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OPEN FORUM

MISSION IMPOSSIBLE? INTERNATIONAL LAW AND INFECTIOUS DISEASES

David P. Fidler†

I. INTRODUCTION

International law has played a role in the long history of efforts by states to cooperate on the control of the spread of infectious diseases.¹ Numerous multilateral treaties and the subsequent adoption of the International Health Regulations (“IHR”)² by the member states of the World Health Organization (“WHO”) indicate international cognizance of the cooperation critical to the control of infectious diseases. The international legal regime on infectious diseases has, however, been characterized by routine non-compliance.³ The failure of the IHR has become more alarming in light of the dramatic emergence and re-emergence of infectious diseases in the last thirty years.⁴ The return of infectious diseases to the forefront of the international public health agenda stimulated a proposed revision of the IHR. The international legal regime must adapt to new global circumstances.⁵ EIDs present, however, IHR reform advocates with an impossible mission. In this article, I out-

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1. For a history of international cooperation on infectious disease, see N. Howard-Jones, *Origins of International Health Work*, 1 BRIT. MED. J. 1032 (May 6, 1950).

2. WORLD HEALTH ORGANIZATION, INTERNATIONAL HEALTH REGULATIONS (3d ed. 1983) [hereinafter INTERNATIONAL HEALTH REGULATIONS].

3. Allyn L. Taylor, *Making the World Health Organization Work: A Legal Framework for Universal Access to Conditions for Health*, 18 AM. J. L. & MED. 301, 343 (1992) (noting that two senior WHO health legislation officials consider IHR a failure); Katarina Tomasevski, *Health*, in 2 UNITED NATIONS LEGAL ORDER 859, 866-68 (Oscar Schachter and Christopher C. Joyner, eds., 1995) (analyzing the failure of IHR).

4. David P. Fidler, *Globalization, International Law, and Emerging Infectious Diseases*, 2 EMERGING INFECTIOUS DISEASES 77, 79-80 (1996) [hereinafter Fidler, *Emerging Infectious Diseases*]. U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION, ADDRESSING EMERGING INFECTIOUS DISEASE THREATS: A PREVENTION STRATEGY FOR THE UNITED STATES 1 (1994) [hereinafter U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION]; WORLD HEALTH ORGANIZATION, WORLD HEALTH REPORT 1996: FIGHTING DISEASE, FOSTERING DEVELOPMENT 15 (1996) [hereinafter WORLD HEALTH REPORT] (national and international public health authorities define emerging and re-emerging infectious diseases (“EIDs”) as “diseases of infectious origin whose incidence in humans has increased within the past two decades or threatens to increase in the near future”).

5. World Health Assembly, *Revision and Updating of the International Health Regulations*, WHO Doc. WHA 48.7 (May 12, 1995).

line the reasons why the future for the international legal regime on infectious disease control is no more promising than its unfortunate past.

II. THE GLOBAL PROBLEM OF EMERGING INFECTIOUS DISEASES

Many readers have heard, seen, or read something about EIDs, since this phenomenon has been described, sensationalized, and fictionalized by the popular press and media. Reading a *Time* cover story,⁶ watching the movie *Outbreak*,⁷ or digesting *The Hot Zone*⁸ gives a person only a small glimpse of the overwhelming problem that EIDs pose for the world. Many, including leaders at the highest levels of the U.S. government, believe that EIDs represent one of the most serious threats to human well-being in contemporary international relations.⁹ Several entities during the past 27 years documented this phenomenon. A U.S. interagency task force identified the emergence of twenty-nine new infectious diseases and the re-emergence of twenty old infectious diseases since 1973.¹⁰ In 1969, the United States Surgeon General announced that the public health, medical, and scientific communities had conquered infectious diseases.¹¹ In 1996, WHO reports that a "world crisis" in infectious diseases is underway.¹²

The explanation for the resurgence of infectious diseases between 1969 and 1996 requires an analysis of the causes underlying the resurgence. The list of causes is sobering both in its length and in what it contains. Literature on the subject usually identifies the following as major causes behind EIDs: (1) nature's power to circumvent antimicrobial pharmaceuticals and develop drug resistance; (2) public health, medical, scientific, and political complacency; (3) global travel; (4) international trade; (5) civil war and refugee movements; (6) environmental degradation; (7) changes in human behavior (primarily sexual behavior); (8) urbanization; (9) poverty; and (10) deterioro-

6. Michael D. Lemonick, *The Killers All Around: New Viruses and Drug-Resistant Bacteria are Reversing Human Victories Over Infectious Diseases*, *TIME*, Sept. 12, 1994, at 62 (chronicling several recent outbreaks of infectious diseases).

7. *OUTBREAK* (Warner Brothers 1995) (depicting fictional outbreak of Ebola-like disease in a small California community).

8. RICHARD PRESTON, *THE HOT ZONE* (1994) (describing outbreak of Ebola virus in a primate research center in Reston, Virginia).

9. See, e.g., U.S. Vice President Al Gore, Address Before the National Council for International Health (June 12, 1996) ("There is no more menacing threat to our global health today than emerging infectious diseases."); Dennis Pirages, *Microsecurity: Disease Organisms and Human Well-Being*, 18 *WASH. Q.* 5, 11 (Autumn 1995) ("Infectious diseases are potentially the largest threat to human security lurking in the post-cold war world.").

10. NATIONAL SCIENCE AND TECHNOLOGY COUNCIL COMMITTEE ON INTERNATIONAL SCIENCE, ENGINEERING, AND TECHNOLOGY, WORKING GROUP ON EMERGING AND RE-EMERGING INFECTIOUS DISEASES - INFECTIOUS DISEASES - A GLOBAL HEALTH THREAT 14-15 (1995) [hereinafter *CISSET REPORT*].

11. *Emerging Infections: A Significant Threat to the Nation's Health: Hearings Before the Senate Committee on Labor and Human Resources*, 104th Cong., 1st Sess. 1 (1995) (statement of Senator Nancy Kassebaum).

12. *WORLD HEALTH REPORT*, *supra* note 4, at 1.

rating public health infrastructures.¹³ This formidable combination of phenomena driving EIDs suggests that the world has increasingly developed conditions that allow pathogenic microbes to flourish. The would-be conquerors of infectious diseases are now suffering a global counterattack from the microbial world on a scale of frightening proportions.

III. THE INTERNATIONAL LEGAL REGIME ON INFECTIOUS DISEASES

Currently the IHR constitute the most important set of international legal rules on infectious disease control.¹⁴ WHO adopted the IHR in 1951 to succeed the patchwork of sanitary treaties and codes developed between 1851 and 1945.¹⁵ The international legal regime found in the IHR imposes two fundamental duties on member states of WHO: (1) states are to notify WHO of cholera, plague, and yellow fever outbreaks;¹⁶ and (2) states are to react to disease outbreaks in other states only as prescribed in the IHR.¹⁷ These duties are indicative of the IHR's purpose of providing maximum security against the international spread of infectious diseases with minimum interference with world traffic.¹⁸

Most experts agree, however, that the IHR have failed badly because states routinely ignore the duties of notification and of limited response to disease outbreaks in other states.¹⁹ The failure means that the IHR achieves

13. For a detailed examination of each of these causes see David P. Fidler, *Return of the Fourth Horseman: Emerging Infectious Diseases and International Law*, 81 MINN. L. REV. (forthcoming 1997) [hereinafter Fidler, *Return of the Fourth Horseman*].

14. World Health Organization, *Division of Emerging and Other Communicable Diseases Surveillance and Control, Emerging and Other Communicable Diseases Strategic Plan Outline 1996-2000*, at 10, WHO Doc. EMC 96.1 (1996) [hereinafter *EMC Strategic Plan*] (stating that the IHR are "the only international health agreement on communicable diseases that is binding on Member States" of WHO).

15. INTERNATIONAL HEALTH REGULATIONS, *supra* note 2, art. 86(a), at 38-39 (listing treaties the IHR replaced).

16. *Id.* art. 3, at 10 ("Each health administration shall notify the Organization . . . of its being informed that the first case of a disease subject to the Regulations . . . has occurred in its territory."). Article 1 defines "diseases subject to the Regulations" as cholera, plague, and yellow fever. *Id.* art. 1, at 8.

17. *Id.* art. 23, at 18 ("[H]ealth measures permitted by these Regulations are the maximum measures applicable to international traffic, which a State may require for the protection of its territory against the diseases subject to the Regulations.").

18. *Id.* at 5.

19. See, e.g., P. Dorolle, *Old Plagues in the Jet Age International Aspects of Present and Future Control of Communicable Diseases*, 23 WHO CHRON. 103, 104-05 (1969) (noting breakdown in systems of notification and failure of provisions prohibiting excessive and unnecessary measures); E. Roelsgaard, *Health Regulations and International Travel*, 28 WHO CHRON. 265, 266-67 (1974) (noting failure of objective of minimum interference with world traffic); P.J. DELON, *THE INTERNATIONAL HEALTH REGULATIONS: A PRACTICAL GUIDE* 24 (1975) (noting unsatisfactory functioning of notification system and numerous instances of the application of excessive and useless measures); CISET REPORT, *supra* note 10, at 4 (noting reluctance of states to share surveillance information); Laurie Garrett, *The Return of Infectious Disease*, 75 FOREIGN AFF. 66, 74 (Sept./Oct. 1996) (reporting reluctance of many nations to report infectious diseases); David L. Heymann, *The International Health Regulations: Ensuring Maximum Protec-*

neither maximum security from infectious disease spread nor minimum interference with world traffic. Further, experts noted the failure of the IHR well before the EID crisis developed.²⁰ EIDs have made the IHR even more irrelevant to member states of WHO because the Regulations have not been amended to keep pace with the EIDs.²¹

WHO has recognized the need for reform of the IHR and has already formulated basic principles on which to base reform.²² This IHR reform effort raises the questions whether international legal reform in this area is feasible and, if so, what form the reforms should take.

IV. CONSTRUCTING A NEW INTERNATIONAL LEGAL REGIME

The national and international public health officials analyzing the EID crisis believe that it poses a global threat that requires global action.²³ The nature of the threat posed by pathogenic microbes, and the ease with which they cross borders,²⁴ makes international cooperation on infectious disease control an essential public health objective. Put another way, the traditional distinction between national and international public health has vanished because a state can no longer provide for its public's health without global cooperation.²⁵ The global nature of the infectious diseases threat, the need for international cooperation, and the role for international law in fostering such cooperation are not, however, new concepts. Each of these ideas has been present in international relations since the mid-19th century when international efforts on infectious disease control first began.²⁶ As the EID crisis indicates, the global threat from pathogenic microbes has intensified; but in-

tion with Minimum Restriction, Address Before ABA Panel on Law and Emerging and Re-Emerging Infectious Diseases (Aug. 5, 1996), in PROGRAM MATERIALS FOR LAW AND EMERGING AND RE-EMERGING INFECTIOUS DISEASES, Aug. 1996, at 12-13 (noting failure of notification duties and recent episodes of excessive measures interfering with world traffic).

20. See Dorolle, *supra* note 19, at 109 (finding IHR inadequate in 1969); Roelsgaard, *supra* note 19, at 266-67 (discussing failure of IHR in 1974); DELON, *supra* note 19, at 24 (analyzing problems with IHR in 1975); DAVID LEIVE, I INTERNATIONAL REGULATORY REGIMES 89-99 (1976) (analyzing weaknesses of IHR during cholera epidemic of the 1960s).

21. Heymann, *supra* note 19, at 12 (observing that IHR do not cover many EIDs).

22. The principles guiding reform of the IHR are found in World Health Organization, *Division of Emerging and Other Communicable Diseases Surveillance and Control, The International Response to Epidemics and Application of the International Health Regulations: Report of a WHO Informal Consultation*, WHO Doc. EMC/IHR/96.1 (Dec. 11-14, 1995) [hereinafter *Report of WHO Informal Consultation*].

23. See, e.g., World Health Organization, *Communicable Disease Prevention and Control: New, Emerging, and Re-Emerging Infectious Diseases - Report by the Director-General*, WHO Doc. A48/15 (Feb. 22, 1995) at 2 (stating that EIDs "represent a global threat that will require a coordinated, global response").

24. See Mary E. Wilson, *Travel and the Emergence of Infectious Diseases*, 1 EMERGING INFECTIOUS DISEASES 39, 39 (1995) (arguing that "[t]ravel is a potent force in the emergence of disease").

25. U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION, *supra* 4, at 12.

26. See generally, Howard-Jones, *supra* note 1, at 1032 (explaining the history of international cooperation on infectious diseases).

ternational cooperation on infectious disease control through the IHR is superficial. Despite the compelling logic that international cooperation through international law is essential to control the spread of infectious diseases, states routinely undermine international cooperation through non-compliance with the IHR.

International relations scholarship in the form of "regime theory" can help explain why states deliberately undermine international cooperation and international law on infectious disease control. Regime theorists examine why states develop rules and norms to regulate behavior, and they posit that non-cooperative behavior results from rational calculations driven by the uncertainty created by the anarchical international system.²⁷ In such a system, cooperation is difficult to achieve and maintain. When states strongly desire the benefits of mutual cooperation, they often develop rules, procedures, and institutions to facilitate cooperation and discourage non-cooperation.²⁸

Regime theorists often use game theory to illustrate the rationality of non-cooperation.²⁹ In our "game," two states, A and B, face the decision whether to cooperate on infectious disease control. An infectious disease breaks out in B, and B must decide whether to notify A of this outbreak. A has to decide whether it will cooperate with B by limiting its reaction to the disease outbreak and thus not cause B economic or other harm. Figure 1 provides the decision matrix for A and B in this scenario.

FIGURE 1

		State A	
		Cooperate	Not Cooperate
State B	Cooperate	3, 3 (Box 1)	1, 4 (Box 2)
	Not Cooperate	4, 1 (Box 3)	2, 2 (Box 4)

Under these conditions, A and B share a dominant strategy—non-cooperation. The dominant strategy of non-cooperation is explained because A and B each has an "offensive" and "defensive" incentive not to comply. The "offensive" incentive arises because the highest possible payoff comes

27. Kenneth W. Abbott, *Modern International Relations Theory: A Prospectus for International Lawyers*, 14 YALE J. INT'L L. 335, 346-51 (1989) (discussing model of modern international relations theory that stresses anarchical nature of the system and the rationality of state behavior).

28. *Id.* at 354 (stating that the "creation of rules, regimes, and institutions is seen as a purposeful activity designed to improve unsatisfactory situations").

29. *Id.* at 355 (noting that game theory has "become a valuable tool for modern [international] R[elations] scholars").

through non-compliance when the other state complies (Boxes 2 and 3). The "defensive" incentive also arises because non-compliance (Box 4) has a higher payoff than unilateral compliance. Maximizing the payoff from a decision encourages A and B not to cooperate.³⁰

Although game theory is a crude analytical device, the results of our "game" accord with the history of non-cooperation between states under the IHR. The game suggests that mutual cooperation yields the highest aggregate payoff. This result matches our expectations created by the need for international cooperation on infectious disease control. Non-cooperation results, however, because neither state completely trusts that the other will cooperate; and such uncertainty produces the rational decision to maximize the payoff by not cooperating. States often fail to report infectious disease outbreaks out of a well-founded fear that other states will react in a way that causes economic harm to the states suffering the outbreak.³¹ Once non-cooperation occurs at the disease outbreak notification stage, non-cooperation is likely to be the policy adopted by other states. Game theory, thus, provides a plausible framework for explaining non-cooperation among states under the IHR.

Two recent episodes involving non-compliance with the IHR illustrate more concretely the general insights of game theory outlined above. In 1991, Peru notified WHO of cholera outbreaks in its territory pursuant to the IHR. As a result of measures not in compliance with the IHR taken by other states after the notification, Peru suffered economic losses estimated at \$700 million.³² Peru experienced what game theorists call the "sucker's payoff" for unilateral cooperation.³³ Other states facing the decision whether to comply with the IHR undoubtedly take note of the lack of cooperation Peru's unilateral compliance achieved. In 1994, outbreaks of plague occurred in India.³⁴ India did not notify WHO of the outbreaks until well after they had become widely known through the international media.³⁵ India's non-compliance was matched by other states, which took actions contrary to the IHR that caused losses in Indian trade and travel of approximately \$1.7 billion.³⁶ The conclusions that can be drawn from these two specific episodes are the lessons of game theory: state behavior tends towards mutual non-cooperation where the incentives to cooperate are weak and the costs of non-cooperation are non-existent.

Regime theorists posit that states can reduce the incentives for non-cooperation by designing rules or norms that allow for better dissemination of information, clarify standards behavior, provide monitoring for behavior,

30. *Id.* at 358-60 (explaining dynamics of the prisoners' dilemma game).

31. Dorolle, *supra* note 19, at 104-05; DELON, *supra* note 19, at 24; Ciset Report, *supra* note 10, at 4; Heymann, *supra* note 19, at 12.

32. Heymann, *supra* note 19, at 12.

33. Abbott, *supra* note 27, at 359.

34. Heymann, *supra* note 19, at 13.

35. *Id.*

36. *Id.*

and/or create sanctions for non-compliance.³⁷ The IHR represent just such an attempt to encourage cooperation because the Regulations lay down rules for the dissemination of information (*i.e.*, the notification duties) and set standards for behavior (*i.e.*, notification duties and duties to react in a prescribed way to notified outbreaks). The IHR do not, however, contain any provisions for monitoring compliance or imposing sanctions for violations. As the failure of the IHR demonstrates, the IHR do not overcome the incentives for non-cooperation. Put another way, the IHR do not provide sufficient incentives for cooperation or impose sufficient costs for non-cooperation.³⁸ Regime theory points towards radically revising the IHR to provide appropriate incentives for cooperation and costs for non-cooperation.

V. MISSION IMPOSSIBLE

The objective of radical revision of the IHR generated by utilizing regime theory is, however, not feasible for three major reasons. First, the principles shaping WHO's revision of the IHR do little more than expand the IHR's coverage while seeking to clarify the existing set of rules.³⁹ An underlying theme of the proposed revisions is that states just need to understand the IHR better and things will improve.⁴⁰ This attitude suggests that after flouting the IHR for decades states just need some education "to see the light" and participate properly in the international legal regime. In critiques of WHO's proposals for revision of the IHR, international legal scholars argue that the WHO proposals for IHR reform are inadequate and advocate establishing monitoring and/or enforcement mechanisms in the revised IHR.⁴¹ These proposals echo the advice of regime theory which is to change substantially the incentives and costs for compliance and non-compliance with the IHR. The approach taken by WHO does not, however, reflect naivete by WHO personnel. Rather it reflects WHO's sense that its member

37. Abbott, *supra* note 27, at 367-68.

38. As one scholar argues:

it is questionable whether nations perceive the benefits of their individual compliance with the Regulations as outweighing the national benefits of noncompliance. . . . Nations may also tend to violate the International Health Regulations because the advantages of noncompliance . . . are viewed as outweighing the costs. Indeed, the specific, immediate costs of violating the International Health Regulations appear to be particularly low.

Allyn L. Taylor, *Controlling the Global Spread of Infectious Diseases: Toward a Reinforced Role for the International Health Regulations*, 32 HOUSTON L. REV. (forthcoming 1997).

39. Heymann, *supra* note 19, at 15 (listing four principles that are to guide revision of IHR: (1) expand IHR coverage from three diseases to disease syndromes of international importance; (2) develop a practical handbook to facilitate use of revised IHR; (3) integrate revised IHR into all epidemiological activities; and (4) expand IHR to include descriptions of inappropriate reactions to disease outbreaks in other states).

40. *Report of WHO Informal Consultation*, *supra* note 22, at 14 (recommending guidelines and a practical handbook to help states understand the IHR).

41. See Taylor, *supra* note 38 (advocating monitoring mechanisms); Fidler, *Return of the Fourth Horseman*, *supra* note 13 (advocating monitoring and enforcement mechanisms).

states will only agree to IHR revisions that are not radical or that do not depart significantly from the status quo. WHO seems to have concluded that radical changes in the IHR are unrealistic. This resignation implicitly acknowledges that creating an effective international legal regime on infectious disease control along the lines suggested by regime theory is not feasible.

Second, the lack of optimism on the part of WHO suggests that not all states equally consider international infectious disease control to be in their self-interests. Regime theory assumes that states share a strong desire for cooperation that appropriate rules and norms creating the right balance of costs and benefits can buttress. The history of the IHR indicates that the desire for international cooperation on infectious disease control has been less than enthusiastic. In the EID crisis, history is merely repeating itself. Initial efforts in the mid-19th century to develop international cooperation arose because Europeans feared the spread of disease to Europe from non-European nations.⁴² Today, the attention being generated on EIDs comes mainly from the developed world, which fears the spread of infectious diseases from the developing world. In many developing states, infectious diseases are endemic and not "re-emerging." Developing states need massive financial and technical assistance to deal with endemic diseases more than rules to prevent their diseases from traveling to the developed world. While infectious disease spread affects developing states adversely, the primary interest developing states have is getting control of the situation at home.⁴³

International infectious disease control constitutes what international relations theorists call a "public or collective good" because provision of control requires collective action among states and because no state can really be excluded from the benefits of such control.⁴⁴ Providing a collective good faces two problems: (1) it will be provided only if the beneficiaries bear the costs and (2) non-excludability gives each potential beneficiary an incentive not to contribute to the costs of producing the collective good (*i.e.*, the free-rider problem).⁴⁵ These problems mean that the collective good will be provided for only if either (1) a hegemonic state agrees to bear the costs and subsidize the free riders, or (2) states cooperate to produce the collective good in the absence of hegemonic power.⁴⁶ Non-hegemonic cooperation in producing collective goods often relies on trying to exclude free riders, even

42. Howard-Jones, *supra* note 1, at 1035 (arguing that international health activities in the 19th century were motivated by European fears of contamination by non-European nations); *The Future of International Health Law: A Roundtable*, 40 INT'L DIG. HEALTH LEGIS. 1, 5 (1989) (statement of Michel Bélanger that international health law in the 19th century corresponded "primarily with the requirements of European countries").

43. The AIDS crisis demonstrates that developing countries are vulnerable to the international spread of infectious diseases, suggesting that developing states have interests in an effective international legal regime. The question is one of priority, and developing states face crises at home that dwarf the fears of developed states about international infectious disease spread.

44. Abbott, *supra* note 27, at 377 (defining public or collective goods).

45. *Id.*

46. *Id.* at 383-88 (discussing theories of hegemonic and non-hegemonic cooperation).

if exclusion cannot be complete.⁴⁷ In the collective good of international infectious disease control, the U.S. is the only likely hegemonic power, but it seems unwilling to underwrite the costs of an effective international regime.⁴⁸ Further, excluding free riders (which would be predominantly developing states) from an international legal regime on infectious disease control would be counterproductive from a public health perspective. The collective good of international infectious disease control will only be produced if developed states bear the greatest portion of the costs.⁴⁹ Developing states will use their weakness and the threat they pose to developed states to bargain for transfers of financial and technological resources.⁵⁰ Whether developed states value effective international infectious disease control enough to fund public health improvements in, and to subsidize cooperation by, developing countries and endure free riding in the current climate of budgetary concern in developed states is a dubious proposition.

Third, even assuming that all states demand effective international infectious disease control and that WHO was willing to create and maintain a radically different set of IHR, the international legal regime would be under constant strain because even radical IHR reforms would not address the underlying causes of EIDs. For example, urbanization in the context of deep poverty in developing countries will continue to provide pathogenic microbes fertile conditions. Global trade and travel will continue to provide opportunities for such microbes to spread around the world. The continuation of the underlying causes will force the costs of international cooperation to increase as infectious diseases continue to emerge and re-emerge. Such constantly escalating costs would erode any carefully calibrated incentives and disincentives built into radically-revamped IHR. This strain would encourage states to fall back into the dynamics of suspicious rationality, with the results predicted by game theory and unfortunately recorded in the previous history of the IHR. The idea that states will pursue international legal regimes to deal with the underlying causes of EIDs in order to support international infectious disease control is far-fetched at best.

WHO officials and others see in the technology of the telecommunications revolution a bright spot in the otherwise dark picture.⁵¹ The power of global telecommunications offers a way for technology to alter the traditional

47. *Id.* at 386 (noting that a developing aspect of non-hegemonic cooperation theory is the possibility of excluding non-contributing states).

48. Ciset Report, *supra* note 10, at 43 (stating that major U.S. contributions to global infectious disease control efforts "is not a likely prospect during this period of deficit reduction and downsizing").

49. Fidler, *Return of the Fourth Horseman*, *supra* note 13.

50. Fidler, *Emerging Infectious Diseases*, *supra* note 4, at 81.

51. U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION, *supra* note 4, at 21 (recommending use of the Internet to facilitate a global surveillance system); Ciset Report, *supra* note 10, at 5, 23 (supporting application of information technology to international control of infectious diseases); Gore, *supra* note 9, at 7 (advocating utilization of the information superhighway); EMC Strategic Plan, *supra* note 14, at 6 (proposing use of the World Wide Web to disseminate information).

dynamics of international politics on infectious disease control by allowing information on disease outbreaks to become almost universally available. Such global access to public health information undermines a state's ability to conceal a disease outbreak because it fears economic losses from the over-reactions of other states. The "offensive" incentive not to cooperate disappears for a state suffering a disease outbreak.⁵² Access to timely disease outbreak information *via* cyberspace also would allow states to determine more effectively and rationally how to react to disease outbreaks elsewhere. The global telecommunications revolution might encourage states to abandon old mind frames about infectious diseases and be more open to effective international cooperation and control. As a result of this potential impact by global telecommunications technology, reforms of the IHR might not need to be as radical as some have suggested.⁵³ The cautious, limited approach of WHO towards IHR reform makes more sense when combined with the anticipated impact of the global telecommunications revolution.

Whether realism dies in cyberspace remains to be seen. Global telecommunications technology represents a small ray of hope in an otherwise foreboding fog. The outbreaks of plague in India in 1994 suggest that states receiving timely information on disease outbreaks in other countries through international communications media do not act with more prudence and restraint than they have in the past. New technologies have emerged before without changing the dynamics of international infectious disease control. Science, after all, was once hailed as the conqueror of infectious diseases. What should be remembered about the promise of cyberspace is that it only spreads information about the continuing ravages of infectious diseases more quickly. Such rapid flows of public health information may or may not facilitate better infectious disease surveillance and intervention, but they do not deal with the conditions that nurture the often lethal power of pathogenic microbes. Where we once looked to science and technology to eradicate disease, now we merely anticipate that they will tell us faster how badly the human species is faring against the microbial world. This anticipation provides little comfort to those concerned with the prospects for international law on infectious disease control or the prospects for the human condition.

52. As WHO experts put it, "in this age of wide media coverage, nothing can be hidden." *Report of WHO Informal Consultation*, *supra* note 22, at 10.

53. Under regime theory, eliminating the "offensive" incentive not to cooperate changes the prisoners' dilemma game into a stag hunt game, where there remains only "defensive" incentives not to cooperate. Abbott, *supra* note 27, at 368. Regime theorists posit that rules to correct the stag hunt situation need not be as stringent and institutionalized as rules needed to deal with the prisoners' dilemma scenario. *Id.* at 371.