

**The threat to world peace** today arises less from political or ideological conflicts among nation-states than from social, economic and military challenges. These challenges may arise in one state and spill over into others. Among them rank rising population, the enormous drain of military expenditures, declining access to fresh water, disruption of food production, rising sea level, catastrophic weather events and forced migration of peoples. Each of these things impacts upon the others so that to deal with any one of them requires adjustments in the ways we deal with all of them.

Dealing with them simultaneously is the challenge that state and local governments, including New York City, and country after country around the globe are beginning to address. What they face and what they are doing is this theme we have set out in the “Affordable World Security” venture. So let me explain the rationale behind it:

1) **Conflicts among countries**, of course, have not been wholly solved. The end of the Cold War relieved the dangers in Europe, but not elsewhere. In the Middle East, the dangers of conflict between the Arab countries and Israel and between Israel and Iran are not resolved; in South Asia, Kashmir is a festering sore that infects relations between two nuclear-armed countries, India and Pakistan; and in the Pacific basin, the potential for hostilities remains significant between North and South Korea and between China and Taiwan. These issues promote arms races and so draw away energies, brain-power and money from other social and economic programs.

America is deeply affected by these problems not only abroad but also domestically. The Cold War and subsequent world tensions have helped to shape – or distort – our society and economy. The move toward production of armaments rather than consumer goods in America dates from the memorandum for the National Security Council (NSC), written in 1950 by Paul Nitze “**NSC 68: United States Objectives and Programs for National Security**,” which was adopted by the Truman administration.

Nitze argued that a shift away from the civilian economy toward a military economy could be achieved “without suffering a decline in its real standard of living” and would actually heal the American economy -- which then had nearly 5 million unemployed workers and suffered a decline in GDP of about 20% between 1944 and 1948. His prescription was military Keynesianism: more guns would provide more “butter.”

From NSC 68 may be dated the beginning of what President Eisenhower would call “the military industrial complex.” This was because, while the “initiative in this process lies with the Government,” it was the private sector that seized the opportunity it offered. Companies like Brown & Root, Bechtel, Fluor and the scores of others that had become accustomed to providing the armed forces in wartime speedily learned how to manipulate the government’s authorization (Congressional) and acquisition (Defense Department) process. In effect, they adapted the advertising and sales programs used by commercial companies to their customers, the Congress and the armed services. Their activities were to grow under both Republican and Democratic administrations during the next sixty years.

Today, the Department of Defense spends approximately 56 % of every disposable dollar – that is, not including fixed expenditures like debt service and social security – that the government takes in. It spends more than all other countries’ defense establishments combined and its procurement policies make it a major (if partly indirect) employer in the constituencies of every member of Congress.

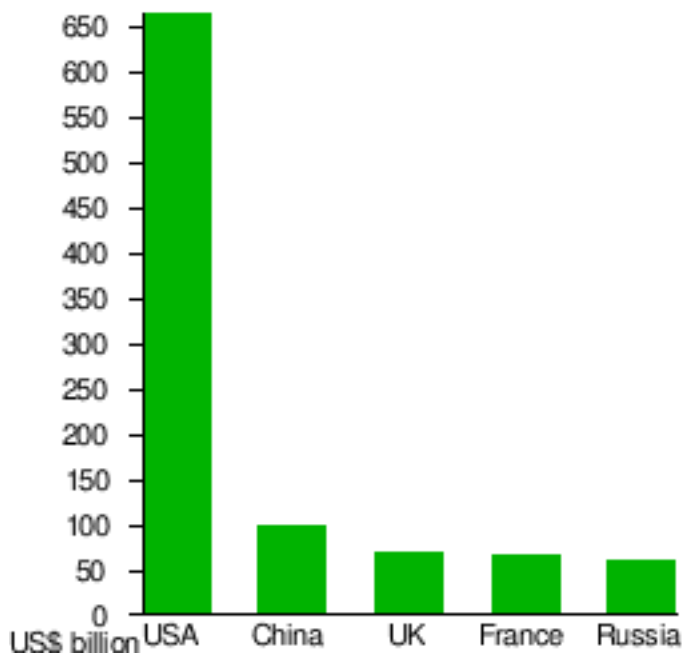
Thus, military allocations have acquired **an almost unstoppable momentum regardless of utility**. Indeed, companies are often able, through Congressional supporters, to force weapons procurement programs onto the Defense Department that the armed services do not want and which are unsuitable or ineffective in current defense challenges.

Moreover, provision of weapons to allies and client states have assumed massive proportions. American, Russian, Israeli and West European sales, which mostly go to poorer, more fragile countries, amounted to about \$60 billion in 2010. Because the profits are often massive, the arms trade tends to promote corruption among both recipient and providers. Sometimes, provision of these “defense” systems provoke wars; frequently, they lead to military coups d’état; and, almost always, they burden weaker states with costs they can ill afford. The net effect was long ago described by President Eisenhower in his most famous speech on April 16, 1953:

“Every gun that is made, every warship launched, every rocket fired signifies, in the final sense, a theft from those who hunger and are not fed, those who are cold and are not clothed. The world in arms is not spending money alone. It is spending the sweat of its laborers, the genius of its scientists, the hopes of its children... This is not a way of life at all, in any true sense. Under the cloud of threatening war, it is humanity hanging from a cross of iron.”

There is no question, of course, that the United States and other countries need some military capacity, but there is also need, as both the Defense Department and the new Congress have proclaimed, for judicious choices and moderation. We are obviously far from having achieved either. The level of expenditures has plunged the nation into debt and caused disruption in its overall economic and fiscal health.

Here is the current line up of the five largest spenders among nations according to the Stockholm International Peace Research Institute (SIPRI):



2) Apart from wars among countries, **insurgencies against governments have been common** in our times. Insurgencies used to be directed primarily against foreign occupiers, as in IndoChina/Vietnam against the French and against us; Algeria against the French; Kenya against the British; etc. This is what we still face in Iraq and Afghanistan.

But, **increasingly, today, insurgencies are directed against local governments.** Many cause enormous damage and inflict huge casualties. In central Africa and Sri Lanka they amounted to genocide. In Thailand in 2010 and Egypt in 2011, they brought normal economic activity to a halt. Some even occupy much of the territory of the countries in which they occur. In India, for example, the insurgents known as the Naxalites control, at least intermittently, up to 30% of the country. In parts of central Africa, insurgents control almost everything outside of the urban areas.

What usually fuels these new-style insurgencies is not nationalism/xenophobia but **misery**. As of 2004, it was estimated that half of the world's population exist on less than \$2 a day and are chronically malnourished; at least a billion have no access to clean water; about 2 billion have no electricity and upwards of 2.5-3 billion have no safe sanitation. This condition is not new. As the saying goes, "the poor are always with us." But what is new are three trends – the scale is much larger as populations rise; the sense of deprivation is growing; and actual deprivation is worsening. Consider these elements:

a) **the number of people:** I was born into a world of about 2 billion people; my children were born into a world about double that; my grandchildren were born into a world of 6 billion; and some demographers predict that we are moving toward a world of 9 billion. There are signs that the trend is slowing, but not always in the best ways: the populations of the richer countries are stabilizing but aging and the populations of the poorer countries are increasing and are younger. Wars and pandemics inflict temporary declines but always in disruptive ways.

b) **the sense of deprivation:** the spread of television, which does not require literacy, has taken to virtually every village and certainly to all towns and cities of the poorer parts of the world images of a different and better life. This has been truly revolutionary by popularizing the concept that misery is not common or necessary.

c) **the actual and expected decline in resources:** excessive depletion of the "natural capital" of the planet's productive soils and water resources along with human activities and natural events that harm the environment have already led to a measurable and dangerous climate change that undercuts the ability of societies to meet the demands upon them and promote conflict.

For some time, it has been popular, particularly in America, to deny this assertion, to denigrate the scientists who make it, and to assert that "business as usual" or even Divine intervention will suffice. However, sober judgments belie these notions.

Among the many, consider just these three:

First, already in the Bush administration, The American Security Project under President Reagan's chief of staff, Kenneth Duberstein, Senator Charles Hagel (R-Ind) and Deputy Secretary of State Richard Armitage found that

“Climate changes threatens unrest and extremism as competition for dwindling resources, especially water, spread. State collapse, massive refugee flows and **increased conflict – both between countries and within them – will be more common.**”

Second, their finding were echoed in the 2007 report of the CNA Corporation (funded by the US Navy) panel of 11 of America's most senior military officers that

“Projected climate change poses a serious threat to America's national security...[Effects] include extreme weather events, drought, flood, sea level rise, retreating glaciers, habitat shifts, and the increasing spread of life-threatening diseases...climate change has the potential to create sustained natural and humanitarian disasters on a scale far beyond those we see today...Economic and environmental conditions in already fragile areas will further erode as food production declines, diseases increase, clean water becomes increasingly scarce, and large populations move in search of resources...[These will foster] internal **conflicts, extremism, and movement toward increased authoritarianism and radical ideologies.**”

Third, more recently, February 2010, the Department of Defense Quadrennial Review made the same theme official by government-wide consensus:

“The U.S. Global Change Research Program, composed of 13 federal agencies, reported in 2009 that climate-related changes are already being observed in every region of the world, including the United States and its coastal waters. Among these physical changes are increases in heavy downpours, rising temperature and sea level, rapidly retreating glaciers, thawing permafrost...Assessments conducted by the intelligence community indicate that climate change could have significant geopolitical impacts around the world, contributing to poverty, environmental degradation, and the further weakening of fragile governments. Climate change will contribute to food and water scarcity, will increase the spread of disease, and may spur or exacerbate mass migration. While climate change alone does not cause conflict, it may act as an **accelerant of instability or conflict...**”

**The conclusion is that to move toward world peace and reduce the heavy burden of military expenditure, consequently, it is necessary to find ways sufficiently to stabilize or reverse the trend toward climate deterioration to meet demands for food and other human necessities. Failure to do so, as these and dozens of other reports have documented, will almost certainly lead both to enormously increased human misery and also to the spread of violent conflict throughout the world.**

2) **We are on the brink of absolutely unprecedented catastrophe.** We have the capacity to avoid it, to preserve our way of life, to protect the natural balance of our planet, to ameliorate the plight of the world's poor and to avoid the dangers of violence, insurrection and international war.

**But, just as the trend toward catastrophe is unprecedented, so the ways in which we seek to avoid it must consequently also be unprecedented.** They will require not only intelligence, dedication and hard work but a recognition that solutions, like the causes and problems themselves, and intertwined, impact upon one another and cannot be separately handled. **They require what economists and programmers call a “Systems Approach.” This is the message we sought to deliver in the “Affordable World Security” Conference.**

4) While they cannot be separated in action, the challenges we face can be described individually. **Here I will set out some of the major problems:**

**Food production** is falling in many areas.

Is it not being solved through **technology**? “Miracle Wheat” was one such solution. Breeding saltwater-resistant plants, biologically modified fruits and vegetables, better systems of harvest and distribution, increased use of fertilizers, and other innovations are being tried. But the results are marginal at best. **Agricultural specialists see nothing comparable to miracle wheat on the horizon.**

Indeed, there is evidence the application of technology and **crop specialization** is producing some new problems. The banana industry, for example, has been effectively wiped out by the soil-based fungus, “Tropical Race Four,” in Taiwan, Indonesia, Malaysia, China, the Philippines and Australia. The disease is spreading to Latin America and, at least so far, has proven to be incurable. Bananas are important throughout much of the world because they are cheap, inherently clean and nutritious. But those species that survive in most areas are not suitable as cash or exportable crops.

And bananas are not alone: production is actually falling for staples like wheat and corn. A major reason is the **decline of water supplies.**

- Saudi Arabia offers the experience of using deep, **unreplenishable, aquifers**: They are a finite resource which, once depleted, are finished. Their depletion has forced Saudi Arabia to stop growing wheat by 2016. [*Financial Times*, April 10, 2008 ] Its government is using its oil wealth to buy land in other countries to grow the food it cannot grow at home. This venture, of course, takes land and water away from natives who, in some countries, have already mounted attacks on both the foreigners and their own governments.
- The roughly 175 million Indian farmers have traditionally relied on **shallow water** tables for relatively non-intensive farming. In recent years, however, they began to expand irrigated cultivation. As climate changed, with a decline in rainfall, the ground water could not keep up with demand and the water table fell so that many farmers were no longer able to reach water by the only means most could afford, shallow wells, so lands and large numbers of villages are being abandoned. Desperate, angry and often dispossessed peasant farmers have mounted an armed insurrection (the Naxalite movement) against the government.
- “The world is on the verge of a water crisis as people fight over ever dwindling supplies, experts told the Stockholm Water Symposium...In China’s breadbasket, the north China plain, [which produces 40% of China’s grain] 30 cubic kilometers more

water is being pumped to the surface each year by farmers than is replaced by the rain. [And]...Chinese officials warned this week that water shortages will soon make the country dependent on grain imports.” (*New Scientist*, Aug 28, 2004). That report was 6 years ago. It has now happened: China now joins Saudi Arabia, Kuwait, Qatar, Libya, Russia, Japan, South Korea and others in acquiring vast stretches of land in Indonesia, the Philippines, the Sudan, the Congo and other poor areas, some of which are already dependent upon international aid to prevent famine.

- In some cases, as for example between Egypt and the Sudan, conflicting water needs may create a serious **danger of international war; in others, it is likely to cause civil war**. Recognizing this, some buyers are insisting that the sellers supply military contingents to protect the land and the foreign workers from starving natives.

**Fishing:** Fish have substituted for beef in Europe since the Middle Ages. The cod was the fish that not only kept Europe from starving but was a major cause of world exploration and trade. Today, cod is close to extinction.

There was a five-fold explosion of ocean fishing between 1950 and 1996; then expansion stopped. **Whole areas of the ocean are today “fished out.”** Fish farming has taken up some of the shortfall, but like people, fish farming faces the problem of declining grain supplies. A number of producing countries have now banned exports and prices are rising steeply. 2009 and 2010 saw unprecedented rise in grain price worldwide.

**Eating richer foods:** People in the rich nations are “moving up the food chain.” That is, they are consuming more meat. Americans consume about four times as much food-grain either directly or in grain-produced meat than Indians, for example. As Lester Brown reports (*Plan B 4.0*), between 1950 and 2007, **yearly consumption of meat increased from 44 to 260 million tons, and roughly 7 units of grain are required to produce 1 unit of beef**. So the impact on grain production of a meat-rich diet is enormous.

**Fueling vehicles:** Americans and others are also diverting grain to production of fuel (ethanol) for their automobiles. This both raises the price of food for the world’s poor and makes grain less available. And it is an accelerating trend both because the number of automobiles in the world is rapidly increasing and because as the price of gasoline rises it is economic to produce ethanol.

**These trends have resulted in a rising cost of food:** Many Asian nations are battling high inflation rates, especially on food and energy. **Even staples like onions are now out of reach for many;** wholesale food prices in general rose 18% over previous year. [*International Herald Tribune*, Jan 13, 2011, Vikas Bajaj, “Emerging markets hit by growing pains.”] “We’re in the midst of a global food crisis – the second in three years,” wrote economist Paul Krugman. [*New York Times*, February 6, 2011] “World food prices hit a record in January, driven by huge increases in the prices of wheat, corn, sugar and oils...they’re having a brutal impact on the world’s poor, who spend much if not most of their income on basic foodstuffs...And there’s little question that sky-high food prices have been **an important trigger for popular rage.**”

5) **Causes of the problems:** Climate scientists and all informed observers agree that the primary cause is the change of climate and specifically **increased warming of the land and oceans.**

- The National Oceanic and Atmospheric Administration of the Department of Commerce reported on July 28, 2010 that “the Earth has been growing warmer for more than fifty years” and that the 1990s was the warmest on record worldwide up to that point. **2009 and 2010 set new records.**

- What this means was made clear by the US National Research Council (NRC) report showing that **each 1°C of warming will reduce rain** in the southwest of North America, the Mediterranean and southern Africa by 5-10%; **cut yields of some crops, including maize (corn) and wheat, by 5-15%; and increase the area burned by wildfires** in the western United States by 200-400%. Drought in Mexico and Central America drove about a hundred thousand refugees into the United States in 2010.

- **Sea levels rose** in the 20<sup>th</sup> century by 4 to 8 inches. This century, sea level is expected to rise between 4 and 35 inches and melting of land-based ice sheets is, according to the US National Intelligence Council and the Department of Defense, already putting some 30 military installations “at elevated levels of risk.” [Department of Defense, “An Abrupt Climate Change Scenario and Its Implications for United States National Security,” October 2003 and *The New York Times*, February 1, 2010, Andrew C. Revkin, “Growing Pentagon focus on Energy and Climate.”]

- A rise of about 3 feet would inundate the rice-growing areas of south (Bangladesh) and southeast (Vietnam) Asia. Taken together with the accelerated melting of glaciers, particularly in Nepal, this would ultimately **starve or force the flight of perhaps 200 million people.** India is already building a 15 foot high wall to prevent the expected refugees from Bangladesh from entering India, and in India itself at least 40 million people would lose their homes and lands. [*The Guardian*, December 6, 2009]

- **US Navy nuclear submarines report that ice thickness at the North Pole has decreased by 40% between the late 1950s and the 1990s. Satellite data show a 10 % reduction in the extent of the icepack over the last two decades.** “The United States Navy, pondering the implications for national security, summertime disappearance of the ice cap could be possible by 2050 if the trend continues.” **This could raise the sea level more than 3 feet.**

- **Catastrophic weather** is both killing more people (35-40 thousand died from heat related ailments in 2003 according to the World Meteorological Organization and the situation is getting worse). The Department of Commerce has set up an early warning system and the National Climactic Data Center (NCDC) to monitor disasters like the Australian flood, the spread of desert in Africa and south Asia and the severe water shortage in the western part of the United States. Even the Panama Canal was forced to close for the first time ever in 2010. Crops were ruined in vast areas of Europe, Asia and Africa. **The overall cost in 2010, not including the damage to New Orleans in 2009 was between \$500 billion and \$1 trillion.** ( NCDC’s report for December 2010 is appended.)

- “The **frequency of natural disasters has increased by 42%** since the 1980s, and the percentage of those that are climate-related has risen from 50 to 82%. The United Nations Office for the Coordination of Humanitarian Affairs and the Internal Displacement Monitoring Center estimates that **in 2008, climate-related calamities drove 20 million people from their homes** – more than four times the number displaced by violent conflict.” [*Scientific American*, January 2011]

- **Melting of glaciers** ironically causes both floods and droughts. Decline of the flow or ill-timing of Nepal glacial melt imperils the food supply of about 25% of the world population, at least 700 million people. On Kathmandu, the UK Department for International Development reports that “people cannot plant their crops in the spring because the winter snows are not so heavy.” Nepal faces “ever more erratic, intense and unpredictable rainfall.” In 2008, 1,500 people died in a flood and 3 million were displaced while 50,000 people lost their homes. But in nearby Bihar state in India, is experiencing its worst drought in a generation with 63 million people going hungry in 2010.

- **Spread of disease:** As the Earth warms, Malaria is spreading to areas where mosquitos did not previously live (Nepal, highlands of Kenya, southern Europe, etc.) and Dengue Fever and West Nile Virus have spread even to the United States. Some epidemiologists predict a new pandemic like the plague that decimated Europe. Cholera, Ebola hemorrhagic fever and HIV (AIDs) are recent examples. Malaria killed 881,000 people in 2010, and it is estimated that half the world’s population is at risk.

- **Global dust storms and smoke:** Satellite imagery shows vast clouds moving across continents and oceans. There is, for example, evidence that dust storms in Africa are killing coral in the Gulf of Mexico. Some are on the scale of the American “dust bowl” of the 1930s and are similarly caused by over-farming or over-grazing. They play a part in diminishing food production.

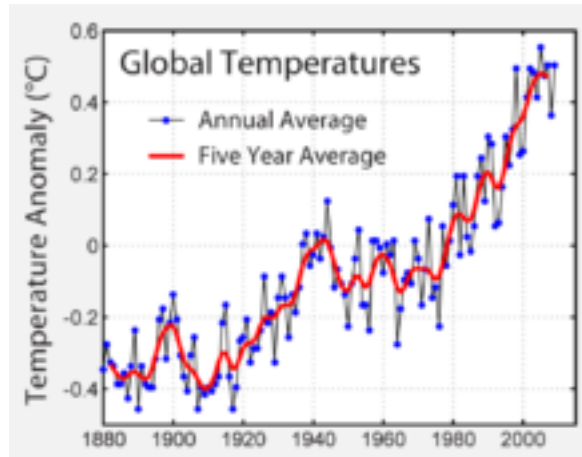
## 6) **What we are doing to the Earth:**

- **Using more than nature can provide:** Depletion of natural resources is now a recognized problem. A 2002 study by the National Academy of Sciences showed that about 1980 we crossed the divide between our use of natural resources and the Earth’s ability to replenish them by as much as 30%.

- **Polluting the atmosphere** with greenhouse gases such as Carbon Dioxide (CO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>) and Nitrogen Oxide (NO<sub>x</sub>) and microscopic black soot which is believed to have caused or contributed to more than a million deaths in 2009 including more than 13,200 in the USA. The overall cost to the US economy has been estimated at more than \$100 billion. (Abt Associates, *The Toll from Coal*, September 2010).

- **Raising temperatures** are shown on the following graph. Skeptics note that the numbers are small and do not compare with the wide variations of weather we experience daily. However, the trend is clear and are accelerating. As noted above, a 1°C rise in temperature will reduce rain enough to cause a decline in yields of corn and wheat by 5 to 15% and double or quadruple the area burned by wildfires in the western US.





**7) Trends toward the future:** There is considerable disagreement among specialists as to the speed of climate change, but no responsible scientists doubt that it is occurring and many believe it is speeding up. In any event, responsible public officials in most of the world's leading nations, especially in China, are already launching major efforts to adjust to it and/or to slow it down or stop it. The American reaction has been much slower. This is so because (a) there are powerful forces – particularly the coal industry -- at work against such a policy; (b) the public has not been informed on the issue, partly because scientists have been maladroit in their public pronouncements; and (c) because action will require short-term costs and inconveniences to accomplish very long-term results. Only recently, and as a matter of national defense, have the federal government agencies adopted a forceful position. Much more assertive and timely have been city governments, particularly New York and Chicago, and state governments, particularly California. The issues are urgent and if serious progress is not made in the next decade, probably irreparable damage will result.

William R. Polk  
February 14, 2011

## Appendix: Severe weather in December 2010:

National Climactic Data Center, US Department of Commerce: "State of the Climate: Global Hazards, December 2010"

Drought and Wildfires: severe drought in Somalia and forest fire in Carmel near Haifa destroyed 5,000 hectares and 5 million trees;

Flooding: 12,000 people were evacuated in northern Albania and 14,000 hectares of farmland destroyed; torrential rainfall in Central America with landslides caused 100,000 to flee their homes; heavy rainfall and flooding in Panama damaged over 2,500 homes and **closed the Panama Canal** on Dec 8 and 9<sup>th</sup> "the first time the canal closed due to weather conditions since it opening in 1914." Record rainfalls in Pacific NW; downpours in LA broke all records; heavy rain in West Australia forced thousands to evacuate with flooding also in the west.

Severe Storms: powerful cyclone in eastern Mediterranean and Middle East brought torrential rains; shipping disrupted in the Suez Canal; waves whipped up to 10 meters on Lebanese coast; 11 tornadoes in SE US.

Severe Winter Weather: "Cold Arctic air gripped western Europe during most of the first three weeks of December forcing airport closures and disrupting land transport. At LHR 5 inches of snow fell in one hour. Paris which typically receives rain had 10 cm of snow; 75 cm of snow fell in Edinburgh. Capri recorded its first snowfall in 25 years. In Northern Ireland, temperature fell to the lowest temperature ever recorded at -18°C; Midwest US had 43.1 cm, largest December snow storm on record in Minneapolis/St. Paul; Eau Claire Wisc. Had 55.9 cm, its highest single day snowfall in history. Arctic conditions then swept into the US southeast