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## PUTTING BIOTERRORISM IN PERSPECTIVE

JOHN CAIRNS, JR.

*Bioterrorism* – terrorism by intentional release or dissemination of biological agents (bacteria, viruses, or toxins); these may be naturally occurring or in a human-modified form

In this chapter, *bioterrorism* is used to describe any event that produces human terror, absent intent or not.

*We are the ones we have been waiting for.* **Hopi Indian Prayer**

*The American people want a statesman who will tell the truth about our collective life together; good and bad, up and down, vices and virtues. That is the ultimate act of respect for the American people.* **Cornel West**

*The job is not simply to reflect current opinion but to challenge it, move it forward and shape it. The ability to just take a stand and know that you can move the country to that stand is a lost art we need to recapture.*

**Doris Kearns Goodwin**

### Presidential Historian

*About thirty years ago there was much talk that geologists ought only to observe and not theorise; and I well remember some one saying that at this rate a man might as well go into a gravel pit and count the pebbles and describe the colors. How odd it is that anyone should not see that all observations must be for or against some view if it is to be of any service.*

**Charles Darwin**

Letter to a friend on 18 September 1861  
(as quoted by Shermer 2001)

*Let me assert my firm belief that the only thing we have to fear is fear itself.* **Former US President Franklin D. Roosevelt**

## 2 Bioterrorism and Biological Warfare (Eds. Bhatia & Kulshrestha)

*But while they prate of economic laws, men and women are starving. We must lay hold of the fact that economic laws are not made by nature. They are made by human beings.* **Former US President Franklin D. Roosevelt**

### Overview

Acts of terrorism are new to the United States. They have elicited unreasoning fear in many Americans and even have, sad to say, been used by some politicians to acquire votes. President Roosevelt's first quote concerning fear addresses this situation. His second quote concerning economics points out that the economic system is a human artifact, not a natural system. However, terrorists may use the global economic system for their own purposes. Many factors threaten humankind, including terrorism and bioterrorism. Humankind must keep all threats in perspective and not focus too intently on any type of danger; however, no threat to human health and the environment should be ignored either.

Less than 12 hours after the well publicized attacks on the Twin Towers and the Pentagon in the United States, President George W. Bush announced the beginning of the war on terror. This proclamation has led to a great expansion of executive power and concomitant loss of civil liberties (Gordon, 2008). As Gordon notes, President Bush's critics either challenge the very notion of a "war on terror" or focus on the need to fight it differently. Gordon further remarks that what the concept of victory in the war on terror would look like is almost entirely missing from the debate. Gordon asks: "Will this kind of war ever end? How long will it take? Would we see victory coming? Would we recognize it when it came?" Clearly, the framework for the war on terror is inadequate, and, until a robust framework is established, no systematic, orderly way will be developed to allocate resources to components of the war, such as bioterrorism.

### General Conditions for Bioterror

One general condition for bioterrorism is starving, closely packed people who are under severe stress and who lack both a sense of community and a sense of hope. Economic globalization has ensured the rapid transit of contaminated products, as well as people. The probability is fairly high that some of the contaminated products and/or infected people will arrive in one or more areas that are not well prepared for bioterror problems.

The global human population in 1900 was 1.6 billion. On 2 February 2008, the global population was 6.6 billion, an increase of nearly fourfold. Moreover, an increasing percentage of the world population is concentrated in urban areas where proximity facilitates transmission of disease. This concentration also increases the problems of food, fuel, and water supplies and concentrates human sewage and other wastes, making their disposal more difficult. Passing peak oil will increase the costs of energy for huge agribusiness and highly mechanized farms. Since each ton of grain requires about 1,000 tons of water,

the worsening water supply crisis will also have an adverse impact on grain supplies. Rainfall patterns are changing worldwide. In some areas (e.g., Africa), floods have destroyed grain and other crops. In others (e.g., Australia), droughts have had an adverse impact. In the United States, some farmers profit from selling their water allocation rather than using it for irrigation. In the decades to come, a number of societal and ecological tipping points will be passed, and the likelihood of returning to earlier conditions will either be very low or nonexistent. Species capable of experiencing terror will be facing a rough time.

### Categories of Terror

(1) Natural causes of death and disease, such as exceeding carrying capacity, will become more prevalent than in the past. Nature has no “intent” to cause terror, but species that violate natural law suffer loss of life and even extinction. These selective factors have been operational for billions of years. Human terrorists are far less effective than nature.

(2) Stochastic events, such as a large asteroid striking Earth, could wipe out 90% of the species on Earth, but most (e.g., diatoms) would not feel terror. Terrorism by nature is difficult to define (Free Essays, <http://www.freeessays.cc/db/24/ggc164.shtml>). Basically, terror is an overwhelming feeling of fear and anxiety. The old adage “One man’s terrorist is another man’s freedom fighter” is still alive and well today. Politicians may have good intentions when promoting exponential economic growth, but has persuasively demonstrated, much societal and ecological harm has resulted from promoting economic growth, which has unexpected effects some might describe as stochastic.

(3) Ghosh (2008) has identified nine ecological systems that could be lost this century as a result of global heating: (a) melting of Arctic sea ice (about 10 years), (b) decay of the Greenland ice sheet (about 300 years), (c) collapse of the West Antarctic ice sheet (about 300 years), (d) collapse of the Atlantic thermohaline circulation (about 100 years), (e) increase in the El Nino Southern Oscillation (about 100 years), (f) collapse of the Indian summer monsoon (about 1 year), (g) greening of the Sahara/Sahel and disruption of the West African monsoon (about 10 years), (h) dieback of the Amazon rainforest (about 50 years), (i) dieback of the Boreal Forest (about 50 years).

Many projections have been too conservative, probably because effects of the positive feedback loops were underestimated. Quite possibly, the estimated years for the loss of ecological systems will ultimately be greatly reduced. In any case, I fear the future – not for myself, but for my children and grandchildren. Humans have, via their activities and practices, caused these consequences, but they do not consider themselves terrorists.

(4) Individual acts of terrorism by humankind are another category of terror. All humans will be distraught with far less energy and food, and people who have lost much (e.g., health care, jobs, “the good life”) cannot help but envy the ultra-wealthy. Some people will probably feel hostility and take

vengeance on “the establishment,” which they blame for all their troubles. Disrupting power lines in a complex, countrywide network should be simple for anyone trained in demolition. Multiple shots from a powerful rifle or handgun (e.g., 45 caliber) could easily disrupt present energy systems. These acts are not bioterrorism in the strict sense, but the very old and very young are extremely vulnerable to infectious diseases if exposed to temperature extremes caused by disrupted systems. “Home grown” terrorists will not worry about semantic distinctions if a member of their family has become ill because of malnutrition or inadequate medical care. Any act against a society that they feel caused the death or suffering of a loved one will, in their opinion, be justified.

(5) Resource wars create another category of terror. When ethnic, religious, or national wars are fought over resources (e.g., oil, diamonds), the root cause of the conflict is usually not identified. Jenkins (2008) remarks: “Nothing and nobody can stop bombs going off. No citizen, no police force, no army, no government, and no global military alliance can prevent a determined suicide bomber from blowing himself up.” The politics of fear has exploited this situation and distorted the perception of risk (Patterson, 2008). In the United States, fear of terrorists has caused much hardship and aggravation to airline passengers, although the risk is orders of magnitude less than that of global climate change. Jenkins (2008) remarks:

The west’s Afghan adventure is now devoid of coherent strategy. Soldiers are dying, the opium trade is booming and aid lies undistributed. Command and control of the war against the Taliban is slipping from the most bizarre western occupying force since the fourth Crusade to a tight cabal around the Afghan ruler, Hamid Karzai, who is fighting to maintain a remnant of authority in his own capital.

Surely, a candid reevaluation of the risks from terror, including bioterror, would result in a reallocation of funding where positive results (i.e., reduction of risk) are more probable. For example, tobacco use killed 100 million people worldwide in the 20<sup>th</sup> century and could kill 1 billion in the 21<sup>st</sup> century unless governments act now to dramatically reduce it. This situation leads to an important issue: is the “war on terror” to be based on fear or a robust analysis of relative risk? In the United States, terrorist organizations are not as powerful as they once were.

(6) Diseases that have been long eradicated in certain areas of the world (tuberculosis, malaria, hepatitis, dengue fever, Chagas disease, and even certain childhood diseases) could be reintroduced by immigrants (Cosman, 2005). When Europeans first landed (invaded – ?) in North America, they undoubtedly viewed themselves as colonists, not bioterrorists. However, many of the diseases they brought with them were those to which the indigenous people (American Indians) had little or no resistance. The same was true of European

ships (e.g., Captain Cook) landing on Pacific islands. At present in the United States, the situation has been reversed. Individuals from the Marshall Islands, which has the most cases of leprosy in the world, have relocated to Springdale, Arkansas, USA (which has the greatest concentration of Marshallese people outside the Marshall Islands). Doctors have reported that at least nine cases of leprosy have been confirmed in Springdale (Duclos 2008).

### **London Blitz**

Although the Nazi air force blitz against London, England, was not bioterrorism, it was terrorism since it was designed to break the British spirit and lead to surrender. Vengeance is often a motivation for terrorists. In this case, the vengeance was retribution for a raid on Berlin, Germany. This event demonstrates, however, that an entire society was not intimidated and the blitz failed to produce the desired objective.

The London blitz lasted from 7 September 1940 to 10 May 1941. By the end of the blitz in May 1941, over 43,000 civilians had been killed and more than 1 million homes had been destroyed, as well as warehouses, cathedrals, and docks. Munitions factories and shipbuilding areas were hit especially hard. Before 7 September 1940, attacks were on airfields and other military targets.

A comparison of the London blitz to the US response to the terrorist attacks on 11 September 2001 on the Twin Towers of the World Trade Center in New York City and the Pentagon in the Washington, DC, area is interesting. The 9/11 Commission Report states that more than 2,600 people died at the World Trade Center; 125 died at the Pentagon; 256 died on the four planes. This event was perpetrated by 19 young Arabs, some of who had been in the United States for more than a year and mixed in with the rest of the population. Most spoke English poorly, some hardly at all. They were “armed” with small knives, box cutters, and cans of mace or pepper spray. Still, they were able to hijack four commercial airliners and turn them into deadly guided missiles. The 9/11 report also notes that Islamist extremists had given plenty of warning that they intended to kill Americans indiscriminately and in large numbers. However, what is most striking is the rather modest array of “weapons” needed to take over four commercial airliners. The passengers and crew of one airliner managed to thwart the terrorists at the cost of their own lives, which would have been lost anyway as they were in the other three airliners. The plane in which the terrorists lost some degree of control crashed in Pennsylvania, causing comparatively little damage. However, in London, where the residents were better prepared for terror (since their country was at war with Germany), the terror failed to achieve its objective despite enormous loss of life and damage to property.

The other major lesson from the London terror bombing is to thwart the outcome of terrorists by continuing to do the things that are of most value to the society. The government cannot protect the general population from

determined terrorists, although the government can reduce risk if a systematic, orderly protection program with intelligent, trained staff is in place.

### **The Zero Risk Delusion**

The risk of terrorism cannot be reduced to zero. Living on an overcrowded planet with less resources per capita daily (1.5 million more people added each week) means that terrorism is a reality that people must learn to live with. Approximately 3 billion people are inadequately nourished, poorly housed, and have inadequate medical care. The wealth gap between most people and the ultra-rich has increased markedly in the 21<sup>st</sup> century and may continue to do so. This situation will probably produce quite a few terrorists who have had a family member suffer because food, housing, and medical care were too expensive.

In the United States, especially following the publication of the general public and their political representatives insisted they be told the “safe” concentration of various chemical substances, especially pesticides. Investigators could show that exposure under particular test conditions for a specific length of time for a particular compound would often result in no-observable effects. However, a few individuals of a species may be more sensitive to a particular compound than the limited number of organisms in the actual tests. Moreover, conditions outside the laboratory may be different in some areas than the conditions used in the tests. Using scientifically validated concentrations of chemicals that produced no-observable effects has dramatically reduced, but not eliminated, risk. The same approach is true for bioterrorism, and all other types of terrorism, but risk can never be reduced to zero in a multivariate, dynamic Earth. Just living is a risky activity, but it is far preferable to the alternative.

### **Keeping a Perspective**

The dedicated worriers of the world will celebrate the news that Earth does not have 15 billion years left, but a paltry 7.59 billion years before it is dragged from its orbit by an engorged red sun. In the 21<sup>st</sup> century, many attempts have been made, especially by some politicians, to use the “uncertainties” in science to delay addressing problems of global climate change. This situation is ironic since uncertainties are inevitable in politics (e.g., will the politician live up to campaign promises?), the stock market (e.g., will the market go up or down), the banking system (e.g., were housing loans based on sound financial judgment?), and in life in general.

Another factor to consider is relative risk. For example, in the United States, the midlife suicide rate has increased. Cohen (2008) reports that the suicide rate in the age range of 45-54 increased nearly 20% from 1999 to 2004. For women in the age range of 45-54, the rate leapt 31%. Of the 32,000 people in the United States in 2004 who committed suicide, 14,607 were in the age range of 40-64 (6,906 were in the age range of 45-54); 5,198 were over 65; 2,434

were under 21 (Cohen, 2008). These numbers represent far more deaths over a 5-year span than the nearly 3,000 who were killed in the 9/11 terrorist attack in the United States in 2001, yet these suicide rates have received comparatively little attention. Suicide was the eleventh leading cause of death in the United States in 2001 – far more lethal than terrorism. At the global level, a new report issued by the World Health Organization offers the first comprehensive analysis of tobacco use and control efforts in 179 countries. The report notes that tobacco will kill more people in 2008 than tuberculosis, AIDS, and malaria combined and warns that, unless governments do more to slow the epidemic, tobacco could kill a billion people by the end of the century, the vast majority in poor and middle-income countries (Editorial, 2008). In addition, some 10 million children die each year of illnesses related to poverty and limited access to medical treatment, and 41 countries account for 9 million of these child deaths (Butler, 2008). Arguably, the major risk in the 21<sup>st</sup> century is damage caused by greenhouse gas emissions. However, emissions must be cut to near zero to keep global temperatures from rising further (Eilperin, 2008). Since such severe reductions will almost certainly not occur, temperature increase is a far greater danger than bioterrorism.

### Conclusions

Bioterrorism could be a real threat to humankind in the 21<sup>st</sup> century, but it should be dealt with in the context of risk analysis and hazard evaluation – not unreasoning fear. Global climate change will provide an opportunity for the spread of many infectious diseases. Wars, including ethnic, religious, and resource conflicts, will undoubtedly produce millions of refugees who could exacerbate the spread of disease, even without bioterrorists. Many methods and procedures for containment of diseases spread by refugees should be equally effective in coping with bioterrorists.

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### Bibliography

- Butler K. (2008): Rich African states 'squander their wealth' as children die. *The Independent* 18Feb <http://www.independent.co.uk/news/world/africa/rich-african-states-squander-their-wealth-as-children-die-783557.html>.
- Cohen P. (2008): Midlife suicide rises, puzzling researchers. *New York Times* 19Feb <http://www.nytimes.com/2008/02/19/us/19suicide.html?ref=health>.
- Cosman M. (2005): Hospital to the world welcomes illegals & contagious diseases. *NewsWithViews* 25Apr <http://www.newswithviews.com/Cosman/madeleine3.htm>.

- Duclos S. (2008): Leprosy outbreak in Northwest Arkansas. *Digital Journal* 8Feb [http://www.digitaljournal.com/article/250038/Leprosy\\_Outbreak\\_In\\_Northwest\\_Arkansas](http://www.digitaljournal.com/article/250038/Leprosy_Outbreak_In_Northwest_Arkansas).
- Editorial (2008): The global tobacco threat. *New York Times* 19Feb <http://www.nytimes.com/2008/02/19/opinion/19tue2.html>.
- Eilperin J. (2008): Carbon output must near zero to avert danger, new studies say. *Washington Post* 10Mar <http://www.washingtonpost.com/wp-dyn/content/article/2008/03/09/AR2008030901867.html>.
- Ghosh P. (2008): Climate set for 'sudden shifts.' *BBC News* 4Feb <http://news.bbc.co.uk/2/hi/science/nature/7227080.stm>.
- Gordon P. H. (2008): Can the war on terror be won?: How to fight the right war. *Foreign Affairs*, **86**(6),53-66.
- Jenkins S. (2008): The "'war on terror' licenses a new stupidity in geopolitics. *Guardian* 30Jan <http://www.guardian.co.uk/commentisfree/2008/jan/30/pakistan.usa>.
- Lederer E. M. (2008): 1 billion could die from tobacco's toll this century. *Associated Press, Atlanta Journal of Constitution* 8Feb <http://www.ajc.com/metro/content/printedition/2008/02/08/tobacco0208.html>.
- McKibben B. (2007): *Deep Economy: The Wealth of Communities and the Durable Future*. Henry Holt and Company, New York, NY.
- Overby D. (2008): Kissing the earth goodbye in about 7.59 billion years. *New York Times* 11Mar <http://www.nytimes.com/2008/03/11/science/space/11earth.html>.
- Patterson O. (1988): The red phone in black and white. *New York Times* 11Mar <http://www.nytimes.com/2008/03/11/opinion/11patterson.html>.
- Serrano R. A. (2008): Domestic terror groups in disarray. *Los Angeles Time* 11Sept <http://www.latimes.com/news/nationworld/nation/la-na-terror11mar11,1,356732.story>.
- Shermer M. (2001): Colorful pebbles and Darwin's dictum. *Scientific American* 284:38.