

The Interdependencies of National Security – where Bugs, Bots, Bombs and Bombes come together

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What unravels a society and leaves it vulnerable to disruptive episodes of systemic collapse and failure? We know the symptoms well enough and in our present time. We have seen the breakdowns on the social contract in a significant number of nations including Iraq, Somalia, Afghanistan, Sudan, and in regions within other states and now former-states such as the former Soviet Union and former Yugoslavia. But we have also seen societies under extraordinary stress and damage, from acts of nature or warfare, including open-ended and non-terminal terrorism, rebound and even strengthen, or minimally demonstrate signs of endurance without predicted or even hopeful collapse. Examples include societies with long histories and deep cultural roots, as well as nations that are new to the late 20th century, countries with strong ethnic dominance and others with a heterogeneous mix of peoples that often have conflict and abrasive relations amongst one another. We have seen Japan, Germany, Great Britain and Russia during and after WW 2, and we have seen Israel, Lebanon, and on more regional levels and under widely varying circumstances and conditions, Italy, Hungary, Argentina, Chile, Cuba, Indonesia, Kenya, South Africa, Sri Lanka, and the United States.

What are some of the common denominators to collapse as well as to resistance against collapse, when we look at the aggregate of different threats to a people's sense of national security? This collection includes obvious threats and fears of violence through overt state-based warfare or non-state sponsored terrorism. It also includes threats of infrastructure collapse that may be linked to natural disasters, economic downturns, run-down and decay of engineering and utility systems for water, food, power and communication, and much more in the way of everyday functions, services and basic needs. Something stands out and it is a kind of connecting chain that links many risks and insecurities into a force that can tip the scale toward widespread social unrest and collapse, even when any of these "accelerant" factors (e.g., overt terrorism) is minimal in activity and seemingly under control, reduced, abated from the everyday scene. Such is the way things have been in the USA after 9-11, 2001, in spite of the ever-present risks and many well reported and documented cases of planned attacks upon the American people. Yet, during this time, the society as a whole has lost a great deal of confidence in stability and sustainability, particularly with respect to basic economy and basic infrastructure needs.

"National security" is not only about protection from what can come by air, by sea, or in the form of something that overtly and quickly kills. There is a constant and growing debate about what are the "best solutions" for ensuring national security with respect to both outsider and insider threats; e.g., for protecting the critical infrastructures of the electric grid, our highways and bridges, the water piping systems, and food safety, and for ensuring better public health response to an epidemic or pandemic, whatever the biological agent or method of dissemination into the population. We have had a massive social and political reaction following 9-11 that in the domains of biosecurity and biodefense alone have resulted in outlays of billions, including single massive projects in the hundreds of millions. Almost all of these endeavors have been disconnected with one another, put onto the proverbial

“shelf” after the specified work was done and the project funding was terminated, and often highly classified and thus removed from the open floor of both discussion, further integration or re-use. For the most part we have been left in 2009 without any clear, gainful procedures in place and working today for the general population and the general need, at the level of state and local health, water, and agricultural systems. There have been many “special projects” but few have led to ongoing improvements for the safety of our communities as a whole from threats that we know exist for our public health, power grid, water safety, food safety. These threats and the number of incidents are rising regardless of whether or not there is a single al Qaeda warrior, with bioterror motivations and means, operating anywhere.

Let’s step back and consider what makes a people – not just one individual or a small group – lose faith and confidence in a fundamental enough way in their government, in their leadership infrastructure (not just in the current leaders, such as elected officials, but in the very system as a system of law, as a “rule of law”)? The greatest threat to confidence and stability comes when people, en masse, worry about the most basic things in life – food, water, shelter, health. When the systems that deliver all the food you can desire to eat, all the water you can want to drink, all the ease and speed in travel from point A to point B – when these become increasingly seen as risky and unguarded with respect to dangers of health and in particular from invisible, seemingly undetectable dangers of infectious disease, then the society and its government are facing loss of confidence and rises in unrest and dissension that are quite different and more substantive than worries over the stock market or a possible bomb in a building or subway.

People can handle a great deal of danger and bad times coming at that from tangible, visible enemies and they can understand when something fails now and again. They can understand also what and how are measures of defense and security when it involves people and objects where one has come to expect a threat, and thus people have adapted to many different security measures for buildings, highways, airports, and other physical locations. People have come to expect economic downturns and struggles as well. Moreover, all of these difficulties, whether with the financial markets or in employment sectors or with physical threats – these are seen, felt, and understood as finite challenges that affect parts of the overall population but not everyone, all at once, and not by surprise and without any forewarning in the way that a drink of bad water, or a bite of a bad piece of meat or spinach can result in grave sickness or death. What we are facing now in our times is a society that is getting quite “on the edge” of instability and unrest about many of the fundamentals that people have come to believe that they need not and should not be concerned or worried about. These may be unrealistic expectations, to be sure, but they are what people as a whole have come to feel and we are dealing with the reality of mass attitudes and expectations, not points of arguable logical debate.

What is the way out of a situation that appears to be headed toward further crisis and unrest? Let us compare our society to the 1950’s, a half century ago. On the one hand we have a vastly larger population, far more movement of individuals and groups that are closely packed together, and also far more food and water supplies, many of which are drawn from distant sources, including countries abroad over which we have little control with respect to food or environmental quality. We also have the emergence of many new types of infectious and personable contagious disease, some brought on by increased exchange and travel among peoples across several continents, some brought on by the enhanced opportunities for rapid mutations and natural development of new strains of microbes. On another hand we have a decaying infrastructure when it comes to some of our critical systems such as water, electricity and mass transit in particular. On a third “hand” we have experienced major and even dramatic advances, true breakthroughs, in medicine, healthcare, telecommunications, transport, and every “tool” imaginable for dealing with all of the types of problems that are on the rise and just mentioned previously. We appear to have the means to counter many of our growing “deep-field”

national security threats, or at least to put up a strong defense and thereby mitigate the increased effects. For our society, including our governments both federal and state/local, to be seen clearly as making such efforts and making steps in the right directions, would clearly be a bolstering and strengthening of confidence and sense of security among the general population.

So what is the problem, the holdup, the big barrier? From one perspective, it is not a matter of missing some new, arcane, breakthrough technology. Nor is it a matter of costs! From the perspective of researchers, developers and practitioners of medicine and public health, admittedly with a strong “polymath” approach to applied science and engineering, we have many of the right tools, we have had them for years in fact, but we are not using our brains, muscles, and machines in cost-effective and problem-specific ways. We are spinning our wheels and doing a lot of start-stop-start-stop and moving in several directions at once, then dropping the activities when a big pot of government funding ends or when a marketing or finance officer declares that we need to drop something like product safety and health quality in order to save a few dollars. Collectively, as a society, we are missing the fact that the greatest threats in the present and foreseeable future are not from terrorists or rogue states, nor from near-earth-orbit asteroids or dormant volcanoes, all of which are indeed potent threats and to the planet as a whole. Rather, the greatest dangers in terms of potential loss of life, loss of social stability, and degradation of economic and cultural life are from our continued and growing neglect regarding our basic food and water supplies and our consistent disregard for the ways by which the “1%” low probability events – for individuals and on a collective scale – can catch up with us all. We have a tendency to think of ourselves as invincible, impregnable, and resistant to “little things” like bugs and microbes that are not ever likely to affect us, particularly. Indeed, the probabilities are low on the surface. But when things begin to snowball, then a lot of “1%” events have a tendency to start happening together because their likelihoods are not independent but quite linked together. When 30-40% of the general workforce is out sick due to a flu pandemic, then a lot of businesses cannot function well at all. Food supplies are shipped, stored, and maintained less than usual. People may have to stand in long lines to get basic supplies. Vaccines may be mismatched for the viral strains that have actually mutated over a matter of weeks and months. People may be thinking that they are protected and safe when they are actually more at risk.

All of these events and imaginable worst-case scenarios are possible but also their effects can be mitigated and reduced by common-sense activation and use of tools that we have today, that have been ready for some time, and that are not very expensive. This is why some of us, working together in a network-consortium of private industry, academic, and government laboratories, have been making efforts to advance programs like the CRAIDO Initiative. (“CRAIDO” = Community RAPid-Response to Infectious Disease Outbreaks). These are tools that work today, and even “yesterday.” They are real, actual, tangible – not merely reports, papers, and policy recommendations coming from more committees, subcommittees, and other entities paid for in the millions under highly-bureaucratized contract systems that spend more money on overhead and administration than what the CUBIT diagnostic and tracking mini-lab stations will cost for all states and major metropolitan areas.

There are tools, there are answers, and there are people ready and able to Deliver what can be among the greatest and most practical strengthening and recharging of America’s national security and “home-land” defense. We can protect better the food we eat and the water we drink and the ways we get ourselves and our food moved around by air, rail, road and sea. We can address the biggest and most hidden threats to our well-being and wellness as a nation, and we can do so today, with the means and tools that are firmly and cost-effectively within our grasp.

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