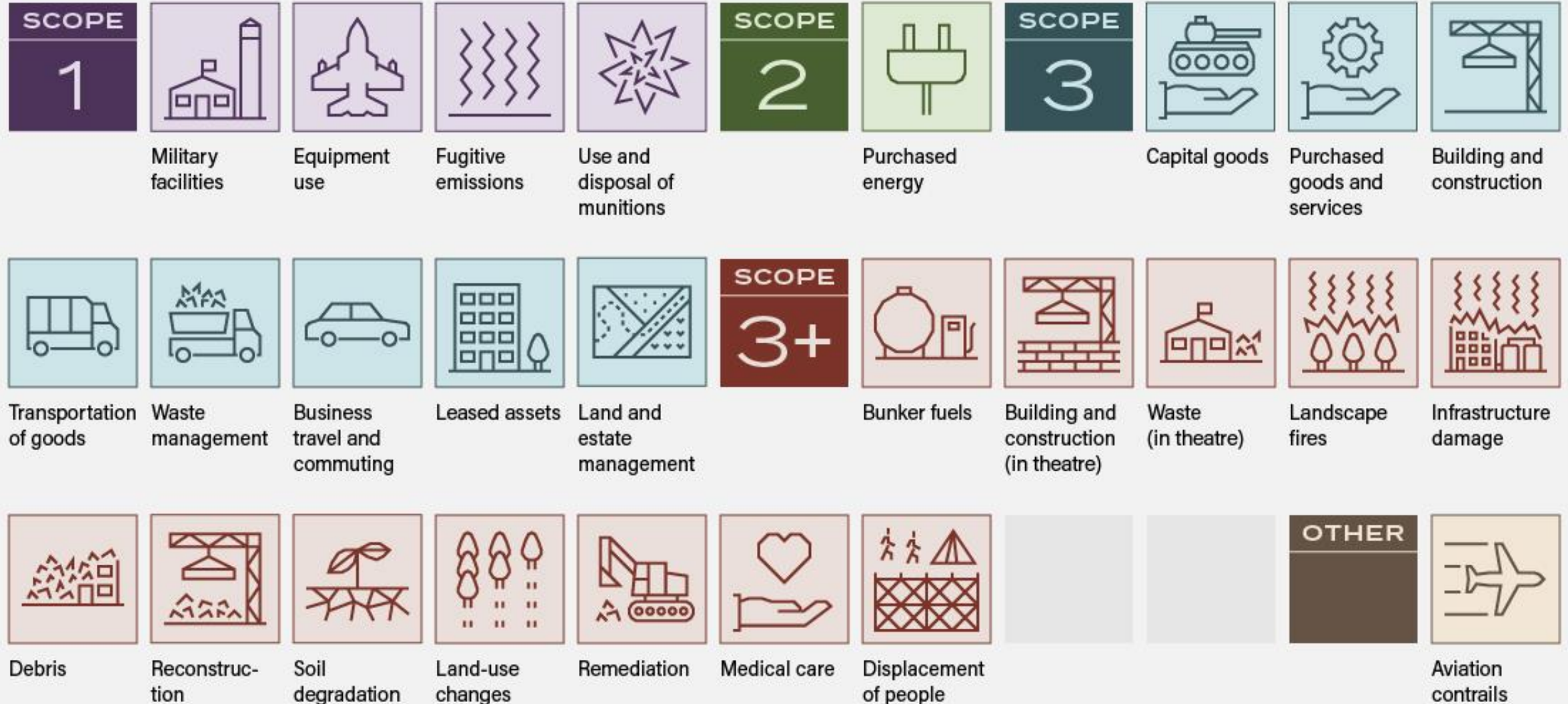
GHG emissions from military supply chain and procurement:

- Waste management
- Telecommunications
- Health and welfare
- Construction
- Logistics
- Facility management
- Military technology, equipment and munitions
- Private security
- Maintenance
- Catering
- Office supplies

SCOPE 3

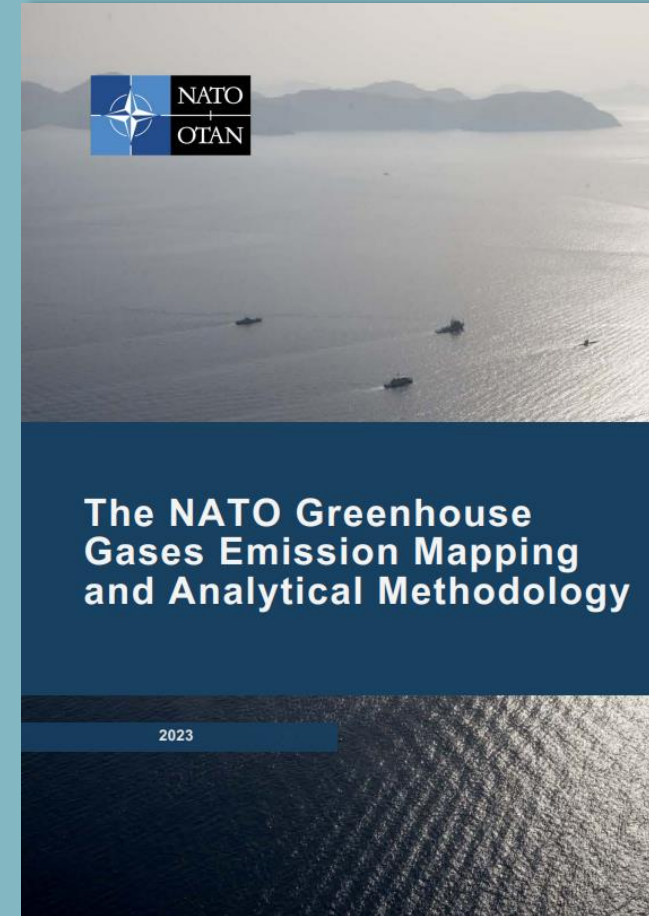


Proposed scopes of military greenhouse gas emissions



NATO - steps already being taken

- Published NATO methodology:
explicitly excludes emissions from NATO-led operations and missions, and other activities such as training and exercises

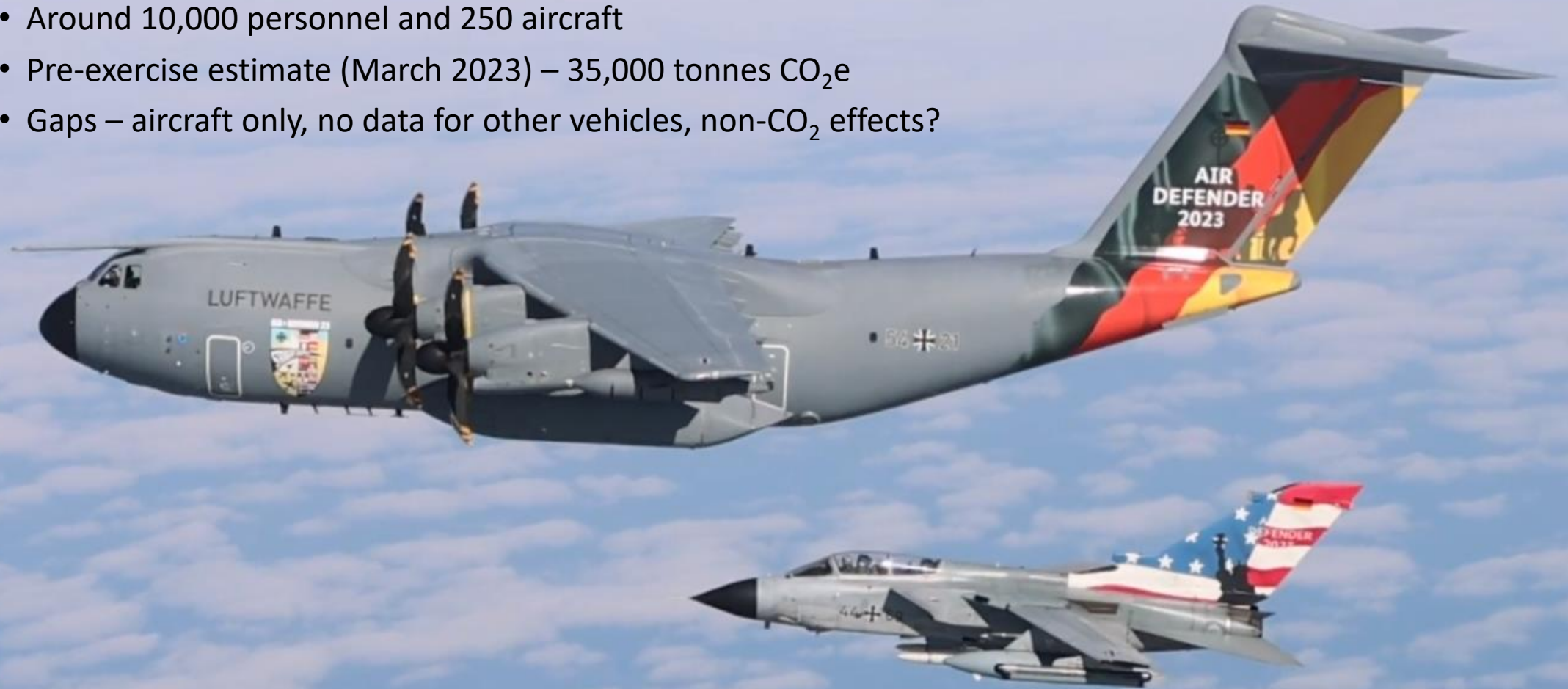


<https://tinyurl.com/4nmde3xe>



NATO's Air Defender exercise, June 2023

- 25 nations, two-weeks
- Around 10,000 personnel and 250 aircraft
- Pre-exercise estimate (March 2023) – 35,000 tonnes CO₂e
- Gaps – aircraft only, no data for other vehicles, non-CO₂ effects?



NATO member	Examples of climate initiatives provided by NATO members				GHG emission data collection/reporting
	Awareness	Adaptation	Mitigation	Outreach	
Canada	●	●	●	●	●
Czechia	●	●	●	●	●
Denmark	●		●		●
Finland		●	●		
France	●	●		●	
Germany	●		●	●	
Greece	●		●	●	
Italy	●	●	●		
Netherlands	●		●		
Norway	●	●	●	●	●
Poland	●	●	●	●	
Portugal	●		●	●	●
Slovakia	●		●	●	●
Slovenia	●	●	●	●	●
Spain	●	●	●	●	
Türkiye	●		●		
UK	●	●	●		
US	●	●	●	●	



<https://tinyurl.com/2c6fs9ab>

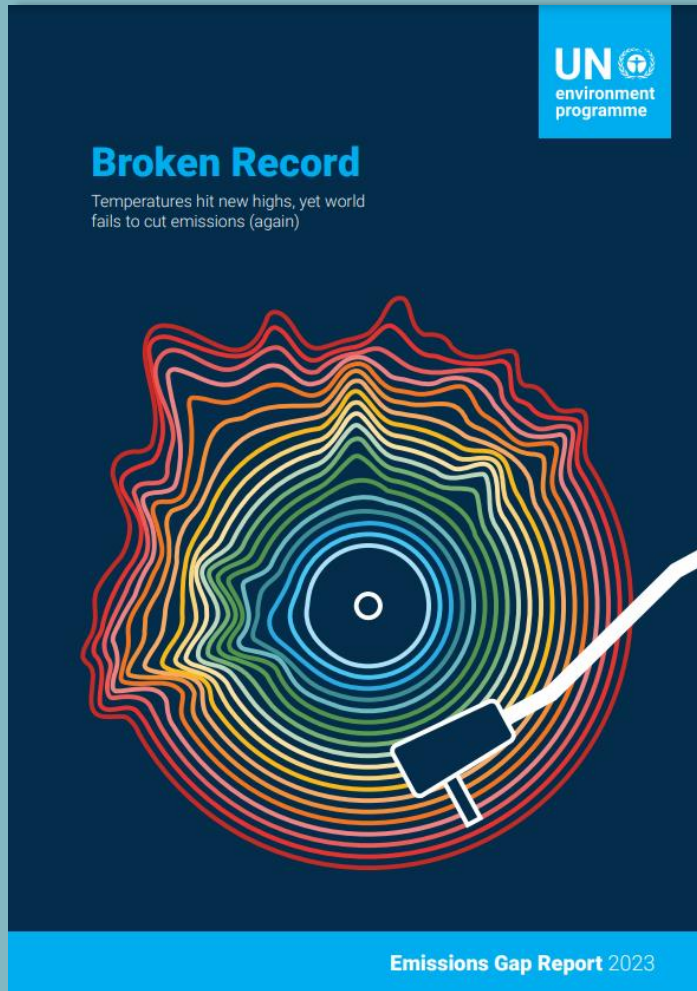
Paths to military GHG mitigation?

Priority ranking



Nationally Determined Contributions (NDCs)

- Successive NDCs need to be ambitious
- Top 20 countries - military GHG reductions not in current NDCs
- In some cases excluded -
e.g. Australia commitment to reduce the emissions of Government agencies to net zero by 2030, excluding defence and security agencies.



Emissions Gap Report 2023: Broken Record

2.2.2 Emissions rebounded across most global sectors following the COVID-19 pandemic

Emissions can be split into five major economic sectors: energy supply, industry, agriculture and LULUCF, transport and buildings. In 2022, energy supply was the largest source of emissions at 20.9 GtCO₂e (36 per cent of the total), which is mainly due to combustion emissions in the power sector (14.8 GtCO₂e) and emissions from fossil fuel production including fugitive methane (6.1 GtCO₂e). The energy supply sector is the largest contributor to the increase in emissions over the past decades, largely due to the worldwide expansion of coal- and gas-fired power generation (International Energy Agency 2023). However, it is also one of the only sectors where some countries have made progress in reducing emissions by switching to lower emission fuels and by scaling up renewable sources.

Industry is the second largest sector when accounting by direct emissions (14.4 GtCO₂e, 25 per cent of the total), followed by agriculture and LULUCF CO₂e (global bookkeeping approach) (10.3 GtCO₂e, 18 per cent), transport (8.1 GtCO₂e, 14 per cent) and buildings (3.8 GtCO₂e, 6.7 per cent). However, if power sector emissions are reallocated to final sectors based on their use of electricity and heat (i.e. indirect emissions, which highlight a demand perspective), then the contribution of the industry and buildings sectors increased significantly (to 34 per cent and 16 per cent, respectively) (Lamb et al. 2021a).

The latest data up to 2022 indicate that most global sectors have fully rebounded from the drop in 2020 emissions, which was induced by COVID-19, and now exceed 2019 levels with little change in the overall composition of sector emissions (Liu et al. 2023). An exception is aviation emissions, which remain at 74 per cent of their 2019 peak of 1.0 GtCO₂e, but are likely to continue to rebound in 2023 as air passenger numbers start to reach pre-pandemic levels (International Air Transport Association 2023).

2.3 Emissions trends of major emitters

2.3.1 Emissions of the G20 members increased in 2022 and accounted for three quarters of the total

Preliminary estimates for 2022 (which exclude LULUCF CO₂e for which data is only available up to 2021) show an increase in GHG emissions compared with 2021 in Indonesia (+10 per cent), India (+5.1 per cent), the United States of America (+1.6 per cent) and China (+0.3 per cent), and a decrease in the European Union (-0.8 per cent), the Russian Federation (-1 per cent) and Brazil (-2.5 per cent). International transport emissions rapidly increased (+11.4 per cent), but remain below pre-pandemic levels. Total emissions of the G20 also increased (+1.2 per cent).

The top seven global emitters remain the same as in 2021: Brazil, China, India, Indonesia, the European Union, the Russian Federation and the United States of America (figure 2.2). Collectively, and with the addition of international transport, these emitters accounted for a total of 33 GtCO₂e in 2021, or 65 per cent of global emissions on a territorial basis, including national inventory-based LULUCF CO₂e. Combined, the G20 accounted for 76 per cent of global emissions. By contrast, least developed countries accounted for 3.8 per cent of global emissions, while small island developing States contributed less than 1 per cent. Generally, global emissions have shifted from high-income to low- and middle-income countries in the past two decades. High-income countries, which include eight members of the G20 (Australia, Canada, the European Union, Japan, Saudi Arabia, the Republic of Korea, the United Kingdom of Great Britain and Northern Ireland and the United States of America) contributed 43 per cent of GHG emissions in 2020, but 28 per cent in 2021. Conversely, low- and middle-income countries, which include 12 members of the G20 (Argentina, Brazil, China, Russian Federation, South Africa, India, Indonesia, Mexico, Nigeria, Pakistan, Philippines, Viet Nam) contributed 27 per cent in 2020 and 69 per cent in 2021.

There is some evidence that the international sanctions following the war in Ukraine have impacted regional economic activity and emissions, with highly uncertain long-term implications (International Energy Agency 2022). Direct emissions from military operations, vehicles and installations are likely non-trivial, but remain insufficiently accounted under UNFCCC reporting conventions, and there is limited evidence in the literature on the scope, composition or trend of these emissions (Rajaeifar et al. 2022). The energy crisis has driven efforts towards increased investments in clean energy policies and phasing out fossil fuels in some countries (Steffen and Patt, 2022). At the same time, some countries have increased investments in fossil fuel extraction, citing energy security concerns (International Energy Agency 2022). There is evidence of a shift in regional energy policies in Europe, which took active steps to diversify energy imports from the Russian Federation (International Energy Agency 2022). Rising costs of energy on fossil fuels could push up poverty, in addition to the hurt from the energy crisis under hardship (Guan et al. 2022). Net LULUCF CO₂e emissions, and land-use change, decreased in 2021, with tropical regions, with Brazil, the Republic of the Congo contributing 58 per cent of the global total in 2021 – albeit with extremely high uncertainties (Friedlingstein et al. 2022). Countries such as these that have a higher contribution from LULUCF CO₂e also tend to experience larger annual fluctuations in GHG emissions due to policy-induced land-use changes, deforestation, wildfires on managed land or shifts towards forest protection (figure 2.2).

There is some evidence that the global energy crisis and the international sanctions following the war in Ukraine have impacted regional economic activity and emissions, with highly uncertain long-term implications (International Energy Agency 2022). Direct emissions from military operations, vehicles and installations are likely non-trivial, but remain insufficiently accounted under UNFCCC reporting conventions, and there is limited evidence in the literature on the scope, composition or trend of these emissions (Rajaeifar et al. 2022). The energy crisis

<https://www.unep.org/resources/emissions-gap-report-2023>

Protection of the environment in relation to armed conflict - PERAC principles



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<https://tinyurl.com/5yzfb57n>



To conclude....

- Robust and transparency data and reporting is critical
- Knowledge of where carbon budgets sit
- Global improvements needed
- Reporting to the UNFCCC and inclusion in the NDCs
- Reduction commitments and target setting needed
- Special IPCC report military and conflict emissions

Thank you

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