# COMMON SECURITY, UNCOMMON CHALLENGES: RESILIENCY IN AN ERA OF THE UNTHINKABLE

*The combined challenges of energy and environmental security pose important national security questions and risks that, with few exceptions, remain poorly formulated and understood today. This article, adapted from a keynote address given by Carol Dumaine at the 8th International Security Forum in Geneva, Switzerland, shines light on these issues and calls for a common security framework to strengthen our ability to cope with global change.*

When we step into a familiar environment or situation we often see those things that we've seen many times before in similar circumstances. Without being told, we know what the rules are for we have been here before and presume to know what will happen. But what happens if we are placed in an environment that is unfamiliar? We don't recognize the clues. We don't know what the rules are. We don't know how to act so we don't act or we may act in ways that heighten the risk to ourselves. And, unfortunately, the consequences can be catastrophic.

In the morning of December 26, 2004, just before the onset of the Asian tsunami, several photographs were taken of beachgoers in Thailand and elsewhere who, intrigued by the receding ocean and not understanding its significance, walked out onto the seabed to investigate. They had no concept of what the seabed foreshadowed. They didn't recognize the clues. They didn't recognize the danger they were in until it was tragically too late.

Today, we are similarly in a moment of fateful consequence, aware of an exposed planet strewn with hints of change. Like the beachgoers, many of us are inattentive to the dangers. Conceptual gaps prevent us from fully comprehending the interacting systemic currents of change that loom like subterranean fault lines just below the surface of our attention. These gaps keep many of us from realizing that the future requires our immediate attention and action. Updating our conceptual framework is the necessary starting point. If we are looking at the world through outdated frameworks, our decisions will be wrong, and by not adapting our frameworks to our new circumstances, they will continue to be wrong. This will trigger cascading impacts that we are not prepared to confront. As Louis Pasteur said, "Chance favors the prepared mind." A more interconnected world makes surprises inevitable and prepared minds essential.

## Surfacing nature's hidden security secrets

As a traditional national security analyst working in a mostly closed environment years ago, I focused on a narrow slice of a larger problem. In the past two decades, my perspective on the challenges we face has broadened. I've come to realize that many of the most urgent secrets requiring our attention in the 21st century are not classified or sensitive. However, this information affects the security of every nation. These "secrets," like those which originally gave rise to science and the Enlightenment in the 18th century, are Nature's secrets. They cannot be stolen, but rather need to be discovered. Unearthing and understanding some of the most urgent secrets—and acting upon them—will require us to handle them with extreme openness.

The secrets we must consider today are as serious, if not more so, as the specter of nuclear Armageddon during the Cold War. Gaining access to nature's secrets holds the promise of understanding as soon as possible what the impacts might be on our collective security of worse-than-anticipated rates of climate

change, the rising incidence of emerging infectious diseases, the loss of habitat and species, the shrinking availability of arable land, and the looming scarcity of fresh water.

Such secrets, moreover, merge into a particularly dangerous mix of classical security problems, such as conflict over resources, urban unrest, organized crime, proliferation, as well as failed and failing states. No single expert, agency, or government can understand, let alone remedy, the security challenges simmering in this volatile brew of complex systems. These urgent questions affect the security of every nation and every person. They involve understanding the interconnections among the physical, biological, economic, environmental and social systems that make up our world.

Recently, with government and non-government international partners, I've been engaged in creating an unclassified strategic intelligence, or foresight and warning, capability on energy and environmental security issues. Such a capability is meant to enhance our capacities for early recognition, not only of dangers, but also of opportunities and of potential unintended consequences. Our approach considers energy and environmental security issues as an integrated whole as opposed to separate parts. This is because these combined challenges pose global security risks that, with few exceptions, remain poorly formulated and understood.

**The need for a new security paradigm**
Our work has made clear that unfamiliar global challenges require redefining our concepts of security in order to develop this strategic intelligence capability. Updated concepts of security would emphasize understanding the vulnerabilities, critical nodes, and methods for boosting resiliency of the systems on which civilization—and our lives—depend. The linked challenges of energy demand, population increase, food and water scarcity,

climate change, biodiversity loss, and economic interdependence pose a potential tsunami for the world. These challenges are "uncommon" in that they are of a scale and level of complexity unprecedented in human history; comprehending their significance and taking meaningful action comprises our common security dilemma.

The systemic challenges we face include demographic realities: the number of people on the planet, already more than four times greater than only a century ago, is set to increase again by 35 percent—that is, by another 2.4 billion—within 40 years. Most of the population growth will be in the developing world. As a consequence, world energy use is expected to grow by more than 60 percent within this same time frame. Continued reliance on fossil fuels during this period is likely to overwhelm a range of critical systems and amplify climate change, ocean acidification, and species loss.

In addition, reports indicate that human activity worldwide is causing a loss of habitat and species extinction on a scale not seen for millions of years. There is also a strong scientific consensus that compels us to acknowledge that our global climate system is now committed to a significant temperature rise, even if drastic reductions in greenhouse gases (GHG) are implemented. And, if current trends in GHG emissions continue for the next several decades, global temperatures are likely to rise by 3 to 5 degrees Celsius, despite any future agreements leading to stabilization of atmospheric concentrations. These facts alone place our civilization—and us as individuals—at a crossroads; we must not only know where we are but also the consequences of the directions we choose to take from here.

The interactions among these systems—where a small perturbation in one vital system leads to a collapse in another—contain serious risks for our common security. These complex and

highly interconnected systems are unpredictable and filled with the potential for faster-than-expected changes. Already, for example, the rate of Arctic ice melting has exceeded the worst-case projections of [the Fourth Assessment Report (April 2007) prepared by the UN Intergovernmental Panel on Climate Change (IPCC)](). Global climate systems tend to be nonlinear, meaning that when changes occur they are often quite abrupt and impacts will not be felt evenly across different regions.

## A multidisciplinary, multi-owner approach to global security

Our work has shown that global security in the 21st century will be extraordinarily intertwined with scientific discoveries. Communicating these discoveries—and their potential consequences for our ability to cope with global change—will be critical to our common security. One area of our focus must be on the nature of knowledge itself; we need to look at, for example, how disciplines that have been kept apart until now can be recombined to create new insights and how these insights can be acted upon more quickly. Expertise isolated from other domains is vulnerable, just as species are vulnerable when their habitats are carved up for development. Improving our understanding of biological systems might provide clues to ways for recombining our knowledge into resilient and diverse networks for enhancing global foresight and adaptability. One way our work to date has advanced this requirement is by prototyping an Energy and Environmental Vulnerability Framework. Our energy and environmental security work anticipates that the nature of the security challenges we face will stimulate a blending of science, security, and intelligence into an open global foresight "commons."

Our work has further suggested that, to address such systemic risks, we must extend our understanding of national security to a concept of common security "owned" by all. This is a non-zero

sum world in which even small-scale action, or inaction, can have disproportionately large consequences on the whole. This is increasingly a world in which security for some is security for none. Moreover, it is a world in which the premium on shared purpose has never been greater.

Unfortunately the gap between the readiness of our 20th century national security institutions and 21st century security realities is ever widening. Seeing and understanding the "canaries in the mine" that warn us of impending dangers have never been more important. Yet, the history of most national security establishments is one of a profound inability to adapt in time to new security threats. Typically adaptation, if it occurs, is a reactive response to disaster after it happens—this is the classic problem of always preparing to fight the last war.

**Creating a global foresight "ecosystem"**
Our work demonstrates that government and intergovernmental organizations cannot tackle these challenges on their own as no one entity owns these issues. Clearly, in this volatile world, it is not just the "what" that has changed, but also the "who." Today, we face security challenges that cannot be met without better equipping and enhancing the abilities of our societies as a whole to respond to them. Common security requires collective responsibility. As the response to the recent outbreak of swine flu reminds us, we must invest in nurturing open collaboration that relies upon society taking a much more active role. And, if everyone's going to be involved, clearly we can't call the information we're handling secrets.

What can we do about these challenges? Our work has focused on the need for a global foresight commons or "ecosystem" that connects diversity of expertise, non-specialists, and fresh thinking. Albert Einstein famously observed that "We cannot solve our problems with the same thinking that created them." In

this century, we will need a concerted effort to invest in capacities of global mindfulness, relying on an interconnected web of prepared minds to address these challenges with new thinking.

Fortunately, we live in times when there are new possibilities for working quickly across domains. The evolution of early forerunners of collective learning and intelligence, such as eBay and Wikipedia, as well as multinational corporations' embrace of "open innovation" business models, provides clues to the future. Peer production and citizen science are other areas rich with hints of the future: from studies of bird populations to the health of reefs, online citizen science projects measure the health of native species and monitor the advance of invasive species. Alternative reality games also show promise for increasing awareness of potential impacts of climatic changes as well as food, water, and energy scarcity on local areas, regions, and the planet. [The alternative reality game "World Without Oil"](#) provided an early example of this.

In recent years, I've been fortunate to begin engaging with people and institutions worldwide on energy and environmental security issues. We've focused on building relationships that—over time—will prove essential in enabling the collective intelligence and strategic foresight we need. We describe our evolving capability as an "ecosystem" approach to connecting diversity of talents and perspectives sufficiently capable of meeting these global challenges. We're experimenting with evolving smaller networks focused on specific topics that later will link across to other networks, forming the larger ecosystem in a bottom-up fashion. For example, this community has undertaken projects exploring ways to communicate the risks of abrupt climate change to decision-makers and the impacts of climate change on existing and future energy infrastructure. We're evolving an online platform to enable multinational peer-to-peer creation and

evaluation of strategic insights and analytic products concerning energy and environmental security.

Sustaining ingenuity with a multinational, multidisciplinary, and multifunctional team
Our approach recognizes that most of the needed insights, diversity of talent, and innovative ideas will come from outside our respective organizations. Our international partners recognize that this system, like a garden, cannot be built or engineered, but must be cultivated with sustained care over time. Please note that the major secret here concerns how to cultivate ingenuity and harvest collective intelligence. Traditional organizational metrics and values will not help us achieve this.

We all must advance the creation of extra-institutional networks tackling energy and environmental security issues. A multinational, multidisciplinary, and multifunctional team is essential to growing a global foresight commons to help explore the implications of our collective security and responsibility. It is absolutely critical that we take advantage of every opportunity to strengthen our capacities ahead of the coming tsunami of global change.

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