Nuclear War Will Eliminate More Than 5 Billion People – Oppose War

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Theme: Militarization and WMD
In-depth Report: Nuclear War

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More than 5 billion people could starve to death following a nuclear war between the US and Russia, finds a study published on recently in the journal Nature Food. Ash and soot from cities burning following the war would enter the atmosphere and block out sunlight, consequently leading to crop failure, etc., and death.

The study findings should alert all the people around the world. "The data tell us one thing: We must prevent nuclear war from ever happening", climate science professor and study co-author Alan Robock said. Robock said: "The five-year-old UN Treaty on the Prohibition of Nuclear Weapons has been ratified by 66 nations, but none of the nine nuclear states. Our work makes clear that it is time for those nine states to listen to science and the rest of the world and sign this treaty."

Till today, most of the assumptions about nuclear war focus on the deaths and destructions due to the bombing.

But the latest study finds that the real suffering of humanity would come in the years after the war, as there'll be breakdown of supply chains and devastation of infrastructure, and problems from these will increase with the effect of a nuclear winter on food crops. So, there's no other option, but oppose war. On the question of nuclear war, imperialism, and economies and politics of interests leading to nuclear armaments are to be opposed.

The study (Xia, L., Robock, A., Scherrer, K. *et al*, "Global food insecurity and famine from reduced crop, marine fishery and livestock production due to climate disruption from nuclear war soot injection", *Nature Food*, 2022, (see this), August 15, (see this) has been conducted by scientists at Rutgers University, US.

In a nuclear war, the cooling effect would be created when the ash from a nuclear devastation would enter the atmosphere, and it would reach a peak within a year or two. The study finds the reduction in temperature would last for over a decade and would also involve reduced precipitation.

The cooling effect of ash entering the Earth's atmosphere was recorded following major volcanic eruptions including the 1783 Laki eruption in Iceland or the 1815 Tambora eruption in Indonesia. Both of these eruptions led to famines and political upheavals.

Referring to a number of studies, the study report said:

> "In a nuclear war, bombs targeted on cities and industrial areas would start firestorms, injecting large amounts of soot into the upper atmosphere, which would spread globally and rapidly cool the planet. Such soot loadings would cause decadal disruptions in Earth's climate, which would impact food production systems on land and in the oceans."

> "[T]he ozone layer would be destroyed by the heating of the stratosphere, producing more ultraviolet radiation at the surface. We need to understand that impact on food supplies", said Lili Xia, lead author of the study.

The scientists estimated crop yields by country, changes to livestock pasture and marine fisheries; and analyzed potential mitigation policies including utilizing livestock grains to feed humans and increasing fishing operations. But these factors had a negligible effect on world food supplies.

The study analyzed six nuclear war scenarios including five smaller nuclear conflict scenes while the sixth looked at a large-scale US-Russia conflict. The smaller scenes included Pakistan-India nuclear conflict.

The study report said:

> # More than 2 billion people could die from an India-Pakistan nuclear war.

> # More than 5 billion could die from a US-Russia nuclear war.

The study report said:

> "For a nuclear war, the global cooling would depend on the yields of the weapons, the number of weapons and the targets, among other atmospheric and geographic factors."

> "A war between India and Pakistan, which recently are accumulating more nuclear weapons with higher yield, could produce a stratospheric loading of 5 – 47 Tg of soot. A war between the United States, its allies and Russia — who possess more than 90% of the global nuclear arsenal — could produce more than 150 Tg of soot and a nuclear winter. While amounts of soot injection into the stratosphere from the use of fewer nuclear weapons would have smaller global impacts, once a nuclear war starts, it may be very difficult to limit escalation."

After a US-Russia nuclear conflict, the study models found, the quantity of global food production would go down by 90% within three to four years, and 75% of the global population would be starving within two years.

The study found: In the case of smallest scale nuclear war scene, the global food supplies would have disastrous effect – the average caloric production would be reduced by 7%

globally within five years, which would be the highest change since the Food and Agricultural Organization started keeping records in 1961.

The study report said:

Recent catastrophic forest fires in Canada in 2017 and Australia in 2019 and 2020 produced 0.3–1 Tg of smoke (0.006–0.02 Tg soot), which was subsequently heated by sunlight and lofted high in the stratosphere. The smoke was transported around the world and lasted for many months. This adds confidence to our [the scientists'] simulations that predict the same process would occur after nuclear war.

The study report said: Local radioactive contamination and climate change from nuclear war would impact the insect community.

However, it said, the influence on pests, pollinators and other insects is unclear, and hence further studies are needed.

The study didn't consider inland fish capture, as inland fish contribute only 7% of total fish production, and inland fisheries would not change the main conclusions of this study.

Direct climate change impacts on livestock and fish, and large-scale use of alternative foods, requiring little-to-no light to grow in a cold environment, reduced human populations due to direct or indirect mortality and possible reduced birth rate were not also considered in the study. However, alternative foods, requiring little-to-no light to grow in cold environment could be a lifesaving source of emergency food if such production systems were operational.

The scientists used a state-of-the-art global climate model to calculate the climatic and biogeochemical changes caused by a range of stratospheric soot injections, each associated with a nuclear war scenario; combined results with assumptions about how other crop, livestock and fish production and food trade could change; and calculated the amount of food that would be available for each country in the world after a nuclear war.

According to the study report, "for a regional nuclear war, large parts of the world may suffer famine. Using crops fed to livestock as human food could offset food losses locally but would make limited impacts on the total amount of food available globally, especially with large atmospheric soot injections when the growth of feed crops and pastures would be severely impaired by the resulting climate perturbation. Reducing household food waste could help in the small nuclear war cases but not in the larger nuclear wars due to the large climate-driven reduction in overall production."

The scientists found "particularly severe crop declines in major exporting countries such as Russia and the US, which could easily trigger export restrictions and cause severe disruptions in import-dependent countries." Their "no-trade response illustrates this risk — African and Middle Eastern countries would be severely affected."

"New Zealand", according to the study report, "would also experience smaller impacts than other countries", and "Australia and New Zealand would probably see an influx of refugees from Asia and other countries experiencing food insecurity."

The study report said:

> “Cooling from nuclear wars causes temperature limitations for crops, leading to delayed physiological maturity and additional cold stress. Calorie reduction from agriculture and marine fisheries shows regional differences, with the strongest percentage reductions over high latitudes in the Northern Hemisphere. Even for the India–Pakistan case, many regions become unsuitable for agriculture for multiple years. [….] The nuclear-armed nations in mid- to high latitude regions (China, Russia, United States, France, North Korea and United Kingdom) show calorie reductions from 30% to 86%, and in lower latitudes (India, Pakistan and Israel), the reduction is less than 10%. Impacts in warring nations are likely to be dominated by local problems, such as infrastructure destruction, radioactive contamination and supply chain disruptions, so the results here apply only to indirect effects from soot injection in remote locations.”
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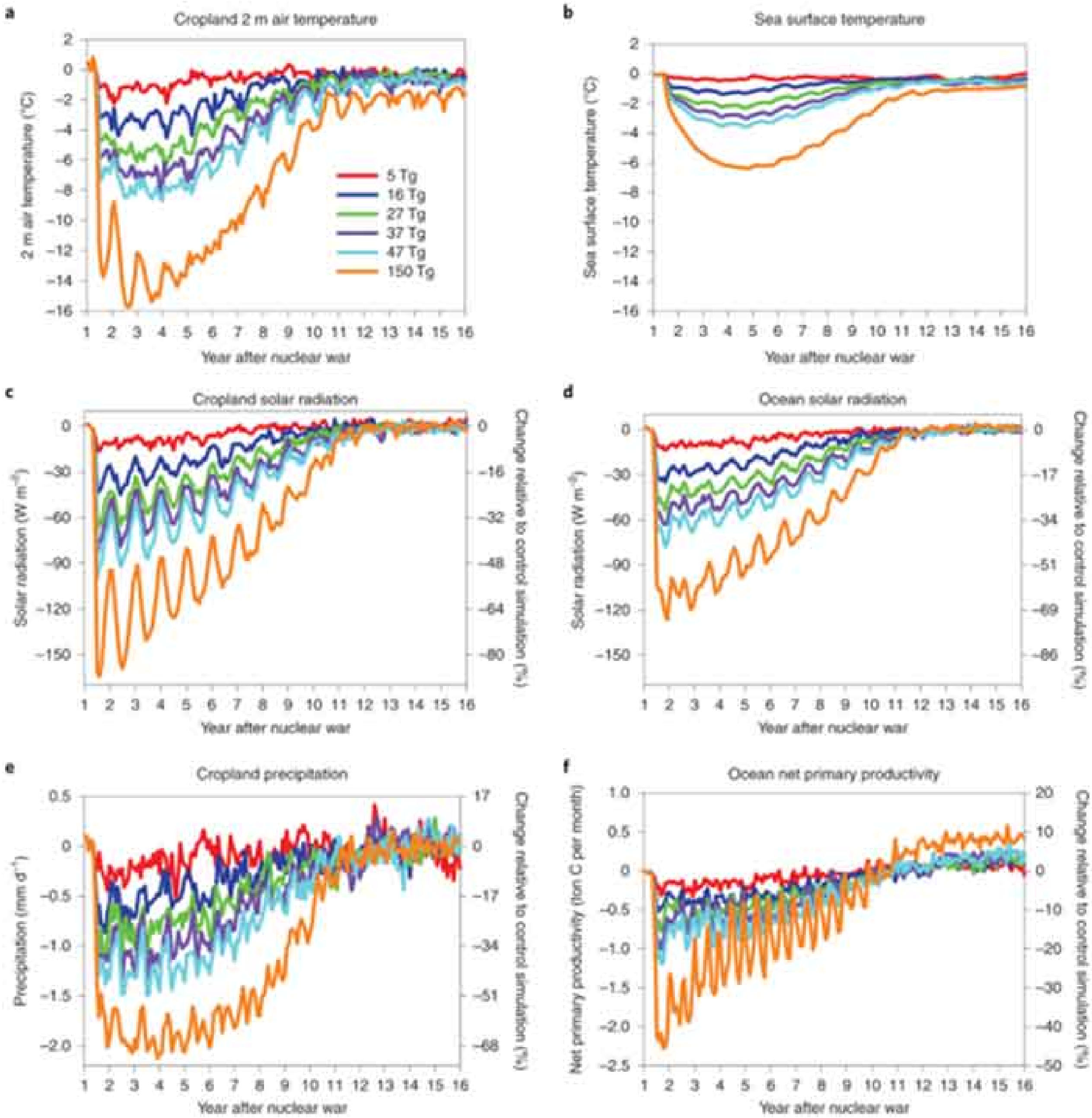
> “The climatic impacts”, the study found, “would last for about a decade but would peak in the first few years”.

Since many years, scientists are warning about nuclear war/arms. With this latest warning from the scientists, sources creating/engaged with nuclear armaments business, creating conditions for nuclear arms manufacturing and competitions need to be identified; and the information should be disseminated among peoples, so that people raise voices, and oppose these sources of/interests leading to nuclear weapons and threats of nuclear war. This is not a task of only the working classes. It’s a task of all the classes that find its survival threatened with nuclear arms/war, that find no interest in nuclear armaments. It shouldn’t be missed that interests of only a very small coterie is involved with and benefits from nuclear armaments/nuclear war business.

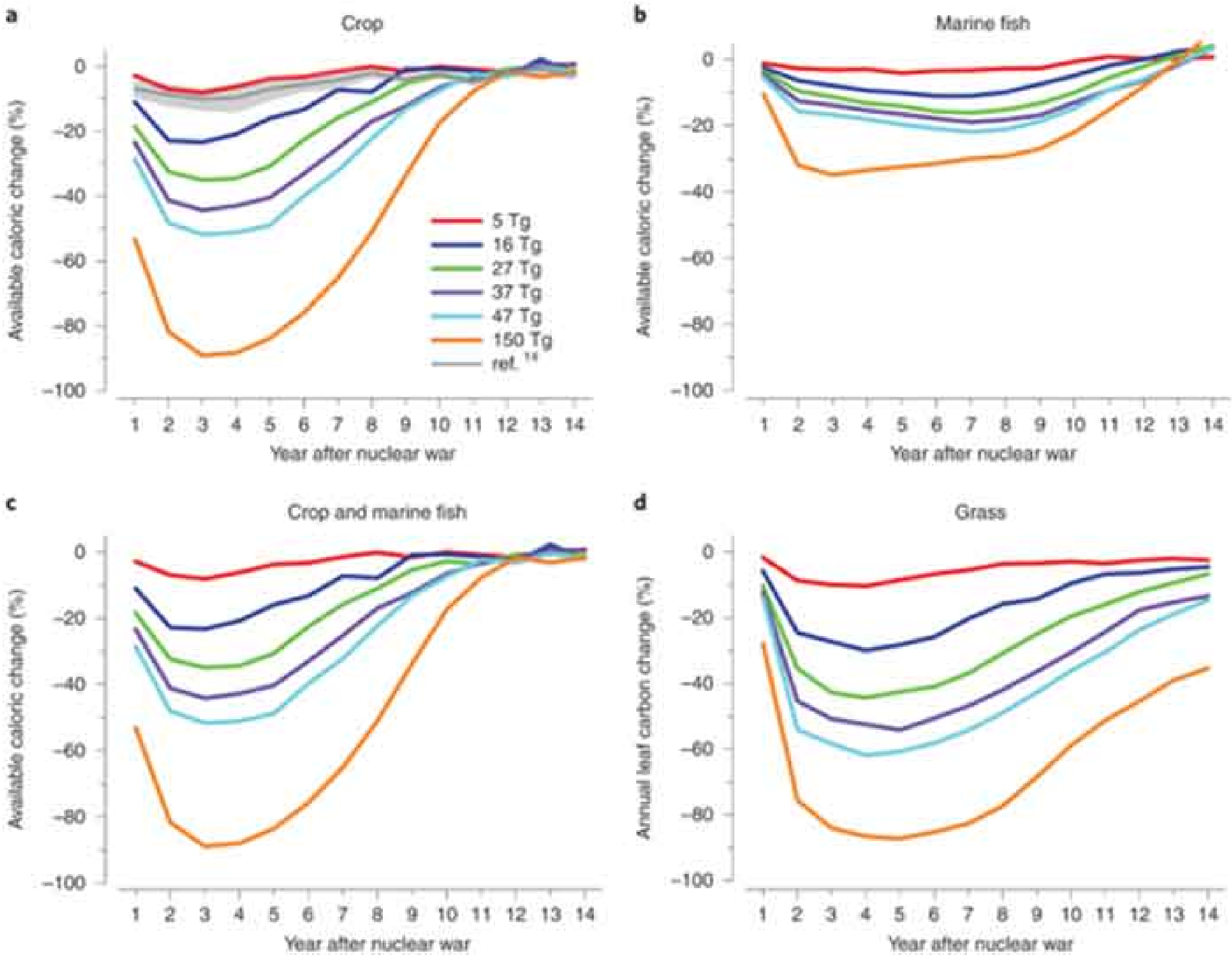
The following figures are from the study report, which help further comprehend the issue the scientists searched.

Fig. 1: Climatic impacts by year after different nuclear war soot injections.



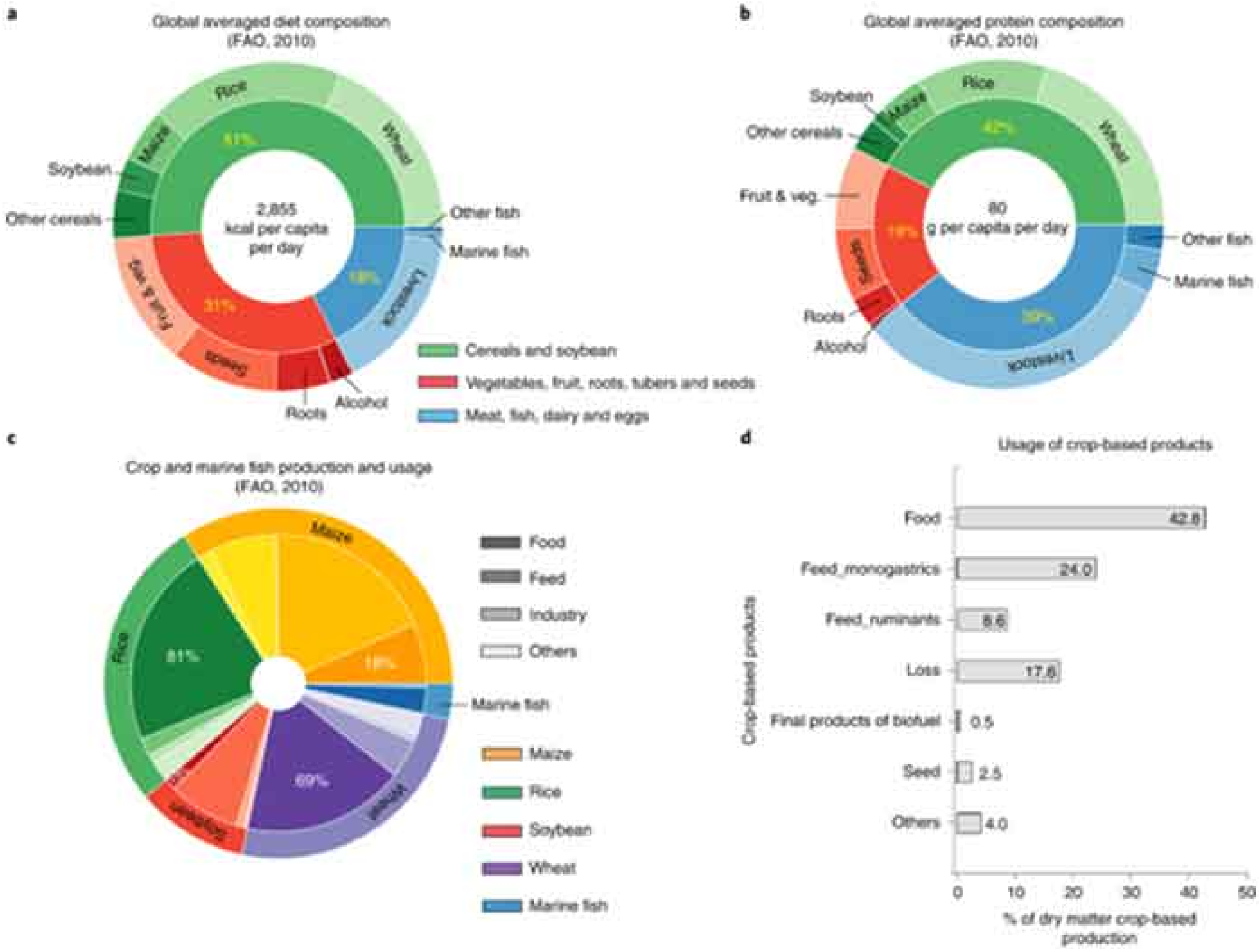
a–f, Changes in surface temperature (a), solar radiation (c) and precipitation (e) averaged over global crop regions of 2000 and sea surface temperature (b), solar radiation (d) and net primary productivity (f) over the oceans following the six stratospheric soot-loading scenarios studied here for 15 years following a nuclear war [...]. These variables are the direct climate forcing for the crop and fishery models. The left *y* axes are the anomalies of monthly climate variables from simulated nuclear war minus the climatology of the control simulation, which is the average of 45 years of simulation. The right *y* axes are the percentage change relative to the control simulation. The wars take place on 15 May of Year 1, and the year labels are on 1 January of each year. For comparison, during the last Ice Age 20,000 years ago, global average surface temperatures were about 5 °C cooler than present. Ocean temperatures decline less than for crops because of the ocean's large heat capacity. Ocean solar radiation loss is less than for crops because most oceans are in the Southern Hemisphere, where slightly less smoke is present.

Fig. 2: Calorie production changes for crops and fish, and accumulated carbon change for grasses following different nuclear war soot injections.



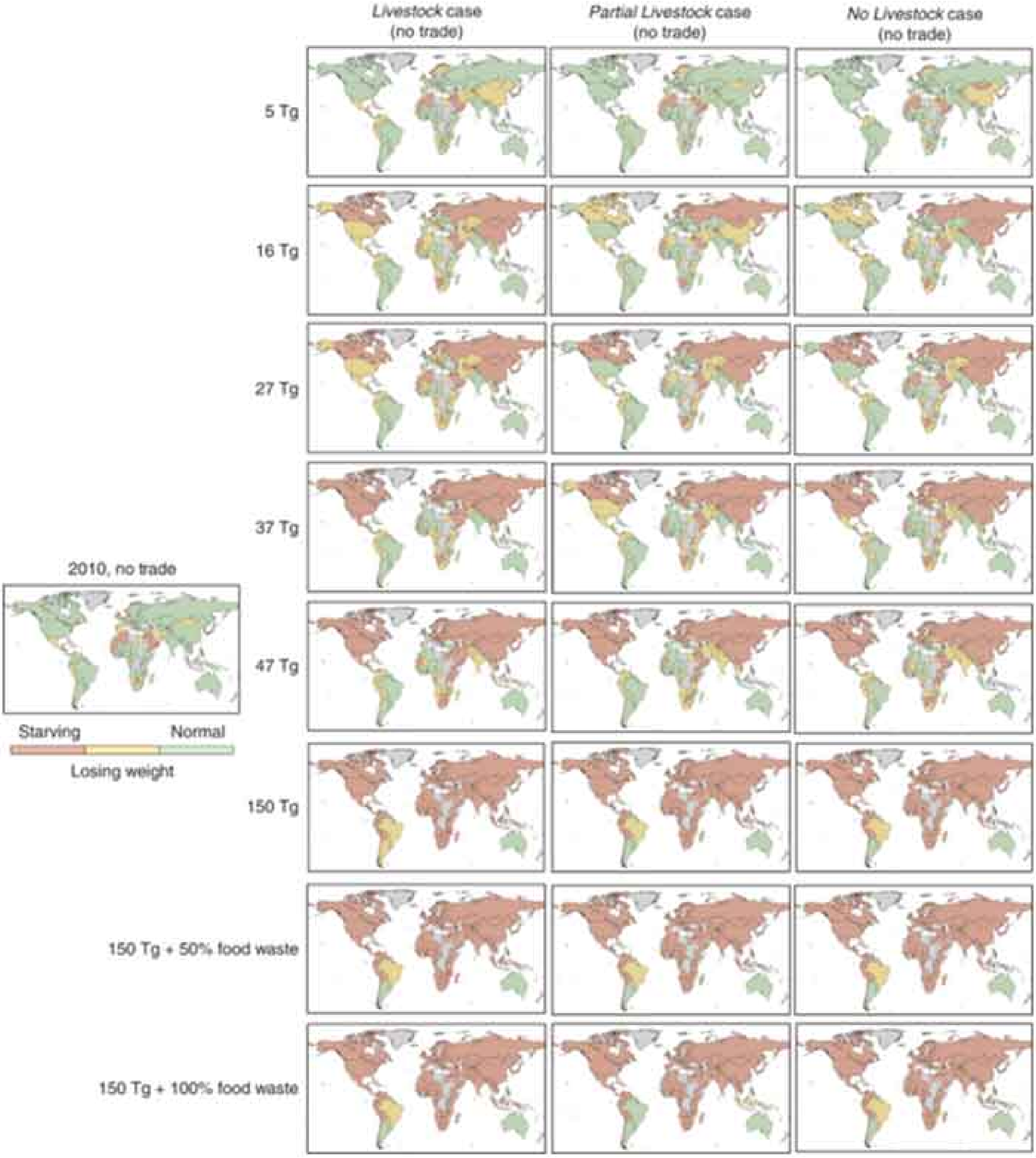
a–c, Global average annual crop calorie production changes (%; maize, wheat, rice and soybeans, weighted by their observed production (2010) and calorie content; a), marine fish production changes (%; b) and combined crop and fish calorie production changes (%; c) after nuclear war for the different soot-injection scenarios. d, Grass leaf carbon is a combination of C3 and C4 grasses, and the change is calculated as annual accumulated carbon. For context, the grey line (and shaded area) in a are the average (and standard deviation) of six crop models from the Global Gridded Crop Model Intercomparison (GGCMI […]) under the 5 Tg scenario. CLM5crop shows a conservative response to nuclear war compared with the multi-model GGCMI response.

Fig. 3: Global average human diet and protein composition and usage of crop-based products.



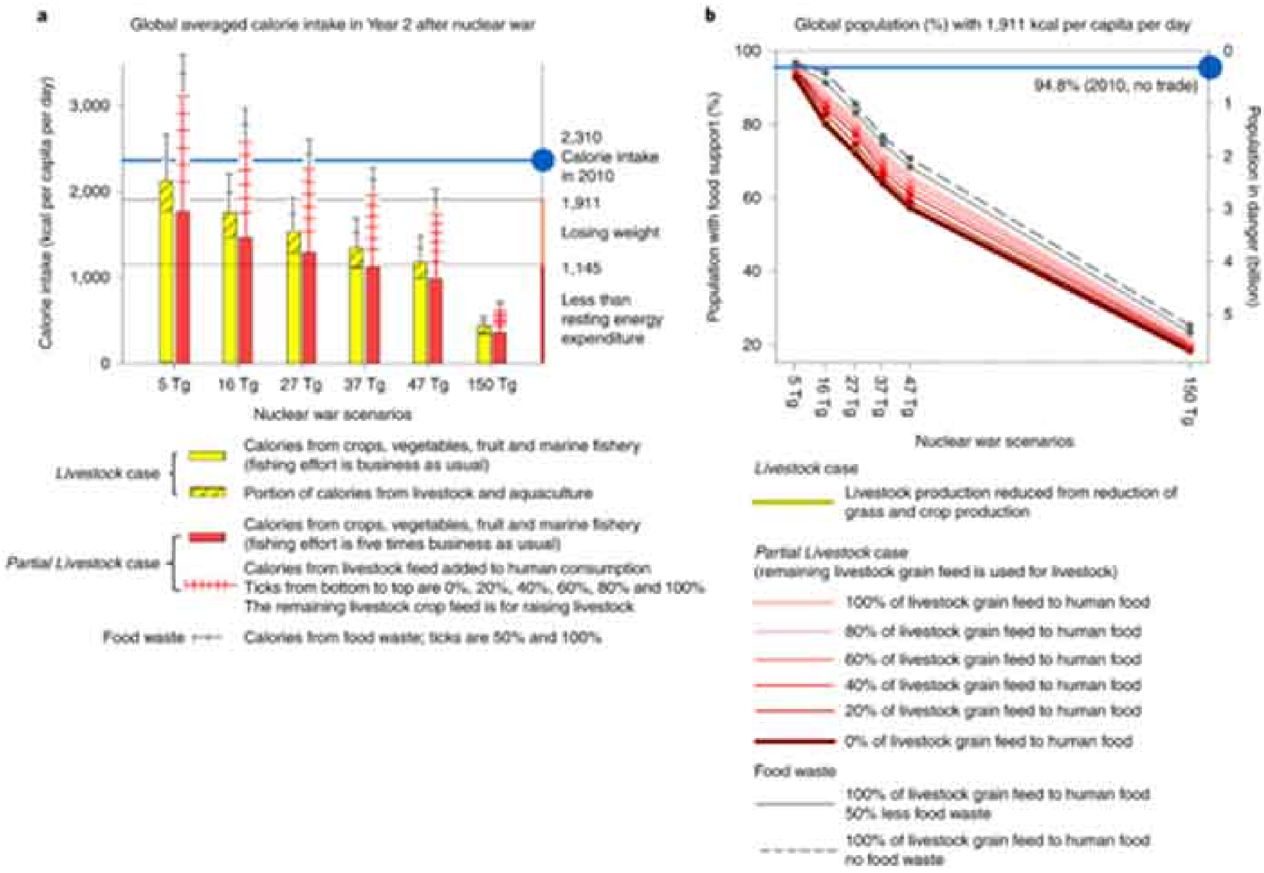
a, Global average human diet composition. Percentages are % of available calories. Veg. is vegetables. b, Global average human protein diet composition. Marine wild capture contributes 75% of marine fish. Percentages are % of dry matter production. c, Distribution of four major cereal crops and marine fish between human food and other uses. Percentages are % of dry matter production. d, Usage of crop-based products in 2010 (% of dry matter crop-based production). The color gradient legend in grey in c illustrates the usage of different crops and fish in colors. While humans consume most of the wheat and rice grown, most maize and soybeans are used for livestock feed.

Fig. 4: Food intake (kcal per capita per day) in Year 2 after different nuclear war soot injections.



The left map is the calorie intake status in 2010 with no international trade; the left column is the *Livestock c*ase; the middle column is the *Partial Livestock* case, with 50% of livestock feed used for human food and the other 50% still used to feed livestock; and the right column is the *No Livestock* case, with 50% of livestock feed used for human food. All maps assume no international trade and that the total calories are evenly distributed within each nation. Regions in green mean food consumption can support the current physical activity in that country; regions in yellow are calorie intake that would cause people to lose weight, and only sedentary physical activity would be supported; and regions in red indicate that daily calorie intake would be less than needed to maintain a basal metabolic rate (also called resting energy expenditure) and thus would lead to death after an individual exhausted their body energy reserves in stored fat and expendable muscle. 150 Tg + 50% waste is half of the household waste added to food consumption, and 150 Tg + 100% waste is all household waste added to food consumption.

Fig. 5: Overview of global calorie intake and sensitivity to livestock and food waste assumptions.



a, Global average change in calorie intake per person per day in Year 2 post-war under the *Livestock* case (yellow bars) and for the *Partial Livestock* case (red bars), assuming that all food and waste is evenly distributed. For the *Partial Livestock* case, additional calories potentially available by human consumption of animal feed, mainly maize and soybeans, are plotted for various portions of converted animal feed (pink tick marks), and the remaining livestock crop feed is used for raising livestock. Critical food intake levels are marked in the right margin. b, Without international trade, the global population (%) that could be supported, although underweight, by domestic food production at the end of Year 2 after a nuclear war if they receive the calories supporting their regular physical activity and the rest of the population would receive no food, under the *Livestock* and *Partial Livestock* cases. The blue line in b shows the percentage of population that can be supported by current food production when food production does not change but international trade is stopped. National data are calculated first and then aggregated to global data.

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Note: All quotes, direct/indirect, are from the study report cited in the article.

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