



Infectious Disease

Threats to National and International Security

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Swords and lances, arrows, machine guns and even high explosives have had far less power over the fates of nations than the typhus louse, the plague flea and the yellow-fever mosquito. Civilizations have retreated from the plasmodium of malaria and armies have crumbled into rambles under the onslaught of cholera spirilla or of dysentery and typhoid bacilli. Huge areas have been devastated by the trypanosome that travels on the wings of the tsetse fly and generations have been harassed by the syphilis of a courtier. War and conquest and that herd existence which is an accompaniment of what we call civilization have merely set the stage for those more powerful agents of human tragedy.

-- Zizsser, Hans and Grob, Gerald N., *Rats, Lice and History*, pp. 9-10.

The history of mankind is replete with evidences where shifts in the equilibrium between humans and their microbial predators have led to incredible societal destabilizations and transformations. The destruction of pre-Columbian societies in the new world, the collapse of Byzantine Rome and the demise of the feudal order in Europe are all attributable in part to the destruction wrought by various plagues on immunologically vulnerable populations.¹ As early as 430 BC, the plague that struck Athens during the second year of the Peloponnesian War caused devastating destruction to the Athenian society and by extension on the Athenian war effort.² The plague of Antonine, around AD 180, killed between 3.5-7 million people and coincided with the beginning of the decline of the Roman Empire.³ The Black Death, one of the deadliest pandemics in human history, struck Europe and parts of the Middle-East during the middle of the 14th century and caused death to 75-200 million people and affecting 50% of the European population.⁴ The Spanish influenza pandemic (1918-1919) affected almost one third of the world's population (around 500 million) and the total deaths were estimated to be anything between 50-100 million.⁵ In view of the empirical fact that pathogenic agents are engaged in continual co-evolution, emergence and recrudescence, this historical dynamic between pathogens and humanity is unlikely to change in the near future. In fact, it is increasingly likely that humanity's increasing degradation of the biosphere and changes in the human ecology will foster the emergence and proliferation of pathogens with increased vengeance.⁶

This issue brief explains the links between infectious diseases and national security and then analyses how such diseases pose threats towards transnational security.

Factors associated with the increased incidence and spread of infectious diseases

Human beings share their planet with some 5,000 kinds of viruses and over 300,000 species of bacteria. During the two decades it takes humans to produce a new generation of offspring, bacteria can replicate themselves a million times.⁷ These disparities clearly work to the advantage of pathogens, enabling the evolution of ever more virulent strains that quickly outstrip the ability of humans to respond to them. Given these disparities it is not surprising that history is replete with examples of the devastation communicable diseases can have on human societies. Just as important, however, are artificial disease force-multipliers, which are greatly exacerbating the incidence and spread of infectious microbes. Foremost among these are

globalization, modern medical practices, accelerating urbanisation and climatic change resulting from global warming. Each of these factors and its interaction with the spread of disease are discussed below.

Globalisation

The present international system is now more globally interdependent than at any other time in history. Today one can physically move from one part of the world to another in the same time (if not more rapidly than) it used to take to journey between cities or counties. According to the United Nations World Tourism Organization (UNWTO), about 898 million tourists travelled to foreign countries in 2007.⁸ Just as modern modes of transportation allow more people and products to travel around the world at a faster pace, they also open the airways to the transcontinental movement of infectious disease vectors. That mosquitoes can cross the ocean by riding in airplane wheel wells is a commonly cited example of this phenomenon and is one of several hypotheses proposed to explain the introduction of West Nile virus into New York City in 1999, the first known incidence of this disease in North America. A virus Sydney in Alaska, which affected about 30,000 people, was preceded by the introduction of the Sydney strain of the 'influenza A virus' via a cruise ship the previous year.⁹ Another consequence of this increased connectivity is that pathogens from one region can mix and swap genetic materials with pathogens from another region and eventually mutate into an even deadlier form. The recent swine flu pandemic which started in Mexico and has now hit almost all the countries of Europe, scientists are predicting that that this virus can mutate into a more virulent form when the traditional flu season commences in Europe in late autumn-winter.

Again the global trades in food products and the resulting transnational movement of food have important implications for food borne infectious diseases. In September 2000 a major outbreak of Rift Valley fever killed dozens of people in Saudi Arabia. The source of this outbreak was eventually traced back to imports of infected sheep from neighbouring Yemen. In Europe, the emergence of the nervous system disorder Creutzfeldt-Jakob disease has been linked to the consumption of beef products originally derived from British cattle afflicted with *bovine spongiform encephalopathy*, or 'Mad Cow Disease'.

Modern medical practices

Overuse and misuse of antibiotics - both in humans and in the agricultural produce they consume – has contributed to a process of 'pathogenic natural selection', which is helping to generate ever more resilient, resistant, and powerful disease strains. Drug resistance has become a serious public health problem, since many disease-causing bacteria are no longer susceptible to previously effective drug therapy. By the 1990s medical health professionals increasingly began to speak about a 'post-antibiotic era', characterised by the proliferation of untreatable bacterial strains. As drug resistance emerged, so did new diseases, because of the lack of curative medicine to cope with the problem. Our ability to detect, contain and prevent emerging diseases has become increasingly jeopardized. The most spectacular example of this is the AIDS pandemic, indicating the inability of political and medical systems to contain an international health emergency. It is estimated that there may be between 300 and 500 million new cases of drug-resistant malaria every year, while new strains of tuberculosis and HIV/AIDS are emerging.¹⁰ Multiple antibiotic resistance and/or increased virulence and tolerance are developing in some of the most prevalent and lethal diseases of our time. Strains of *Mycobacterium tuberculosis*, the organism that causes TB, are resistant to more than one medication have already appeared and are becoming increasingly prevalent. Highly resilient varieties of cholera, pneumonia, malaria, dysentery and typhoid have also emerged and are now prevalent in varying degrees throughout the Asia-Pacific region, Europe, and Africa (See Table 1). Within hospitals, resistance to drugs used to treat hospital-acquired infections is also occurring regularly. This has become a problem of such proportions that it is increasingly being suggested within medical circles that doctors will have to return to the pre-antibiotic age to contain diseases breaking out in the post-antibiotic age. Also, many diseases previously considered non-infectious are now associated with infection. The effects of drug resistance and the inability to treat various forms of disease lead to prolonged illness, higher morbidity and mortality rates and rising health care costs, which have a particularly disastrous impact on developing countries.

Examples of Drug-Resistant Infectious Agents and Percentage of Infections That Are Drug Resistant, by Country or Region			
Pathogen	Drug	Country/Region	Percentage of Drug-Resistant Infections
<i>Streptococcus pneumoniae</i>	Penicillin	United States	10 to 35
		Asia, Chile, Spain,	20
		Hungary	58
<i>Staphylococcus aureus</i>	Methicillin	United States	32
	Multidrug	Japan	60
<i>Mycobacterium tuberculosis</i>	Any drug	United States	13
	Any drug	New York City	16
	Multidrug	Eastern Europe	20
<i>Plasmodium falciparum</i> malaria	Chloroquine	Kenya	65
		Ghana	45
		Zimbabwe	59
		Burkina Faso	17
	Mephloquine	Thailand	45
<i>Shigella dysenteriae</i>	Multidrug	Burundi, Rwanda	100

Table 1 (Source: US Institute of Medicine 1997, WHO 1999. Reproduced in National Intelligence Estimate (99-17D/January 2000), *The Global Infectious Disease Threat and Its Implications for the United States.*)

Accelerating urbanisation

At the turn of the 20th century, only 5 percent of the globe's inhabitants lived in cities with populations over 100,000. But now, half of humanity is living in cities and is expected to rise dramatically in the next 40 years to reach 70 percent by 2050.¹¹ The increasing urbanization in poor countries has significant implications for the transmission and spread of infectious diseases.

- About two-thirds of all fatal infectious diseases are spread person to person; greater population density increases transmission by bringing people into closer contact with each other.
- The stress on already weak health systems in many poor countries is increasing.
- Water and sanitation systems are weak or lacking in many urban areas of poor countries, thus increasing susceptibility to contaminated waterborne diseases.
- The huge slums that tend to develop around many major cities in developing countries are typically poor areas that lack infrastructure and resources. This, combined with the warm weather and low latitudes of most of these regions, makes these slums ideal sites for the spread of infectious diseases.

The worldwide resurgence of dengue illustrates the impact urban growth can have on the emergence of infectious disease. Sustained transmission of the dengue virus requires a population of between about 150,000 and one million people. A growing number of subtropical and tropical urbanized areas are becoming large enough to favour the ongoing transmission of one or more of the four dengue serotypes. Also, the recent cholera outbreak in Zimbabwe was attributed to the collapse of water supply and sewerage system in the urban areas of that country, while 50% of the cases have been reported from Budiro, a high density slum area in the capital city of Harare.¹²

Climate change

Uncontrolled destruction of the ecological system over the past century has affected the global biosphere in deep and complex ways. One of its most obvious consequences has been the gradual increase in earth's average surface temperature, a phenomenon referred to as 'global warming'. Global warming has implications for the spread of infectious diseases. Small arthropods are highly temperature sensitive and

temperature constrains the range of vector-borne diseases like Ross River virus disease. Ticks have been moving northward in Sweden as winters warm. Mosquitoes are appearing in mountainous regions where plant communities and freezing levels have shifted upward and glaciers are rapidly retreating. Changes in mountain ecosystems are consistent with projections and the biological and physical observations are consistent with one another.¹³ Global warming could expose millions of people for the first time to malaria, sleeping sickness, dengue fever, yellow fever, and other insect-borne illnesses. In the United States, for instance, a slight increase in overall temperature would allow the mosquitoes that carry dengue fever to survive as far north as New York City. Also, the insects that carry the *Plasmodium falciparum* parasite, which causes malaria, thrive in the warm climates of the tropics. Increased temperatures in more temperate areas could, conceivably, provide a habitat suitable for the increased distribution of these anopheline vectors. In addition, extreme weather events can be associated with clusters of vector, rodent and water borne diseases. Flash floods leave behind mosquito breeding grounds, drive rodents from burrows and seed the waterways with toxic chemicals, microorganisms (such as E. Coli, Cryptosporidium, and Vibrio cholerae) and nutrients that can trigger red tides. Sequential extremes can be particularly destabilizing. Droughts reduce predators, whereas heavy rains boost food for their opportunistic prey.

Linking infectious disease and security

Several recent events suggest that emerging and epidemic-prone diseases are being taken seriously as a threat to national and global security. A US government-supported study in 1995 concluded that emerging and re-emerging infectious diseases, especially AIDS, constituted a national security threat and foreign policy challenge. In 1996, the US Department of Defense established the Global Emerging Infections Surveillance and Response System, based on a network of domestic and overseas military laboratories, as an explicit acknowledgement that emerging diseases can threaten military personnel and their families, can reduce medical readiness and present a risk to US national security. The threat posed by microbial agents to the security of the US was further acknowledged in 2000 by a report from the US Central Intelligence Agency's National Intelligence Council (2000). Citing the 'staggering' and 'destabilising' number of deaths caused by AIDS in sub-Saharan Africa, the report documented specific consequences in the form of diminished gross domestic product, reduced life expectancy, weakened military capacity, social fragmentation, and political destabilisation. In the UK, the FCO's 2003 strategy paper raised the spread of disease as an ill-effect of globalisation and a risk to peace and development. In Australia, communicable disease is raised as a global challenge in its 2003 White Paper on foreign and trade policy, while Foreign Minister Downer acknowledged that 'disease and global health issues certainly add to the uncertainty we face in the conduct of our foreign policy'. But the greatest acknowledgement of the linkage between infectious disease and security came when the UN Security Council held a historic session on AIDS in Africa and concluded that it poses a risk to regional stability and security.¹⁴ The following is a summary of research that has associated specific effects of infectious disease with threats to security.

Social disruption and instability

In the modern system of Westphalian nation-states, the citizen declares his or her fealty to the state in exchange of the guarantee that the state shall protect the citizen from predators – internal (ie. criminals) and external (foreign forces). So in essence a social contract exists between the state and its citizens. And a breach of this contract from any side can lead to instability in the system. Now the destruction of the populace by an ecological predator (in this case pathogenic agents) constitutes a distinct threat to the well-being of the populace as guaranteed by the state. Since infectious disease results in far greater civilian mortality than that typically results from a war, the outbreak of an infectious disease constitutes a very real threat to the security of the modern state. Moreover, such diseases act as weapons of mass disruption through fear and anxiety that comes with them (based on accurate and inaccurate information), the loss of people in key positions due to illness or death, discrimination against groups affected by a disease, loss of majority of specific demographic groups etc. In developing countries, especially, this can lead to the destabilisation of infrastructure needed for governance and disrupt the cohesion and stability of society at

large. For example, outbreaks of epidemic meningitis, which regularly occur in the African ‘meningitis belt’, disrupt normal social functions and bring routine health services to the brink of a standstill as containment depends on the emergency vaccination of all populations at risk. The resurgence of African sleeping sickness, which is also a disease of livestock, has disrupted productive patterns of land use and jeopardized food security in remote rural areas. Outbreaks of dengue in Latin America required the assistance of military forces, sometimes from neighbouring countries, for their containment. As governance and social coping mechanisms give way, a vacuum is created which has the potential to cause civil war, civil-military conflict or it may lead a state to lash out against another state. There is a growing realisation that national security depends in great measure on domestic stability, which is in turn heavily influenced by human development - embracing economic, environmental, health, and political concerns.¹⁵ Various strategic analysts forecast that the African epidemics in particular may negatively affect delicate political constellations, peacekeeping, the safety of foreign citizens and weak states already considered prone to terrorist co-optation.

Economic Loss

As detailed in the examples of Table 2, an outbreak of disease or even the perceived threat of an outbreak can have significant repercussions on trade and travel for the affected nation and places a further economic burden on impoverished countries with little capacity to absorb such shocks and thereby, threatening the economic security of that nation. The economic effects of infectious diseases - whether endemic, e.g., malaria, or epidemic, e.g., cholera - can be devastating. As just one example, it has been estimated that Africa’s gross domestic product would be nearly one-third higher if malaria alone had been eliminated several decades ago.¹⁶ Many of these effects are indirect (e.g., loss of productivity and commerce), but there are also direct economic costs (e.g., culling of animal herds and medical costs of treating humans) that may affect security and relationships between nations in need and those able to provide assistance to control outbreaks. In many states, particularly in sub-Saharan Africa, infectious diseases like AIDS produce devastating consequences for all economic actors, from the household and firm to the industry and state.¹⁷ At the household level, infectious disease effects are dramatic; income declines precipitously when breadwinners sicken and die, health care and burial costs mount, savings are depleted, surviving children leave school to work or care for sick relatives, food consumption drops, malnutrition and poverty worsen, and medical expenditures soar. UNDP estimates that AIDS lowers the income of affected households by 80 percent; food consumption drops 15–30 percent and primary school enrolments decline 20–40 percent.¹⁸ In Thailand, rural families affected by AIDS spend the equivalent of an average annual income on treatment during the last year of an AIDS patient’s life, while in Nigeria subsistence farmers spend as much as 13 percent of their total household income on malaria treatment.¹⁹ In addition, the UN estimated in 2002 that \$20 billion would be needed by 2007 to provide adequate prevention and care for populations affected by HIV/AIDS in low and middle income countries.²⁰

Infectious disease outbreak	Economic consequences to the affected nations
<i>Avian flu, Hong Kong</i>	<i>The avian influenza outbreak cost the former colony hundreds of millions of dollars in lost poultry production, commerce, and tourism, with airport arrivals in November of that year alone down by 22 percent from the preceding year.</i>
<i>BSE and nvCJD in Britain</i>	<i>The outbreak of BSE and new variant Creutzfeldt-Jakob disease in the United Kingdom in 1995 prompted a mass slaughter of cattle, drastically cut beef consumption and led to the imposition of a three-year EU embargo against British beef. The losses to the British economy were estimated by the WHO at \$5.75 billion, including \$2 billion in lost beef exports.</i>
<i>Cyclospora in Guatemalan raspberries</i>	<i>The outbreak of cyclospora-related illness in the United States and Canada associated with raspberries from Guatemala led to curbs in imports that cost Guatemala several million dollars in lost revenue.</i>
<i>Cholera in Peru</i>	<i>The outbreak of cholera in 1991 cost the Peruvian fishing industry an</i>

<i>Foot and mouth disease in Taiwan</i>	<i>estimated \$775 million in lost tourism and trade because of a temporary ban on seafood exports.</i> <i>In 1997 an outbreak of foot and mouth disease (FMD) devastated Taiwan's pork industry, one of the largest in the world, shutting down exports for a full year.</i>
<i>Nipah in Malaysia</i>	<i>In 1999, the Nipah virus caused the shutdown of over half of the country's pig farms and an embargo against pork exports.</i>
<i>Plague in India</i>	<i>The plague outbreak in Surat, India, in 1994 and ensuing panic sparked a sudden exodus of 0.5 million people from the region and led to abrupt shutdowns of entire industries, including aviation and tourism, as several countries froze trade, banned travel from India and sent some Indian migrants home. The WHO estimated the outbreak cost India some \$2 billion.</i>
<i>Swine flu in Mexico</i>	<i>Although the actual figures regarding the economic damage of the recent Swine flu outbreak in Mexico are yet to be calculated; judging by the suspended flights, cancelled tourist trips, suspension of major financial activities within the country and also the ban that has been enforced in various countries on importing Mexican pork, the economic consequences of this flu outbreak will be quite substantial.</i>

Table 2

Military insecurity

Armed forces form the basis of a country's defence and constitute the underpinning of stability both within states and between them. If they become debilitated by disease, national security is compromised. Foreign and domestic threats to a country's national security are aggravated by the security vacuum left by weakened military forces. Catastrophic infectious diseases may contribute to the outbreak of military conflict between states by altering their balance of power, although it is relatively unlikely to be a war starter on its own. A preventive war may be particularly likely during or following an infectious disease outbreak if one nation remains immune to the outbreak. The 1994 Rwanda/Burundi war saw increased intensity of conflict due to the allegations of the deliberate infection by one ethnic group of the other.²¹ The situation can become all the more complex if there is historical hostility between the two states and the outbreak causes people to flee from one state to another.

Foreign policy conflict

In theory, infectious disease outbreaks may prompt disputes among states over appropriate policy responses in a number of areas, including freedom of movement for people and goods. Nineteenth-century leaders employed quarantine as their primary instrument of infectious disease control. In the first decade of the AIDS epidemic, despite a half century of human rights advances, some people again viewed quarantine as a reasonable reaction to a frightening new scourge. Cuba instituted mandatory testing and compulsory isolation of its HIV-positive population in sanatoriums and in 1987 the West German minister of the interior ordered border police to turn back any foreigner suspected of carrying HIV.²² The United States, which continues to deny entry to HIV-positive immigrants and visitors, bowed to international pressure in the 1990s and allowed waivers for short-term trips to visit family, receive medical treatment, conduct business, or attend scientific or health conferences. The 2003 SARS outbreak in China was initially treated as a state secret by the Chinese totalitarian regime and this coupled with the lack of co-operation from the Chinese officials caused the disease to spread to 29 countries, infecting over 8000 people and killing 774 out of them, causing huge international scrutiny and criticism.²³ During the recent swine flu outbreak, diplomatic tension between Mexico and China reached dramatic heights when China suspended all direct flights to and from Mexico and also forcefully quarantined dozens of Mexicans in China.²⁴ Another foreign policy dispute

revolves around the issue of intellectual property rights. Wars have been fought in the past to resist perceived threats to economic security and the unlicensed production of patented drugs, even during a pandemic outbreak can, at least, lead to serious foreign policy conflict.²⁵

Bioterrorism

The biggest security threat from infectious diseases is through its deliberate use to cause illness or death in people, animals or plants – in the form of bioterrorism. Throughout human history it has been used in one form or another by various groups to accomplish political or social ends. One of the first recorded acts of bioterrorism was in Mesopotamia, some 2700 years back, when rye ergot (an element of the fungus *Claviceps purpure*) was used by the Assyrians to poison the wells of Mesopotamia.²⁶ During the French and Indian wars, British forces distributed smallpox-laden blankets to native American Indians who were loyal to the French, while the plague epidemic in China during 1940 was reported to be caused by Japanese planes dropping plague infected fleas.²⁷ In 2001 letters containing anthrax spores were mailed to NBC News and the offices of Senator Tom Daschle at the U.S. Capitol. At American Media in Florida, one person died after contracting anthrax. Anthrax spores were found at New York Governor George Pataki's offices in New York City. The advantages of using infectious disease as a tool for terrorism lie in the facts that they are easy to obtain, inexpensive to produce and has the potential for dissemination over a large area. These make it a weapon of choice for various terrorist outfits. In fact, Osama bin Laden's al-Qaeda has been reported to be pursuing biological weapons since the late 1990s and as late as January 2009, a group of 40 terrorists from al-Qaeda were reported to have died of plague while trying to develop biological weapons for use against western cities.²⁸

As described earlier in this article, even naturally occurring outbreak of infectious diseases constitute very real threats to national security as well as regional stability; it is not very hard to conceive the many fold increase in threats when such an outbreak is initiated deliberately through systematic planning and implementation of bioterrorism.

Infectious disease and national security: a case study of Bangladesh

The various factors described earlier for the increased incidence and spread of infectious diseases are very much relevant in the case of Bangladesh. To make things worse, the levels of malnutrition in Bangladesh are amongst the highest in the world.²⁹ So it will not be very wrong to assume that the people of Bangladesh are most vulnerable to the outbreaks of infectious diseases. Moreover, the prevalence of natural calamities like floods and cyclones also give added impetus to pandemic outbreaks, as has been the case with the outbreak of diarrhoea in southern Bangladesh after cyclone Aila hit that part on May 2009³⁰.

One factor which needs to be mentioned here is the high population density of Bangladesh (its population density of around 1000 per square km is one of the highest in the world). This high population density coupled with the small geographical size of Bangladesh makes its security particularly susceptible to any major outbreak of infectious disease across the country. The high population density will help the fast spread of infectious diseases. In the worst case if there is huge movement of internally displaced people, fleeing from the ground zero of the outbreak, Bangladesh will lack any strategic depth (owing to its small size) to accommodate such people internally and also to implement any sort of effective quarantine mechanism. Considering the deficiency of trust in India-Bangladesh relation and also the fact that India believes illegal migrants from Bangladesh are crossing over to India on large numbers; it is highly unlikely that India will be willing to accommodate such internally displaced people of Bangladesh, even temporarily, during any large scale pandemic outbreak. This might lead to major border skirmishes and has the potential to become an all out war. Same can be said about Myanmar, the other neighbour of Bangladesh.

Internally, the already stretched infrastructure can possibly break down, leading to massive social disruption and some sort of internal conflict may occur. Also, the general trend by virtue of which the ruling and opposition parties of Bangladesh are always standing 180 degrees apart from one another on any issues, there are chances that the opposition party of the day might try to gain political mileage by exaggerating the outbreak control steps taken by the government (at least during the initial stage of the outbreak) and thusly,

hinder its proper implementation. Once the outbreak subsides, a large number of orphans will be left throughout the country. Such orphans can be adopted by various terrorist outfits for the purpose of creating next generation of volunteers to continue their armed struggle and thus, will also pose as a long term security threat to Bangladesh as well as the entire South Asia in general.³¹

Conclusion

The end of the Cold War meant an end to security issues polarized by the ideological conflict and geopolitical interests of the superpowers, kept on edge by the nuclear arms race. As old threats subsided, more attention focused on non-traditional security challenges – the so called ‘gray-area phenomena’ - arising from civil unrest, internal conflicts, mass migration of refugees and localized wars between neighbouring countries, particularly when these had the capacity to undermine state stability or contribute to state failure. The absence of a bipolar power system magnified these threats considerably, as intervention to prop up a failing state of geopolitical strategic interest was no longer assured. Stated more directly, the geopolitical landscape that now faces the global polity lacks the relative stability of the linear Cold War division between East and West. There is no large and obvious equivalent to the Soviet Union against which to balance the United States, the world’s sole remaining superpower. Instead, the definitions of security, conflict and general threat are more diffuse and opaque, existing in the absence of the simple dichotomies that underscored the Cold War era. In commenting on this new environment, former Central Intelligence Agency Director James Woolsey remarked ‘We have slain a large dragon, but are now finding ourselves living in a jungle with a bewildering number of poisonous snakes. And in many ways, the dragon was easier to keep track of’.³²

The forces of globalization demonstrated the porous nature of national borders and eroded traditional notions of state sovereignty. In a closely interconnected and interdependent world, the repercussions of adverse events abroad easily cross borders to intrude on state affairs in ways that cannot be averted through traditional military defences. For example, in the world’s tightly inter-related financial system, a crisis in a distant economy can rapidly spread to affect others, as has been aptly demonstrated by the recent global economic recession initiated by the collapse of the real estate market in United States. Many other threats - whether arising from environmental pollution or tobacco advertising - were recognized as having an effect on internal affairs that went beyond the control of strictly national actions. These are threats with transnational footprints, they cross international borders quite easily but generally cannot be linked directly to the foreign policies or behaviour of states. Few of today’s dangers have the character of direct military aggression emanating from a clearly defined sovereign source. Rather, these dangers tend to evolve as ‘threats without enemies’, with sources internal rather than external to the political order that the concept of ‘national interest’ has traditionally represented. Unlike the challenge posed by traditional concerns, such as overt aggression, the threats emanating from contemporary gray area influences are far more ambiguous in their patterns, processes and effects. In many cases, this obfuscates the perceived need for rapid policy responses. Action is typically initiated only after a major crisis destabilizing stage has been reached within the state(s) concerned.

In this brief, I have tried to explain how infectious diseases can threaten national and global security by causing domestic, regional and international instability. To design an effective counter-strategy against any such threat to national security, the most important requirement is a holistic, nonlinear approach to security that goes beyond the relatively parsimonious assumptions of *realpolitik* that have informed international politics for so many years. Traditional spatial notions of security, of national stability defined purely in terms of territorial sovereignty and integrity - which is reflected on a larger scale by the containment policies of the Cold War - simply do not work in today’s more complex geostrategic environment. Such state centric paradigms are clearly unable to deal with issues, as has been amply explained in case of infectious disease outbreaks, that originate within national borders but whose effects transcend international boundaries and affect the security of people worldwide.

I can understand the readers of this issue brief can find my analysis to be highly exaggerating the security threats from infectious diseases and some of you might even think me to be paranoid and pessimistic. But I believe that policy makers (keeping whom in mind this issue brief was mainly written) are

not paid to be optimistic and neither should they hope for the best case scenario. So this humble effort of mine is to awaken the policy makers into envisaging the very real security threats from infectious diseases. Even in today's rationalist, logic-based, life-savouring, post-enlightenment world, when national security is concerned, only the paranoids can survive.

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