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**VITAL SYSTEMS
SECURITY**

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Vital Systems Security

Stephen J. Collier and Andrew Lakoff

This paper describes *vital systems security* as a distinctive form through which planners and strategists understand and manage “security” problems. In what follows, we develop the concept of vital systems security through a contrast with two more familiar forms of collective security: sovereign state security and population security. The aim is to create an analytical vocabulary for a more acute critical vantage on contemporary problems of security.

Vital systems security refers to the protection of systems that are critical to the maintaining economic and political order. These include key infrastructures (roads, electricity grids, communications, food and water supply), key institutions (markets and governmental entities), and key public services (hospitals). Vital systems security is concerned with threats that may be difficult or impossible to prevent, such as natural disasters, terrorist attacks, or pandemic disease. Its aim, thus, is to reduce the vulnerability of critical systems to these events, and to increase the capacity to respond to and recover from them.

Vital systems security has become an increasingly central practice of government in the latter half of the 20th century and the first years of the 21st century. Elements of this form of security can be identified in diverse domains of policy-making and planning activity such as disaster management and emergency response. Most recently, they have been implemented under rubrics such as “critical infrastructure protection” and “homeland security,” particularly in the wake of 9/11 and Hurricane Katrina, and in discussions around a possible future avian flu pandemic. In these contexts, vital systems security is connected to fundamental questions concerning how we define threats to collective security, what appropriate forms of response are, and what the state’s responsibility is for ensuring the security of national populations.

And yet, this form of security has been largely neglected by social scientists looking at security questions. In what follows, we will: (1) define vital systems security by contrasting it to other forms of collective security; (2) review key historical moments in the development of vital systems security in the United States after World War II; (3) specify the contemporary context in which this form of security can be seen as central

to changing understandings of – and organizational responses to – security problems; (4) suggest conceptual and analytical orientations that might emerge from this framework.

(1) Forms of Collective Security: An Overview

Most policy-oriented and academic discussions have focused on two kinds of security: sovereign state security and population security. Both are forms of collective security in the sense that they involve protecting national populations against potential threats. Each arose at a distinctive historical conjuncture in response to problems and events.

Sovereign state security is concerned with the territorial sovereignty of the state and the threat to sovereignty posed by external enemies. Its history can be dated to the formation of the modern state and the treaty of Westphalia (1648). It is associated with state monopolization of legitimate violence and with the beginning of the modern interstate system. Sovereign state security includes both practices associated with military conflict with other states and practices associated with “cold” conflicts, such as diplomacy, deterrence, and containment. In the period after World War II sovereign state security in the United States was structured by the strategies of the Cold War. Consequently, the end of the Cold War has raised a range of questions about how to define the significant problems of sovereign state security.

Population security is concerned with the health and welfare of national populations. It addresses what have been called “pathologies of the social” – phenomena such as endemic disease and poverty that can be mapped onto the regularities of collective life.¹ The techniques of population security – such as social insurance and urbanism – emerged in the late 18th to mid-19th centuries. They were a response both to the increasing popular unrest faced by classical monarchies and to the worsening conditions of collective life in growing industrial cities. In contrast to sovereign state security, which has been the provenance of the military since the establishment of permanent standing armies in the 16th and 17th centuries in Europe, population security has been primarily the responsibility of organizations dealing with civilian administration. The contemporary political logic of population security has been shaped by, first, the consolidation of the welfare state in the middle part of the 20th

¹ For a discussion of the rise of “pathologies of the social” see Paul Rabinow, *French Modern: Norms and Forms of the Social Environment*. Cambridge, Mass.: MIT Press, 1989.

century, and, second, efforts to enact neoliberal welfare reform since the 1970s.

Since World War II, a new form of collective security has been emerging. In part, it is the product of new kinds of threats, such as the threat of aerial bombing, nuclear war, or technologically-induced environmental catastrophe. In part, it has developed from an awareness of the vulnerability of the complex technological systems upon which modern life is dependent.² These newly perceived threats, in turn, have been approached through a new rationality of collective security, and a new political organization of response that we call vital systems security.

Vital systems security refers to governmental efforts to protect key infrastructures (roads, electricity grids, communications, food and water supply), institutions (markets and governmental entities), and public services (hospitals), and to increase the capacity to respond to and recover from events that threaten them. The general principles, techniques, forms of knowledge, and political response associated with vital systems security can be contrasted to sovereign state security and population security (**see chart 1**). These forms of security differ in: (1) the definition of relevant *kinds of threats* (both the danger and what is endangered) that should be addressed in the framework of vital systems security; (2) the *normative rationality* that defines a response to these threats; and (3) the *political logic* that defines the role of the state in relationship to private sector, public sector, and non-profit sector actors in responding to these threats, and in providing a certain form of security.

The *kinds of threats* seen as relevant to vital systems security include events such as hurricanes, terror attacks, epidemics, ecological catastrophes, and earthquakes. Such events – often referred to as “low probability, high consequence” – have a number of common features. First, they threaten key infrastructures, such as energy, transportation, and communications systems, economic institutions, and vital production systems, and they challenge the capacity of organizations involved in response and recovery, such as hospitals, coordinated logistics operations, and rescue capabilities. Second, the probability of such events is uncertain. Although they are foreseeable, they are not *predictable* in the strict insurantal sense that their likelihood and probable consequences could be subject to actuarial analysis. Third, from the perspective of vital systems security the *source* of the threat may be beyond the control of security planners – indeed, it may be unknown. Thus,

² Ulrich Beck has focused attention on this specific kind of vulnerabilities that arise from threats to the systems that underpin modernity. Though he has recognized that these threats are not manageable within an insurantal model of risk management he has not identified new forms through which they are managed. See, for example, *World Risk Society* (1997).

Chart 1: Political Logics of Collective Security

	Nation-State Security	Population Security	Vital Systems Security
Moment of articulation	17 th century territorial monarchies	Late 19 th century social welfare	Mid-20 th century civil defense
Aim	Secure territorial sovereignty	Collectivize risks to the population	Preparedness for emergencies
Object	Enemies of the state (internal and external)	Pathologies of the social (poverty, urban unrest)	Potential catastrophes; vulnerabilities of critical infrastructure
Form of Rationality	Strategy	Insurance	Preparedness
Examples of Apparatuses	Military, border control, intelligence	Public health, education, urban hygiene, social security	Disease surveillance; environmental detection; data mining

rather than prevention, the focus of vital systems security is on the vulnerability of vital systems and the readiness of private and public response.

The normative rationality relevant to vital systems security is “preparedness”. The norm of preparedness demands that experts constantly assess the vulnerability of vital systems and the readiness to respond to, and recover from, events that threaten them. The goal of this form of security is not necessarily to prevent events from happening but to mitigate their consequences – in other words, to keep a disaster from turning into a catastrophe. Techniques of preparedness seek to:

- Imagine possible events and assess their impact through means such as scenario planning.
- Test response and recovery mechanisms through exercises.
- Assess and minimize vulnerabilities by securing critical infrastructures.
- Increase capacity to respond and recover by improving early detection, strengthening communication and coordination among responders.

It is helpful to contrast preparedness and social insurance as normative rationalities that seek to provide different kinds of security to domestic populations (**see chart 2**). Both make it possible to bring future threats into the present in order to manage them. While insurance seeks to calculate probability and distribute risk, preparedness assumes that probability is not calculable and so enacts plausible scenarios in order to reveal vulnerabilities. An “insurantal” approach seeks to calculate the probability of risks to discrete individuals and to distribute risk over a population. A framework of “preparedness,” by contrast, begins from the assumption that the probability of certain threats is not strictly calculable, and would, therefore, try to enact plausible scenarios in order to reveal vulnerabilities and direct readiness efforts.³

Finally, the *political logic* of vital systems security enjoins the state to take responsibility for ensuring the ongoing functioning of critical systems in the face of disastrous events. This political logic is associated with a distinctive temporality of intervention: while vital systems security requires only *sporadic* intervention by central authorities – only in the case of an event – it requires *continual* activities of preparedness. This temporality of intervention should be contrasted to population security, which involves continual intervention into the health, welfare, and conditions of existence

³ Like insurance, preparedness is a form of rationality that may be found outside the state. For example, private firms and international humanitarian organizations practice preparedness, and the preparedness activities of such organizations are a crucial part of state-based preparedness.

Figure 2: Normative Rationalities – Insurance versus Preparedness

	Insurance	Preparedness
Type of event addressed	Calculable, relatively limited scope (one can predict how often it will occur, but not to whom)	Not calculable, potentially catastrophic scope (one can say that it is likely to happen, but not when or where)
Knowledge required about event	Archival – actuarial tables of statistics	Narrative, imagined
How possible event is transformed	From external danger to manageable risks	From outside threat to vulnerability to be mitigated
Technical operation	Calculation of probability using tables of frequency	Gauge current vulnerabilities through imaginative techniques (scenarios, simulations)
How to alleviate threat	Spread risks over population	Build capabilities for response to multiple threats
Temporal orientation	Continuing, modulated attention	Ongoing vigilant alertness; sporadic intervention, lasting only for duration of event and recovery
Initial site of application	17 th century shipping and navigation	Cold War threat of atomic attack
Extension to new sites	Property (insurance against fire, flood), life, accident, old age	Natural disaster, ecological catastrophe, humanitarian emergency, terrorism

of populations. The imperative to be prepared is based on a distribution of response functions across diverse state and non-state agencies in the event of an emergency, and thus requires ongoing readiness activities that test the functioning of these relationships. This political logic also suggests that the federal government role should be limited to coordination, technical support, and some financial support under normal conditions. Preparedness activity is thus distributed among federal, state, and local governments, and private and non-profit sector actors – and, potentially, families. The distribution of these roles has been, and remains, a central and contentious feature of discussions around vital systems security.⁴

(2) Historical Evolution of Vital Systems Security in the US

The problems of vital systems security have been increasingly central in popular discussion recently as the United States has faced a series of events such as terror attacks and natural disasters that do not fit comfortably in the frameworks of sovereign state security or population security. This contemporary discussion draws on a longer post-World War II trajectory through which the elements of vital systems security took shape in the United States. A number of distinct moments are particularly important to the emergence of vital systems security at the level of the US federal government.⁵

1. *Early Cold War.* During and after World War II military strategists recognized that the dawn of the air-nuclear age raised the prospect that the United States could be directly attacked, notwithstanding the barrier of oceans. They argued that the nation would have to remain in a “continuous state of readiness” for a surprise attack from the Soviet Union. Alongside the “anticipatory mobilization” based on a logic of deterrence and containment after 1949, some planners argued for a massive civil defense effort, one that would protect “critical targets” in the event of an attack, so that the United States could survive the attack and fight back. Comprehensive plans for civil defense – formulated first by the military and then by civilian administrations – were implemented in a partial manner at best. But

⁴ According to this political logic, under extraordinary conditions, the federal government (through mechanisms such as joint tasks forces, states of emergency, or even, potentially, declaration of martial law) can assume direct command and control functions over response and recovery.

⁵ The history of vital systems security is not limited to the federal government: its techniques and practices were simultaneously honed in local government organizations, NGOs, and the private sector.

the general approach developed for civil defense, and many techniques associated with it, would be adapted later to other tasks of vital systems security.

2. *1960s – 1970s: All-Hazards Planning.* A second phase in the development of vital systems security was driven from below. Local civil defense officials were skeptical about the possibility of defense against nuclear attack. But they took up techniques initially developed for civil defense, such as evacuation planning and training emergency responders, and applied them to new problems such as natural disasters. These officials began to define a new field of expertise – emergency management – and developed a new approach known as “all hazards” planning that defined operational guidelines for approaching diverse forms of threat with the same set of techniques. In the 1970s nuclear power and hazardous substances were added to these threats. State governments asked that coordination of Federal and local response to various types of emergencies be centralized, leading to the establishment of FEMA in 1979.⁶

3. *1980s – 1990s: Mission Struggles.* As was the case with civil defense, federal and local plans for an all-hazards approach to possible disasters were only partially implemented in the federal government. In the decades after the founding of FEMA, the agency faced ongoing tension between its civil defense function and its task of emergency management. While Republican administrations tended to emphasize the former, Democratic presidents focused on the latter. During the Clinton administration, the domestic preparedness apparatus functioned relatively smoothly as a routinized mechanism for anticipating and responding to disasters. Meanwhile preparedness techniques such as scenario planning and early warning systems migrated into new areas, such as global public health and humanitarianism. Some experts argued that new threats to vital systems, such as emerging infectious disease (in the context of the AIDS epidemic), cyber-threats (especially in the lead up to Y2K), and global terrorism should be elevated to the level of “national security” issues in the post-Cold War era.

⁶ FEMA then “began development of an Integrated Emergency Management System with an all-hazards approach that included “direction, control and warning systems which are common to the full range of emergencies from small isolated events to the ultimate emergency - war.”
<http://www.fema.gov/about/history.shtm>

4. *2001 – Present: Vital Systems Security after 9/11.* The attacks of 9/11, the anthrax letters, Hurricane Katrina, and the anticipation of an avian flu pandemic have catalyzed activity related to vital systems security. After 9/11 the Bush administration created the Department of Homeland Security (DHS). Although DHS was largely associated with its counter-terrorism function, the new Department also incorporated FEMA, thus assuming functions of emergency management and disaster response. Thus, in principle – although not, it would turn out, in practice – DHS was founded on the basic premise of “all-hazards” planning: that response to terror attacks and response to natural disasters would require a similar range of competencies, capacities, and planning approaches. The first general strategic planning document of DHS – a ‘preparedness guidance’ released in spring 2005 – included in its portfolio of scenarios not only a range of possible terrorist attacks but also a hurricane, an earthquake, and pandemic influenza as the major events for which it had to plan.⁷

(3) New Problematizations of Security

The increasing centrality of vital systems security comes in the context of a broader process through which collective security has been newly problematized after the Cold War. What threats to collective security are the most pressing? How should they be understood? And what organizations should be responsible for managing them?

During the Cold War, “national security” was largely associated with deterring and containing the Soviet threat. The end of the Cold War provoked a broad rethinking of the terrain of security among scholars, policy-makers, and strategists. Under the rubric of terms such as “human security” and “environmental security” some analysts proposed expanding the purview of security problems beyond traditional geopolitical issues to questions such as global poverty, environmental crisis, and emerging infectious disease. Such proposals raised the question of how problems previously associated with population security might be addressed by a “national security” apparatus that had been oriented predominantly to the problems of sovereign state security. At the same time, but from a different direction, questions were raised concerning the role of the military in a post-Cold War world. Strategic planners raised questions such as: What

⁷ U.S. Department of Homeland Security, *National Preparedness Guidance*. Homeland Security Presidential Directive 8: National Preparedness. April 27, 2005.
<http://www.ojp.usdoj.gov/odp/docs/NationalPreparednessGuidance.pdf>

kinds of missions should the US military be involved in? Who is the enemy? What kind of military does the United States need?

It is against the backdrop of this broad reorientation of “collective security” problems that governmental responses to the attacks of 9/11 should be analyzed. These responses included the creation of the Department of Homeland Security (DHS) and a North American Central Command of the US military (NORTHCOM). At least one of the underlying rationales for the establishment of DHS was to increase vital systems security – thus, as noted above, DHS incorporated FEMA and in its official plans endorsed an “all-hazards” approach. But the department was also charged with functions linked to other logics of security, such as law enforcement and intelligence. Meanwhile, it quickly became apparent that the real focus of attention by the Bush administration would be on older conceptions and practices of sovereign state security. First, the administration expanded “exceptional” powers – beyond the normal rules of domestic law enforcement and the normal rules of foreign military engagement – to prosecute “the war on terror.” Second, it sought to project American power abroad and to make fighting terrorism – like fighting communism in an earlier era – a primary goal of ‘soft’ and ‘hard’ American power. Proponents of vital systems security have been highly critical of this approach, arguing that it focuses on the wrong problem, and may even increase the vulnerabilities of critical infrastructures.

Given the relative neglect of vital systems security in the Bush response to 9/11, it is significant that the next major event to generate widespread concern about the security of the U.S. population was not another terrorist attack but Hurricane Katrina. The response to Katrina made visible a number of lingering tensions around collective security after the Cold War. First, it raised the question of the responsibility of the federal government – as opposed to local, state, non-governmental, and private sector entities – in dealing with major emergencies. Second, it made visible a crucial confusion in the mission of DHS. The most striking failures of the response to Katrina had to do with communications, coordination among different governmental agencies, and emergency management. These failures were, in part, symptoms of the fact that the DHS leadership was not oriented to a vital systems security mission. What was lacking was not vigilant attention to the onset of an attack or disaster (Katrina, after all, was anticipated days in advance). Rather, it was vigilance in ensuring that readiness and response capacities were in place. Finally, response to the hurricane indicated uncertainty about the role of the military in domestic crises. This uncertainty was accentuated when the next major hurricane approached the Gulf coast and President Bush, eager to project greater

readiness and attentiveness to the disaster, flew to the headquarters of NORTHCOM – a military command center – to monitor its arrival.

The identification of vital systems security as a distinctive form of collective security is helpful in unpacking many of the confusions and tensions that have surfaced in the response to 9/11, Katrina, and other events. Vital systems security operates alongside – and often in tension with – population security and sovereign state security. And many current confusions relate to the organizational framework within which these forms of collective security – with their attendant rationalities for understanding and responding to threat – are managed. The current division of labor between organizations engaged in sovereign state security and population security took shape over the course of the 20th century. The military has been charged with national security problems involving foreign enemies. Meanwhile, the ‘civilian’ administration of federal, state, or local governments have been largely responsible for population security.

Although vital systems security in the United States emerged initially in relation to problems of sovereign state security (through civil defense planning in the early period of the Cold War), its relationship to both military and civilian administration has been ambiguous. Threats to vital systems sometimes originate from foreign enemies, as in the case of terror attacks or aerial bombing. But activities to increase preparedness necessarily involve functions such as health care and domestic emergency response that are generally relegated to civilian administration, or to actors in the private or non-profit sectors. What is more, after the advent of all-hazards planning in the 1960s and 1970s, vital systems security took up “threats without enemies” such as natural disasters or pandemic disease that seemed unambiguously outside the scope of military activity. And yet, as we have recently been made aware, the military may play a central role in the response to such events.

Currently, there is a general demand that the government take responsibility for ensuring the functioning of vital systems in the event of emergency. And a broad range of organizations, both inside and outside the Federal Government, are currently taking up preparedness activities and beginning to mobilize resources in the name of vital systems security: DHS, The Department of Health and Human Services, various parts of the Department of Defense, national guard units, local first responders, and so on. But these diverse activities – and the growing volume of resources spent on them – is only the beginning of what will certainly be a long process through which vital systems security is made more central to practices of collective security more generally. In this context, critical

responses to the current situation tend to be overly event-focused and reactive rather than broad-thinking and programmatic. We suggest that an initial step toward a more serious critical intervention is one of conceptual clarification.

(4) Political and Analytical Orientations

One contribution of the schema that we have developed in this paper might be to help reframe the stakes of political discussions around security. Despite a great diversity of positions in debates about security, they tend to share a common conviction that the important problems can be framed in terms of the question of “too much” or “too little” security; they treat security as a zero-sum game in which there is a tradeoff between security and other values. Thus, critics on the left have tended to link any effort toward “security” with the militarization of civil society, the repression of individual freedom, and the expansion of empire. The predominant tendency on the right is to baldly assert absolute sovereign prerogative to act with impunity in the name of security. Centrist democrats face a trap in which, on the one hand they are worried about civil liberties, but on the other hand cannot be seen to be ‘against’ security.

Our suggestion is that it might be more analytically productive not to ask how much or how little security is appropriate, or whether security must at the expense of other values such as liberty or welfare. Rather, it is more appropriate to ask which forms of collective security are in question, what kinds of expertise are being mobilized to provide security, and how the politics of security are changing?

From the perspective of an analytics of collective security, the most significant reframing of discussions around security may be taking place not at the level of high politics – or, for that matter, at the level of high theory – but at the level of what Michel Foucault called “specific intellectuals.” These figures have specific expertise that can, under certain circumstances, take on “general significance” by engaging in local struggles that can “have effects and implications which are not simply professional or sectoral.”⁸ For example, the infectious disease expert Laurie Garrett argues that a broad investment in global public health infrastructure will increase national biosecurity. This position provokes resistance from many security planners, who tend to think in terms of “one bug one drug” interventions, and from many public health advocates, who

⁸ Foucault, *Truth and Power*, p. 132.

tend to be suspicious of the security apparatus. Stephen Flynn, an expert in transportation and port security, maintains that the choice between open, free shipping systems and security has been misposed. Rather, he argues, security (and here he refers to what we have called vital systems security) *means* securing open systems of free circulation. In making this argument, he meets resistance from various quarters: from big business and its political supporters, who resist security measures on the grounds that they will impose unwanted costs, and from some on the left, who suspect that any increase in security will necessarily compromise civil liberties.

The work of such specific intellectuals points to ways that the politics of security might be reframed. One role of anthropologists of the contemporary – which this paper undertakes in a preliminary way – is to provide concepts that might help map this reframing, and that might increase sensitivity to changes that emerge. Another might be to develop specific lines of inquiry focused on the work of such specific intellectuals as particularly productive sites for anthropological inquiry. Thus, for example, sites such as syndromic surveillance⁹, vaccination programs¹⁰, or techniques of preparedness¹¹ may be the most promising place to study “the political, economic, institutional regime of the production of truth” as it relates to problems of security.¹²

⁹ See Lyle Fearnley, “‘From Chaos to Controlled Disorder’: Syndromic Surveillance, Bioweapons, and the Pathological Future.” Working Paper. Anthropology of the Contemporary Research Collaboratory, 2005.

¹⁰ Dale Rose, “How Did the Smallpox Vaccination Program Come About?” Working Paper. Anthropology of the Contemporary Research Collaboratory.” 2006.

¹¹ Andrew Lakoff, “Preparing for the Next Emergency.” Working Paper. Anthropology fo the Contemporary Research Collaboratory. 2006.

¹² Foucault, “Truth and Power.”