

IPPNW

Nuclear Famine Powerpoint Script

**[updated December 2013 for Powerpoint available at
<http://www.ippnw.org/ppt/nuclear-famine.ppt>]**

SLIDE ONE

Nuclear war can seem like a remote problem in countries that do not have nuclear weapons and whose cities are not directly targeted by the nuclear weapons of others. Even in the nuclear-armed states, a nuclear war seems less likely than it did during the Cold War, when the US and the former Soviet Union had thousands of warheads on hair-trigger alert. The purpose of this presentation is to show how a nuclear war anywhere in the world would have devastating consequences for all of us, whether or not a mushroom cloud ever appeared over one of our own cities. Security and development challenges that are difficult to address now in many parts of the world would become impossible in the global collapse that would result from such a war. We hope the evidence we are about to present will persuade you that joining the International Campaign to Abolish Nuclear Weapons and adding a nuclear weapons convention to our other security priorities is something we should embrace.

SLIDE TWO

IPPNW published the second edition of its groundbreaking report, Nuclear Famine, in December 2013. The findings of this report, updated from the previous edition published in 2012, are the basis of this presentation. The full report, written by Co-President Ira Helfand, is available at www.ippnw.org/nuclear-famine.html.

SLIDE THREE

A regional nuclear war would result in vast, worldwide climate disruption. As an example — and I'm not saying that this is more likely than the other possibilities — consider a war between India and Pakistan involving 100 Hiroshima-sized bombs, which is less than they have in their combined arsenals.

SLIDE FOUR

Such a war would kill up to 20 million people outright as the great cities of the subcontinent were destroyed, and it would blanket much of South Asia with radioactive fallout. But the global consequences are even more alarming.

SLIDE FIVE

Peer-reviewed studies by climate experts show clearly that even this limited nuclear conflict would affect weather patterns throughout the world. Soot and debris injected into the atmosphere from the explosions and resulting fires would block sunlight from reaching the Earth, producing an average surface cooling of -1.25°C that would last for several years. Even 10 years out, there would be a persistent average surface cooling of -0.5°C . How significant is a drop of 1.25°C ?

SLIDE SIX

This slide, prepared at the time this research was done, compares the global warming of the last 120 years with the cooling that would take place in a matter of days.

SLIDE SEVEN

As a result of this cooling, there would be decreases in the growing season (frost free days), of 10 to 20 days in many of the most important grain-producing areas throughout the world. This decrease might completely eliminate crops that have insufficient time to reach maturity.

SLIDE EIGHT

There would also be major alterations in patterns of precipitation, with a 10% reduction in global rainfall, and large reductions in the Asian summer monsoon. The most important direct effect of these changes in temperature and precipitation would be a decrease in global food production. While there are no accurate estimates of the shortfall in food production available at this time, there is historical experience from previous cooling episodes which suggests the impact on food supplies would be very large.

SLIDE NINE

The best studied of these episodes was “The Year Without a Summer” in 1816 which followed the eruption of the Tambora volcano in Indonesia the year before. The average global cooling was only -0.7°C and it lasted for only one year. But in North America that cooling produced a complete disruption of the growing season with killing frosts in June, July and twice in August. There was widespread loss of crops with a doubling of grain prices. In densely populated areas elsewhere in the world, the consequences were far worse, with famine reported in Ireland, France, Switzerland, the German states, and India.

SLIDE TEN

In 1816, crop failures were due primarily to cooling and lower precipitation; several other factors might affect the size of available food stocks in the event of a regional nuclear war. If the soot injected into the atmosphere in a nuclear war caused significant ozone depletion, that could cause a further major decline in actual food production. Disruption of petroleum production would also cause a serious decline in food production, which is dependent on petroleum-based fertilizers and pesticides and on petroleum-fueled tractors, water pumps, and trucks. Crops that were grown might be diverted to offset the loss of available gasoline. Today ethanol production is already using significant quantities of grain that would otherwise be available as food or livestock feed. Finally, if a regional war resulted in significant radioactive contamination of one or more major food-producing countries, large quantities of food might need to be destroyed and significant areas of crop land might need to be taken out of production. The combination of failed harvests and a collapsed distribution system would prevent essential foods from reaching African countries and many others around the world.

SLIDE ELEVEN

A recent IPPNW/PSR research study showed that in the US, corn production would decline by an average of 10% for an entire decade, with the most severe decline, about 20% in year 5. There would be a similar decline in soybean production, with, again, the most severe loss, about 20%, in year 5.

Helfand, Ira. Nuclear famine: a billion people at risk—Global impacts of limited nuclear war on agriculture, food supplies, and human nutrition. Somerville, MA: IPPNW/PSR. 2012.

SLIDE TWELVE

There would also be a significant decline in Chinese middle season rice production. During the first 4 years, rice production would decline by an average of 21%; over the next 6 years the decline would average 10%.

SLIDE THIRTEEN

A new study, completed in the fall of 2013, showed that there would be even larger declines in Chinese winter wheat production. Production would fall 50% in the first year, and, averaged over the entire decade after the war, it would be 31% below baseline.

[Xia, L., Robock, A., Mills, M., Stenke, A., Helfand, I., “Global famine after a regional nuclear war” submitted to *Earth’s Future* October 2013.]

SLIDE FOURTEEN

The decline in available food would be exacerbated by increases in food prices which would make food inaccessible to hundreds of millions of the world's poorest. Even if agricultural markets continued to function normally, 215 million people from the Global South would be added to the rolls of the malnourished over the course of a decade.

SLIDE FIFTEEN

At this point in time, we are ill prepared to deal with a major fall in world food supply. In June 2013, the UN Food and Agriculture Organization estimated that grain stocks were 509 million metric tons, 21% of the annual consumption of 2,339 million metric tons. Expressed as days of consumption, this reserve would last for 77 days. The UN Food and Agriculture Organization estimated in 2012 that there are 870 million people in the world who already suffer from malnutrition. Given this precarious situation, even small further declines in food production could have major consequences. Current grain stocks would not provide any significant reserve in the event of a sharp decline in global production.

SLIDE SIXTEEN

China has significantly larger reserves of grain than the world as a whole. In the summer of 2013, wheat reserves totaled nearly 167 days of consumption, and rice reserves were 119 days of consumption. Despite this relatively strong position, China would be hard pressed to deal with the very large reduction in wheat production projected in the new study. Even the large reserves that China maintains would be exhausted within two years.

SLIDE SEVENTEEN

At our current baseline there are already millions of people suffering chronic malnutrition. The average adult needs somewhere between 1,800 and 2,000 calories per day—depending on his or her stature—to meet basic metabolic requirements and to sustain a minimal level of physical activity. Requirements for children are dependent on age and size. There are more than one billion people in the world whose daily caloric intake falls below these minimum requirements. Each year some five million children in this group starve to death. A small further decline in available food would put this entire group at risk. A number of factors suggest that the accessible food for those who are already malnourished would decline dramatically.

In addition there are hundreds of millions of people who have adequate food consumption now but who live in countries where much of the food is imported. For example, North Africa, home to more than 150 million people with average caloric consumption well above the minimal level, imports 45% of its food. A number of other countries in the Middle East, plus Malaysia, South Korea, Japan, and Taiwan are also dependent on imports for 50% or more of their grain consumption. All told, an additional

several hundred million people would be at risk if there were a major interruption in international grain trade.

SLIDE EIGHTEEN

Given these conditions, even a modest, sudden decline in agricultural production could trigger massive famine. At the time of the great Bengal famine of 1943, food production was only 5% less than it had been on average over the preceding five years, and it was actually 13% higher than it had been in 1941 when there was not a famine. But in 1943, after the Japanese occupation of Burma, which had historically exported grain to Bengal, the decline in food production was coupled with panic hoarding and the price of rice rose nearly five fold, making food unaffordable to large numbers of people. These two factors—hoarding and the severe increase in rice prices—caused an effective inaccessibility of food far more severe than the actual shortfall in production. And 3 million people died.

In the event of a major global cooling episode caused by a regional nuclear war we would expect to see dramatic rises in food prices and hoarding on a global scale as countries that normally export grain held on to any surpluses they had to feed their own people.

SLIDE NINETEEN

If famine conditions persisted for a year or more, it seems reasonable to fear that the total global death toll in the Global South could exceed one billion from starvation alone. Combined with the 870 million people who are currently malnourished, and the populations of the food importing countries, the 1.3 billion Chinese who are also at risk place the number of people potentially threatened by famine at well over two billion.

SLIDE TWENTY

Two other issues need to be considered as well. First, there is a very high likelihood that famine on this scale would lead to major epidemics of infectious diseases. The famine of 1816 triggered an epidemic of typhus in Ireland that spread to much of Europe and the famine conditions in India that year led to an outbreak of cholera that has been implicated in the first global cholera pandemic. The well studied Great Bengal Famine of 1943 was associated with major local epidemics of cholera, malaria, smallpox, and dysentery. Despite the advances in medical technology of the last half century, a global famine on the scale anticipated would provide the ideal breeding ground for epidemics involving any or all of these illness.

In particular the vast megacities of the developing world, crowded, and often lacking adequate sanitation in the best of times, would almost certainly see major outbreaks of infectious diseases. Illnesses such as plague, which have not been prevalent in recent years, might again become major health threats.

SLIDE TWENTY ONE

Finally we need to consider the immense potential for war and civil conflict that would be created by famine on this scale. Within nations where famine is widespread there would almost certainly be food riots, and competition for limited food resources might well exacerbate ethnic and regional animosities. Among nations, armed conflict seems highly likely as states dependent on imports adopt whatever means are at their disposal in an attempt to maintain access to food supplies. In the worst case this might involve the further use of nuclear weapons. It is impossible to accurately estimate the global death toll from disease and further warfare that this “limited regional” nuclear war might cause, but given the worldwide scope of the climate effects, the dead from these causes might well number in additional hundreds of millions.

But as frightening as this scenario is, regional nuclear war is not the worst danger we face. That is the threat posed by the arsenals of the two nuclear super powers, the United States and Russia, who together maintain some 20,000 nuclear weapons, many of them 10 to 30 times more powerful than the bombs in the Indian and Pakistani arsenal. Most alarmingly some 2500 of these weapons remain on hair trigger alert. They are mounted on missiles that can be launched in a matter of minutes and reach their targets in the other country in another half hour.

SLIDE TWENTY TWO

The worst case, which cannot be ruled out as long as these weapons exist, is a nuclear war between the US and Russia, using many or all of the 20,000 nuclear weapons those countries possess between them. If 500 warheads hit major US and Russian cities, 100 million people would die in the first half hour and tens of millions would be fatally injured. Huge swaths of both countries would be blanketed by radioactive fallout and their industrial, transportation, and communication infrastructures would be destroyed. Most Americans and Russians would die in the succeeding months from radiation sickness, epidemic disease, exposure and starvation.

SLIDE TWENTY THREE

But even this is not the full story. Because this attack would cause the same kind of climate disruption as a limited nuclear war, but on a much larger scale. The South Asian scenario pumps 5 million tons of debris into the atmosphere; a war involving the American and Russian arsenals on high alert would produce 50 million tons; and if the rest of the strategic arsenals that the US and Russia maintain were also drawn into the battle that number rises to 150 million tons.

SLIDE TWENTY FOUR

What you are watching is the end of the world.

150 million tons of debris drops the global average temperature not -1.25 C but -10 C. That produces temperatures not seen on Earth since the coldest point in the last ice age some 18,000 years ago. For 3 years there would not be a single frost free day in the Northern Hemisphere. Agriculture would stop, ecosystems would collapse, and many species, perhaps our own, would become extinct.

SLIDE TWENTY FIVE

The lesson here is that the entire world really is targeted by the weapons of the nuclear-armed states, even if the missiles themselves are not pointed at our cities. Working to end this threat is not only responsible global citizenship, it is a vital interest for everyone on Earth.

SLIDE TWENTY SIX

Now we can take the next step. We will only be truly and permanently safe from the horrors described here if we ban nuclear weapons and eliminate them from the entire Earth. We have done this with chemical and biological weapons, and more recently with landmines and cluster munitions. The time is right to add the abolition of nuclear weapons to the list.

SLIDE TWENTY SEVEN

ICAN — the International Campaign to Abolish Nuclear Weapons — is a civil society campaign launched by IPPNW in 2007 that brings together NGOs, professional organizations, grassroots groups, diplomats, religious leaders, academics, youth groups — everyone who has a stake in a secure, prosperous, and peaceful world. ICAN's goal is a global treaty that will ban and eliminate nuclear weapons and remove this existential threat to humanity for our own and future generations.

SLIDE TWENTY EIGHT

www.ippnw.org/nuclear-famine.html

SLIDE TWENTY NINE

Thank you for your attention.

