

May 2014



Above: Program series currently underway and being planned by the ISGP

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The Institute on Science for Global Policy (ISGP)

www.scienceforglobalpolicy.org

by Dr. George H. Atkinson
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and
Professor Emeritus, Department of Chemistry and Biochemistry and College of Optical
Sciences, University of Arizona

Preface

As the second decade of the 21st century opens, most societies are facing difficult decisions concerning how to appropriately use, or reject, the dramatic new opportunities offered by modern scientific advances and the technologies that emanate from them. Advanced scientific research programs, as well as commercially viable technologies, are now developed globally. As a consequence, many societal issues related to science and technology (S&T) necessarily involve both domestic and international policy decisions, both in the public and private sectors. The daunting challenges to simultaneously recognize immediate technological opportunities, while identifying those emerging and “at-the-horizon” S&T achievements that foreshadow transformational advantages and risks within specific societies, are now fundamental governmental responsibilities. These responsibilities are especially complex since policy makers must consider the demands of different segments of society that often have conflicting goals. For example, policy decisions must balance critical commercial interests that promote economic prosperity with the cultural sensitivities that often determine if, and how, S&T can be successfully integrated into any society.

Many of our most significant geopolitical policy and security issues are directly connected with the remarkably rapid and profound S&T accomplishments of our time. Consequently, it is increasingly important that the S&T and policy communities (public and private) communicate effectively. With a seemingly unlimited number of urgent S&T challenges, both wealthy and less-wealthy societies need their most accomplished members to focus on effective, real-world solutions relevant to their specific circumstances. Some of the most prominent challenges involve (i) infectious diseases and pandemics, (ii) environmentally compatible energy sources, (iii) the consequences of climate change, (iv) food safety, security, and defense (v) the cultural impact of stem cell applications, (vi) nanotechnology and human health, (vii) cyber security for advanced telecommunication, (viii) the security implications of quantum computing, and (ix) the cultural radicalization of societies.

Recent history suggests that most societies would benefit from improving the effectiveness of how scientifically credible information is used to formulate and implement governmental policies, both domestic and international. Specifically, there is a critical need to have the relevant S&T information concisely presented to policy communities in an environment that promotes candid questions and debates led by those nonexperts directly engaged in policy decisions. Such discussions, sequestered away from publicity, can help to clarify the advantages and potential risks of realistic S&T options directly relevant to the challenges being faced. Eventually, this same degree of understanding, confidence, and acknowledgment of risk must be communicated to the public to obtain the broad societal support needed to effectively implement any decision.

The ISGP mission

The Institute on Science for Global Policy (ISGP) has pioneered the development of a new type of international forum based on a series of invitation-only conferences. These ISGP

conferences are designed to provide articulate, distinguished scientists and technologists opportunities to concisely present their views of the credible S&T options available for addressing major geopolitical and security issues. Over a two-year-plus period, these ISGP conferences are convened on different aspects (e.g., surveillance, prevention, antimicrobial resistance, zoonosis) of a broad, overarching topic (e.g., Emerging and Persistent Infectious Diseases).

ISGP programs rely on the validity of two overarching principles:

1. Scientifically credible understanding must be closely linked to the realistic policy decisions made by governmental, private sector, and societal leaders in addressing both the urgent and long-term challenges facing 21st century societies. Effective decisions rely on strong domestic and global public endorsements that motivate active support throughout societies.
2. Communication among scientific, technological, and policy communities requires significant improvement, especially concerning decisions on whether to use or reject the often transformational S&T opportunities continually emerging from the global research communities. Effective decisions are facilitated in venues where the advantages and risks of credible S&T options are candidly presented and critically debated among internationally distinguished subject-matter experts, policy makers, and private sector and community stakeholders.

Historical perspective

The dramatic and rapid expansion of academic and private sector scientific research transformed many societies of the 20th century and is a major factor in the emergence of the more affluent countries that currently dominate the global economic and security landscape. The positive influence of these S&T achievements has been extremely impressive and in many ways the hallmark of the 20th century. However, there have also been numerous negative consequences, some immediately apparent and others appearing only recently. From both perspectives, it would be difficult to argue that S&T has not been the prime factor defining the societies we know today. Indeed, the 20th century can be viewed through the prism of how societies decided to use the available scientific understanding and technological expertise to structure themselves. Such decisions helped shape the respective economic models, cultural priorities, and security commitments in these societies.

It remains to be seen how the prosperity and security of 21st century societies will be shaped by the decisions made by our current leaders, especially with respect to how these decisions reflect sound S&T understanding.

Given the critical importance of properly incorporating scientifically credible information into major societal decisions, it is surprising that the process by which this is achieved by the public and its political leadership has been uneven and, occasionally, haphazard. In the worst cases, decisions have been based on unrecognized misunderstanding, overhyped optimism, and/or limited respect for potentially negative consequences. Retrospectively, while some of these outcomes may be attributed to politically motivated priorities, the inability of S&T experts to accurately communicate the advantages and potential risks of a given option must also be acknowledged as equally important.

The new format pioneered by the ISGP in its programs seeks to facilitate candid communication between scientific and policy communities in ways that complement and support the efforts of others.

It is important to recognize that policy makers routinely seek a degree of certainty in evaluating S&T-based options that is inconsistent with reality, while S&T experts often overvalue the potentially positive aspects of their proposals. Finite uncertainty is always part of advanced scientific thinking and all possible positive outcomes in S&T proposals are rarely realized. Both points need to be reflected in policy decisions. Eventually, the public needs to be given a frank, accurate assessment of the potential advantages and foreseeable disadvantages associated with these decisions. Such disclosures are essential to obtain the broad public support required to effectively implement any major decision.

ISGP conference structure

At each ISGP conference, a few (typically eight) internationally recognized, subject-matter experts are invited to prepare concise (three pages) policy position papers. These invited authors are chosen to represent a broad cross section of viewpoints and international perspectives. Several weeks before the conference is convened, these policy position papers are distributed to a group of individuals (typically less than 60) invited by the ISGP to represent policy makers and stakeholders from governments, societal organizations, and international organizations in the Americas, Europe, Asia, and Australia. Individuals from private sector and philanthropic organizations also are invited to participate and, therefore, received the papers. All participants have responsibilities and/or make major contributions to the formulation and implementation of domestic and international policies related to the conference topic.

The conference agenda is normally comprised of eight 90-minute sessions, each of which is devoted to a debate of a given policy position paper. To encourage frank discussions and critical debates, all ISGP conferences are conducted under the Chatham House Rule (i.e., all the information can be used freely, but there can be no attribution of any remark to any participant). In each session, the author is given 5 minutes to summarize his or her views while the remaining 85 minutes are opened to all participants, including other authors, for questions, comments, and debate. The focus is on obtaining clarity of understanding among the nonspecialists and identifying areas of consensus and actionable policy decisions supported by scientifically credible information. These candid debates are designed to reflect international perspectives on real-world problems.

The ISGP staff members attend the debates of all policy position papers. The not-for-attribution summaries of each debate are prepared from their collective notes. These summaries represent the ISGP's best effort to accurately capture the comments and questions made by the participants, including the other authors, as well as those responses made by the author of the paper. The views expressed in these summaries do not necessarily represent the views of a specific author, as evidenced by his or her respective policy position paper. Rather, the summaries are, and should be read as, an overview of the areas of agreement and disagreement that emerged from all those participating in the debates.

Following the debates, caucuses are held in small groups comprised of a representative cross section of the participants. A separate caucus for the scientific presenters also is held. These caucuses focus on identifying areas of consensus and actionable next steps for consideration within governments and civil societies in general. Subsequently, a plenary caucus is convened for all participants. While the debates focus on specific issues and recommendations raised in each policy position paper, the caucuses focus on overarching views and conclusions that could have policy relevance, both domestically and internationally.

Concluding remarks

ISGP conferences are designed to provide new and unusual (perhaps unique) environments that facilitate and encourage candid debate of the credible S&T options vital to successfully

address many of the most significant challenges facing 21st century societies. ISGP debates test the views of subject-matter experts through critical questions and comments from an international group of decision makers committed to finding effective, real-world solutions. Obviously, ISGP conferences build on the authoritative reports and expertise expressed by many domestic and international organizations already actively devoted to this task. As a not-for-profit organization, the ISGP has no opinions nor does it lobby for any issue except rational thinking. Members of the ISGP staff do not express any independent views on these topics. Rather, ISGP programs focus on fostering environments that can significantly improve the communication of ideas and recommendations, many of which are in reports developed by other organizations and institutes, to the policy communities responsible for serving their constituents.

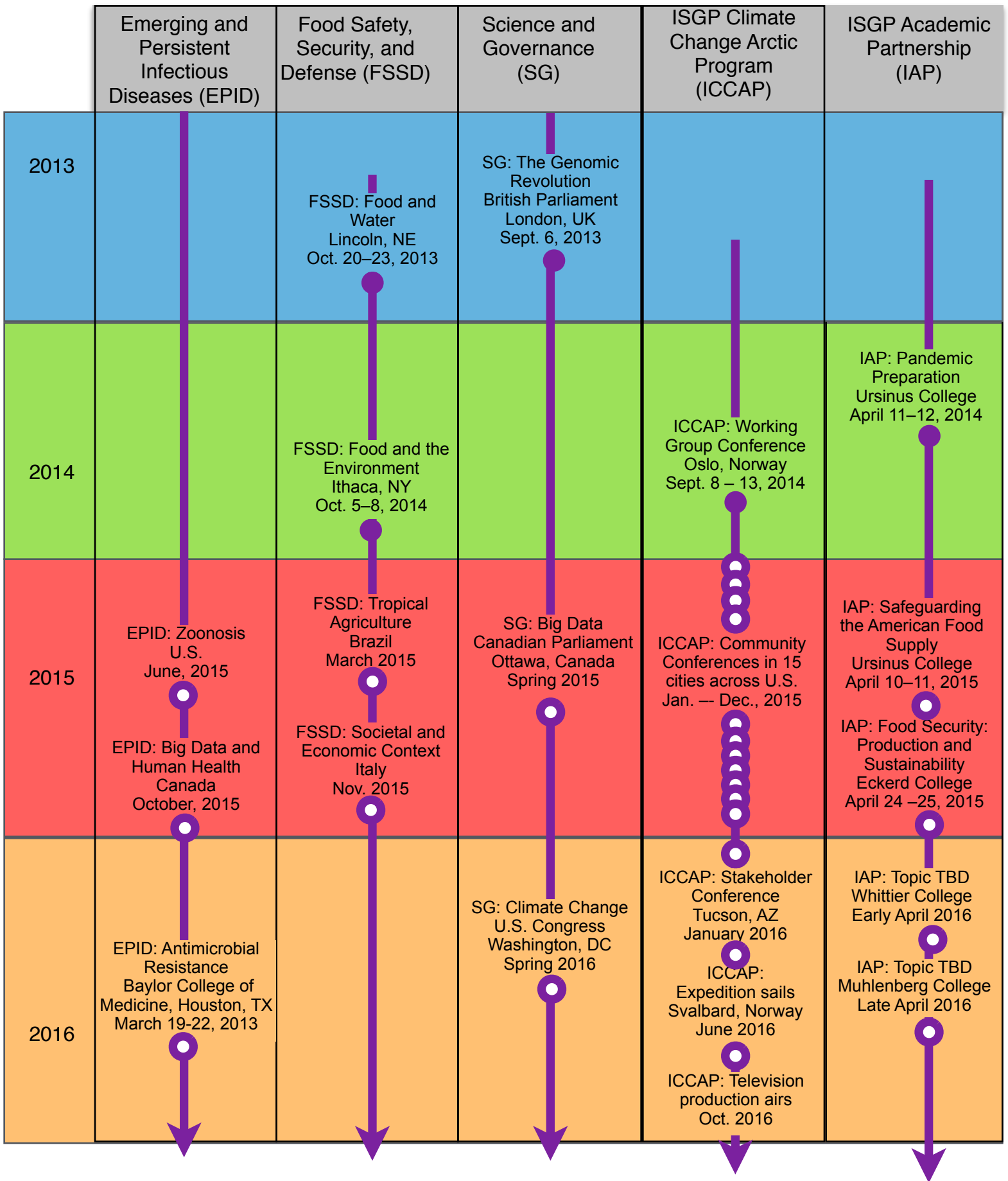
ISGP conferences begin with concise descriptions of scientifically credible options provided by those experienced in the S&T subject, but rely heavily on the willingness of nonspecialists in government, academe, foundations, and the private sector to critically debate these S&T concepts and proposals. Overall, ISGP conferences seek to provide a new type of venue in which S&T expertise not only informs the nonspecialists, but also in which the debates and caucuses identify realistic policy options for serious consideration by governments private sector, and societal leaders. ISGP programs are designed to help ensure that S&T understanding is integrated into those real-world policy decisions needed to foster safer and more prosperous 21st century societies.

ISGP Program Format



	Emerging and Persistent Infectious Diseases (EPID)	Food Safety, Security, and Defense (FSSD)	Science and Governance (SG)	ISGP Climate Change Arctic Program (ICCAP)	ISGP Academic Partnership (IAP)
2009	Global Perspectives Tucson, AZ Dec. 2009				
2010	EPID: Surveillance Warrenton, VA Oct. 2010		● Indicates those conferences that have been convened or are in the final stages of organization		
2011	EPID: Prevention San Diego, CA July 2011 EPID: Mitigation Edinburgh, Scotland Oct. 2011		○ Indicates those conferences that are currently being structured and organized		
2012	EPID: Societal & Economic Context Fairfax, VA July 2012 21CB/Synthetic Biology: Responsibility & Governance Tucson, AZ Dec.4-7, 2012	Global Perspectives Washington, DC Oct. 24, 2012			
2013	EPID: Antimicrobial Resistance Baylor College of Medicine, Houston, TX March 19-22, 2013	FSSD: Technologies & Innovations Verona, Italy April 14-17, 2013			





Participating Organizations

Organizations that have sent representatives to at least one ISGP conference. Those marked with an asterisk have sent multiple representatives to multiple conferences

A*STAR	Brigham and Women's Hospital
Agriculture and Horticulture Development Board, U.K.	British Consulate General*
Alfred E. Mann Foundation	California Institute on Technology*
Alfred P. Sloan Foundation	Canada Office of the Assistant Secretary for Preparedness and Response (DHHS/OS/ASPR)
ALTA	Canadian Embassy
American Friends of the Alexander von Humboldt Foundation	Canon U.S. Life Sciences
Animal Health Institute	Cargill Corp.*
Arizona State University*	Carnegie Corporation of New York
Asia-Pacific Institute on Tropical Medicine and Infectious Diseases	Center for Policy on Emerging Technologies (C-PET)
Aspen Institute	Center for Strategic Leadership, United States Army War College
Association of American Veterinary Medical Colleges	Center of Research Network for Infectious Diseases
Australia Animal Health Laboratory (CSIRO)	Centro de Investigaciones Biológicas del Noroeste S. C.*
Australian National University Baylor College of Medicine*	College of Law, Australian National University
Bipartisan Policy Center	Colorado State University
Biofaction KG	Columbia University*
Brazilian Agricultural Research Corp. (Embrapa)	ConAgra Foods*

Consiglio per Ricerca (CRA) Maize Research Unit	Innovation, Directorate of Health, Unit of Infectious Diseases and Public Health
Cornell University	European Food Safety Authority (EFSA)
Consiglio per Ricerca (CRA)	Executive Office of the President*
Consulate General France	European Commission Directorate-General for Health and Consumers (DG SANCO)
Critical Path Institute*	Federal Bureau of Investigation (FBI)*
David Geffen School of Medicine	Federal Institute of Technology (ETH) Zurich
Defense Intelligence Agency	Food and Agriculture Organization (FAO)*
Defense Science and Technology Laboratory, UK Ministry of Defense	Food and Environment Research Agency*
Defense Threat Reduction Agency (DTRA)*	Fort Huachuca
Department for Environment, Food and Rural Affairs (DEFRA)*	Friends of the Earth U.S.
Department of Global Health Policy, Graduate School of Medicine, University of Tokyo	Genome Analysis Centre
Division of Microbiology and Infectious Diseases (DMID) of the National Institute of Allergy and Infectious Diseases (NIAID), NIH, DHHS*	George Mason University*
DNA2.0, Inc.	George Washington University
EcoHealth Alliance*	German Marshall Fund of the United States*
Embassy of Italy	Gettysburg College, Eisenhower Institute*
Embassy of Switzerland	GlaxoSmithKline Consumer Healthcare*
Environmental Parliament	Global Viral Forecasting Initiative*
European Centre for Disease Prevention and Control (ECDC)	Grocery Manufacturers Association
European Commission, DG Research &	Harvard University, School of Public Health

Health Products and Foods Branch, Health Canada	Japan Society for Promotion of Science (JSPS), Washington Office
Health Protection Agency (HPA)*	Johns Hopkins University
Hills & Co.*	Joint BioEnergy Institute
House of Lords*	Kansas State University*
House of Commons*	Logan Circle Policy Group
Human and Bioengineered Systems Division, Office of Naval Research (ONR)	London School of Economics/London School of Hygiene and Tropical Medicine*
Huntsman Cancer Foundation*	M+W Group*
Illinois Institute of Technology	Mars Incorporated*
Imperial College London*	McGill University
Indiana University*	McKenna Long and Aldridge LLP
Institute for Systems Biology	Ministry of Defense, U.K.*
International Center for Technology Assessment	Ministry of Health, Department of Veterinary Health, Food Safety and Scientific Evaluation for Health Protection
International Council for the Life Sciences*	Monsanto
International Life Sciences Institute (ILSI)*	Moredun Research Institute
International Security & Biopolicy Institute	NAICONS
Intrexon Corporation	National Center for Food Protection and Defense (NCFPD) / Partnerships and External Relations of the University of Minnesota's College of Veterinary Medicine
Iowa State University	National Center for Medical Intelligence*
Istituto Zooprofilattico Sperimentale delle Venezie*	National Defense Intelligence College, Defense Intelligence Agency
Italian Medicines Agency (AIFA)	National Food Institute (Denmark)
Italian Parliament	
J. Craig Venter Institute*	

National Institute of Allergies and Infectious Diseases, National Institutes of Health, U.S. Department of Health and Human Services (NIAD/NIH/DHHS)*	Peto & Company*
National Institute of Infectious Diseases	Pfizer*
National Institute of Molecular Genetics (INGM) Italy	Princeton University
National Institutes of Health (NIH), Department of Health and Human Services (HHS)*	Public Health Agency of Canada*
National Intelligence Council (NIC)*	Public Health England
National Intelligence University	Quadrata Science LLC
Nature*	RAND Corporation
NDA Regulatory Science	Regional Institute of Research (IReR) Italy
Nestlé	Research Corporation for Science Advancement*
Netherlands Business Support Office (NBSO)	Research Institute of Science and Technology for Society at the Japan Science and Technology Agency
Newcastle University	Rice University
New York Academy of Science, Policy Evaluation and Transformation Group	Rubio Pharma y Asociados*
New York University	Rutgers University
Novartis Vaccines and Diagnostics*	Sabin Vaccine Institute and Baylor College of Medicine
Office for Science and Technology at the French Embassy	Sample6 Technologies, Inc.
Office of Naval Research (ONR)*	Sandia National Laboratories
Office of the Director of National Intelligence (ODNI)	Sanofi
Parliamentary Office of Science and Technology (POST)	Science Solutions Inc.
	Scottish Government, Science Adviser
	Sigma Xi
	Society for General Microbiology*

South African Embassy in Rome	U.S. Defense Threat Reduction Agency - Advanced Systems and Concepts Office (DTRA-ASCO)*
Stanford University*	
Stellenbosch University	U.S. Department of Health & Human Services / Health Resources and Services Administration (HHS / HRSA)*
Swedish University Agricultural Sciences*	
Swiss Tropical and Public Health Institute, Dept. of Epidemiology and Public Health	U.S. Department of Health and Human Services*
SynBERC/Stanford*	U.S. Department of Homeland Security (DHS)*
Synthetic Genomics, Inc.	U.S. Department of Homeland Security (DHS), Office of Health Affairs*
TeselaGen Biotechnology Inc.	U.S. Department of State*
Texas Tech University	U.S. Food and Drug Administration (FDA)*
Tufts University	U.S. Naval Medical Research Center*
U.S. Agency for International Development (USAID)*	U.S. Navy, Global Emerging Infections Systems Armed Forces Health Surveillance Center
U.S. Agency for International Development (USAID), Office of Science & Technology, Bureau for Policy, Planning, and Learning*	U.S. Office of Science and Technology Policy (OSTP)
U.S. Army War College*	Uniformed Services University
U.S. Army War College / Strategic Studies Institute*	University of Arizona*
U.S. Centers for Disease Control and Prevention (CDC)*	University of Basel
U.S. Department of Agriculture (USDA)*	University of California, Berkely*
U.S. Department of Defense (DoD)*	University of California, Davis*
U.S. Department of Energy	University of California, San Diego*
U.S. Department of Health and Human Services (HHS)*	University of Calgary , Departments of Medicine and Microbiology, Immunology & Infectious Diseases at the Calvin, Phoebe and Joan Synder Institute of Infection, Immunity and Inflammation

University of Cambridge, Cambridge Infectious Diseases Initiative

University of Catalonia

University of Connecticut

University of Edinburgh*

University of Georgia Center for Food Safety

University of Glasgow

University of Hong Kong

University of Liverpool, Institute of Infection and Global Health

University of Manchester, Manchester Institute of Biotechnology

University of Maryland*

University of Massachusetts Amherst

University of Michigan

University of Minnesota*

University of Modena and Reggio Emilia

University of Nebraska*

University of North Carolina Chapel Hill*

University of Oregon

University of Pennsylvania

University of Pisa

University of Saskatchewan, Global Institute for Food Security

University of Toronto, Division of Epidemiology, Dalla Lana School of Public Health,

University of Virginia

Virginia Commonwealth University, Medical College of Virginia

Waters Corp.

Washington University

Wellcome Trust, Sanger Institute

World Bank

World Health Organization (WHO)*

World Organization of Animal Health

Yonsei University*

ISGP Conference Presenters, Moderators, and Panelists

EPID: Global Perspectives, convened Dec. 6–9, 2009 at Ventana Canyon, Tucson, Arizona, U.S.

Angel, Roger (Dr.)

Regents Professor and Professor of
Astronomy and Optical Sciences,
University of Arizona
United States

Birraux, Claude (Mr.)

The Parliamentary Office for Scientific
and Technological Assessment
(OPECST)
France

Carmona, Richard (Dr.)

Former U.S. Surgeon General;
Distinguished Professor, Zuckerman
College of Public Health, University of
Arizona
United States

Clancy, Timothy (Mr.)

Senior Program Director, Cybersecurity,
Center for Infrastructure Protection,
George Mason University
United States

Colwell, Rita (Dr.)

Chairman, Canon U.S. Life Sciences
United States

Decker, Chris (Mr.)

Program Director for Global Health,
National Intelligence Council
United States

DeMaio, Adriano (Dr.)

President, Regional Institute of Research
(IReR)
Italy

Einaudi, Giorgio (Dr.)

Professor, University of Pisa
Italy

Eisenhower, Susan (Ms.)

Chairman of Leadership and Public
Policy Programs & Chairman Emeritus,
The Eisenhower Institute, Gettysburg
College
United States

Furukawa, Katsuhisa (Mr.)

Research Fellow, Research Institute of
Science and Technology for Society at
the Japan Science and Technology
Agency
Japan

Heilman, Carole (Dr.)

Director, Division of Microbiology and
Infectious Diseases (DMID) of the
National Institute of Allergy and Infectious
Diseases (NIAID), NIH, DHHS
United States

Jenkins, Brian (Prof.)

Professor, Biological & Agricultural
Engineering, University of California,
Davis
United States

Kennedy, Shaun (Prof.)

Director, National Center for Food
Protection and Defense (NCFPD) /
Partnerships and External Relations of
the University of Minnesota's College of
Veterinary Medicine
United States

Lambkin-Williams, Rob (Dr.)

Chief Executive Officer, Retroscreen
Virology Limited
United Kingdom

Lewis, Nathan (Prof.)

Professor of Chemistry, California
Institute of Technology
United States

Morse, Stephen (Prof.)

Director, PREDICT, of the USAID
Emerging Pandemic Threats program) at
Professor of Clinical Epidemiology,
Columbia University's Mailman School of
Public Health
United States

Sumner, Daniel (Dr.)

Director, UC Agricultural Issues Center
and Professor of Agricultural & Resource
Economics, University of California, Davis
United States

Tagliabue, Aldo (Dr.)

Chief Executive Officer, ALTA
Italy

Taylor, Terence (Mr.)

President, International Council for the
Life Sciences
United States

Wolfe, Nathan (Dr.)

Director, Global Viral Forecasting
Initiative (GVFI)
United States

Woteki, Catherine (Dr.)

Under Secretary for Research, Education
and Economics, U.S. Department of
Agriculture (USDA)
United States

Wulf, William (Prof.)

AT&T Professor of Computer Science,
University of Virginia
United States

**EPID: Focus on Surveillance, convened Oct. 17–20, 2010 Airlie Conference
Center, Warrenton, Virginia, U.S.**

Brackett, Robert (Dr.)

*Role of Attribution in Global Food
Surveillance*

Vice President and Director at National
Center for Food Safety and Technology,
Illinois Institute of Technology
United States

Davis, Radford (Dr.)

*Surveillance for Livestock Diseases That
Impact Food Security and Food Safety*

Associate Professor in the Department of
Veterinary Microbiology and Preventive
Medicine, Iowa State University's College
of Veterinary Medicine
United States

Gubler, Duane (Dr.)

*Emerging Infectious Diseases in the 21st
Century: A Threat to Global Economic
Security*

Director / Professor and Director, Asia-
Pacific Institute Tropical Medicine and
Infectious Diseases / Program on
Emerging Infectious Diseases at Duke-
NUS Graduate Medical School,
Singapore
Singapore

Morse, Stephen (Prof.)

Early Warning: The Necessary Beginning

Director, PREDICT, USAID Emerging
Pandemic Threats program) and
Professor of Clinical Epidemiology,
Columbia University's Mailman School of
Public Health
United States

Reingold, Arthur (Prof.)

*Novel Surveillance Systems: Good Value
for the Money Spent?*

Professor and Head of Epidemiology
Division, School of Public Health,
University of California, Berkeley
United States

Shortridge, Kennedy (Dr.)

Whither Surveillance?

Emeritus Professor in the Department of
Microbiology, University of Hong Kong
Hong Kong

Taylor, Travis (Dr.)

*The Transition from Pandemic Response
to Pandemic Prevention*

Global Forecasting Initiative
United States

Thompson, Madeleine (Dr.)

*Integrating Climate Information into
Surveillance Systems for Infectious
Diseases: New Opportunities for
Improved Public Health Outcomes in a
Changing Climate*

Senior Research Scientist, IRI, Columbia
University
United States

EPID: Focus on Prevention, convened June 5–8, 2011 at Estancia La Jolla, San Diego, California, U.S.

Abrignani, Sergio (Dr.)

Would You Ever Recommend Driving a Motorbike Without a Helmet?

Chief Scientific Officer, National Institute of Molecular Genetics, INGM (Milan, Italy)
Italy

Buchanan, Robert (Prof.)

Moving from Hazard-based to Risk-based Microbial Food Safety Systems to Promote Public Health and Foster Fair Trade Practices

Professor, University of Maryland
United States

Fisman, David (Dr.)

Bugs and Bucks: Infectious Disease Persistence is a Matter of Economics
Associate Professor, Division of Epidemiology, Dalla Lana School of Public Health, Univ. of Toronto
Canada

Hay, Bruce (Dr.)

Synthetic Biology and Infectious Disease: Challenges and Opportunities

Associate Professor of Biology, California Institute of Technology
United States

Jeggo, Martyn (Prof.)

Managing the Risks From New and Emerging Infectious Disease: the 'One Health' Paradigm

Professor, Director, Australian Animal Health Laboratory, CSIRO
Australia

Markovitz, David (Dr.)

Vaccines: Very Successful, Strangely Controversial

Professor, Division of Infectious Diseases, University of Michigan
United States

Rodwell, Timothy (Dr.)

Preventing the Untreatable: Why Drug-resistant Tuberculosis Must Be Prevented

Assistant Professor, Division of Global Public Health, University of California at San Diego (UCSD): School of Medicine
United States

Schlundt, Jørgen (Dr.)

The Use of Farm-to-Fork Surveillance and New Genome Sequencing

Techniques to Prevent and Control Foodborne Disease Globally
Deputy Director, National Food Institute
Denmark

**EPID: Focus on Mitigation, convened Oct. 23–26, 2011 at University of Edinburgh,
Edinburgh, Scotland, U.K.**

Anderson, Roy (Prof. Sir)

*Planning for Pandemics: The Formulation
of Policy*

Chair, Infectious Disease Epidemiology,
Department of Infectious Disease
Epidemiology, Imperial College London
United Kingdom

Capua, Ilaria (Dr.)

*It's Not What You Know, But What You
Do With What You Know*

Director, Division of Comparative
Biomedical Sciences, Istituto
Zooprofilattico Sperimentale delle
Venezie
Italy

Doyle, Mike (Dr.)

*Opportunities for Mitigating Foodborne
Illnesses Caused by Emerging and
Persistent Infectious Agents*

Regents Professor and Director,
University of Georgia Center for Food
Safety
United States

Gallo, Robert (Dr.)

*The Need for Expanded Global Efforts to
Mitigate Viral Threats: Lessons from the
HIV/AIDS Epidemic*

Director, Institute of Human Virology,
University of Maryland School of
Medicine; Director, Global Virus Network

Glass, John (Dr.)

*Synthetic Biology: A New Weapon in Our
War Against Infectious*

Diseases Professor, J. Craig Venter
Institute
United States

Kennedy, Shaun (Prof.)

*Proactive Use of Supply Chain Data in
Foodborne Illness Outbreak Investigation*

Director, National Center for Food
Protection and Defense (NCFPD) /
Partnerships and External Relations of
the University of Minnesota's College of
Veterinary Medicine
United States

Tait, Joyce (Prof.)

*Innovation, Policy, and Public Interactions
in the Management of Infectious
Diseases*

Professor and Scientific Advisor, Innogen
Centre, University of Edinburgh
United Kingdom

Viswanath, Kasisomayajula (Prof.)

*Communicating Risk in the Age of
Information Plenty: Implication for Policy
and Practice of Emerging and Persistent
Infectious Diseases (EPID)*

Associate Professor / Faculty Director,
Harvard School of Public Health, Dana-
Farber Cancer Institute; Health
Communication Core, Dana-Farber/
Harvard Cancer Center
United States

**EPID: Focus on the Societal and Economic Context, convened July 8–11, 2012 at
George Mason University, Fairfax, Virginia, U.S.**

Caplan, Art (Prof.)

*Synthetic Biology: Ethical and Social
Challenges*

Drs. William F and Virginia Connolly Mitty
Professor, Head of the Division of
Bioethics, New York University
United States

Daszak, Peter (Dr.)

*How Can We Predict, Prevent and Pay
for the Next Pandemic?*

President, EcoHealth Alliance
United States/United Kingdom

Hayes, Vanessa (Dr.)

*Translating Technical Advances in
Genomics to the Developing World:
Addressing Cultural Needs as Part of
Policy Making*

Professor of Genomic Medicine, J. Craig
Venter Institute
United States/South Africa

Kahn, Laura (Dr.)

*The Challenges of Implementing One
Health*

Physician and Research Scholar,
Program on Science and Global Security,
Woodrow Wilson School of Public and
International Affairs; Co-founder, One
Health Initiative, Princeton University
United States

Miller, Gay (Dr.)

*Will a Comprehensive Global Source
Attribution System Provide for Cost-
Effective Food Safety?*

Professor, Department of Pathobiology at
the College of Veterinary Medicine,
Department of Agriculture and Consumer
Economics (University of Illinois); Adjunct
Professor, Department of Veterinary
Medicine (University of Minnesota)
United States

Slovic, Paul (Dr.)

*Communication Challenges in Managing
Social and Economic Impacts of
Emerging and Infectious Diseases*

Professor, Department of Psychology,
University of Oregon
United States

Williams, Richard (Dr.)

*Solving Food Safety Problems without
Antiquated Regulation and Inspection*

Director of Policy Research at the
Mercatus Center, George Mason
University
United States

Zinsstag, Jakob (Prof.)

*One Health+: Integrated Control and
Elimination of Zoonoses*

Professor and Head of Human and
Animal Health Unit, Swiss Tropical and
Public Health Institute, Professor of
Epidemiology, University of Basel
Switzerland

21st Century Borders/Synthetic Biology: Focus On Responsibility and Governance, convened December 4–7, 2012, in cooperation with the University of Arizona, at the Hilton El Conquistador, Tucson Arizona

Fatehi, Leilli (Ms.)

Policy Innovation in Synthetic Biology Governance

Research Fellow, Humphrey School of Public Affairs, University of Minnesota
United States

Freemont, Paul (Prof.)

Synthetic Biology — Do We Need New Regulatory Systems?

Professor, Imperial College London
United Kingdom

Friedman, Robert (Dr.)

Governance of Synthetic Biology

Chief Operating Officer and Professor, J. Craig Venter Institute
United States

Herman, Eliot (Dr.)

The Challenge To Meet Global Need For Protein Sources For Animal Production

Professor, School of Plant Sciences, University of Arizona
United States

Kuiken, Todd (Dr.)

Do-It-Yourself Biology: Reality and the Path Toward Innovation

Senior Research Associate, Woodrow Wilson International Center for Scholars
United States

Roca, Maria Mercedes (Dr.)

The Challenges of Deploying Synthetic Biology Technologies in Developing Countries

Associate Professor of Biotechnology, Zamorano University
Honduras

Schmidt, Marcus (Dr.)

Safeguarding the Genetic Firewall with Xenobiology

Founder, Biofaction KG
Austria

Smithson, Amy (Dr.)

Renovating Governance Strategies for Synthetic Biology and Other “Dual-Use” Technologies

Senior Fellow, James Martin Center for Nonproliferation Studies, Monterey Institute of International Studies
United States

**EPID: Focus on Antimicrobial Resistance, convened
March 19–22, 2013 at the Baylor College of Medicine in Houston,
Texas, United States**

Klein, Eili (Prof.)

*How Misaligned Incentives Influence
Antibiotic Prescribing and Resistance*
Assistant Professor, Center for Advanced
Modeling, Department of Emergency
Medicine, Johns Hopkins University
United States

O'Brien, Thomas (Dr.)

*Surveillance of Antibiotic Resistance Gene
Epidemics*
Co-Director WHO Collaborating Centre for
Surveillance of Antimicrobial Resistance,
Brigham and Women's Hospital
United States

Palzkill, Timothy (Prof.)

*Mitigating Antibiotic Resistance with DNA
Sequence Information*
Professor, Department of Pharmacology,
Baylor College of Medicine
United States

Scott, H. Morgan (Dr.)

*Managing Antibiotic Resistance in Animal
Agriculture Amidst Conflicting Moral
Beliefs and Scientific Uncertainty*
Professor, Department of Diagnostic
Medicine and Pathobiology, Kansas State
University
United States

Spellberg, Brad (Dr.)

*The Future of Antibiotics and Antibiotic
Resistance*
Associate Professor of Medicine, Los
Angeles Biomedical Research Institute
at Harbor-UCLA Medical Center
United States

Takano, Eriko (Prof.)

*Antimicrobial Resistance – A New Drug
Discovery Perspective Using Synthetic
Biology*
Professor, Manchester Institute of
Biotechnology, University of Manchester
United Kingdom

Wenzel, Richard P. (Prof.)

*Global Infection Prevention: A Strategy
to Minimize Antibiotic Resistance*
Professor and Former Chair
Department of Internal Medicine,
Virginia Commonwealth University
United States

**Food Safety, Security, and Defense: Focus on
Innovations and Technologies
convened March 14–17, 2013 at Villa Quaratas,
Verona, Italy**

Escher, Felix (Prof.)

*Food Security and Safety Between Science
and Culture*

Professor Emeritus, Institute of Food
Science and Nutrition, Swiss Federal
Institute of Technology Zurich
Switzerland

Frewer, Lynn (Prof.)

*Technology, Society, and Food Security:
Developing a Societally Inclusive Research
and Policy Agenda*

Professor, Food and Society, Newcastle
University
United Kingdom

Gil, José (Dr.)

*Public Perception of Genetically Modified
Food and Policy Implications*

Director, Research Centre for Agri-Food
Economy & Development (CREDA),
Technical University of Catalonia
Spain

Newell McGloughlin, Martina (Dr.)

*Agricultural Biotechnologies Potential
Contribution to Global Food Security and
Stewardship of the Earth's Resources*

Director, International Biotechnology
Program, UC Davis
United States

Opara, Linus (Prof.)

*Postharvest Technologies for Food
Security and Safety: Linking Knowledge,
Infrastructure, and Policy*

Chair of Postharvest Technology,
Stellenbosch University
South Africa

Raghavan, Vijaya (Prof.)

Facilitating Technology Adoption

Professor, McGill University
Canada

Schaffner, Don (Prof.)

*Risk-based Decision-making to Improve
Food Safety, Security, and Defense*

Extension Specialist in Food Science,
Rutgers University

**The Genomic Revolution, convened Sept. 6, 2013 in
partnership with the Parliamentary Office of Science and
Technology, within the Houses of Parliament, London,
United Kingdom**

Beachy, Roger (Dr.)

Genomic Sciences for Agriculture, Food, and Nutrition
Professor of Biology, Washington University in St. Louis and Executive Director, Global
Institute for Food Security, University of Saskatchewan
United States/Canada

Crute, Ian (Prof.)

*The Genomic Revolution and Sustainable Management of Infectious Plant Disease:
Aligning Policies with Objectives*
Chief Scientist, Agriculture and Horticulture Development Board
United Kingdom

Hood, Leroy (Dr.)

The Emerging Landscape of Medicine and Health Care
President and Co-founder, Institute for Systems Biology
United States

**Food Safety, Security, and Defense: Focus on Food and Water, convened
Oct. 20–23, 2013, in cooperation with the University of Nebraska – Lincoln,
in Lincoln, Nebraska, United States**

Atwill, Rob (Dr.)

*Opportunities and Threats to Widespread
Adoption of Bacterial Standards for
Agricultural Water*

Director, Western Institute for Food
Safety and Security, University of
California, Davis
United States

Bihn, Elizabeth (Dr.)

*Water: A Resource Critical to Food
Production and Survival*

Senior Extension Associate, Department
of Food Science, Cornell University
United States

Brackett, Robert (Dr.)

*Water as an Essential Element in Food
Safety*

Director, Institute for Food Safety and
Health, Illinois Institute of Technology
United States

Giannakas, Konstantinos (Dr.)

*Innovation and Policy against Hunger in
a Water-Constrained World*

Professor and Director, Center for
Agricultural & Food Industrial
Organization, University of Nebraska—
Lincoln
United States

Lenton, Roberto (Prof.)

*Can we achieve global food security
without compromising the use of water to
meet other human and environmental
needs?*

Founding Executive Director, Robert B.
Daugherty Water for Food Institute,
University of Nebraska–Lincoln
United States

Reed, Debbie (Ms.)

Food and Water: A Crisis of Uncertainty

Chair of Postharvest Technology,
Executive Director, Coalition on
Agricultural Greenhouse Gases
United States

Smucker, Alvin (Prof.)

*Improved Water
Policies and New Technology will
Promote Greater Food and Cellulosic
Biomass Production and Reduce
Competition for Water*

Professor of Soil Biophysics, Michigan
State University
United States

Wright, Iain (Dr.)

Improving Livestock Water Productivity
Program Leader, Animal Science for
Sustainable Productivity,
International Livestock Research Institute
Ethiopia