The Mother of All Conflicts

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Watching the public debate and media coverage regarding climate change, one could get the impression that the world is not taking the climate threat seriously—that the issue is stuck in a quagmire of uncertainty, political posturing, and competing national interests. But away from the public eye, professionals within the military and the security establishment who objectively analyze risks and threats are rapidly sharpening their focus. They recognize that climate change—along with other ecological and resource constraints—could be the defining threat to global stability in the twenty-first century, and they see significant implications for the role and focus of security professionals.

The level of engagement is becoming widespread. In April 2010, 33 retired generals and admirals wrote to the United States Senate majority and minority leaders, stating that "climate change is threatening America's security [...] it exacerbates existing problems by decreasing stability, increasing conflict, and incubating the socioeconomic conditions that foster terrorist recruitment. The State Department, the National Intelligence Council, and the CIA all agree, and all are planning for future climate-based threats."[1]

The analysis by defense experts recognizes the very long-term nature of a changing climate, and the risk that self-reinforcing climate feedbacks could push the issue beyond humanity's capacity to control it. This was strongly articulated in a comprehensive review of the subject by the Royal United Services Institute, a respected British defense think tank, which concluded: "In the next decades, climate change will drive as significant a change in the strategic security environment as the end of the Cold War. If uncontrolled, climate change will have security implications of similar magnitude to the World Wars, but which will

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last for centuries."[2]

Given the scale of such a threat, it is encouraging that our defense experts are paying attention. Even a cursory examination of the science suggests that it will have far-reaching impacts on the geopolitics and security of the world, inevitably involving the military, which will be forced to respond to conflicts triggered by food and refugee crises and managing the consequences of failed states.

This is not just one more security threat—it could be the defining security threat of the century

Is the climate threat that serious? Statements that argue climate change will have "security implications of similar magnitude to the World Wars" that will "last for centuries" make it sound less like a threat to national security and more like a threat to the stability of civilization.

To determine the severity of the climate threat and to frame the relationship between climate change and conflict, it is useful to return to the roots of conflict itself. Conflict has been and always will be a part of human society and plays an important role in the geopolitical landscape of the world. The inevitability of conflict suggests that the goal should be to manage rather than eliminate it. To accomplish this goal, there are two options: reduce the causes or manage the consequences. The latter option is well understood and the markers of success or failure are clearer, partly because it is easier to identify actions and measure progress. For example, land mines can be dealt with by treaties and the impact of these treaties measured by the extent of the weapons' use. Similarly, nuclear nonproliferation can be judged by the number of nations with weapons. Dealing with such issues in this way is a process with which we are familiar; likewise with intervening early in conflicts to prevent escalation by actions such as deploying peacekeeping forces.

The focus on reducing the *causes* of conflict, however, is both less developed and more complicated, partly because causes are generally numerous and interrelated. Since conflict is inevitable, a further complicating issue is that what we think of as causes are more often actually multipliers—they create the conditions in which conflict caused by other issues can be triggered or accelerated. A good case in point was extreme weather and its resulting impacts during 2010 and 2011, with droughts in Russia and floods in Canada causing a global spike in food prices that saw wheat prices double in seven months. Noting that such food price increases were widely seen as a trigger—though not a cause—of the Arab Spring, Sarah Johnstone and Jeffrey Mazo, writing in the journal *Survival*,

argued that this was "a textbook example of what analysts mean when they talk of complex causality and the role of climate change as a 'threat multiplier.'"[3] This complexity makes issues like climate change fiendishly messy and all the more difficult to manage. Perhaps as a result, while policy makers analyze and plan for climate change as a security threat, they rarely advocate action to reduce the threat—at least not with the same strength of commitment as with other security questions, such as terrorism or rogue-state nuclear programs.

It is in this context that we will face a century where these more diffuse and indirect causes—not just climate change, but poverty, food and resource constraint, and refugee flows—could well be the major global drivers of conflict. This view, particularly with regard to climate change, is now widely held by an increasing number of senior military officers and foreign policy experts around the world. For example, Rear Admiral Neil Morisetti, the United Kingdom's Climate Security Envoy, said, "the impact of climate change is likely to be most severe in areas where it coincides with other stresses, such as poverty, demographic growth, and resource shortages: areas through which much of the world's trade already passes. We are also in agreement that climate change will accelerate global instability and that it is likely to shape our future missions and tasks."[4] Concern about the climate threat is widespread internationally, as Morisetti also notes: "When I talk to colleagues from Africa and Southeast Asia it is apparent that they are already taking into account the consequences of climate change when determining their priorities.[5]"

While it is inherently hard to forecast the precise local consequences of climate change, the scenarios outlined above illustrate why defense planners and experts are paying more attention to the issues. There is an emerging recognition that climate change is one in a series of resource constraints that are likely to intersect, resulting in conflict and tension. For example, food supply is threatened by a changing climate, as well as underlying threats to supply such as degraded soils, depleted aquifers, and rapidly increasing demand from the developing world, all of which compound the problem.

Climate change would act as a threat multiplier by exacerbating conflict over resources.

The interrelationships between climate and other resource constraints are widely recognized. Retired U.S. Marine Corps general Anthony Zinni, former commander of U.S. Central Command, participated in a high-level Military Advisory Board review on the subject, which concluded that climate change would act as a threat multiplier by exacerbating conflict over resources—especially in light of declining food production, border and mass migration tensions, and

other factors—thereby increasing political instability and creating failed states.[6]

The findings of this report agree with those of the confidential assessment of the security implications of climate change made by the National Intelligence Council (NIC). Thomas Fingar, the former chairman of the NIC, which coordinates the United State's 16 intelligence agencies told Congress that climate change, if left unchecked, has "wide-ranging implications for national security because it will aggravate existing problems," especially in already vulnerable areas such as Sub-Saharan Africa and the Middle East.[7] According to an NIC briefing document, by placing added stress on resources, climate change will "exacerbate internal state pressures, and generate interstate friction through competition for resources or disagreement over responses and responsibility for migration."[8]

While conflict has many causes, the concern of defense experts is that climate change and other resource constraints, such as food supply, will tip the balance, thereby increasing conflict and ultimately causing the collapse of states. In 2010, the Pentagon's Quadrennial Defense Review acknowledged that climate change would act as "an accelerant of instability or conflict, placing a burden to respond on civilian institutions and militaries around the world."[9] Another study examining the correlation between temperatures and civil war in Sub-Saharan Africa in recent decades concluded that civil wars in the region are likely to increase by 50 percent by 2030.[10] That level of conflict likely means millions of deaths and an international impact. A more complete and more disturbing picture is provided in Gwynne Dyer's book *Climate Wars*.[11] Dyer, a military and international affairs journalist with a solid understanding of climate change science, portrays the collapse of the European Union in the 2030s. In his scenario, northern African refugees overrun southern Europe, and southern Europeans flee to the northern states to escape an expanding Sahara. Dyer sees potential for nuclear conflict between India and Pakistan over water resources and a completely militarized United States–Mexico border as the United States seeks to keep out massive waves of immigrants.

In light of these and many other studies with thorough analysis by credible global experts in climate science, food supply, resource constraint, and economics, it is not hard to conceive of a serious, collapse-inducing global crisis.[12] Possible consequences include:

- Global famine with hundreds of millions facing starvation conditions and associated security crises.
- A series of wars raging in the Middle East and elsewhere over water.
- Armed conflict between China, India, and Pakistan over millions

of refugees resulting from political breakdowns and food shortages.
- The drowning of people and nations in low-lying islands during storm surges.
- The global insurance industry going into insolvency in the face of a series of climate disasters and the run-on effects in the banking industry of using uninsured assets as debt collateral.
- The collapse of global share markets when the risks of all these scenarios are priced into share portfolios, including what is referred to as the carbon bubble—an inevitable collapse in the value of fossil fuel assets if the world acts to slash carbon dioxide emissions.[13]

We should assume the world will not yet respond to these risks—the situation will deteriorate considerably before strong action is taken

Given the geopolitical and security implications of climate change, the world's foreign policy, military, and security establishments should be paying a great deal of attention to these issues as matters of some urgency. As suggested by the assessments discussed earlier, many experts are already concluding that climate and resource issues pose major risks. So is that enough? Isn't this just one more in a series of potential causes of conflict and threat multipliers that needs attention?

In short, no. Because of its complexity and capacity to exacerbate other risks, climate change is likely to be the defining cause of conflict, security, and economic risk of the coming century. To understand why, we will look at the context of the global response to the climate risk to date. This brings us back to where we started: the nature of conflict, the trends that exacerbate it, and the poor record in effectively managing such causes.

Consider our progress in acting on climate change—a relatively simple issue compared to broader global resource constraint. While there will always remain some uncertainty in forecasting the details of magnitude and timing of climate impacts, the core proposition—that the climate is changing, that we are the main cause, and that the consequences are certainly serious, and possibly catastrophic—is accepted globally by *every* major scientific body and *every* major government. With the best science guiding them, experts in economics, food supply, resource availability, geopolitics, and security have concluded that we face serious risks. These range in potential impact from significant threat multipliers, to catastrophic system breakdown and social collapse.

So it is clear that, while acknowledging the inevitable uncertainties, climate change poses a risk of material significance to global stability and security. The

analysis suggests a range of negative outcomes, with more serious ones resulting if we do not take firm action to reduce the risk. Yet at present, there is a collective failure by the international community to reduce the risk by addressing the threat at the political level. Indeed, despite decades of negotiations, there has been virtually no material progress with respect to reducing emissions. Even the Kyoto Protocol, which was seen as the culmination of long complex negotiations, was agreed to some 15 years ago—and then failed. We are not even slowing down the *increase* in carbon dioxide emissions, with last year recording the highest emissions ever. So despite clearly articulated and analyzed threats, we are not acting preventively on climate change, nor are there any signs that we are likely to do so. In fact, recent political trends, especially in the United States, suggest that such action is getting less likely in the coming few years.

Therefore, in summary, it would be prudent to plan for what is, on present information, the most likely outcome. That is a continued lack of preventive action leading to climate impact scenarios at the worst-case end of forecasts, such as those outlined earlier. In other words, this will evolve into a clear threat to the stability of global civilization and pose the risk of collapse.

In line with the history of human conflict and crisis, this is then likely to be quickly followed by a dramatic response by the international community to both manage the then-cascading consequences and to drastically reduce the causes, but at a late stage. The implications for both the global economy and global security are enormous.

It is realistic, even inevitable, that the world will eventually respond to climate change with a mobilization at the scale of World War II

Since the world has been focused in the last few decades on developing a global agreement to act on climate change, little attention has been given to the practical consequences of failure. The assumption has been that, while the process would be challenging, an agreement would be reached and implemented—an assumption that is now looking quite wrong. As a result, while there has been considerable attention given to the environmental consequences of accelerating climate change, there has been comparatively little research into what a late but dramatic response could look like to both manage the consequences and to take strong action to reduce the causes.

Given this, I have in recent years worked on this question, researching it with Jorgen Randers, Professor of Climate Strategy at BI Norwegian Business School. One of the results has been the One Degree War Plan, which we de-

veloped as an example of what an emergency or crisis response might entail.[14] We concluded that the world was probably still a decade or so away from really engaging with a comprehensive response to the climate threat. Given the lags in the global ecosystem—the delay between action to reduce emissions and the commensurate reduction in warming effect—any response that hoped to stabilize the global ecosystem at the late stage of about 2020 would have to be breathtaking in scale, certainly compared with any proposal currently on the table. This was because less-drastic action would be overcome by the lagging nature of impacts on the ecosystem. [15]

The only comparable economic and social mobilizations historically have been in times of world war—a useful reference point to consider the scale that would be involved with an emergency response to the climate challenge. In the case of World War II, the speed of response by the United States was extraordinary. For example, whereas in 1940 U.S. defense spending was just 1.6 percent of GDP, within three years it had increased to 32 percent, and by 1945 it was 37 percent. Given that GDP increased by 75 percent during that time, the observed increases are even more significant.[16] Similarly extraordinary political decisions were made to direct the economy. Just four days after the bombing of Pearl Harbor, the auto industry was ordered to cease production of civilian vehicles. Over the proceeding period, gasoline and tires were rationed, campaigns were run to reduce meat consumption, and public recycling drives were held to obtain metals for the war effort. There was still plenty of resistance, but the political leadership of the day, with public and business support, simply overrode it for the greater public good because the consequences of failure were unacceptable. The response in the United Kingdom and other countries was of a similar nature and scale.

Such a mobilization can only be envisaged when there is a major global crisis (i.e., an acceptance that a risk is of sufficient scale to threaten global stability). Nothing else could drive the necessary dramatic shift in the political context. In the case of climate change, the fact that a crisis will be needed before society responds at the scale required actually makes such a crisis inevitable. This is because the inaction of society will result in physical and economic climate impacts steadily building until such a crisis is triggered. In other words, the problem accelerates until it is addressed.

Even with the high level of awareness of the risks that we have today, it is hard to imagine a response at the economic scale of mobilization for a world war. However, when there is greater acceptance of the risk of global collapse, powerful political forces in business, the military, and the broader community will

demand urgent and dramatic action. This demand will be sufficient to overcome what we see today—vested short-term economic and national interests fighting for the protection of economic wealth by slowing down change.

There are parallels in this to the context in which World War II was declared both in the United Kingdom and in the United States. The parallels apply both to the earlier denial of the scale of the threat by those nations (where many argued the threat was not so great or could be managed) and their dramatic response once it was accepted (which was unprecedented in scale). Therefore, World War II contains many valuable lessons. In both World War II and the recent financial crisis, there are clear examples of how fast things can change and how apparently intractable opposition and resistance can quickly evaporate.

The decision for a dramatic war-like response to climate change is likely to be similar to their historical decisions—emerging coalitions of interest rather than a single global agreement

The process to approve the Kyoto Protocol, including meetings such as the Copenhagen and Durban conferences, shows the difficulty of making global agreements regarding climate change. This is not surprising. After all, there are few examples in which a major military action or serious global economic transformation was driven by a global consensus. It is hard to get a deal in place when everyone agrees to the need. It is much harder in the case of climate change, where many participants have actively sought to undermine an agreement.

The history of the last hundred years suggests that the international community rarely makes significant decisions with the consensus of national governments. For example, we did not seek a single global agreement to free trade, but instead made steady progress over 50 years toward it. We started with consultative bodies like the General Agreement on Tariffs and Trade (GATT), negotiating agreements between individual countries and then expanding them to regions. Meanwhile, the international community slowly built the global infrastructure for governance of trade, taking from 1947 with the formation of GATT until 1995 to form the World Trade Organization (WTO), a body with enforcement power. More than 60 years after GATT, even the WTO is still not global in scope, with China only joining in 2001, which alone took 15 years of negotiations.[17]

For climate change, an even more complex economic issue with significant business and national resistance to change, it is hard to imagine jumping straight to a single, legally enforceable, global agreement—even in a crisis. The

evidence with regard to other decisions on economics and on conflict over the last hundred years suggests that if nations did decide to launch a rapid response to climate change, it is likely that a small number of powerful countries—a kind of "Coalition of the Cooling"—would decide to act and then others would follow. Followers could do so to align with major powers or participate under military, economic, and diplomatic pressure.

In a technical sense, this process would be relatively easy. A full 50 percent of global greenhouse gas emissions will be covered if China, the United States, and the 27 nations of the European Union agree to engage in a crisis response. If Russia, India, Japan, and Brazil were added to the coalition, 67 percent of global emissions would be covered.[18]

We are capable of making the political decisions required for such a dramatic response, and it could then still be effective and not "too late"

What the work undertaken by Professor Randers and myself (and similar studies undertaken since) shows is that, based on current knowledge and technology, a target of limiting global temperature increase even to one degree Celsius above pre-industrial levels is completely achievable at an acceptable cost when compared with the price of failure. The significant changes to industry structures would be disruptive to sectors of the economy and too many people, and it would require considerable short-term sacrifice, but it would certainly "solve the problem." Unlike the much-discussed two-degree target, which would still see widespread disruption and conflict to global society, a one degree target would have a good chance of bringing the global climate system, and therefore global society, to a stable state.

So from the point of view of our political decision-making capacity and our technical and economic capacity, the issue with climate change is not our capacity to fix it, but our decision to act. Identifying such a decision point is simple: when the dominant view becomes that climate change threatens the viability of civilization and the collapse of the global economy, a crisis response will rapidly follow. Then society's framework will change from the presently accepted maxim of "what is politically possible" to what Winston Churchill called—in the case of World War II—"what is necessary."

Although most governments are still officially focused on a far gentler transition, there are now many plans that describe a much more dramatic level and pace of change in line with this analysis. The Sustainable Society Institute at the University of Melbourne recently published "Post Carbon Pathways," a review

of 18 such plans around the world.[19] The One Degree War Plan, by Professor Randers and me, was one of the plans reviewed and was broadly in line with the others. We concluded that at a late stage, four types of actions will be required to take control of the crisis to do, in Churchill's terms, "what is necessary:"

- Adaptation and security measures to reduce hardship and geopolitical instability caused by then-unavoidable physical changes to the climate including food shortages, forced migration, and military conflict over resources.
- A massive industrial and economic shift: that would see the elimination of net carbon dioxide–equivalent emissions from the economy within 20 years, with a 50 percent reduction in the first 5 years.
- Low-risk and reversible geoengineering actions to directly slow temperature increase to safely overcome the lag between emissions reduction and temperature impact.
- Ongoing removal of around six gigatons of carbon dioxide from the atmosphere per year for around 100 years and store this carbon dioxide in underground basins, in soils, and in biomass.

In considering such a scale of transition, it is clear there are many important geopolitical implications. While researchers more commonly focus on the disruption and conflict caused by physical changes to the climate, the shift to a post-carbon economy would also generate great economic and social change, with both winners and losers in geopolitical terms. For example, if such a transition were to deliver, as many argue, the wide availability of cheap renewable energy, this would reduce tension and conflict over the security of energy supplies in many regions—a major source of historical conflict.[20] It would also make a major contribution to reducing poverty, with attendant reduction in political stress. Many countries currently use their energy resources to exert geopolitical influence and to finance their own political stability. In a post-carbon world powered by renewable energy, most of them would lose this capacity, often to their disadvantage but to the advantage of others who would then have energy security and independence.

Conclusion

While society will continue to debate the likely impacts of climate change and resource constraint and the various associated responses, the balance of existing

knowledge shows that climate change poses a significant challenge to international stability and to the global economy. The scale of the threat includes the potential for civilization-threatening consequences. Given the lack of action by the international community to reduce the risks, society should plan for impacts at the worse end of the range of forecasts. This suggests a global crisis is highly likely to emerge, leading to high levels of national and international instability.

When a crisis emerges, the international community is likely to move from the national economic self-interest approach to a collective threat context comparable to that of World War II. A war-like mobilization could then prevent the crisis from spiraling out of control. This mobilization would need to both manage the security and social consequences of climate change and drive the economic transformation necessary to dramatically reduce emissions, along the lines outlined in this paper.

To avoid breakdown at that point, the decision-making process will be compressed since rapid action will be required. The best experience we have with such a massive-scale economic, industrial, and societal mobilization is with war. The foreign policy and military communities therefore need to engage in planning for this possibility as a matter of some urgency. The science relating to accelerating climate impacts and the known lags between taking action and the climate's response suggest that this scenario could come to a head in this decade or soon after. This means the window for acting ahead of time is rapidly closing.

The required planning includes the capacity to respond to threats already identified by defense experts. These suggest we are going to face very significant demands on our armed forces to both manage resulting conflict and to support disaster relief and refugee flow around the world. These impacts are likely to be more diffuse and more global than a traditional war, and thus require reconsideration of organizing military capacity and planning for such eventualities in international diplomacy. How would we manage widespread famine in China and India? How would the world respond if island nations literally ceased to exist? What would happen if half of Bangladesh needed to be evacuated? While tragic, these are manageable situations—but only if we are ready for them with the right planning and the needed capacity.

A war-like mobilization could prevent the crisis from spiraling out of control.

In addition, we need to plan for the economic changes that will result from the crisis. The crisis triggered war-like mobilization and economic transformation will have many positive benefits, particularly for energy security. However, there are likely to be high levels of social tension and economic instability in

some countries as nations manage the transition away from fossil fuels and face up to other resource constraints.

In summary, we now need our foreign policy, defense, and security communities to be fully engaged on the issues of climate change and resource constraint—not as one more issue, but as the framing issue of the twenty-first century.

Notes

1. For more information on the letter to Congress, see: Joe Romm, "Senior Military Leaders Announce Support for Climate Bill," *Think Progress*, April 29, 2010, http://thinkprogress.org/romm/2010/04/29/205887/senior-military-leaders-announce-support-for-climate-bill/.

2. Royal United Services Institute, "Delivering Climate Security: International Security Responses to a Climate Changed World," *Whitehall Papers* 69 (2007).

3. Sarah Johnstone and Jeffrey Mazo, "Global Warming and the Arab Spring," *Survival: Global Politics and Strategy* 53, no. 2 (2011): 11–17.

4. Neil Morisetti, "UK Military Shares U.S. Concerns About Climate's Security Threats," Woodrow Wilson International Centre for Scholars, March 17, 2010, http://www.wilsoncenter.org/article/uk-military-shares-us-concerns-about-climates-security-threats.

5. Ibid.

6. John Kerry, "Climate Change: The New National Security Challenge," United States Senator for Massachusetts: Press Room, May 21, 2010, http://kerry.senate.gov/press/in_the_news/article/?id=d91b341e-5056-a032-52cd-740ae10af3d0.

7. Testimony to Congress, http://www.dni.gov/testimonies/20080625_testimony.pdf.

8. Kate Sheppard, "National Intelligence Assessment Finds That Climate Change Poses National Security Threat," Grist, June 26, 2008, http://grist.org/politics/hot-zones/.

9. Sharon Burke, "National Security and Fuels of the Future," *White House Blog*, July 15, 2011, http://www.whitehouse.gov/blog/2011/07/15/national-security-and-fuels-future-importance-sec-526.

10. Marshall B. Burke, et al., "Warming Increases the Risk of Civil War in Africa," *Proceedings of the National Academy of Sciences* 106, no. 49 (2009).

11. Gwynne Dyer, *Climate Wars: The Fight for Survival as the World Overheats* (Toronto: Random House Canada, 2008).

12. For expertise on food, see: Lester R. Brown, *World on the Edge: How to Prevent Environmental and Economic Collapse* (New York: Earth Policy Institute, 2011): for expertise on resource constraint and economic risk, see: Jeremy Grantham, "Days of Abundant Resources and Falling Prices Are Over Forever," GMO Quarterly Letter, April 2011.

13. "Unburnable Carbon–Are the World's Financial Markets Carrying a Carbon Bubble?" Carbon Tracker, http://www.carbontracker.org/carbonbubble.

14. Jorgen Randers and Paul Gilding, "The One Degree War Plan," *Journal for Global Responsibility* 1, no. 1: 170–88.

15. Since producing that study and publishing a book on that and related topics, *The Great Disruption*, I have had the opportunity to test the conclusions with global experts around the world in many fields, including security, foreign policy, business, and economics. This process, the basis for this article, helped reinforce the conclusion that this outcome—delay, crisis, and then a dramatic response—is more than likely the way events will unfold.

16. Christopher Tassava, "The American Economy during World War II," *Economic History Encyclopedia*, February 5, 2010, http://eh.net/encyclopedia/article/tassava.WWII.

17. For more information on the history of WTO, see: "The GATT Years: From Havana to Marrakesh," World Trade Organization, http://www.wto.org/english/thewto_e/whatis_e/tif_e/fact4_e.htm.

18. "Climate Analysis Indicators Tool," World Resources Institute, http://cait.wri.org/cait.php?page=yearly. These percentages are based on 2005 emissions, excluding land use, land use change, and forestry.

19. John Wiseman and Taegen Edwards, *Post Carbon Pathways*, http://www.postcarbonpathways.net.au/.

20. Ibid.