

An alarming portrait of the nuclear power in the world

[Science](#), [Physics](#)



Unfortunately, even if someone could wave a magic wand that causes all of the nuclear weapons on earth to disappear, many believe that due to the depletion of natural resources, the earth would still be in danger of catastrophe, and humankind in danger of extinction. Jonathan Schell's book "Fate of the Earth" is an alarming portrait of the nuclear power in the world. Since the end of World War II, nuclear arms have kept the world's population in a state of constant concern that "something" could happen, whether by design or accident.

As tensions continue to build throughout the Middle East, particularly between India and Pakistan, and more recently the nuclear potential of North Korea and China, the nuclear arms race may have subsided between the United States and Russia however, it is still alive and thriving around the globe. As Schell writes, "These bombs were built as weapons for war but their significance greatly transcends war and all its causes and outcomes...

They grew out of history, yet they threaten to end history" (Schell 3). The potential for nuclear war seems to increase daily as more countries seek to obtain the ultimate weapon of power, the "Rolls Royce" of combat, the ability to destroy thousands of lives in a flash. Yet with that flash, comes not only the possibility but the probability of more flashes resulting in incalculable damage to life and the earth itself.

Schell writes that nuclear weapons "are a pit into which the whole world can fall - a nemesis of all human intentions, actions and hopes" (Schell 3). Yet, many believe that the earth's future is in peril even without the threat of nuclear wars. They believe that the impact of man upon the environment and

the planet's natural resources threatens the earth and humankind as greatly as any nuclear war.

Within recent decades, many environmental indicators have moved outside the range in which they have varied for the past half-million years (Wallstrom pp). According to a 2004 article in the International Herald Tribune, " We are altering our life support system and potentially pushing the planet into a far less hospitable state" and if policies cannot be developed to cope with the " uncertainty, complexity and magnitude of global change, the consequences for society may be huge" (Wallstrom pp).

Although there has been much progress during the last century, such as the eradication of major diseases along with increased life expectancy and standards of living for many, the global population has tripled since 1930 to more than six billion and shows signs of continue growth, and moreover, the global economy has increased more than 15-fold since 1950 (Wallstrom pp).

This progress has led to a wide-ranging impact on the environment as human activities have begun to significantly affect the planet and how it functions (Wallstrom pp). Atmospheric composition, land cover, marine ecosystems, coastal zones, freshwater systems and global biological diversity have all been substantially affected," however, it is the magnitude and rate of this human-driven change that are most alarming (Wallstrom pp). The increase in atmospheric carbon dioxide due to human activity is nearly 100 parts per million and still growing (Wallstrom pp).

This is already equal to the entire range experienced between an ice age and a warm period such as today and it has occurred at least ten times faster than any natural increase in the last half-million years (Wallstrom pp).

Moreover, human influence extends beyond atmospheric carbon dioxide levels and increases in global mean temperature (Wallstrom pp). During the 1990's, the average area of humid tropical forest cleared yearly was equivalent to roughly half the area of England, and at current extinction rates, humans " may well be on the way to the Earth's sixth great extinction event" (Wallstrom pp).

The Earth is a well-connected system, thus, carbon dioxide emitted in one country rapidly mixes throughout the atmosphere, and pollutants released into the ocean in one location are transported to distant parts of the planet (Wallstrom pp). The impacts of global change are complex, since they combine with local and regional environmental stresses in unexpected ways (Wallstrom pp). For example, coral reefs are now under additional pressure from changing carbonate chemistry in ocean surface waters, a result of the increase in atmospheric carbon dioxide (Wallstrom pp).

Moreover, the wildfires that hit Europe, Canada, California and Australia in 2003 were the result of many factors, such as land management, ignition sources and extreme local weather (Wallstrom pp). However, prevailing warm and dry conditions, most likely linked to climate change, amplified fire intensity and extent (Wallstrom pp). Due to poor access to fresh water, more than two billion people now live under what experts call " severe waterstress,"

and with population growth and economic expansion, this number is expected to double by 2025 (Wallstrom pp).

Biodiversity losses, currently driven by habitat destruction associated with land-cover change, will be further exacerbated by future climate change. Beyond 2050, rapid regional climate change, as would be caused by changes in ocean circulation in the North Atlantic, and irreversible changes, such as the melting of the Greenland ice sheet and the accompanying rise in sea levels of 6 meters, or 20 feet, could have huge economic and societal consequences (Wallstrom pp).

Past geological records indicate that never before has the Earth experience the current "suite" of simultaneous changes and many feel that humans are sailing into "planetary terra incognita" (Wallstrom pp). According to a 1999 article from Cornell University, "because population growth can not continue indefinitely, society can either voluntarily control its numbers or let natural forces such as disease, malnutrition, and other disasters limit human numbers" (Pimentel pp).

Human population, especially in urban areas, together with the increasing food, water, air, and soil pollution by pathogenic organisms and chemicals, are causing a rapid increase in the prevalence of disease and human deaths (Pimentel pp). Due to current food shortages, more than 3 billion people are malnourished worldwide, the largest number and proportion ever, and according to the World Health Organization, an estimated 40,000 children die each day due to malnutrition and other

diseases (Pimentel pp). Humans are responsible for fifty-five percent of all available water run-off (Myers pp).

Moreover, greater amounts of nitrogen and phosphorus are mobilized by humans in the form of crop fertilizer than by natural processes, and humans harvest an amount of ocean fish that reflects fully one third of phytoplankton productivity in temperate continental shelves (Myers pp). A NASA study released in April 2005, has revealed the heat exchange between the Earth and space is seriously out of balance, leading researchers to call it the "smokinggun" discovery that validates forecasts of global warming (Hanley pp).

According to computer models of climate change, the global temperatures will rise 1 degree Fahrenheit this century, " even if greenhouse gases are capped tomorrow" (Hanley pp). And if carbon dioxide and other heat-trapping emissions continue to grow, things could spin " out of our control" especially as ocean levels rise from melting Greenland and Antarctic ice sheets (Hanley pp). James Hansen of NASA said the research shows that " for every square meter of surface area, the planet is absorbing almost one watt more of the sun's energy than it is radiating back to space as heat - a historically large imbalance" (Hanley pp).

According to a Stanford University study release May 16, 2005, the first signs of spring are appearing earlier each year: robins are arriving several days earlier, woodpeckers are laying their eggs a week earlier, and Washington's cherry trees bloom a month earlier than they did fifty years ago (Borenstein

pp). The study says that man-made global warming is clearly to blame, and means that the global environment is changing so fast that the slow evolutionary process of species adaptation cannot keep up (Borenstein pp).