



People in Syria watch a US military vehicle.

# Redirect military budgets to climate and pandemics

Denise Garcia

Governments should stop spending billions of dollars on weapons and protect citizens from the real threats they face.

**D**espite threats to human existence from climate change, biodiversity loss and a pandemic that's devastating economies and paralyzing societies, countries still spend recklessly on destructive weapons for wars they will never fight.

As an academic who advises the United Nations on arms control and the military uses of artificial intelligence (AI) and robotics, I have long argued that nations should prioritize 'human security for the common good' over military spending<sup>1,2</sup>. That means ensuring people can live to their full potential – economically fulfilled, politically enfranchised, in healthy environments and free from the fear of violence and pressing mortal threats such as climate change or pandemics.

Such calls are not new. Spending security budgets on pandemic preparedness was mooted after the outbreaks of severe acute respiratory syndrome (SARS) and Zika virus, for

example<sup>3</sup>. Now, the sheer scale of the COVID-19 pandemic against a backdrop of rising violence – both of which have long been predicted – makes the case for action more urgent.

The old world order, in which governments build arsenals to protect the state, is clearly not delivering what people need. According to the Global Peace Index<sup>4</sup>, levels of peace have fallen by 2.5% since 2008. The index measures 23 indicators – including military expenditure and ease of access to small weapons – in 163 independent states and territories, ranking them according to their level of peacefulness. The drop in peace levels is despite an increase in military spending globally, to a record US\$1.9 trillion in 2019 (ref. 5).

Cross-border invasions and civil wars are in decline, but political instability and unrest is rising across many regions, including North and South America, Africa and Asia. In the past decade, the number of riots and anti-government demonstrations has more than doubled globally<sup>4</sup>. More than 96 of the world's countries recorded a violent demonstration in 2019 as citizens protested against racial injustice, police brutality, corruption and economic decline<sup>4</sup>. Weapons don't get at the root causes of instability – poor governance, lack of food, few jobs, poor education provision and threats to safety. The might of the military does not make the world more peaceful.

Change is possible. UN secretary-general António Guterres sees "an enormous movement

## Comment

of solidarity” around the world in facing down the pandemic. Amid rising nationalism, alliances are building to distribute vaccines in low- and middle-income countries. For example, the European Commission, Canada, Australia and the United Kingdom are among those contributing funding to the Coalition for Epidemic Preparedness Innovations (CEPI), which works to develop vaccines to stop future epidemics. The alliance was set up in 2017 by the governments of Norway and India, the Bill & Melinda Gates Foundation in Seattle, Washington, the UK biomedical charity Wellcome and the World Economic Forum after the 2014–16 Ebola epidemic in West Africa. The Ebola outbreak killed more than 11,000 people and had an economic and social cost of more than \$53 billion. CEPI is part of an \$18-billion programme with the World Health Organization and Gavi, the Vaccine Alliance, that aims to deliver 2 billion doses of COVID-19 vaccines by the end of next year.

This year must represent a turning point for national security budgets. Governments need to accept that their concept of national security sustained by a military–industrial complex is anachronistic and irrelevant. To recover from the costs of the pandemic, estimated at up to \$82 trillion over the next 5 years (see [go.nature.com/2q5jtyf](https://go.nature.com/2q5jtyf)), they should instead focus their spending on stimulus packages for decarbonization, health, education and the environment. National security budgets should be ploughed into realizing the UN Sustainable Development Goals (SDGs) and the 2015 Paris agreement to avert dangerous climate change. Ratifying the Arms Trade Treaty – whose member parties met virtually last week – should be a first step.

### Costly distractions

The arms trade is lucrative: sales by the world's leading arms-producing companies reached \$420 billion in 2018 (ref. 6). These weapons circulate for decades. Everything from small arms, tanks and aircraft to military goods and services are sold in legal and illegal markets. They end up on the streets and in the hands of militant organizations such as Al-Qaeda. The result? Some 464,000 people died in 2017 through homicides, and 89,000 individuals died in armed conflicts globally (2017 is the latest year for which data are available)<sup>7</sup>.

These damages caused a loss of nearly 11% of global economic activity in 2019, or almost \$2,000 per person, totalling \$14.5 trillion<sup>4</sup> (see ‘Price of conflict’). This includes losses of jobs and gross domestic product (GDP), decreased productivity and all the expenses of law enforcement, justice systems and incarceration, terrorism, homicides, other violent crime, internal security expenditure and the fear of insecurity throughout society.

Where there is insecurity, economies cannot flourish. Least-developed countries with high levels of violence suffer the most, such



NICOLAS ASFOUR/AFP/GETTY

Paramilitary police in Beijing wearing face masks to slow the spread of the coronavirus.

as El Salvador, Somalia and Yemen. Countries experiencing armed conflicts, including Syria, South Sudan and Afghanistan, lost up to 60% of their GDP in 2019 (ref. 4). Ultimately, military expenditure is responsible for 40.5% of the economic impact of violence<sup>4</sup>. Yet, last year, 81 countries increased the percentage of their GDP that goes into military budgets<sup>4</sup>.

The world simply can't afford such losses, especially as we recover from a pandemic that will cost the lives of millions of people, bringing untold suffering to millions more globally. Indeed, the price of ensuring human security is less than paying for armies: it would cost 1% of global GDP per year to implement the 2015 Paris climate agreement<sup>8</sup>, and 5% of global GDP each year across many sectors to implement

the SDGs by 2030 (see [go.nature.com/2yjp1wn](https://go.nature.com/2yjp1wn) and ‘Wrong priorities’).

The real enemy is upon us. The frequency of heatwaves, droughts, forest fires, floods and hurricanes has quadrupled over the past four decades, and is rising. By 2050, almost 100 million people could be forced to migrate from coastal areas and other places that will become uninhabitable as a result of climate change (see [go.nature.com/3agzsjj](https://go.nature.com/3agzsjj)). In 2019, fires in the Amazon rainforest raged towards the ‘point of no return’ at which the whole forest ecosystem could collapse<sup>9</sup>. The Amazon is the largest reservoir of biodiversity on Earth; in economic and social terms, from food to jobs, homes and health, its loss has been put at about \$3.6 trillion<sup>10</sup>. Biodiversity loss also exposes people to new viruses<sup>11</sup>.

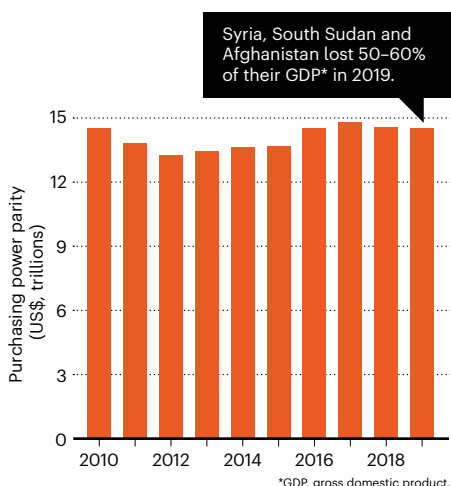
Big armies haven't helped countries to fight COVID-19 – precisely the opposite. The five countries with the largest defence budgets were unprepared and were hit hard. The United States, China, India, Russia and Saudi Arabia together accounted for almost two-thirds (62%) of global military expenditure in 2019, and US, Indian and Russian rates of infection are some of the highest so far, with the United States topping both lists.

The deluded US defence strategy is evident in the government's request for \$740.5 billion (or 3.4% of GDP) for national security in its February budget proposal, for the fiscal year 2021. This included \$28.9 billion to modernize the nuclear arsenal, but nothing to combat climate change or pandemics, even as the SARS-CoV-2 virus was spreading.

For comparison, Saudi Arabia spends 8% of GDP on national defence, whereas Germany

### PRICE OF CONFLICT

Wars have pushed up the global economic cost of violence to US\$14.5 trillion in 2019.





and New Zealand spend around 1% of GDP. These latter two countries have so far fared much better in the pandemic.

Some nations, including Iceland and Costa Rica, don't even have armies. This year, Costa Rica became one of the first countries to have stopped and then reversed deforestation, with a goal of becoming carbon neutral; it is also one of the first to adopt a tropical carbon tax<sup>12</sup>.

## Mismatched priorities

Future military priorities are even further away from those of the people. As the planet heats, the United States, China, Russia, France and the United Kingdom are among countries developing AI-enhanced weapons that can search, track, target and potentially kill under the control of algorithms, not humans<sup>13</sup>. The United States committed \$2 billion in 2018 to develop the next wave of AI technology by 2023. As a member of the International Panel on the Regulation of Autonomous Weapons since 2017, I have testified in UN discussions that raised the alarm over these issues. Cyber and space warfare are other worrying areas. Only last month, Russia tested a space weapon capable of destroying satellites, according to US and UK reports.

Many scientists are standing up to military uses of AI. In April 2018, more than 3,000 technology workers at Google wrote a letter to the company's leaders stating that it "should not be in the business of war". They objected to Google's project with the US defence department, codenamed Maven, to use AI-enabled facial recognition to enhance the operations of armed drones, and asked for the project to be cancelled. They succeeded. In late May 2018, Google pulled out of the contract (see [go.nature.com/2fapvtr](http://go.nature.com/2fapvtr)).

Their campaign was backed by many others, including the Tech Workers Coalition, the Campaign to Stop Killer Robots and the International Committee for Robot Arms Control (of which I am a vice-chair); an open letter gathered more than 1,000 signatures (see [go.nature.com/348wrgn](http://go.nature.com/348wrgn)).

A range of tactics has been used to protest against military uses of AI – including the 2017 release of a short film, *Slaughterbots*, by leading AI scholar and computer engineer Stuart Russell at the University of California, Berkeley. The dramatization, which he launched at a UN panel meeting on robot arms, depicts mini-swarms of autonomous killer robots searching for and killing groups of young people who hold politically combative views. I was on the panel: the impact was palpable.

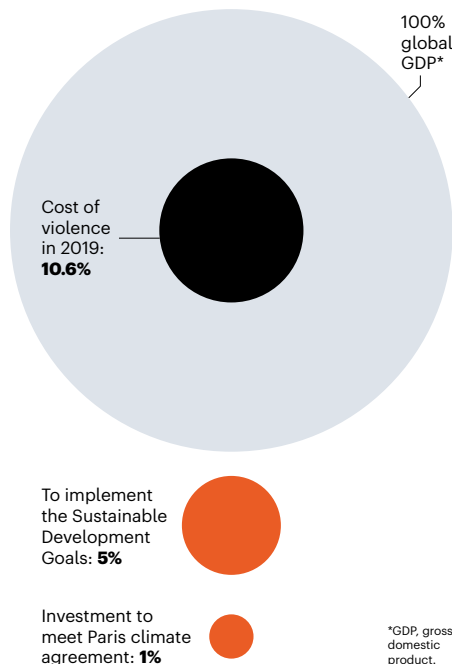
## Four priorities

The following steps must be taken urgently to steer the world towards a safer course.

First, stop new arms races. The world is already awash with weapons. At the next UN meeting on AI uses in war, countries need to

## WRONG PRIORITIES

Protecting the climate and people's well-being costs less than perpetuating violence.



commit to a legally binding treaty setting limits and establishing human control as the basis. (The meeting was delayed because of COVID-19, but is due to be held in Geneva, Switzerland, in November.) They have been talking about this since 2014; it is past time to act. Most countries that don't have a military AI programme want one. But it is in every nation's interest to commit to a treaty that levels the playing field and prevents AI weapons being developed and used by terrorists and armed insurgents. The vast potential of AI to be used for the common good of humanity should not be weaponized.

Second, abide by the Arms Trade Treaty. This international convention, which entered into force in 2014, is the first to set rules for international arms transfers that abide by human rights and the law of war, to prevent genocide and other atrocities. Its 110 member parties met virtually last week in Geneva. China has just ratified the treaty – a crucial inclusion, given that it is a major arms player. Another 31 countries that have signed but have yet to ratify the treaty – including the United States – must do so this year.

The administration of US President Donald Trump says it will not continue to be a signatory. I contend that it is essential to ratify the treaty to back legitimate companies and protect people from black-market arms used to perpetuate atrocities. The arms trade itself loses an estimated \$20 billion annually from illegal sales, so it is in the interest of the largest arms companies to persuade their governments to ratify the treaty and help prevent diversion to illegal markets.

Third, implement the 2015 Paris climate agreement. Fighting global warming, similar

to the COVID-19 pandemic, is a battle against an unseen enemy; only the devastation that results from inaction is visible. And, as with the pandemic, there are known, clear, preventive steps to limit damage, even amid much uncertainty. A substantial part of military expenditure and expertise should be diverted, to renewable-energy programmes, climate mitigation and adaptation projects and humanitarian aid for natural disasters and COVID-19 recovery. Governments should put some of this arms money into the Green Climate Fund, for instance, to help low- and middle-income countries to meet their Paris pledges. Reducing deaths from air pollution by almost 30% will benefit every country<sup>8</sup>, and reducing biodiversity loss will make pandemics similar to that of COVID-19 less likely.

Fourth, invest in the UN SDGs. Unanimously agreed by nations in 2015, these offer a road map for action that will deliver human security for all people and bridge the inequalities made so evident by the pandemic. Prevention pays off. Achieving the goals would also open up market opportunities, such as green economics, and create hundreds of millions of jobs. The goals and targets are data-driven and evidence-based.

Expanding populations, destruction of the climate, the fast pace of development of new technologies – all of these call for approaches to national defence that are genuinely centred around human security.

## The author

**Denise Garcia** is associate professor of political science and international affairs at Northeastern University, Boston, Massachusetts. She is a vice-chair of the International Committee for Robot Arms Control, and a member of the International Panel for the Regulation of Autonomous Weapons. Her forthcoming book is *When AI Kills: Ensuring Common Good Governance in the Age of Military Artificial Intelligence*. e-mail: [d.garcia@northeastern.edu](mailto:d.garcia@northeastern.edu)

- Garcia, D. *Int. Affairs* **91**, 55–75 (2015).
- Garcia, D. *Disarmament Diplomacy and Human Security: Regimes, Norms and Moral Progress in International Relations* (Routledge, 2011).
- Yamada, T., Ogawa, V. A. & Freire, M. *Nature* **533**, 29–31 (2016).
- Institute for Economics & Peace. *Global Peace Index 2020: Measuring Peace in a Complex World* (IEP, 2020).
- Tian, N., Kuimova, A., Lopes da Silva, D., Wezeman, P. D. & Wezeman, S. T. *Trends in World Military Expenditure, 2019* (SIPRI, 2020).
- SIPRI Arms Industry Database (SIPRI, 2019); available at <https://www.sipri.org/databases/armsindustry>
- United Nations Office of Drugs and Crime. *Global Study on Homicide 2019* (UNODC, 2019).
- Markandya, A. et al. *Lancet Planet. Health* **2**, e126–e133 (2018).
- Lovejoy, T. E. & Nobre, C. *Sci. Adv.* **4**, eaat2340 (2018).
- Lapola, D. M. et al. *Proc. Natl Acad. Sci. USA* **115**, 11671–11679 (2018).
- Gibb, R. et al. *Nature* **584**, 398–402 (2020).
- Barbier, E. B., Lozano, R., Rodríguez, C. M. & Troëng, S. *Nature* **578**, 213–216 (2020).
- Haner, J. & Garcia, D. *Glob. Policy* **10**, 331–337 (2019).