

# Extinction Pathway?

**Spiralling military spending is already wrecking lives and the planet. Should we be looking for security elsewhere?**

**Dr Philip Webber**

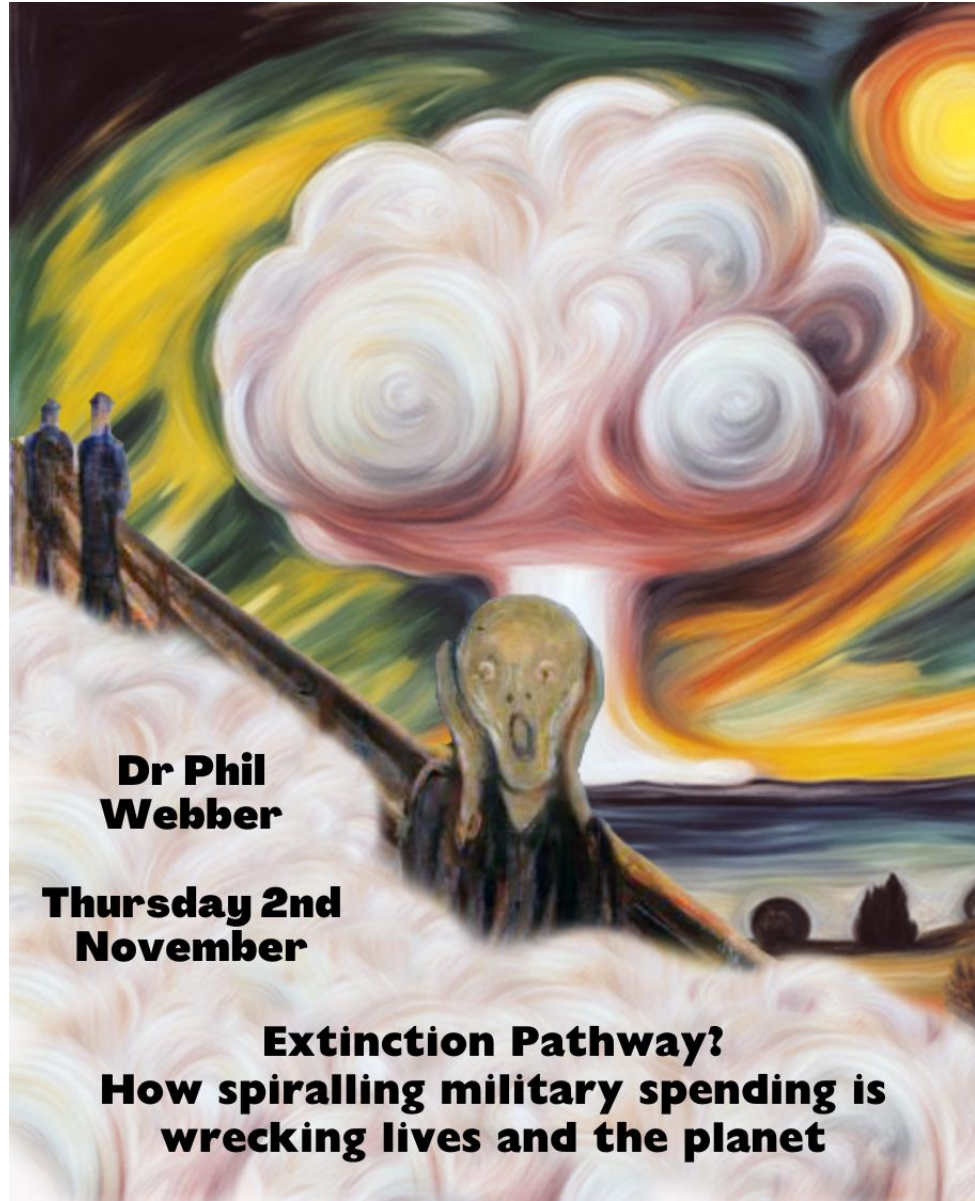


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<https://www.sgr.org.uk/projects/nuclear-weapons-threat-main-outputs>



**Dr Phil  
Webber**

**Thursday 2nd  
November**

**Extinction Pathway?  
How spiralling military spending is  
wrecking lives and the planet**

# 2023 judged to be most dangerous in humanity's history

The Doomsday Clock was invented in 1947 for the *Bulletin of the Atomic Scientists* as a powerful symbol of the likelihood of a human-made global catastrophe caused by nuclear weapons. Nowadays including environmental and technological threats.

For many Cold War years clock set to several minutes before midnight.

**IT IS 90 SECONDS  
TO MIDNIGHT**



# 90 seconds to midnight

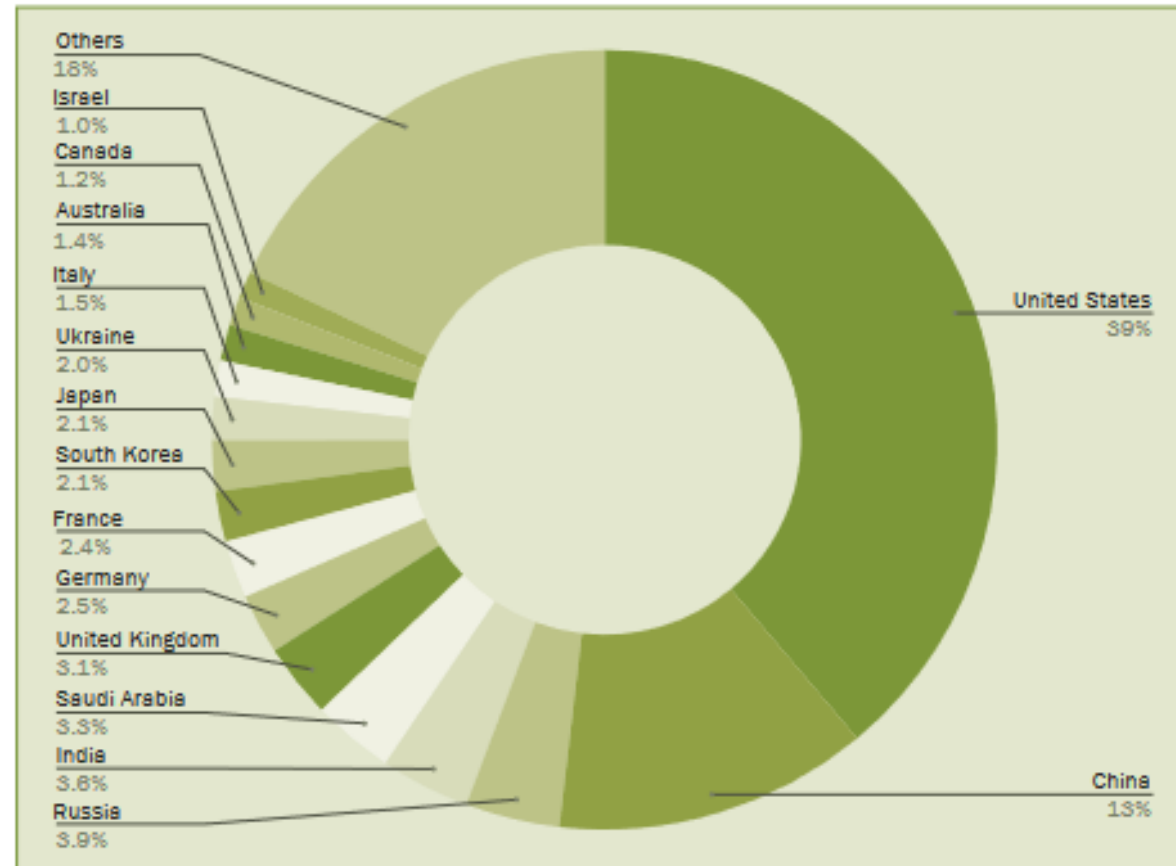
## Reasons ...

- ❑ a new heightened risk of nuclear war;
- ❑ a growing climate emergency;
- ❑ political systems riven with dangerous and deliberate misinformation;
- ❑ continued destruction of the natural world with ideal conditions for the emergence of new dangerous viruses and pathogens such as COVID-19, bird flu, and Ebola;
  - ❑ OR their deliberate creation
- ❑ We're exceeding six of nine planetary survival boundaries

# Global military spending 2022

- ❑ World military expenditure rose 3.7% - reaching record high: **\$2240 billion**.
  - ❑ Global spending grew 19% 2013–22 & has risen every year since 2015.
  - ❑ Russia's invasion of Ukraine major driver of growth in spending 2022.
- ❑ European military expenditure up 13% - largest annual increase post-Cold War.
  - ❑ Mainly increases in Russian and Ukrainian spending.
    - ❑ USA \$877bn 39%
    - ❑ China \$292bn 13%
    - ❑ Russia \$86.4bn 3.9%
    - ❑ India \$81bn 3.6%
    - ❑ Saudi A \$75bn 3.3%
    - ❑ UK \$68.5bn 3.1%
  - ❑ Germany, France \$54bn - 2.5% each

# World military expenditure 2022



**Figure 2.** The share of world military expenditure of the 15 countries with the highest spending in 2022

Source: SIPRI Military Expenditure Database, Apr. 2023.

# Latest UK military expenditure

<b>Core military spending £bn</b>	<i>2021-22</i>	<i>2022-23</i>	<i>2023-24</i>	<i>2024-25</i>
	45.9	53.1	50.9	51.7

## Excluding

**£2.3bn/yr for Ukraine**

Plus £0.5bn more announced July 2023 (and again post-2025)

## **£1.5 – 2bn / yr new nuclear weapon spending up to 2025**

- new nuclear-armed nuclear-powered submarines (Dreadnought/ Trident)
- increased number of warheads 260 up from 140
- conventionally-armed nuclear-powered submarines (Trafalgar, Astute, and AUKUS)

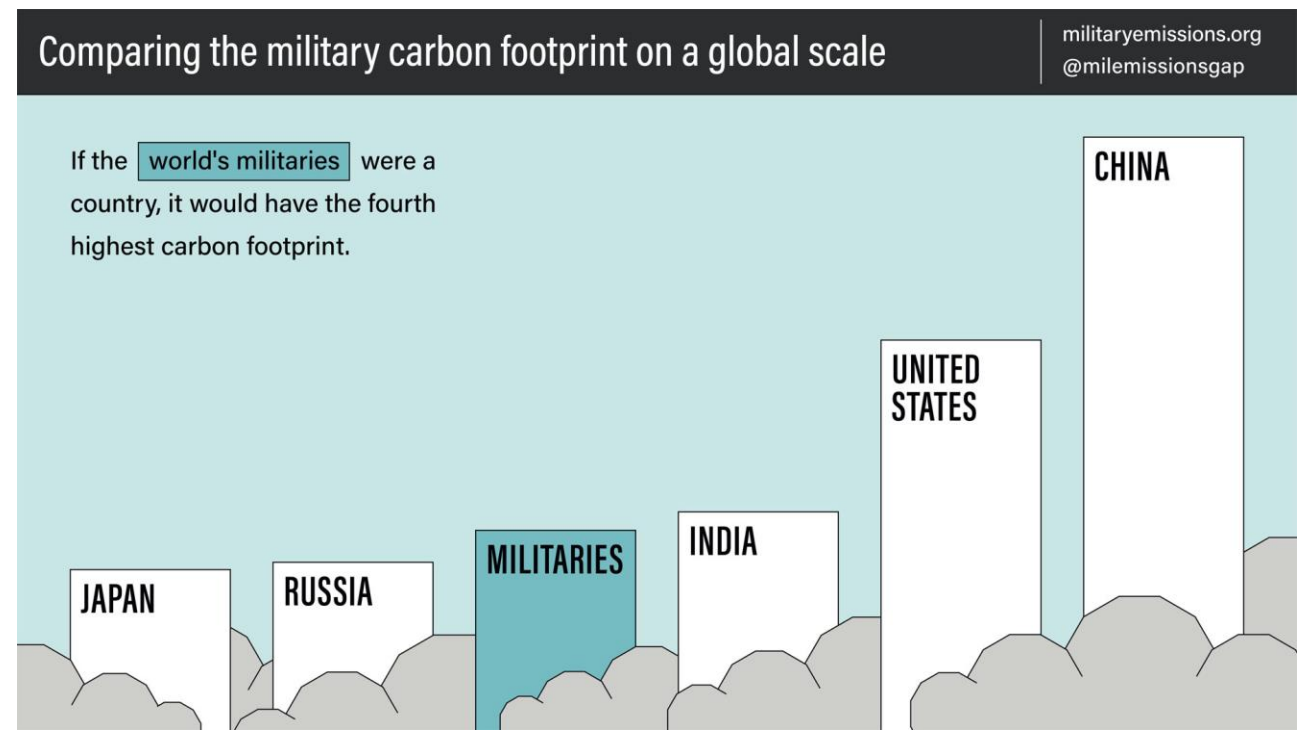
**Core military spending 7-8 times DEFRA (environment/ agriculture), DESNZ (energy/ climate) budgets**

**For comparison: £2.4bn to settle teachers pay; £2.5bn for doctors pay; £3.7bn subsidy for Rosebank**

**Military carbon emissions are huge – see next slide. MOD have no meaningful reductions targets.**

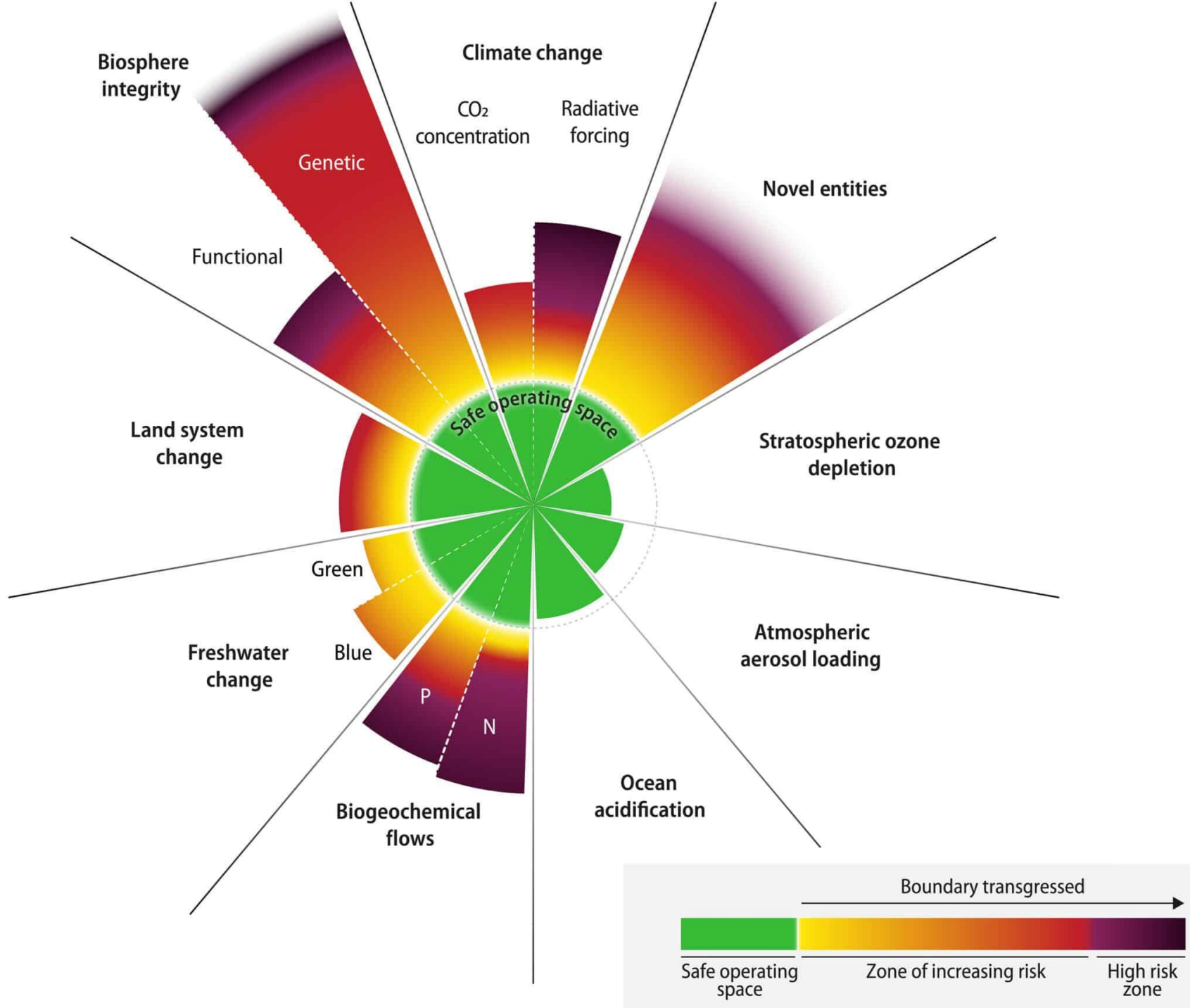
# Global estimate: military carbon footprint

- Global total (best estimate): **2,750 MtCO<sub>2</sub>e/ 5.5%**
- **Larger than Russia's** total carbon footprint
- Uncertainty range
  - 1,600 to 3,500 million tonnes of CO<sub>2</sub>e
  - 3.3% to 7.0% of global GHG emissions





# Damage at a global level



# Climate - broken spending promises

**COP15, Copenhagen 2009, developed countries agreed to mobilise \$100bn / yr by 2020 for climate action in developing countries.**

**A political target – in reality more like \$1000bn / yr required by 2030**

**Less than half of global military spending...**

**But much less than even this weak target found – \$80bn / yr**

**Result: Failure of COP process and erosion of trust.**

# Failure to provide necessary support

Figure 1. Climate finance provided and mobilised in 2013-2020 (USD billion)

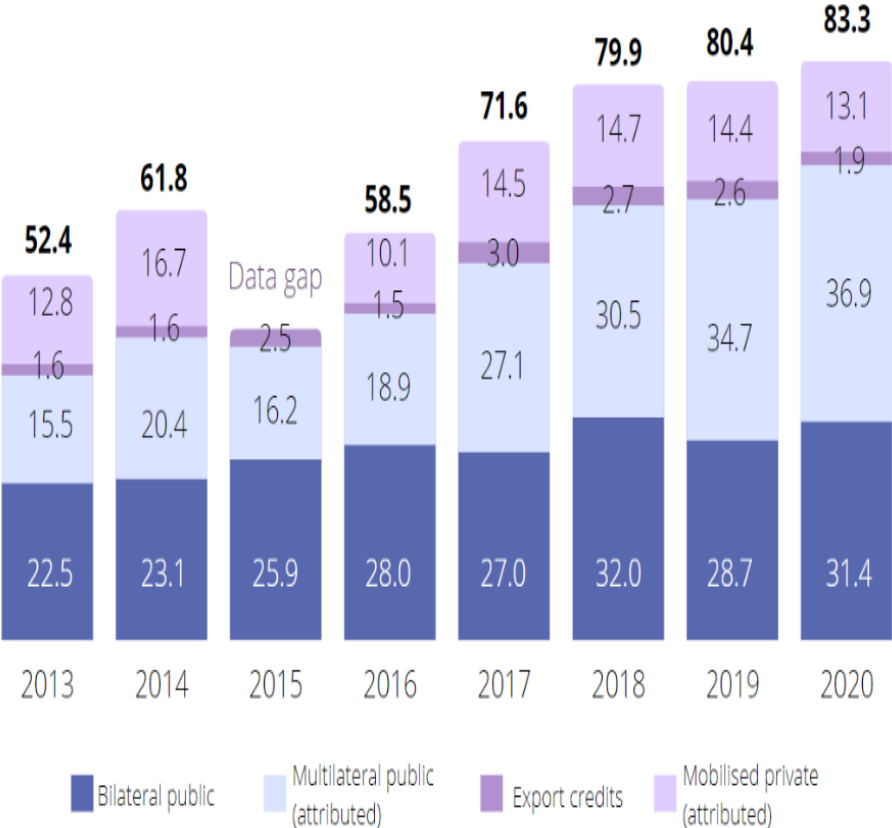
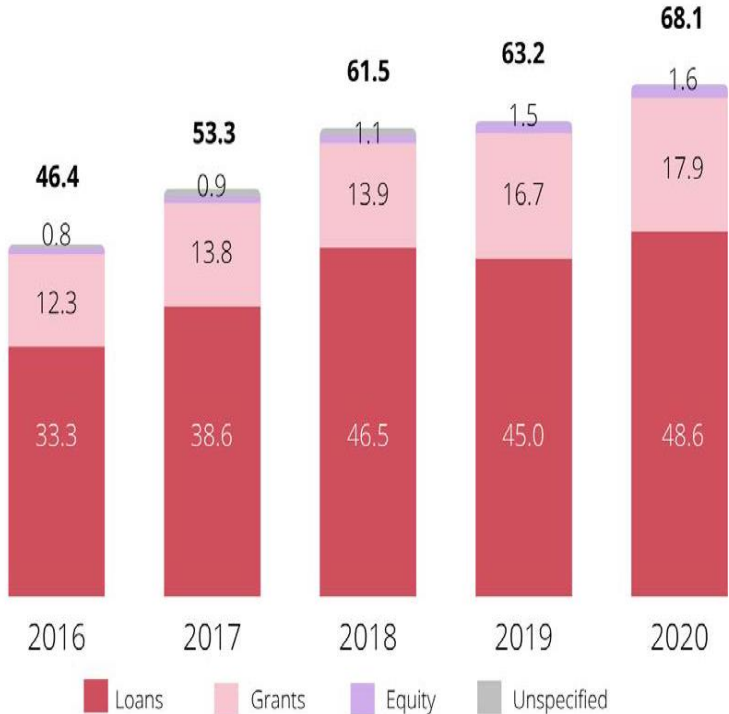
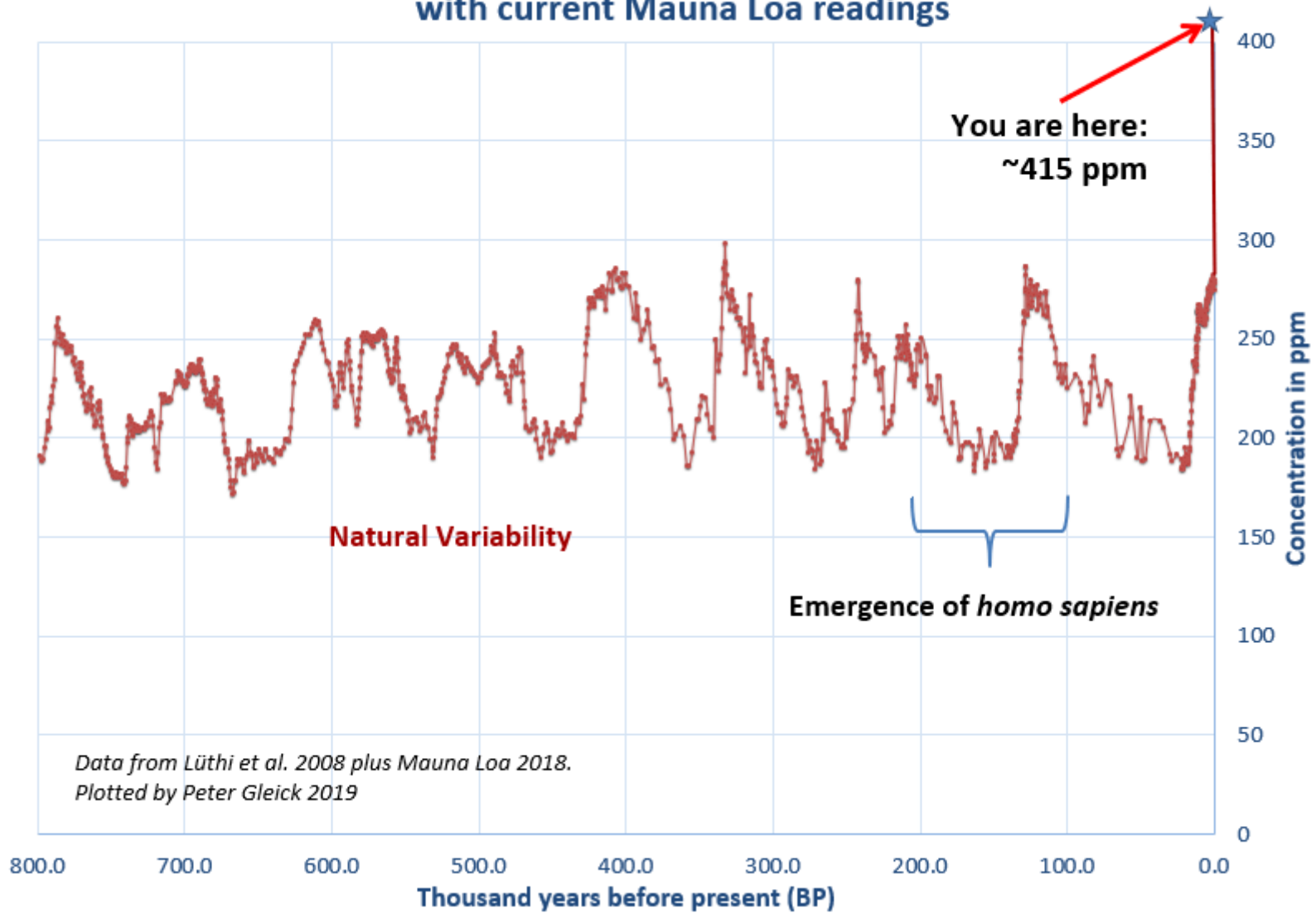


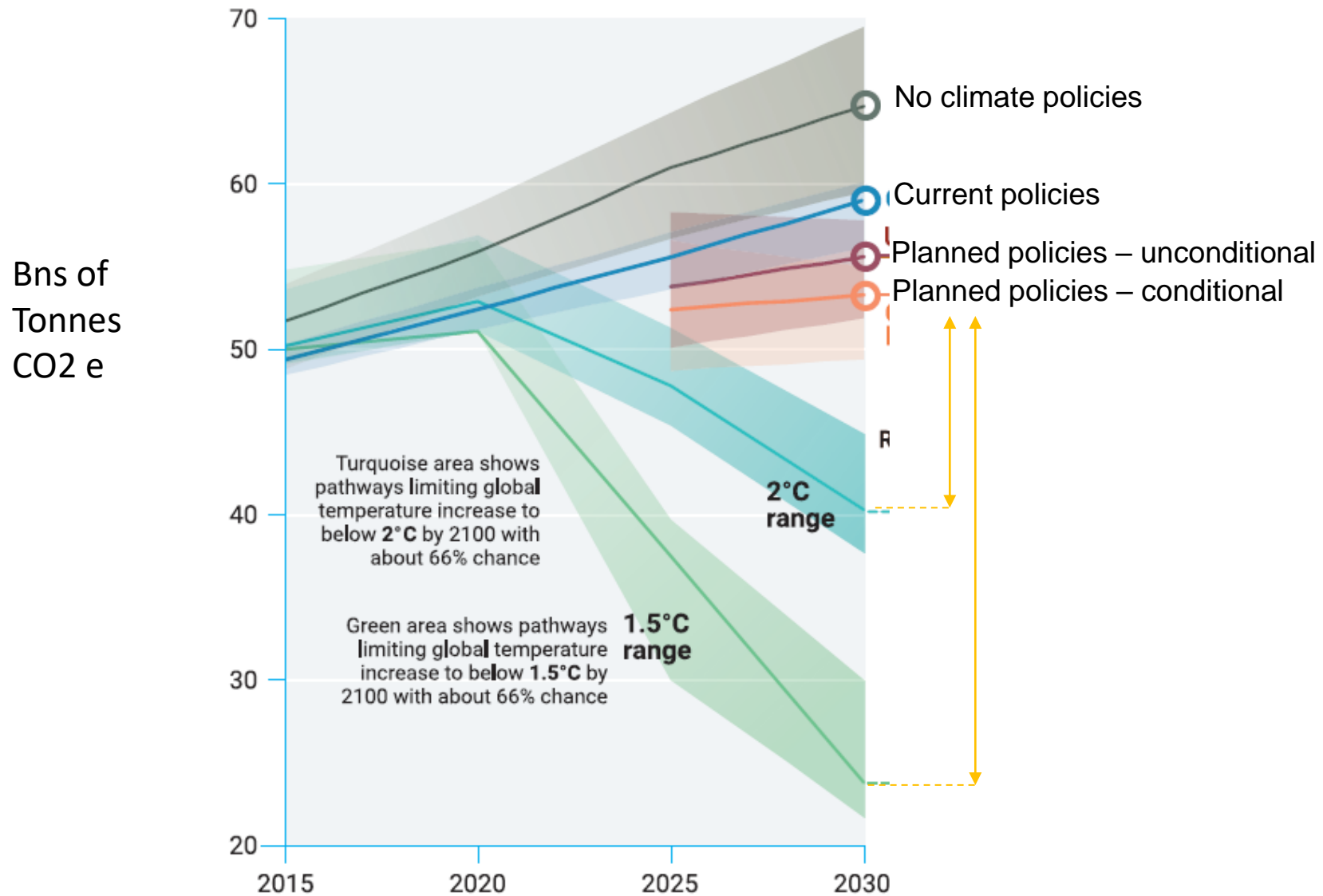
Figure 3. Instrument split of public climate finance in 2016-2020 (USD billion)



### Composite Antarctic CO<sub>2</sub> record (0-800 kyr before present) with current Mauna Loa readings



# Greenhouse gas 'emissions gap'



# Why is a rise of 'only' 2 degrees important?

- It is an **average**
- The average hides greater extremes
- Regional variations
- At the poles temp rises over 4 degrees
  - Disruption of ocean currents
- More energy in the system leads to more extreme events:
  - Drought, fires, floods, intense storms
  - Heatwaves, intense cold periods

# The necessary climate transition is possible

- And we *CAN* afford to do it.
- We cannot afford *NOT* to do it
- Nevertheless, a change of thinking / acting / investment required similar to that in WW2
- – or going to the Moon
  
- An example of the scale of investment required for UK: £100bn over several years
- This would fund a complete upgrade of our housing, transport and farming systems
- thousands of jobs
  
- Less than the cost of HS2 at £106bn, NB Hinkley at £33bn for very costly energy,
- Crossrail £19bn
- UK QE was £445bn - to bail out banks / failed economic system



# Making it happen

- **We have the technology - but not so far the will to use – or understand - it?**
- **For now denialists and fossil fuel lobby write the MSM copy – stenography not journalism.**
- **It is vital that we change this discourse through informed debate and planned action.**
  
- **Just wind & solar could exceed big 2050 UK energy requirements twice over.**
- **Renewables continue to become cheaper as nuclear costs increase**
- **Current government failure to secure new very low cost offshore wind**
- **Or adequately exploit tidal power**
  
- **The economic and energy cost evidence is overwhelming**
- **being ignored because of powerful fossil fuel lobby interests.**

# The nuclear delusion

# The extreme impacts of nuclear weapon use

Designed to be extremely destructive when detonated

❑ One weapon:

- Terrible immediate deaths & injuries: intense heat, blast, fallout
- Destruction equivalent to months of artillery shelling in a few seconds
- Medical facilities overwhelmed. Humanitarian assistance impossible
- 81,000 killed, over 200,000 injured – some fatally
- Equivalent to 6 months of Ukraine war, Gaza casualty rate – but in minutes



Intense bombing of Gaza - 12 October 2023

Borodianka, Ukraine 8 April 2022



# The extreme impacts of nuclear weapon use

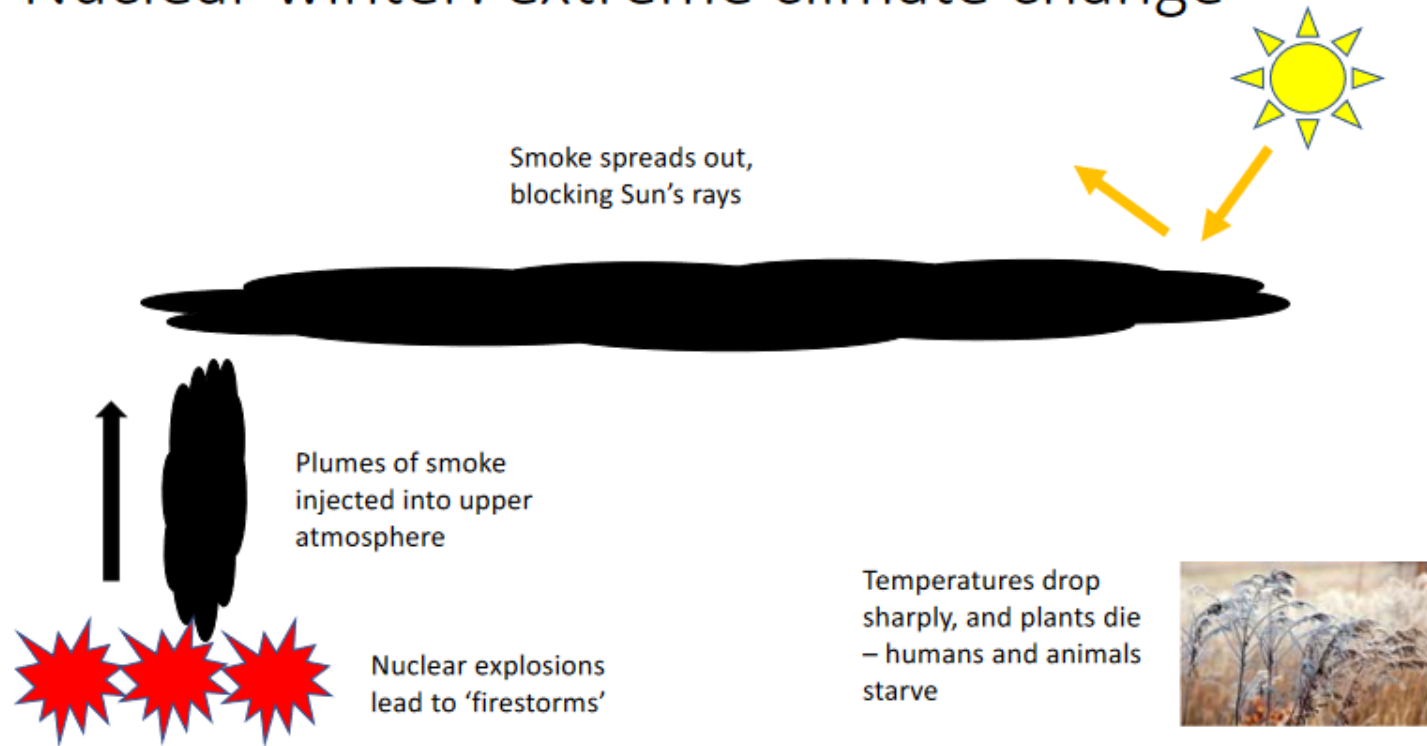
## ❑ Regional nuclear war:

- 100 Hiroshima size weapons - hundreds of millions killed, injured.
- Terrible long-term impacts – 10 year nuclear winter. 2bn+ at risk.

## ❑ Global nuclear war:

- 2000 – 4000 warheads - mainly USA & Russia
- Hundreds of millions to over a billion killed and injured
- Radioactive fallout over large areas - especially from nuclear reactors
- Even worse long term nuclear winter, ozone destruction, ecocide
- 'civilisation' at risk

## Nuclear winter: extreme climate change



- Extreme cooling (rather than heating from carbon emissions)
- Change would be faster and larger than that due to carbon emissions
- Robust evidence for impacts – derived using modern climate models – published in academic journals

*Image credit: Alicja via Pixabay*

# UK nuclear weapons

- ❑ One UK submarine carries at least 40 Trident warheads
- ❑ At least 4 million fatalities and 10 million casualties across 10 or more cities
- ❑ Only 25 warheads would create a 1,300 km<sup>2</sup> fire zone (100x Hiroshima) and 5 million tonnes 'black carbon' leading to catastrophic climate cooling
- ❑ Total explosive power huge - greater than 6 years of bombing during World War II !



# Nuclear deterrence – a delusion

❑ **Proposition:** Nuclear deterrence has been keeping us ‘safe for over 70 years’ or ‘works every day to keep us ‘safe’; ‘nuclear umbrella’

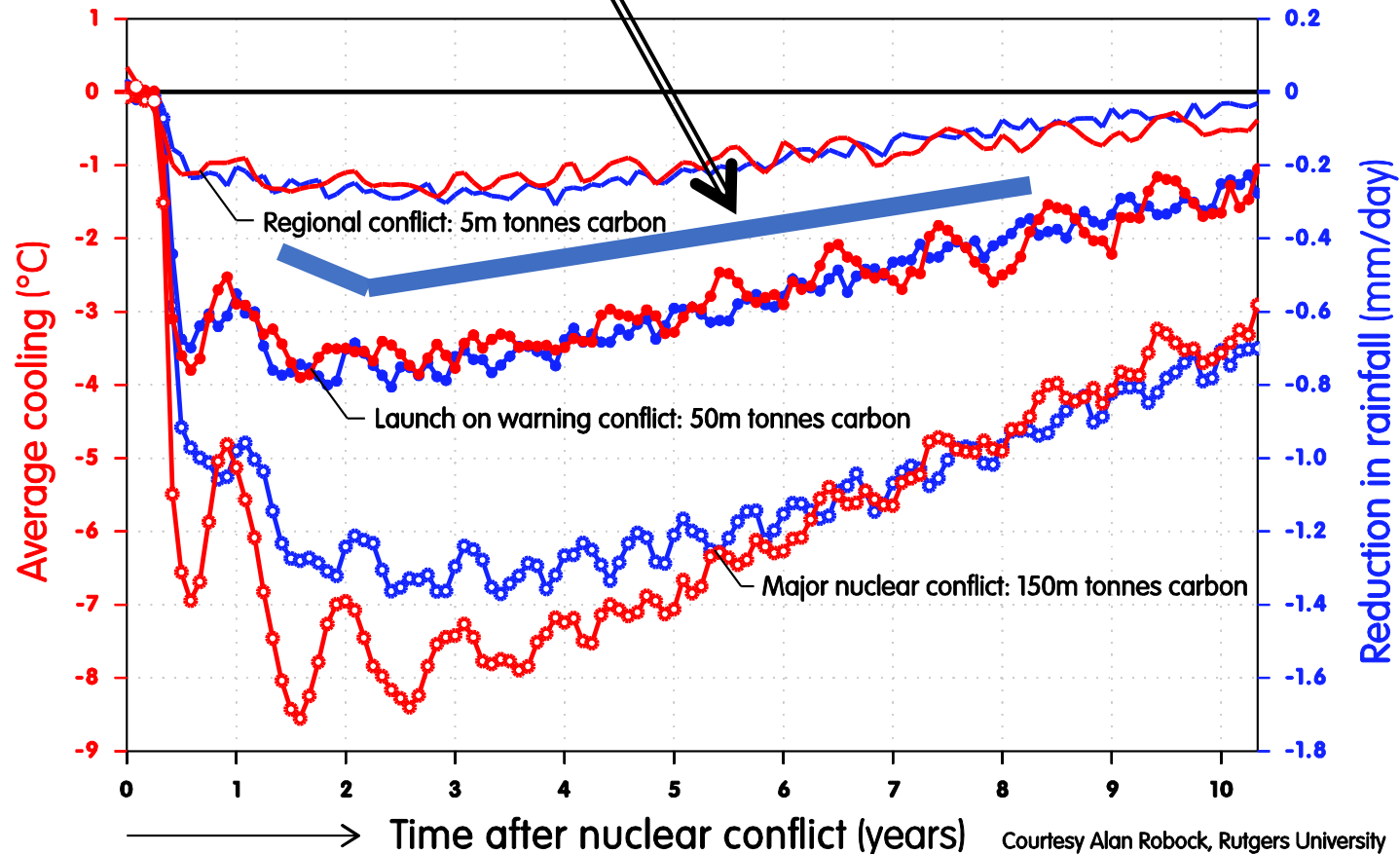
❑ **Rebuttals:**

- Extensive uncompensated impacts from testing and uranium mining
- 20 or more serious nuclear near misses over 70 years: equipment failure, false alarms, most dangerous during military exercises / conflicts. Nuclear threat makes crises *more* risky
- We’ve been lucky – so far
- NW are no ‘umbrella’ – an unstoppable mega death threat
- Ukraine war & Gaza bombardment taking place under this threat



# One Trident salvo !

## Climatic changes caused by nuclear conflict



**L.O.W.  
260 times WWII !!**

# US & Russian nuclear weapons

**Table 1.** Russian nuclear forces, 2016.

Type/name	Russian designation	Launchers	Year deployed	Warheads × yield (kilotons)	Total warheads
<i>Strategic offensive weapons</i>					
ICBMs					
SS18 M6 Satan	RS-20V	46	1988	10 × 500/800 (MIRV)	460
SS-19 M3 Stiletto	RS-18 (UR-100NUTTH)	20	1980	6 × 400 (MIRV)	120
SS25 Sickle	RS-12M (Topol)	90	1988	1 × 800	90 <sup>a</sup>
SS-27 Mod. 1 (mobile)	RS-12M1 (Topol-M)	18	2006	1 × 800?	18
SS-27 Mod. 1 (silo)	RS-12M2 (Topol-M)	60	1997	1 × 800	60
SS-27 Mod. 2 (mobile)	RS-24 (Yars)	63	2010	4 × 100? (MIRV)	252
SS-27 Mod. 2 (silo)	RS-24 (Yars)	10	2014	4 × 100? (MIRV)	40
SS-27 Mod. ? (mobile)	RS-26 (Yars-M)	–	(2016)	3 × 100? (MIRV)	–
SS-27 Mod. ? (rail)	Barguzin	–	?	4 × 100? (MIRV)	–
SS-? "heavy" (silo)	RS-28 (Sarmat)	–	(2020)	10 × 500? (MIRV)	–
Subtotal		307			1040
SLBMs					
SSN18 M1 Stingray	RSM-50	2/32	1978	3 × 50 (MIRV)	96 <sup>b</sup>
SS-N-23 M1	RSM-54 (Sineva)	6/96	2007	4 × 100 (MIRV) <sup>c</sup>	384 <sup>d</sup>
SS-N-32	RSM-56 (Bulava)	3/48	2014	6 × 100 (MIRV)	288
Subtotal		11/176			768 <sup>e</sup>
Bombers/weapons					
Bear-H6	Tu-95 MS6	27	1984	6 × AS-15A ALCMs, bombs	162
Bear-H16	Tu-95 MS16	30	1984	16 × AS-15A ALCMs, bombs	480
Blackjack	Tu-160	13	1987	12 × AS-15B ALCMs or AS-16 SRAMs, bombs	156
Subtotal		70			798 <sup>f</sup>
Subtotal strategic offensive forces					~2600 <sup>g</sup>
<i>Nonstrategic and defensive weapons</i>					
ABM/Air/Coastal defense					
S-300 (SA-10/20) <sup>h</sup>		~1000	1980/2007	1 × low	~400
53T6 Gazelle		68	1986	1 × 10	68 <sup>i</sup>
SSC-1B Sepal		33	1973	1 × 350	~15
Land-based air					
Bombers/fighters (Tu-22M3/Su-24M/Su-34)		~390	1974/2006	ASM, bombs	~570
Ground-based <sup>j</sup>					
Short-range ballistic missiles (SS-21/SS-26)		~140	1981/2005	1 × ?	~140
GLCM		?	n.a.	1 × ?	?
Naval					
Submarines/surface ships/air				SLCM, ASW, SAM, DB, torpedoes	~760
Subtotal nonstrategic and defensive forces					~1950 <sup>k</sup>
Total					~4500 <sup>l</sup>

**Table 1.** The US Nuclear Arsenal, 2016.

TYPE/DESIGNATION	NO	YEAR DEPLOYED	WARHEADS X YIELD (KILOTONS)	DEPLOYED
<b>ICBMs</b>				
LGM-30G Minuteman III				
Mk-12A	200	1979	1 W78 x 335 (MIRV)	200
Mk-21/SERV	240	2006 <sup>1</sup>	1 W87 x 300	240
<b>TOTAL</b>	<b>440</b>			<b>440</b>
<b>SLBMs</b>				
UGM-133A Trident II D5	288 <sup>2</sup>			
Mk-4		1992	4 W76 x 100 (MIRV)	68
Mk-4A		2008	4 W76-1 x 100 (MIRV)	700
Mk-5		1990	4 W88 x 455 (MIRV)	384
<b>TOTAL</b>	<b>288</b>			<b>1,152</b>
<b>Bombers</b>				
B-52H Stratofortress	93/44 <sup>3</sup>	1961	ALCM/W80-1 x 5—150	200
B-2A Spirit	20/16	1994	B61-7/-11, B83-1	100
<b>TOTAL</b>	<b>113/60</b>			<b>300<sup>4</sup></b>
<b>Nonstrategic forces</b>				
B61-3, -4 bombs	n/a	1979	0.3—170	180 <sup>5</sup>
<b>TOTAL</b>				<b>180</b>
<b>TOTAL DEPLOYED</b>				<b>~2,070</b>
<b>RESERVE</b>				<b>~2,598<sup>6</sup></b>
<b>TOTAL STOCKPILE</b>				<b>~4,670</b>

# Nuclear-armed states - a dangerous minority

- Nuclear weapons are deployed by only 9 nations out of 198 nations in the UN
- China, France, Russia, UK, USA, White House January 2022: 'We affirm that a nuclear war cannot be won and must never be fought'. But they continue to build & deploy new nuclear weapons.
- Reneged on the NPT promise in 1968 to reduce nuclear weapons stockpiles & to disarm.
- TPNW signatories have concluded that nuclear deterrence has not and cannot prevent nuclear war but in fact poses an existential risk for all humanity.
- From 2017, the remaining UN nations opened a new nuclear ban treaty – the TPNW - now signed by almost half of the UN. New signatories continue to be added.

# Why do the nuclear states keep unusable and militarily useless nuclear weapons?

- **To deter the other nuclear armed states...**
- **Power. Nuclear weapons confer status and power at the UN. The UN security council is set up with nuclear-armed nations having permanent seats and the power of veto.**
- **Powerful political lobbying utilising some of the extensive finances expended on nuclear weapons and nuclear power.**
- **The deployment of nuclear weapons by the nuclear armed nations - a protection racket.**

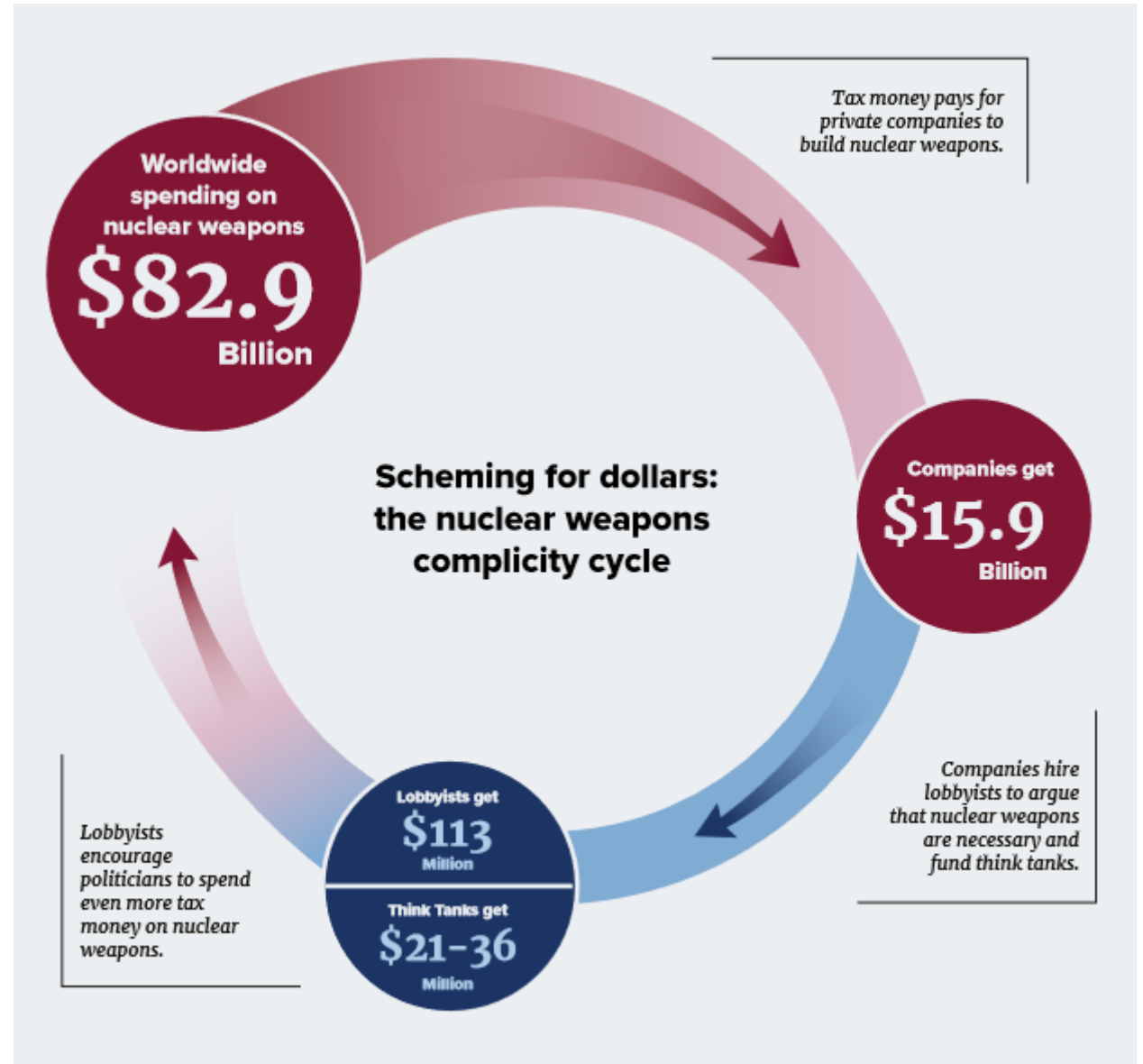
# Military discussion points

- UK military strategy now more nuclear weapon focused – breaching NPT
- Large increases in military spending over and above inflation – beyond arbitrary 2% GDP NATO ‘target’
- Only 2 out of 4 nuclear Vanguard subs working - 6 month undersea nuclear patrols – serious problems
  - Preparations for return of US nuclear weapons (B61-B drop bombs) to Lakenheath  
USAF ‘surety’ staffing planned for 2024
- so-called ‘tactical’ nuclear weapons in Europe & Belarus dangerous and at the same time useless militarily
  - Negotiation and peace is MUCH cheaper than war – it is also effective
- Multiple failures of militaristic policies: refusal to call even for ceasefire in Gaza (or Ukraine)
  - No discussion of Yemen, wars across Africa: Sudan, Ethiopia

# The Core Problem: deeply corrupt decision-making

Similar cycle applies to  
climate inaction via fossil-  
fuel subsidies / profit taking

From 2023 ICAN report: *Wasted: 2022  
nuclear weapon spending*





# Peak militarism – a suicidal risk for humanity

- **Out of control militarism – huge global arsenals**
- **Terrible ongoing atrocities of militarism in Gaza, Ukraine, Yemen, across Africa**
- **War doesn't solve anything and the end result is worse – eg Afghanistan, Iraq**
- **China, France, Russia, UK, USA, White House January 2022: 'We affirm that a nuclear war cannot be won and must never be fought'. But they continue to build & deploy new nuclear weapons.**
- **Extensive fossil-fuel / arms lobbying and 'think-tanks' funded to misinform**
- **The public are way ahead of our political leaders – we must work even harder to mobilise resistance to our extinction.**
- **Better active today than radioactive tomorrow - or on a burning earth**

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