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## CURRICULUM VITAE

**Raymond A. Zilinskas**

### Personal Data

Business address: James Martin Center for Nonproliferation Studies  
Monterey Institute of International Studies  
460 Pierce Street  
Monterey, CA 93940

Work telephone: (831) 647-6545

FAX: (831) 647-6534

E-mail: rzilinskas@miis.edu

### Education and Training

Ph.D. in International Relations, 1981, School of International Relations, University of Southern California, Los Angeles, CA.

Filosofie Kandidat in Organic Chemistry, 1964, Organik Kemi Institut, University of Stockholm, Sweden.

B.A. in Biology, 1963, California State University at Northridge, CA.

A.A. in Biology and Chemistry, 1961, Pierce College, Woodland Hills, CA.

Licensure, 1962: Medical Technologist, State of California; # 09806.

### Professional Experience 1970 to the Present

October 1, 2009 to present, Senior Investigator, Preparedness and Emergency Response Research Center at the Monterey Institute of International Studies (consortium partner is Center for Infectious Diseases and Emergency Readiness, School of Public Health, University of California at Berkeley).

September 1, 2004 to July 1, 2008, Principal Investigator, Center for Public Health Preparedness at the Monterey Institute of International Studies.

September 2005 to present, Research Professor, Graduate School of International Policy and Management, Monterey Institute of International Studies.

September 1, 2002 to present, Director, Chemical and Biological Weapons Nonproliferation Program, James Martin Center for Nonproliferation Studies, Monterey Institute of International Studies.

September 1, 1998 to August 31, 2002; Senior Scientist in Residence, Center for Nonproliferation Studies, Monterey Institute of International Studies.

January 1996; promoted to Adjunct Associate Professor; Department of International Health, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, MD.

January 1, 1995 to August 31, 1998; resumed as Research Associate Professor at the Center for Public Issues in Biotechnology, University of Maryland Biotechnology Institute.

October 1, 1993 - December 31, 1994; awarded a William Foster Fellowship by the U.S. Arms Control and Disarmament Agency (ACDA), Washington, D.C. At ACDA, I worked for the Bureau of Intelligence, Verification, and Information Support; my main responsibility was to assist in the Bureau's efforts to develop biological, chemical, and toxin arms control treaties. During April 1994 - November 1994, ACDA seconded me to the United Nations Special Commission (UNSCOM) on Iraq to assist in establishing a long-term on-going monitoring and verification program to deter Iraq from developing biological weapon systems in the future. During this time, I took part in two UNSCOM biological weapons inspections in Iraq, in June/July and September/October, 1994.

1989 - 1996; Adjunct Assistant Professor, Department of International Health, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, MD (parallel position to my regular work at the UMBI).

October 1987 - October 1993; Research Associate Professor, Center for Public Issues in Biotechnology, University of Maryland Biotechnology Institute, College Park, MD. I performed advanced policy research related to ethical, legal, political, and social issues generated by modern biotechnology. The three areas I was particularly active were biotechnology for economic development in the Third World; affecting biological and toxin arms control; and policy and biosafety issues in marine biotechnology research and applications (see detailed description below). In October 1993, I began a fellowship with the U.S. Arms Control and Disarmament Agency under an IPA arrangement (see above).

February 1986 - October 1987; Independent consultant performing assignments for the RAND Corporation, UNESCO, UNIDO, and the United Nations University. I was consulted on capability building in biotechnology by Third World countries and issues pertaining to chemical and biological warfare and arms control.

December 1982 - February 1986; Industrial Development Officer (P4 level), Division of Industrial Studies, United Nations Industrial Development Organization (UNIDO), Vienna,

Austria. My work consisted of assisting with the establishment of the International Centre for Genetic Engineering and Biotechnology at New Delhi, India and Trieste, Italy, and backstopping biotechnology-related technical assistance projects in Egypt, India, Pakistan, Thailand, Venezuela, and elsewhere.

September 1981 - October 1982; Analyst, Biological Applications Program, U.S. Office of Technology Assessment on the project "Commercial Biotechnology: An International Analysis." I was in charge of the international aspects of this assessment (excluding Japan).

1980-1981; Research Associate, USC Institute of Marine and Coastal Studies (until graduation in August 1981). I performed policy research related to controlling pollution of the high seas.  
1979-1981; Senior instructor, USC School of International Relations and the Department of Political Science. I taught courses in international environmental law and international health policies.

1970-1981; Supervisor of the clinical microbiology section, Riverside Hospital Laboratory, North Hollywood, CA. I supervised all clinical laboratory studies in microbiology, parasitology, and virology and co-chaired the hospital's nosocomial infection committee.

### Professional Activities

#### **Society Membership and Leadership:**

Member of the American Association for the Advancement of Science (AAAS) and American Society for Microbiology (ASM).

Member of the ASM's Center for the History of Microbiology Archives Committee, 2011-2012.

Chairman, Electoral Nominating Committee, Societal Impacts of Science and Engineering, American Association for the Advancement of Science, November 1996 - November 1997.

Member of the Electorate Nominating Committee, Societal Impacts of Science and Engineering, American Association for the Advancement of Science, November 1994 - November 1997.

Chairman; 1989-1990; Graduate Student Paper Award Committee, Association for Politics and the Life Sciences.

#### **Participation in Advisory Panels**

Member of Steering Committee on Opportunities for Advancement of Environmental Marine Biotechnology, Commission on Life Sciences, National Research Council, 1997 – 2000.

Member of the four-person international team that reviewed and evaluated the Indo-Swiss

Collaborative Programme in Biotechnology, December 1996 - March 1997.

Member, Ethics Committee, Biotechnology Industry Organization (BIO), Washington, D.C., June 1996 to September 1, 1998.

Member of the Biotechnology Panel, Public and Scientific Affairs Board, American Society for Microbiology, 1994 - 1996. Also member of the ASM Task Force on Biological Arms Control, 1994 to present.

Resource person; 1989 - 1993; Physicians for Human Right's Committee on Biological and Chemical Weapons.

Member; 1989 - 1998; Federation of American Scientists' Review Group on the Biological Weapons Convention.

Reviewer; 1993; U.S. Office of Technology Assessment's project *Technologies Underlying Weapons of Mass Destruction*.

Reviewer; 1989 - 1990; U.S. Office of Technology Assessment's project *Biotechnology in the Global Economy: Government Strategies*.

Resource person; 1990 - 1993; Health Subcommittee of the Maryland Governor's State Commission on Black Males.

### **Fellowships**

William Foster Fellow, U.S. Arms Control and Disarmament Agency, U.S. Department of State, October 4, October 1993 - January 1995.

Research Fellow; September 1989; Stockholm International Peace Research Institute, Sweden.

Fellow; November 1986; Institute for Advanced Study, Indiana University.

### **Consultations**

Consultant to the National Defense University, September 1, 1998 to the present. Project completed April 2002, "Assessing Possible Applications of the Advanced Biotechnologies for Terrorist and Criminal Purposes."

Long-term consultant to the U.S. Department of State (before 1999, the U.S. Arms Control and Disarmament Agency), January 1995 – September 2009, on matters pertaining to biological and toxin arms control, UNSCOM operations, Cuban allegations, etc.

Consultant on an *ad hoc* basis to the UNDP, UNIDO, and the World Bank, 1986 to 1998.

Consultant; 1990 - 1993; Technical Review Group 11, Chemical and Biological Systems Technology, Institute for Defense Analysis. The objective of this group is to make recommendations to the Undersecretary of Defense for Acquisitions on list of military critical technologies.

### Editorial Activities

Editorial Advisory Board, January 2012 – 2015; *EMBO reports*.

Associate Editor, 2001 – present; *Nonproliferation Review*.

Associate Editor, Publications; 1983 – 2009; *Politics and the Life Sciences*.

Peer reviewer on *ad hoc* basis for *Politics and the Life Sciences*, *Journal of the American Medical Association*, *Contemporary Security*, and *BioScience*.

Ad Hoc Reviewer of Proposals for National Science Foundation, the Smith Richardson Foundation, Sloan Foundation.

### Publications

#### **Peer-reviewed Journal Articles**

Ken Coleman and Raymond A. Zilinskas, “Fake Botox, Real Threat,” *Scientific American* 302(6):84-89 (June 2010); <http://www.scientificamerican.com/article.cfm?id=fake-botox-real-threat>.

Tucker, Jonathan B, and Raymond A. Zilinskas, 2006. “The Promises and Perils of Synthetic Biology,” *New Atlantis* No. 12:25-45; <http://www.thenewatlantis.com/archive/12/tuckerzilinskas.htm>.

Ben Ouagrham-Gormley, Sonia, Alexander Melikishvili, & Raymond A. Zilinskas, 2006. “The Soviet Anti-plague System: An Introduction,” *Critical Reviews in Microbiology* 32(1):15-14; <http://cns.miis.edu/research/antiplague/index.htm>.

Zilinskas, R.A., 2006. “The Anti-Plague System and the Soviet Biological Warfare Program,” *Critical Reviews in Microbiology* 32(1)47-64; <http://cns.miis.edu/research/antiplague/index.htm>.

Ben Ouagrham-Gormley, Sonia, Alexander Melikishvili, & Raymond A. Zilinskas, 2006. “What Non-proliferation Policy for the Soviet Anti-plague System?” *Critical Reviews in Microbiology*

32(1):65-67; <http://cns.miis.edu/research/antiplague/index.htm>.

Gilsdorf, Janet R. and Raymond A. Zilinskas, 2005. "New Considerations in Infectious Disease Outbreaks: The Threat of Genetically Modified Microbes," *Clinical Infectious Diseases* 40:1160-1165.

Zilinskas, Raymond A. and Jonathan B. Tucker. "Limiting the Contribution of the Open Scientific Literature to the Biological Weapons Threat." *Journal of Homeland Security*, December 2002; electronic citation:  
<<http://www.homelandsecurity.org/journal/Articles/Tucker.html>>.

Tucker, Jonathan B. and Raymond A. Zilinskas, 2002. "Assessing U.S. Proposals to Strengthen the Biological Weapons Convention." *Arms Control Today* 32(3):10-14;  
[http://www.armscontrol.org/act/2002\\_04/tuczilapril02.asp](http://www.armscontrol.org/act/2002_04/tuczilapril02.asp).

Zilinskas, R.A., 2001. "Rethinking bioterrorism. *Current History* 100(650):438-443.

Zilinskas, R.A., 1999. "Cuban allegations of biological warfare by the United States: Assessing the evidence. *Critical Reviews in Microbiology* 25(3):173-227.

Zilinskas, R.A., 1998. "Verifying Compliance to the Biological and Toxin Weapons Convention. *Critical Reviews in Microbiology* 24(3):195-218.

Zilinskas, R.A., 1997. "Iraq's Biological Weapons: The Past as Future?" *Journal of the American Medical Association* 278(5):418-424.

Zilinskas, R.A., 1995. "UNSCOM and the UNSCOM Experience in Iraq," *Politics and the Life Sciences* 14(2):230-235.

Zilinskas, R.A., 1995. "Detecting and Deterring Biological Weapons in Iraq: The Role of Aerial Surveillance," *Politics and the Life Sciences* 14(2):255-258.

Bradford, J.K., Hatcher, C., Zilinskas, R.A., Wiener, S., Van Zandt, C.R., Bahnsen, P.F. & Medigovich, W.M., 1994. "Biological hazards and emergency management," *Journal of Contingencies and Emergency Management* 2(1):39-47.

Zilinskas, R.A., 1993. "Bridging the Gap Between Research and Applications in Developing Countries," *World Journal of Microbiology and Biotechnology* 9(2):145-152.

Taylhardat T.A. & R.A. Zilinskas, 1992. "The ICGEB and Agenda 21: Biotechnology at the United Nations Conference on Environment and Development", *Bio/Technology* 10:402-404.

Zilinskas, R.A., 1990. "Biological Warfare and the Third World," *Politics and the Life Sciences* 9:59-76.

Zilinskas, R.A., 1990. "Terrorism and Biological Weapons: Inevitable Alliance?" *Perspectives in Biology and Medicine* 34:44-72.

Zilinskas, R.A., 1989. "Biotechnology and the Third World: The Missing Link Between Research and Applications," *Genome* 31:1046-1054.

Blank, R.H., L.K. Caldwell, T.C. Wiegele, and R.A. Zilinskas, 1988. "Toward Better Education in Biopolitics," *Issues in Science and Technology* 4:51-53.

Zilinskas, R.A., 1987. "The International Centre for Genetic Engineering and Biotechnology: A New International Scientific Organization", *Technology in Society* 9:47-61.

Zilinskas, R.A., 1984. "Biotechnology in the U.S.S.R., Part 1," *Bio/Technology* 2:610-615.

Zilinskas, R.A., 1984. "Biotechnology in the U.S.S.R., Part 2," *Bio/Technology* 2:686-692.

Zilinskas, R.A., 1984. "Biotechnology in the U.S.S.R., Corrigendum," *Bio/Technology* 2:744.

Zilinskas, R.A., 1983. "Anthrax in Sverdlovsk: Epidemic or BW?" *Bulletin of the Atomic Scientists* 39:24-27.

Zilinskas, R.A., 1983. "New Biotechnology: Potential Problems, Likely Promises," *Politics and the Life Sciences* 2:42-75.

Zilinskas, R.A., 1978. "Japanese at Turtle Bay, Baja California, 1915," *Southern California Quarterly* 60:45-78.

Zilinskas, R.A., 1978. "Recombinant DNA Research and the International System," *Southern California Law Review* 51:1453-1501.

### **Books and Monographs**

Leitenberg, Milton and Raymond A. Zilinskas, July 2012. *The Soviet Biological Weapons Program: A History*, (Cambridge, MA, Harvard University Press).

Katz, Rebecca and Raymond A. Zilinskas (eds.), 2011. *Encyclopedia of Bioterrorism Defense*, 2<sup>nd</sup> Edition, (Hoboken, NJ: John Wiley and Sons, Inc.).

Sonia Ben Ouagrham-Gormley, Alexander Melikishvili, Raymond A. Zilinskas, *The Anti-plague System in the Newly Independent States, 1992 and Onwards: Assessing Proliferation Risks and Potential for Enhanced Public Health in Central Asia and the Caucasus*, Monterey, CA: Center for Nonproliferation Studies, January 3, 2008: <http://cns.miis.edu/antiplague/index.htm>.

Pilch, Richard F. and Raymond A. Zilinskas (eds.), 2005. *Encyclopedia of Bioterrorism Defense*, (Hoboken, NJ: John Wiley and Sons, Inc.).

Badarch, Dendeviin, Raymond A. Zilinskas, & Peter J. Balint (eds.), 2003. *Mongolia Today: Science, Culture, Environment and Development*, (London and New York: RoutledgeCurzon).

Tucker, Jonathan B. and Raymond A. Zilinskas (eds.), 2002. *The 1971 Smallpox Epidemic in Aralsk, Kazakhstan, and the Soviet Biological Warfare Program*, Occasional Paper No. 9, (Monterey, CA: Center for Nonproliferation Studies); <<http://cns.miis.edu/iop/cnsdata>>.

Zilinskas, R.A. & P.J. Balint (eds.), 2000. *The Human Genome Project and Minority Communities: Ethical, Social, and Political Dilemmas*, (New York: Praeger Press).

Zilinskas, R.A. (ed.), 1999. *Biological Warfare: Modern Defense and Offense*, (Boulder, CO: Lynne Rienner Publishers).

Zilinskas, R.A. & P.J. Balint (eds.), 1998. *Genetically Engineered Marine Organisms: Assessing the Environmental and Economic Risks and Benefits*, (New York: Kluwer Academic Publishers).

Zilinskas, R.A., R.R. Colwell, D.W. Lipton & R.T. Hill, 1995. *The Global Challenge of Marine Biotechnology: A Status on the United States, Japan, Australia and Norway*, (College Park, MD: Maryland Sea Grant College).

Lundin, C.G. and R.A. Zilinskas (eds.), 1995. *Marine Biotechnology in the Asian Pacific Region* (Proceedings of the 16-20 November 1993 Conference in Bangkok, Thailand), (Stockholm, Sweden: SAREC for the World Bank), 247 pp.

Zilinskas, R.A. & C.G. Lundin, 1993. *Marine Biotechnology and Developing Countries* (World Bank Discussion Paper # 210), (Washington, D.C.: World Bank), 115 pp.

Zilinskas, R.A. (ed.), 1992. *The Microbiologist and Biological Defense Research: Ethics, Politics and International Security*, in *Annals of the New York Academy of Sciences*, vol. 666, 275 pp.

Zilinskas, R.A. and B.K. Zimmerman (eds.), 1986. *The Gene Splicing Wars: Reflections on the Recombinant DNA Controversy*, (New York: Macmillan Publishers), 288 pp.

### **Articles, Book Reviews, and Editorials Not Peer Reviewed**

Zilinskas, Raymond A., "Preventing the Use of Syrian Chemical Weapons," *The National Interest*, August 6, 2012; <http://nationalinterest.org/commentary/preventing-the-use-syrian-chemical-weapons-7296>.



- Zilinskas, Raymond A., "Take Russia to 'task' on bioweapons transparency," *Nature Medicine* 18(6):14 (June 2012).
- Zilinskas, Raymond A., 2003. "Seeking leniency for Iraqi weapons scientists," *Chronicle of Higher Education* 49(38):B20 (May 30).
- Zilinskas, Raymond A., 2000. Book review of *The Biology of Doom: The History of America's Secret Germ Warfare Program* by Ed Regis. *Science* 287:981.
- Zilinskas, Raymond A., 1999. Book review of *America's Achilles Heel: Nuclear, Biological, and Chemical Terrorism and Covert Attack* by R.A. Falkenrath, R. Newman, and B.D. Newman. *Issues in Science and Technology* 15(4):84-87.
- Zilinskas, R.A., 1998. "Crisis in Iraq: The quickest fix would be too costly," *Chicago Tribune Perspective*, February 15:1,8.
- Zilinskas, R.A., 1998. "Bioethics and biological weapons" (editorial), *Science* 279:635.
- Nieves, Carmen & R.A. Zilinskas, 1998. "Human Genome Project: Reaching Maryland's Minority Communities," *Human Genome News* 9(1-2):19-21.
- Zilinskas, R.A., 1997. "The other biological-weapons worry" (Op-Ed), *New York Times*, November 28:A39.
- Zilinskas, R.A., 1996. "Mongolia relies on institutes to take biotech effort into the 21st century," *Genetic Engineering News* 16(13):8,32.
- Zilinskas, R.A., 1996. "Aum Shinrikyo's chemical/biological terrorism as a paradigm?" (Commentary), *Politics and the Life Sciences* 15:237-239.
- Zilinskas, R.A., 1996. "Overview of the Int'l. Centre for Genetic Engineering and Biotechnology," *Genetic Engineering News* 16(8):39-41.
- Zilinskas, R.A., 1993. "Biotechnology Industry Survives With a Struggle in the Baltic Republics," *Genetic Engineering News* 13(17):10-13.
- Colwell, R.R. & R.A. Zilinskas, 1993. "Survey Indicates Marine Biotechnology Industrialization Moving Slowly," *Genetic Engineering News* 13(7):14,20.
- Zilinskas, R.A., 1993. "Mushroom Biotechnology: A Primer," *Potomac Sporophore* 13(3):4-9.
- Zilinskas, R.A. & M.A. Levin, 1992. "The Maryland Biotechnology Institute," *Politics and the Life Sciences* 11(2):263-267.

Colwell, R.R. & R.A. Zilinskas, 1991. "United States: Congress, States and Pharmaceutical Research", *Biofutur*, No. 106, pp. 87-91.

Blank, R.E., L.K. Caldwell, T.C. Wiegele, and R.A. Zilinskas, 1987. "Biotechnology and the Social Sciences: Critical Needs in Teaching and Research," a white paper from the Institute for Advanced Study, Indiana University. Reprinted in *Politics and the Life Sciences* 6:65-80.

Zilinskas, R.A., 1984. "Biotechnology and the Developing Countries: The Same Old Story?" (a commentary), *Politics and the Life Sciences* 2:181-183.

Zilinskas, R.A., 1983. "UNIDO and Biotechnology," *ASM News* 49:540-541.

### **Book Chapters**

Zilinskas, Raymond A. and Hussein Alramini, "Aerosol Vaccines," in Jonathan B. Tucker (ed.), *Innovation, Dual Use, and Security: Managing the Risks of Emerging Biological and Chemical Technologies*, (Cambridge, MA: MIT Press, 2012) pp. 261-270.

Zilinskas, Raymond A., "Cuban Allegations of U.S. Biological Warfare: False Allegations and Their Impact on Attribution," in Anne L. Clunan, Peter R. Lavoy, and Susan B. Martin (eds.), *Terrorism, War, or Disease? Unraveling the Use of Biological Weapons*, (Stanford, CA: Stanford University Press, 2008), pp. 144-164.

Dashnyam, Bubein & Raymond A. Zilinskas, "Review of Developments in Biotechnology in Mongolia," in Dendeveen Badarch, Raymond A. Zilinskas, & Peter J. Balint (eds.), *Mongolia Today: Science, Culture, Environment and Development*, (London and New York: RoutledgeCurzon, 2003), pp. 49-66.

Zilinskas, R.A. 2002. "Open publications as sources of biological and chemical terrorism: defining the problem and applying remedies," in James Brown (ed.), *Implications of 9/11 on National Security and the Path Forward to Peace: Twelfth Annual International Arms Control Conference*, (Albuquerque, NM: Sandia National Laboratory), pp. 144-160.

Zilinskas, R.A. & P.J. Balint, 2000. "The Human Genome Project and Minority Communities: The Importance of Dialogue and Access to Information," in R.A. Zilinskas & P.J. Balint (eds.), *The Human Genome Project and Minority Communities: Ethical, Social, and Political Dilemmas*, (New York: Praeger Press), pp. 211-222.

Zilinskas, R.A., 2000. "Economic and regulatory aspects of marine biotechnology," in National Research Council (ed.), *Opportunities for Environmental Applications of Marine Biotechnology*, (Washington, D.C.: National Academy Press), pp. 14-18.

Zilinskas, R.A. 2000. "Social and regulatory aspects of the marine environment," in National

Research Council (ed.), *Opportunities for Environmental Applications of Marine Biotechnology*, (Washington, D.C.: National Academy Press), pp. 154-161.

Zilinskas, R.A., 1999. "Iraq's Biological Warfare Program: The Past as Future?" in J. Lederberg (ed.), *Biological Weapons: Limiting the Threat*, (Cambridge, MA: MIT Press), pp. 137-158.

Colwell, R.R. & R.A. Zilinskas, 1999. "Bioethics and the Prevention of Biological Warfare," in R.A. Zilinskas (ed.), *Biological Warfare: Modern Offense and Defense*, (Boulder, CO: Lynne Rienner Publishers), pp. 225-245.

Zilinskas, R.A., 1998. "Analysis of the Ecological Risks Associated With Genetically Engineered Marine Microorganisms," in R.A. Zilinskas & P.J. Balint (eds.), *Genetically Engineered Marine Organisms: Assessing the Environmental and Economic Risks and Benefits*, (New York: Kluwer Academic Publishers), pp. 95-138.

Gutrich, J.J., H.H. Whiteman & R.A. Zilinskas, 1998. "Characteristics of the Marine Ecosystem Relevant to Uncontained Applications of Genetically Engineered Organisms," in R.A. Zilinskas & P.J. Balint (eds.), *Genetically Engineered Marine Organisms: Assessing the Environmental and Economic Risks and Benefits*, (New York: Kluwer Academic Publishers), pp. 31-60.

Balint, P.J., R.R. Colwell, J.J. Gutrich, D. Hite, M. Levin, S. Stenquist, H.H. Whiteman, & R.A. Zilinskas, 1998. "Risks and Benefits of Marine Biotechnology: Conclusions and Recommendations," in R.A. Zilinskas & P.J. Balint (eds.), *Genetically Engineered Marine Organisms: Assessing the Environmental and Economic Risks and Benefits*, (New York: Kluwer Academic Publishers), pp. 221-224.

Zilinskas, R.A., 1998. "Bioremediation in the Marine Environment," in E. Galindo & O.T. Ramirez, *Advances in Bioprocess Engineering II*, (Amsterdam: Kluwer Academic Publishers), pp. 209-227.

Zilinskas, R.A., 1998. "Reaching for Biosecurity by Countering a New Danger to Democratic Order," in Y. Becker, A. Falaschi, V. Kouzminov, M. Martellini, & R. Santesso (eds.), *Possible Consequences of the Misuse of Biological Sciences* (Venice, Italy: UNESCO Venice Office), pp. 353-366.

Zilinskas, R.A., 1997. "Global Perspectives on the Human Genome Project," in E. Smith & W. Sapp, *Plain Talk About the Human Genome Project*, (Tuskegee, Alabama: Tuskegee University), pp. 56-74.

Zilinskas, R.A., 1996. "Detecting and Deterring Biological Weapons: Lessons From United Nations Special Commission (UNSCOM) Operations in Iraq," in J. Brown (ed.), *Arms Control in a Multi-Polar World*, (Amsterdam: VU University Press), pp. 193-210.

Zilinskas, R.A., 1995. "Safety Aspects of Aquatic Biotechnology," in G.T. Tzotzos (ed.),

*Genetically Modified Organisms: A Guide to Biosafety*, (London: CAB International), pp. 147-172.

Zilinskas, R.A., 1995. "Preventing State Crimes Against the Environment During Military Operations: The 1977 Environmental Modification Treaty," in J.I. Ross (ed.), *Controlling State Crime: An Introduction*, (New York: Garland Publishing), pp. 235-281.

Zilinskas, R.A., 1995. "Biosafety Considerations in Aquatic Biotechnology," in C.G. Lundin and R.A. Zilinskas (eds.), *Marine Biotechnology in the Asian Pacific Region* (Proceedings of the 16-20 November 1993 Conference in Bangkok, Thailand), (Stockholm, Sweden: SAREC for the World Bank), pp. 176-199.

Zilinskas, R.A., 1994. "An Overview of Recent Developments in Aquatic Biotechnology" in OECD Environment Directorate (ed.), *The Proceedings of the OECD Symposium on Aquatic Biotechnology and Food Safety*, (Paris: Organization for Economic Cooperation and Development), pp. 18-27.

Zilinskas, R.A., 1993. "Capability-Building in Biotechnology by Developing Countries. Lessons From a Plant Biotechnology Project in India," in G.T. Tzotzos (ed.), *Biotechnology R&D Trends: Science Policy for Development*, in *Annals of the New York Academy of Sciences*, vol. 700, pp. 232-255.

Zilinskas, R.A., 1992. "Marine Biotechnology and the Third World: Research and Applications," in M.R. Ladisch & A. Bose (eds.), *Harnessing Biotechnology for the 21st Century*, (Washington, D.C.: American Chemical Society), pp. 545-548.

Zilinskas, R.A., 1992. "Confronting Biological Threats to International Security: A Biological Hazards Early Warning Program," in R.A. Zilinskas (ed.), *The Microbiologist and Biological Defense Research: Ethics, Politics and International Security*, in *Annals of the New York Academy of Sciences*, vol. 666, pp. 146-176.

Zilinskas, R.A. & C.G. Hedén, 1991. "The Biological Warfare Convention: A Vehicle for International Cooperation," in J. Lundin (ed.), *Views on Possible Verification Measures for the Biological Weapons Convention*, (New York: Oxford University Press for Stockholm International Peace Research Institute), pp. 71-97.

Geissler, E. & R.A. Zilinskas, 1990. "Technology Trends in Selected Areas: Biotechnology," in *Scientific and Technological Developments and Their Impact on International Security -- Report of the Secretary-General*, (New York: United Nations General Assembly, Document A/45/568), pp. 71-82.

Zilinskas, R.A., 1987. "Assessment of National Biotechnology Programs," in R. Wakeford (ed.), *Biotechnology Information '86*, (Oxford and Washington D.C.: IRL Press), pp. 239-251.

Zilinskas, R.A., 1986. "Verification of the Bacteriological and Toxin Weapons Convention," in E. Geissler (ed.), *Biological and Toxin Weapons Today*, publication by the Stockholm International Peace Research Institute, (London and New York: Oxford University Press), pp. 82-107.

Zilinskas, R.A., 1986. "Recombinant DNA Research and Biological Warfare," in R.A. Zilinskas & B.K. Zimmerman, *The Gene Splicing Wars: Reflections on the Recombinant DNA Controversy*, (New York: Macmillan Publishers), pp. 167-203.

### **Other Publications**

Zilinskas, Raymond A., "Contagion: A Movie Pandemic Versus the Reality of Public Health," *WMD Junction*, September 23, 2011; [http://cns.miis.edu/wmdjunction/110923\\_contagion.htm](http://cns.miis.edu/wmdjunction/110923_contagion.htm).

Coleman, Kenneth D. and Raymond A. Zilinskas, *Producers of Illicit Botulinum Neurotoxin (BoNT) as Security Threats*, Report to the Advance Systems and Concepts Office, U.S. Defense Threat Reduction Program, Monterey, CA: Center for Nonproliferation Studies, January 3, 2010.

Zilinskas, Raymond A., *Second-Tier Suppliers of Biological Warfare Technology, Equipment and Materials: The Potential Roles of China, India, and Cuba*, Report to the Advance Systems and Concepts Office, U.S. Defense Threat Reduction Program, Monterey, CA: Center for Nonproliferation Studies, January 9, 2008.

Zilinskas, Raymond A., "Technical Barriers to Biological Attacks With Synthetic Organisms," in *From Understanding to Action: Community-Based Options for Improving Safety and Security in Synthetic Biology* by Stephen M. Maurer, Keith V. Lucas & Starr Terrell, Goldman School of Public Policy, University of California at Berkeley, pp. 8-24 (April 2006): <http://gspp.berkeley.edu/iths/UC%20White%20Paper.pdf>.

Zilinskas, Raymond A. (rapporteur), *Bioterrorism Threat Assessment and Risk Management Workshop: Final Report and Commentary* (for the U.S. Department of Energy), June 24, 2003; <http://cns.miis.edu/pubs/reports/pdfs/biorisk.pdf>.

Zilinskas, Raymond A. and Jason Pate, 2002. *Responding to Bioterrorism: Assessing California's Preparedness*, (Sacramento, CA: California Research Bureau), <http://www.library.ca.gov/crb/02/04/02-004.pdf>.

Zilinskas, Raymond A., 2002. *Actions by the United Nations With Regard to Allegations of Chemical and Bacteriological (Biological) Warfare During 1980-1992*, (Washington, D.C.: U.S. Department of State).

Zilinskas, Raymond A. and W. Seth Carus, 2002. *Possible Terrorist Use of Modern Biotechnology Techniques*, (Washington, D.C.: Chemical and Biological Defense Information

Analysis Center). (For Official Use Only)

Högger, Rudolf, B.N. Ganguli, S.K. Basu & R.A. Zilinskas, 1997. *Programme Review of the Indo-Swiss Collaboration in Biotechnology*, (Bern: Swiss Agency for International Development and Collaboration).

Ben-dak, J., R.A. Zilinskas, C. Baker & L. Kurbiel, 1994. "Reorganizing the Science and Technology Infrastructure in Mongolia," report to the United Nations Development Program and the Government of Mongolia.

Bradford, J.K., C. Hatcher, R.A. Zilinskas, S. Wiener, C.R. van Zandt, P.F. Bahnsen & W.M. Medigovich, 1993. *Biological Hazards and Emergency Management* (Working Paper # 82), Natural Hazards Research and Applications Information Center, Institute of Behavioral Science, University of Colorado, March.

Taylhardat, A.R. & R.A. Zilinskas, 1992. "The ICGEB and Agenda 21: Biotechnology at the United Nations Conference on Environment and Development." UNIDO document CRP. 4, February 19.

Zilinskas, Raymond A. and Erhard Geissler, "Technology Trends in Selected Areas: Biotechnology," in *Scientific and Technological Developments and Their Impact on International Security. Report of the Secretary-General*. United Nations General Assembly Document A/45/568, October 17, 1990.

Zilinskas, R.A., 1990. "Biotechnology in Senegal," technology assessment for UNIDO, January.

Zilinskas, R.A., 1990. Book review of *The Diplomacy of Biological Disarmament: Vicissitudes of a Treaty in Force, 1975-85* by N.A. Sims, in *American Journal of International Law* 84:984-987.

Zilinskas, R.A., 1989. Book review of *Clouds of Secrecy* by Leonard Cole, in *Politics and the Life Sciences* 8:227-231.

Zilinskas, R.A., 1989. *Plant Biotechnology Including Cell and Tissue Culture*. UN Development Program, Program Advisory Note, July.

Zilinskas, R.A., 1987. "Assessing the Possibility of Biological Warfare Escalating to Nuclear Conflagration," (internal RAND study).

Zilinskas, R.A., 1987. "A Network in California for the Training in Biotechnology of Researchers from Developing Countries", a report to UNIDO, September 17.

Zilinskas, R.A., 1987. "Biotechnology for the Developing Countries: The Role of Selected United Nations Agencies," a report to the United Nations University, 1 September.

McConnell, D., S. Riazuddin, R. Wu, & R.A. Zilinskas, 1986. "Capability-building in Biotechnology and Genetic Engineering in Developing Countries." UNIDO document IS. 608.

Zilinskas, R.A., 1985. "The Promises of Biotechnology and Genetic Engineering for Africa," UNIDO document IS. 513.

Zilinskas, R.A., 1984. "Biotechnology and the Developing Countries: Applications for the Pharmaceutical Industry and Agriculture," UNIDO document IS. 452.

Office of Technology Assessment, 1984. *Commercial Biotechnology: An International Analysis*, (Washington, D.C.: U.S. Office of Technology Assessment) -- member of the project staff.

Zilinskas, R.A., 1982. "Biotechnology in Israel," a study prepared for the U.S. Office of Technology Assessment.

Zilinskas, R.A., 1981. *International Implications of Recombinant DNA Research* (doctoral dissertation), (Los Angeles: University of Southern California).

### **Congressional Testimony, Television, and Radio Appearances (recent examples)**

Interviewed by Ian Marshall on National Public Radio's "Background Briefings" concerning Syrian chemical and biological weapons, August 21, 2012:  
[http://ianmasters.com/sites/default/files/mp3/bbriefing\\_2012\\_08\\_21b\\_raymond%20zilinskas.mp3](http://ianmasters.com/sites/default/files/mp3/bbriefing_2012_08_21b_raymond%20zilinskas.mp3).

Testimony on "Bioterrorism," before the California Assembly Budget Subcommittee No. 1 on Health and Human Services, State Capitol, February 28, 2005.

Testimony on "Overview of the California Research Bureau Report on Bioterrorism," before the California Senate Select Committee on Anti-Terrorism Policy, Sacramento, March 11, 2002.

Guest host on the *Washington Post* Live Online Forum "America at War: Biological Weapons," presented on October 23, 2001, <[http://discuss.washingtonpost.com/wp-srv/zforum/01/attack\\_zilinskas.htm](http://discuss.washingtonpost.com/wp-srv/zforum/01/attack_zilinskas.htm)>.

Speaker and discussant, "Bioterrorism: Implications for Clinical Practice," Permanente Medicine Today, CME Videoconference produced by Kaiser Permanente, broadcast on October 11, 2001.

Guest discussant on Public Broadcast System's Jim Lehrer News Hour, broadcasted on September 22, 2001, 6 PM EST; the issue discussed was bioterrorism in the U.S.

Testimony on "Assessing the Threat of Bioterrorism," before the Subcommittee on National Security, Veterans Affairs, and International Relations, U.S. House of Representatives, on Oct. 20, 1999.

Luncheon briefing on "The Threat of Bioterror" for congresspersons and congressional staff, Capitol Building, July 24, 1998.

Guest discussant on the Voice of America's Washington Weekly program dealing with the situation in Iraq, broadcasted on March 2, 1998, 8 AM EST, to Egypt, Lithuania, and Nigeria.

Guest discussant on Public Broadcast System's Jim Lehrer News Hour, broadcasted on February 25, 1998, 6 PM EST; the issue discussed was the February 23 agreement between UN Secretary-General K. Annan and Iraq's Deputy Prime Minister Tariq Aziz.

Guest discussant on Public Broadcast System's Jim Lehrer News Hour, broadcasted on February 16, 1998, 6 PM EST; the issue discussed was a cost/benefit analysis of the prospective U.S. bombing campaign.

Guest discussant on National Public Radio's Morning Edition, broadcasted on February 25, 1998, 7:10 AM EST; the issue discussed was the February 23 agreement between UN Secretary-General K. Annan and Iraq's Deputy Prime Minister Tariq Aziz.

Guest discussant on National Public Radio's Morning Edition, broadcasted on February 13, 1998, 7:10 AM EST; the issue discussed was the prospective bombing of Iraq.

Guest discussant on the National Public Radio's Science Friday program "Hour One: Biological and Chemical Warfare -- The 'poor man's weapons of mass destruction'," broadcasted on November 21, 1997, 2 PM EST (see [http://www.sciencefriday.com/pages/1997/Nov/hour1\\_112197.html](http://www.sciencefriday.com/pages/1997/Nov/hour1_112197.html)).

Guest discussant on the CNN Impact program "Standoff with Iraq," broadcasted on November 16, 1997, 10 PM EST (see <http://mouth.pathfinder.com/time/community/guest.html>).



## CURRICULUM VITAE

**Raymond A. Zilinskas**

### PART II

#### Teaching

“Emerging Issues in International Public Health,” graduate-level course at Monterey Institute of International Studies offered during fall 2005, 2006, 2007.

“Biological and Chemical Weapons and Arms Control,” graduate-level course at Monterey Institute of International Studies; was first offered during spring and fall 2004; since then has been offered every fall semester.

“Simulating a Deliberately Caused Foodborne Disease Outbreak Using the Table-top Exercise (TTX) Tool,” Fall semester, Monterey Institute of International Studies; was offered during fall 2005 and fall 2006 (to be offered Spring 2013).

“Medical Responses to Biological and Chemical Terrorism,” Fall semester, Monterey Institute of International Studies; this course was offered during 2000-2002.

“Terrorism Utilizing Weapons of Mass Destruction,” spring semester 2004, Monterey Institute of International Studies; this class, which is a team-taught course, has been offered since 1999.

"Policy Implications of Emerging Problems in International Health," Third Quarter, School of Hygiene and Public Health, Johns Hopkins University, Washington, D.C. Campus (see the course home page on the World Wide Web at: <<http://cns.miiis.edu/class/rayz/index.htm>>). This class was taught each year 1997-1998.

"Biological, Chemical, and Toxin Weapons and Arms Control," Fourth Quarter, School of Hygiene and Public Health, Johns Hopkins University, Medical Center, Baltimore. This class was taught each year 1993-1996.

At University of Maryland Baltimore County, 1988 - 1990: "International Organizations" (undergraduate), "Biotechnology and Public Policy" (graduate) and "International Health Policy Analysis" (graduate).

At University of Southern California, 1979-1981; undergraduate courses "International Organizations", "International Law", "International Environmental Law", "Problems of Global Medicine", "Politics and the Law of the Public Professions", and "Science, Technology, and Society."

## Research Grant Participation

I am or have been the PI or co-PI of the following projects:

In December 2009, CNS was awarded a so-called Minerva grant from the U.S. Office of the Secretary of Defense in support of the project “Iraq’s Wars with the US from the Iraqi Perspective: State Security, Weapons of Mass Destruction, Civil-Military Relations, Ethnic Conflict and Political Communication in Ba’athist Iraq.” Minerva is a university-based social science basic research program that focuses on areas of strategic importance to U.S. national security policy and seeks to increase the U.S. Department of Defense’s intellectual capital in the social sciences, improve its ability to address future challenges, and build bridges between the department and the social science community. The grant will continue for five years and the total support is in excess of \$5 million.

On October 1, 2009, the James Martin Center for Nonproliferation Studies (CNS) became a Preparedness and Emergency Response Research Center (PERRC) in association with the Center for Infectious Disease Emergency Response at the University of California, Berkeley. As such, CNS undertakes a 4-year research project to assess the abilities of state and local public health departments in California and, eventually, Hawaii to respond to chemical, radiological, and nuclear (CRN) incidents, whether caused by terrorism or accident. This is necessary because readiness of state and local health departments throughout the United States for incidents involving chemical and radiological materials is low. For example, in 2008 no state public health laboratory in the U.S. could rapidly identify priority radioactive materials present in clinical samples. (CDC award number 20100084, total funding is \$1.238 million.)

Center for Public Health Preparedness program, Agreement # U90/CCU923765-02, commenced August 1, 2005, funded at \$ 740,000 by the Centers for Disease Control and Prevention (CDC). This program supports several projects whose main objective is to assist California state and local health officials increase their level of preparedness to meet challenges posed by catastrophic disease outbreaks whether of natural or laboratory etiology. This project is slated to be completed on July 31, 2006, but a no-cost extension has been requested of the CDC that would allow the program to continue for an additional year.

“Countering the Threat of Bioterrorism Through Data Collection, Analysis, and Training,” commenced April 2004, funded at \$ 950,000 by the Centers for Disease Control and Prevention. The project includes undertaking the maintenance and expansion of the Monterey WMD Terrorism database, as well as adapting it for use by public health officials; providing nonproliferation and bioterrorism preparedness training to current and future mid-career government professionals already working in the fields of science, health, industry, government, and international organizations, and evaluating the counterterrorism tactics and strategies employed by the U.S. government to specifically combat bioterrorism. This project will continue through July 31, 2005.

“Workshop on Guidelines for the Publication of Scientific Research Potentially Related to Biological and Toxin Warfare,” held in Washington, D.C. on August 12, 2002; sponsored by the

Defense Threat Reduction Agency (DTRA). As the name suggests, the workshop, constituted by an interdisciplinary group of experts, developed a set of general principles or guidelines for Department of Defense (including DTRA) analysts who review findings from scientific research of possible relevance to the development and use of biological weapons by adversaries. These principles or guidelines should provide guidance to DoD analysts as to which research findings are sensitive and therefore should be classified or have limited release, and which findings can be circulated freely.

The two-year project “The Anti-Plague System of the Former Soviet Union: Assessing Proliferation Risks and Potential for Disease Monitoring in Central Asia and the Caucasus, and Nonproliferation Training,” commenced on June 1, 2002; it is funded at \$ 750,000 by the Nuclear Threat Initiative. The project’s co-PIs are Sonia Ben Ouagrham and Raymond A. Zilinskas. The project’s objectives are to examine the history and current status of the anti-plague system of the former Soviet Union and to establish a training program on biological weapons (BW) nonproliferation issues for administrators and scientists from the anti-plague system. The specific goals of the project are to (1) identify BW proliferation threats from the anti-plague institutes; (2) make site-specific recommendations for measures to reduce these risks; (3) determine the disease monitoring capabilities of the anti-plague institute system; (4) make recommendations for exploiting these capabilities to (1) enhance public health capabilities and infectious disease surveillance in the former Soviet states, and (2) to contribute to global disease monitoring capabilities under the auspices of the World Health Organization; and (5) provide training in BW nonproliferation issues (to be conducted in the United States and in the region) for anti-plague institute officials and specialists.

“Workshop on Bioterrorism Threat Assessment and Risk Management,” held during November 12 and 13 in Washington, D.C. The sponsor was the Lawrence Livermore National Laboratory, U.S. Department of Energy. The goal of this workshop is to convene an interdisciplinary group of experts on counterterrorism, forensic sciences, microbiology, risk assessment, management, and communication, and national security to analyze the feasibility of performing a rigorous risk assessment of bioterrorism, as called for in the 1999 U.S. General Accounting Office (GAO) report “Combating Terrorism: Need for Comprehensive Threat and Risk Assessment of Chemical and Biological Attacks” (GAO/NSIAD-99-163). The workshop addressed issues such as: (1) Is it possible to perform a rigorous risk assessment of terrorist use of biological weapons using open-source information? If so, how might such a risk assessment be done? (2) Assuming that it is possible to perform a rigorous risk assessment of bioterrorism, could the results from such an assessment be used to predict most likely attack scenarios, including targets, agents, dispersal methods, etc.? (3) Could such a risk assessment be used to identify more effective methods for deterring and defending against bioterrorist attacks? Further, could the findings from a risk assessment be used to design and implement risk management strategies? (4) Can a risk assessment be applied for the benefit of designing government counterterrorism policy? What might be the elements of such a policy?

"Research Project to Counter the International Proliferation of Biological and Toxin Weapons," January 1999 - September 2001; sponsored by the MacArthur Foundation; the funding level is \$

156,000. The project supports two research endeavors. The first is to assess the relevance of the experience of the United Nations Special Commission (UNSCOM) to international biological arms control. The second is to evaluate international control over toxin development and production.

"Bioterrorism in the Year 2005," July 1, 1998 - June 31, 2000; sponsored by the National Defense University; the funding level is \$ 30,000. The project's main objective is to discern the likely form of bioterrorism in 2005. To make this evaluation, the PI will establish a focus group composed of bioscientists, microbiologists, weapons experts, terrorism experts, and others as required to analyze the topic. R.A. Zilinskas is the PI and will conduct the project's organizational and analytical functions.

"The Former Soviet Union's Biological and Toxin Warfare Program: Assessing Its Proliferation Potential," February 1, 1998 - August 30, 2001; sponsored by the Smith Richardson Foundation; the PI is R.A. Zilinskas, the co-PI is Milton Leitenberg, and the project consultant is Anthony Rimmington; the funding level is \$ 268,400. The project will investigate the FSU's BW program using literature research, interviews of FSU scientists and policy-makers, and visits of facilities in Russia and the newly independent countries. The project's objective is to clarify the proliferation potential of the dissolving part of the BW program and ascertain whether another part still operates in Russia. R.A. Zilinskas is the PI and principal analyst of the project.

"The Human Genome Project: Reaching the Minority Communities in Maryland," January 1, 1997 - December 31, 1997; sponsored by the U.S. Department of Energy and the National Institute for Genomic Research; PI is R.A. Zilinskas, co-PI is Carmen Nieves; funding level is \$ 41,600. The project involves organizing and holding a conference during June 1997, then following up on the conference by instituting communication lines between the HGP and Maryland minority communities. The conference proceedings are to be published. R.A. Zilinskas was the PI and principal organizer of conference, as well as editor of the conference proceedings. Praeger Publishers is publishing a book based on these proceedings in November 2000.

"Biological and Toxin Weapons in the Era of Molecular Biology: Defining the Problem and Pursuing Solutions," January 1, 1996 - September 31, 1997; sponsor is the Smith Richardson Foundation; PI is R.A. Zilinskas; funding level is \$ 48,050. The objective of this project is to determine how much of a threat that biological and toxin weapons pose to the U.S. and, if the threat is deemed sizable, how to best meet it. The project's final product is the book *Biological Warfare: Modern Defense and Offense*, published September 1999 by Lynne Rienner and edited by the PI.

"Identifying and Publicizing Mongolia's Unique Biological and Biotechnological Resources," November 1, 1995 - December 31, 1997; sponsor is the United Nations Development Program; PIs are R.A. Zilinskas and Dendev Badarch; funding level is \$ 36,217. The objective of this project was to undertake interdisciplinary investigation of Mongolia's biological and biotechnological resources in order to uncover those unique to this nation, and to present these findings to Western/Japanese scientists and industrial entrepreneurs who are in a position to

initiate cooperative development projects between themselves and Mongolian scientists and enterprises.

"Marine Biotechnology, Biosafety, and Industry," October 1, 1994 - September 30, 1997; sponsoring agency is the National Office of Sea Grant, National Atmospheric and Oceanic Administration; PIs are R.A. Zilinskas, M.A. Levin and D.W. Lipton; funding level is \$ 136,571. The objective of this project was to assess risk assessment schemes used for testing genetically engineered organisms in the terrestrial environment and determine whether they are applicable to testing genetically engineered organisms in the aqueous and marine environments. The final product of this project was a book edited by R.A. Zilinskas and P.J. Balint, *Genetically Engineered Marine Organisms: Assessing the Environmental and Economic Risks and Benefits*, published by Kluwer Academic Publishers in 1998.

"Marine Biotechnology in the United States, Japan and Other Countries: An Assessment", October 1990 - October 1993; grant from the National Office of Sea Grant and Maryland Sea Grant College; PIs were R.A. Zilinskas, R.R. Colwell, and D. Lipton; funding level was \$ 80,000. The objectives were to assess the present status of marine biotechnology in U.S., Japan and other major nations; determine future directions in marine biotechnology; and measure international competitiveness in this field. The final product was a book written the PIs, *The Global Challenge of Marine Biotechnology: A Status on the United States, Japan, Australia and Norway*, published by the Maryland Sea Grant College in 1995.

"Marine Biotechnology and the Third World": 1991 - 1992; grant of \$ 20,000 from the World Bank; PI was R.A. Zilinskas. The objective was to develop a position for the Bank in the area of marine biotechnology and to write and publish a monograph on the project's topic. The monograph was published in 1993.

"The Microbiologist and Biological Defense Research: Ethics, Politics and International Security"; 1989 - 1991; grant from the Ethics and Values in Science and Technology program of the National Science Foundation; funding level was \$ 55,000; PIs were R.A. Zilinskas, L. Miller and J.A. Poupard. The objective was to organize conference on the subject matter and to have its proceedings published in book form by the New York Academy of Sciences. The book was published in 1992.

"Regulations and Safety Aspects of Engineered Plants and Microbial Species"; 1990; grant from the United Nations Industrial Development Organization; funding level was \$ 45,000; co-PIs were R.A. Zilinskas and M.A. Levin. The objective was to instruct 15 Latin American scientists how to perform risk assessment and risk management pertaining to the field-testing of genetically engineered organisms.

"Biotechnology: Patents, Regulations and Public Issues"; 1989; grant from the Instructional Television System; funding level was \$ 45,000; PI was R.A. Zilinskas. The objective was to organize and hold a nationally televised conference for researchers and industry on the subject matter. The conference was televised in October 1989.

Visiting research fellowship at the Stockholm International Peace Research Institute, summer 1989; grant from the American-Scandinavian Foundation; funding level was \$ 5,000; PI was R.A. Zilinskas. The objective was to develop international cooperation in applied microbiology under Article X of the Biological and Toxin Weapons Convention.

### Academic Services

Member of the Maryland Service Council (which aims to improve the University of Maryland's service to the state); December 1995 to January 1997.

Faculty Senate representative; University of Maryland Biotechnology Institute; 1989 - 1993 and 1995 - 1998.

Affirmative Action Committee member; University of Maryland Biotechnology Institute, 1989.

Alternative representative from the University of Maryland Biotechnology Institute to the University of Maryland System Faculty Senate, 1991 - 1993.

### Presentations and Workshops (representative recent examples)

Co-organizer of the 1.5 day long workshop “‘Doomsday’ Threats, Real and Imagined: Identifying and Assessing the Mass Casualty Terrorist Threat Posed by Foreign Apocalyptic Millenarian Groups,” held during July 20-21, 2012 at the Monterey Institute of International Studies; workshop supported by Livermore National Laboratory and CIA.

Keynote speaker at the 3<sup>rd</sup> Annual Biosecurity Symposium, National University of Australia, Canberra, held during February 1-2, 2010: “The Security Threat Presented by Producers of Illicit Botulinum Neurotoxin.”

Organizer of the one-day table-top exercise “Puxy Wind: Modeling a Large Release of Anhydrous Ammonia Over the City of Salinas During the Annual Rodeo,” which was held at Sherwood Hall, Salinas Community Center, Salinas, CA, on July 11, 2007; this exercise was supported by the Monterey County Health Department.

Co-organizer of the workshop “Applying the Incident Command System in a functional exercise simulating a public health calamity caused by pandemic influenza,” which was presented at the 107th annual meeting of the American Society for Microbiology, Toronto, Canada, May 19, 2007.

Co-organizer of the workshop “The Incident Command System and the Clinical Microbiologist,” which was presented at the 106<sup>th</sup> annual meeting of the American Society for Microbiology,

Orlando, FL, May 22, 2006.

Organizer of the one-day table-top exercise “Biocriminal Foodborne Event in Monterey County, California,” which was held at the Emergency Operation Center in Salinas, CA, on October 19, 2006; this exercise was supported by the Monterey County Health Department.

Speaker, “The Anti-plague Systems of Central Asian and Caucasus Nations: Uncertain Defense Against Especially Dangerous Infectious Diseases,” presented at the 86<sup>th</sup> Annual Meeting of the AAAS Pacific Division, Ashland, OR, on June 16, 2005.

Arranger of the colloquium “The Antiplague System of the Former Soviet Union: Biological Weapons Proliferation Potential and Promises for International Public Health, presented at the 105<sup>th</sup> General Meeting of the American Society for Microbiology, Atlanta, GA, June 8, 2005.

Speaker, “Major Biological Threats Facing the International Community,” presented at the 14<sup>th</sup> World Congress on Disaster and Emergency Medicine, Edinburgh, Scotland, May 19, 2005.

Speaker, “The UN Secretary General and Investigations of the Alleged Use of Biological and Chemical Weapons,” presented at the VERTIC conference “Strengthening the Tools and Mechanisms for Verifying Biological Weapons Compliance, Hatton Conference Center, London, England, May 13-14, 2004.

Speaker, “Security and the Biological Research Community: The Dilemma of Open Publication,” presented at the annual meeting of the American Society for Cell Biology, in San Francisco, CA, December 17, 2003.

Speaker, “Outbreak: Smallpox, Anthrax, and Mutating Viruses,” presented at the *Time* Magazine’s Conference on the Future of Life held during February 19-21, 2003, in Monterey, California.

Plenary speaker, “The Clinical Laboratory: An Abettor of or Defender Against Bioterrorism,” presented at the annual meeting of the American Association of Clinical Chemists on August 1, 2002, in Orlando, Florida.

Organizer of the panel “Bioterrorism: Estimating Risks and Designing Countermeasures,” presented at the 102<sup>nd</sup> General Meeting of the American Society for Microbiology, held in Salt Lake City, UT, on May 21, 2002. My presentation at that time was titled “Sources of Pathogens and Know-how for Bioterrorism.”

Speaker, “Preparedness for Biological Disasters in Japan and the United States: A Comparative Study of Emergency Medical Departments, Hospitals, and Government Agencies,” presented at the 6<sup>th</sup> Asian-Pacific Conference on Disaster Medicine, held at Fukuoka, Japan, during February 19-22, 2002.

Speaker, "The Myths and Realities of Biological Terrorism and Warfare," presented on February 14, 2002, as part of the speaker series on *The New Biology: Issues and Opportunities*, organized by the Center for Advanced Study, University of Illinois Urbana-Champaign.

Speaker, "The Soviet Union's Anti-animal and Anti-plant Biological Warfare Program," presented at the annual meeting of the American Society for Microbiology, held at Orlando, FL, May 24, 2001.

Speaker, "Present Status of Negotiations to Develop a Protocol to the Biological and Toxin Weapons Convention," presented at the conference "Preventing Health and Proliferation Problems Stemming from the Soviet BW Legacy in Central Asia", held at Almaty, Kazakhstan, April 18, 2001.

Speaker, "Assessing the Former Soviet Union's Biological Warfare Program," presented at the annual meeting of the Association for Politics and the Life Sciences, held at Washington, D.C., September 4, 2000.

Speaker, "Bridging the Gap Between Research and Applications in Developing Countries," presented at the conference "Biotechnological Developments in Kazakhstan: Nonproliferation, Conversion, Investment," held at Stepnogorsk, Kazakhstan, July 24-26, 2000.

Speaker, "Possible Terrorist Use of Modern Biotechnology Techniques," presented at the conference "Emerging Threats Assessment: Biological Terrorism, Institute for Security Technology Studies, Dartmouth College, New Hampshire, on July 7-9, 2000, (<<http://engineering.dartmouth.edu/~ethreats/ethreats6.html>>).

Speaker, "The Advanced Biotechnologies and Terrorism," presented to the Gordon Research Conference on Applied and Environmental Microbiology, held at Connecticut College, CT, on July 3-8, 1999.

Speaker, "Reaching for Biosecurity by Countering a New Danger to Democratic Order," presented at the UNESCO International School of Science for Peace Forum on Possible Consequences of the Misuse of Biological Sciences, held at Como, Italy, December 2 - 6, 1997.

Arranger, with Dr. E. Lacey, of the full-day session "International Arms Control: Lessons From the UNSCOM Experience," which was held during the annual meeting of the American Association for the Advancement of Science (AAAS), February 11, 1996, in Baltimore.

Arranger, with Dr. David Huxsoll, of "Round-table of UNSCOM Biological Warfare Inspectors: Lessons of the Iraqi Experience for International Arms Control," which was held during the annual meeting of the American Society for Microbiology, May 22, 1995, in Washington, D.C.