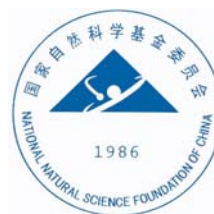


Proceedings of the Trilateral Seminar on R&D Policies Related to Emerging and Re-emerging Infectious Diseases

**Boston University
Boston, Massachusetts**

December 14-16, 2005



Edited by William A. Blanpied

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Trilateral Seminar on R&D Policies Related to Emerging and Re-emerging Infectious Diseases

Preface

Science and engineering play many roles in the world today. They serve as engines of economic growth, underlie improvements in medicine and maintenance of public health, and provide military deterrence. The policies that govern them dramatically affect international relations and the foreign affairs of the leading nations. This is why science and technology (S&T) policies are so important.

Science is widely recognized as a method of finding truth, the scientific method, not merely a body of accumulated knowledge. The scientific method is an iterative process, where “better” is always supplanting “good” in a never-ending cycle. This is, or at least should be, the case with S&T policies as well.

Identifying and implementing correct S&T policies is in many ways more complicated than just doing good science. The boundary conditions are more complex and uncertain, with national and geopolitical considerations that are hard to define and are ever changing. People are more complicated than things.

This leads to the China-U.S. science and engineering interaction. Since normalization of relations just over 25 years ago the U.S. and China have built a close, sometimes troubled relationship. At least part of the “cement” in that relationship has come from close cooperation between scientists and engineers in the two countries, even in times of foreign policy tensions. As the economic and foreign policy relationships continue to evolve, S&T represent an increasingly important component. Hence the need to understand each other’s systems and institutions and correctly apply that understanding to economic flash points like intellectual property rights and standards should be recognized.

The U.S.-China relationship does not exist in a vacuum. We know from physics that although a “two body” problem may be simple, add others and life becomes very complicated. Korea and Japan are two countries that are very important to both the U.S. and China. This is nowhere more obvious than in the scientific study, understanding and control of emerging and re-emerging infectious diseases. We can learn much from the experiences of a technologically sophisticated, newly developed country like Korea.

This volume documents the presentations and discussions at the Trilateral Seminar on R&D Policies Related to Emerging and Re-emerging Infectious Diseases held at the Boston University School of Management, December 14-16, 2005. This was an exciting two days, and the scientific and policy presentations targeted the issues facing the world today. Of special interest were national, regional and global reactions in the face of a potential influenza pandemic. The examples from Korea nicely complemented those from China and the U.S. and greatly enriched the content of the seminar. The data from participants from all three countries was up to date and the strategies discussed were state of the art. But both data and strategies change. What often endure are the personal and institutional relationships established, and the Trilateral Seminar played a critical role in these.

As noted above, science policy – like science itself – results from an iterative process. This principle underlies the China-U.S. series of consultations on S&T policy, underway since 1999. Special commendation is due to the National Natural Science Foundation of China (NSFC) and the U.S. National Science Foundation (NSF) for their support of this effort. Their foresight in identifying this as a crucial area of emphasis before it became popular and their recognition that this process takes time to yield results are noteworthy. The variety of science and engineering policy initiatives examined, and the depth of those examinations since 1999 reflect the wisdom and patience found in the NSF and NSFC. These are characteristics not always found in government agencies and their leaders. The officials of both agencies responsible for initiating this effort and for staying the course to completion are to be commended for their perception and initiative. But most of all, the hundreds of world-class scholars, S&T practitioners and policy experts who participated in the varied seminars, workshops and forums deserve thanks. It is they who through their efforts have helped to assure a smoother course for the bilateral and multilateral and global geopolitical relationships in the years ahead.

Tom Ratchford

George Mason University Law School
Science and Trade Policy Program
March 24, 2006

Trilateral Seminar on R&D Policies Related to Emerging and Re-emerging Infectious Diseases

Co-Chairs' Statement

Towards the end of the 1970s, international public health officials had confidently come to believe that severe epidemics of infectious diseases had become—or soon would become—relics of the past, at least in developed and middle-tier countries. Within a very few years, the emergence of HIV/AIDS and its spread to countries around the world, as well as the emergence of other infectious diseases such as Ebola and Marburg hemorrhagic fever virus infections and the inexorable spread of Dengue virus infection demonstrated conclusively that the confidence expressed only a few years earlier that infectious diseases had been virtually eradicated was, at best, premature. The very real threat that dangerous pathogens could be used for malevolent purposes that followed in the wake of the terrorist attacks in New York City and Washington, DC, in September 2001 heightened concern. The sudden emergence of SARS in 2003 and its rapid transmission from Asia to North America emphasized the global nature of the threat of emerging and re-emerging infectious diseases due to the natural evolution of pathogens, and how rapidly and how disruptive and costly such events could be.

During the 1990s, the governments of developed and middle-tier countries, as well as non-government organizations in those countries, examined their policies for rapid identification and control of emerging and re-emerging infectious diseases. In many cases, these were found wanting and stronger systems for surveillance and control were instituted. Meanwhile, intergovernmental bodies, most notably the World Health Organization (WHO), issued guidelines for developing more effective public health systems to deal with dangerous pathogens, however guidelines without resources for implementation are of limited value. When on the threshold of the 21st century it became clear that the emergence of re-emergence of a dangerous infectious diseases anywhere in the world constituted a threat to all countries, it also became obvious that a stronger international systems for surveillance, modeling to influence public policy decisions, and for controlling outbreaks resulting from new and mutated pathogens, and the necessary funding to implement suggested changes had become essential. The emergence of avian influenza in Asia in 2003, its subsequent diffusion by early 2006 to Eastern and Western Europe and its cause of increasing number of human cases has underlined this imperative.

The uniformly high quality of the Chinese, Korean, and American experts who participated in the December 14-16, 2005, Trilateral Seminar on R&D Policies Related to Emerging and Re-emerging Infectious Diseases at Boston University was a testament to the seriousness with which the public health communities in the three countries take national and global issues associated with emerging and re-emerging infectious diseases. Equally impressive was the willingness of participants to discuss, frankly, deficiencies remaining in their own respective national systems, and their occasional criticisms of

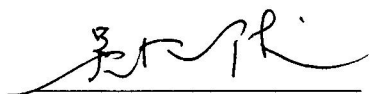
their national governments to fully understand the threats posed by emerging and reemerging infectious diseases and to provide the necessary financial support to implement appropriate action. Themes and issues discussed throughout the seminar sessions included:

- National and international institutional structures to deal with emerging infections diseases, including past successes, failures and lessons learned.
- Opportunities/limitations to common international agenda setting.
- Expediting the generation of new scientific knowledge and its translation into technological capacity and action.
- Science policies, including research, training and education.
- Accountability and transparency; security vs. openness.

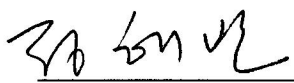
It was clear from the presentations and discussions that although developed and middle-tier countries are making substantial strides in gearing up their public health systems to deal more effectively with emerging and re-emerging infectious diseases, most of the world's poorest countries remain ill-equipped in that respect. Indeed, several countries remain reluctant even to admit that cases of severe infectious diseases have occurred within their borders. More effective means for assisting poorer countries to strengthen their public health systems, and to offer incentives for them to become more fully integrated into the global public health system and forward timely reports to WHO about suspected outbreaks of infectious diseases in their respective countries has become essential to the health and safety of the populations of all nations.

Although public health officials and their government supporters must take the lead in strengthening national and international systems, it has also become essential to involve the public in identifying and controlling emerging and re-emerging infectious diseases. To this end, effective communication with the mass media has assumed a high priority. The media can render a great service through accurate, balanced, and timely reporting about such diseases that neither exaggerates nor minimizes imminent threats, and that do not attempt to assign blame to any institution or nation.

While the current incidence of avian influenza may not result in a world-wide pandemic, but instead could ultimately recede, it was the consensus of the participants in the December 2005 Trilateral Seminar that some new, hitherto unidentified pathogen such as the corona virus responsible for the 2003 outbreak of SARS is almost certain to emerge in the near future. Steps taken to track the spread of avian influenza and its possible mutation into a more deadly form will help when some new deadly pathogen which constitutes a global threat does emerge.



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