



tuberculosis are infected with strains of *Mycobacterium tuberculosis* resistant to at least one of the four first-line anti-TB drugs.

**Factors in the Emergence of Infectious Diseases**

Multiple factors contribute to emergence of new or re-emergence of previously known diseases (Morse 1995) including:

### **Global Impact of Infectious Disease**

The spread of infectious disease is challenging social-political stability, economic development and national security. In his case study of HIV/AIDS in South Africa, Price-Smith suggests that infectious diseases strains the functional capacity of the state by contributing to increasing lawlessness, a stagnant or contracting economy, diminishing government efficacy and responsiveness to societal demands, declining revenue in the form of taxes (Price-Smith 2003). A study by Ted Gurr et al. finds strong correlation between public health status and political instability (i.e., revolutionary wars, ethnic conflicts, genocides, and disruptive regime transitions). In fact, the 2003 SARS epidemic was not simply a public health problem; it caused the most severe socio-political crisis for the Chinese leadership since the 1989 Tiananmen crackdown (Huang 2003).

The impact is not confined within territorial borders. Disease, whether naturally occurring or deliberately caused, does not respect territorial borders. As we have seen in the recent SARS epidemic, there is no longer a sharp distinction between domestic and international health. The end of Cold War only highlights the importance of health as a threat to international security. A 2000 report of the U.S. National Intelligence Council (NIC) concludes that while the persistent infectious disease burden may aggravate or

confer BWs an almost mystical quality and make them attractive to potential perpetrators. This is especially the case when they believe that traditional shootings and hijackings no longer attract sufficient media coverage or political attention and that a more lethal and dramatic form of violence is needed to achieve their ends. The guaranteed public sensation of a biological agent is an ominous temptation to extremists. Indeed, even a hoax might cause serious disruption and casualties if large-scale panic ensued. There were indications that the terrorists who conducted the 9/11 attack had considered using biological weapons. Captured documents also show al-Qaeda is trying to produce biological weapons. American forces in Afghanistan, for example, discovered a half-finished laboratory near Kandahar, which was believed to be used to produce anthrax.

Second, many microbial organisms, including anthrax and plague, are commonly found in nature. The rise of varied natural disease outbreaks in an age of globalization means

the Aum Shinrikyo sect was reported to be attempting to splice botulinum toxin genes into E. coli as part of efforts to develop their biological weapons of choice.

Perhaps equally important, the diffusion of biological-related technology is opening the realm of BWs up further to non-state actors. The nature of the anthrax spores in Senator Tom Daschle's office shows that whoever sent them seems to have had access to disturbingly sophisticated equipment, which allegedly treated the spores with a chemical additive to allow them to stay suspended longer in the air. Only three countries, Russia, Iraq and the United States, were known to have developed such an additive.

scale attack more likely. The only way to defend this nation against the bioterrorist assault is by getting prepared.

### **Addressing the Threat: Recommendations to L20 Leaders**

Given the magnitude of the threat and its important social-political, economic, and security implications, it becomes imperative for national governments to beef up state capacity in disease prevention and control. This involves the building of four “core capacities” for early detection, rapid assessments and recommendations for prevention and treatment, information sharing, and the implementation of needed measures.

- 1) *Preparedness planning and readiness assessment.* In the planning process, a comprehensive and integrated approach is the key. For example, while it is important to prioritize pathogens and prophylactic measures, the presence of multiple threats to a nation’s health often entail the need to address a full list of infectious diseases rather than focus on a single disease (e.g., smallpox) or a single tool for preparedness (e.g., vaccination). Moreover, given the dual use feature of biological agents and the need to build strong health infrastructure for biodefense, the approach requires national governments to comprehensively address the public health systems preparedness for bioterrorism *and* other infectious disease outbreaks. Integrating bio-defense with the existing public health system is not only cost-efficient, but also essential in ensuring sufficient resources to prepare for the next disease outbreak.
- 2) *Surveillance and laboratory capacities.* A nation’s surveillance network is considered the first line of defense in identifying emerging infectious diseases and their sources and in providing essential information for developing and assessing prevention and control efforts. Countries should therefore be encouraged to commit resources to build a functioning disease surveillance network with sufficient resources (adequate funding, trai

3) *Education and training.* This involves training inve

state should therefore consider streamlining a bloated bureaucracy, enhancing capabilities of regulatory control, and facilitating interagency coordination in policy process. This makes it worthwhile for national governments to establish a national level committee in charge of policy coordination or to promote a dialogue that involves not only health experts but also officials in other sectors (agriculture, police, education, even those involved in foreign policy and security policy process).

But beefing up state capacity also means building more effective partnerships and institutions internationally. This is especially the case for developing countries, where purely endogenous solutions are unlikely to be successful because infectious diseases reduce state capacity just when ever-increasing capacity is needed to tackle the challenges. For the developed nations, partnership with developing nations in infectious disease control is not just based on humanitarian concerns. It is in their national interest to emphasize international health, given the global spread of infectious disease and biotechnical know-how, and its socio-political, economic and security implications. L20 leaders may consider taking the following steps toward an effective international cooperation and partnership:

- 1) *Promote transparency and accountability.* Incentives to cover up disease outbreaks exist in almost every country, and this has been demonstrated in the 1918 Influenza Pandemic (see Barry 2004), the 2003 SARS crisis, and the 2004 bird flu outbreak in Southeast Asia. Deliberate cover-up may be caused by the need to avoid a social panic or to protect a particular industry (tourism or poultry exports). It is thus worthwhile to establish an international fund that pledges economic subsidies and needed vaccines/drugs to affected countries in the event of an outbreak. Alternatively, L20 leaders can encourage the growth of NGOs and community-based groups (CBOs) as a source of discipline (overseeing government behavior) and information (exposing cover-up).
- 2) *Enhance the global health governance structure.* Efforts can be made to support the initiative to increase the authority of UN agencies such as WHO and FAO, allowing them to play a more active role in investigating global health threats, in increasing government responsiveness, and in facilitating the international dialogue on global health problems. L20 leaders may also act to improve international control of dangerous pathogens by putting into place international standards for the secure storage and transport of biological stocks that could be weaponized, either within the BWC (Biological and Toxin Weapons Convention) framework or in a new forum.
- 3) *Improve coordination of response and resources* in areas such as placing restrictions on travel, airport-based screening, tracking down people exposed, and deployment of health personnel and drugs to affected countries.
- 4) *Encourage partnerships between public and private actors* by providing incentives (in terms of intellectual property, tax breaks, liability) to the development of drugs to combat organisms predominantly in poor countries
- 5) *Collaboration in science* to facilitate specimen acquisition, rapid identification of



