The Role of Science and Scientists in Advancing Diplomacy, Advising Governments, and Contributing to Sustainability

Dr. E. William Colglazier

My Background

• Physicist who started in fundamental research and shifted to studying, writing about, and practicing “science advice” and “science policy”

• AAAS Congressional Fellow, University Professor, Executive Officer of National Academy of Sciences, and Science & Technology Adviser to Secretary of State

• Policy topics: security & arms control, environment, energy, economics & innovation, health, disaster response & mitigation, space, foreign affairs, development, waste management, water, transportation, etc.
Science Diplomacy

• Science and technology aiding, informing, and advancing diplomatic goals
• Diplomacy advancing the national (and global) science and technology enterprise
• Science and technology helping to solve critical national, regional and global challenges to make all societies more secure, peaceful, stable, and prosperous

Highest Priority Topic Raised in All My Diplomatic Engagements

• How Science and Technology Can Stimulate Innovation and Economic Development in this Globalized Interconnected World
• Every Country is making Ambitious Plans to Compete on a World-Class Level for its Prosperity & Security
• Willing to Modify Policies and Investments to Build a Knowledge-Based Society and Innovative Nation
• Fundamental Pillars may be Well-Known, but Challenging to Implement and Sustain
• All want to collaborate in Science and Technology with the Most Innovative Nations (an asset for diplomacy)
Building a Knowledge-Based Society: Science, Technology, Innovation (STI)

- Strengthen Educational Systems from Grade School to Graduate School and Provide More Support for Students Pursuing STEM Careers
- Provide More Support for (and Link) Research and Development in Universities, National Laboratories, and Private Companies and Expand International STI Collaboration
- Strengthen Government Policies and Investments Facilitating a Bottoms-Up Innovative Ecosystem to Compete in a Global Innovation Environment
- Build a High Quality Science Advisory Ecosystem with Scientists and Engineers Serving in Many Roles
- Encourage Science Institutions (academies, universities, professional societies) to Provide Independent, Objective, Expert, Credible, & Trusted Advice that is Made Public
“Global Trends 2030” (2012)

- Unclassified Study Produced Every Four Years by U.S. Intelligence Agencies with Input from Many Countries
- Examines Megatrends, Game Changers, and Potential Worlds out to 2030
- Biggest Megatrend: Individual Empowerment Accelerated by IT Revolution and Other Tectonic Shifts
- Growth of Global Middle Class with Drop in Poverty and Rapid Urbanization
- Widespread Exploitation of New Enabling Technologies that are Transformational and Disruptive Presenting Challenges and Opportunities
Implications: “Science for Diplomacy”

• We Must Capitalize on Our STI Capabilities for Achieving Overarching Diplomatic Goals and Improving Relations Between Countries
  – On Important Global Issues
  – With Key Countries and Regions
  – For Strengthening STI Capabilities

Important Global Issues

• **Regional and global security issues** (conflict zones and wars, failed states, hostile states, terrorism, civil wars, military threats, cyber threats, etc.)

• **Sustainable Development Goals (SDGs) in the 2030 Agenda of the U.N.** (focusing on poverty, hunger, health, education, gender equality, water, energy, economic growth, industrialization & innovation, inequality, cities, sustainable consumption & production, climate change, oceans, terrestrial ecosystems, peaceful & inclusive societies, means of implementation)
SCIENCE AS A GATEWAY TO UNDERSTANDING
International Workshop Proceedings
Tehran, Iran

In collaboration with
IRANIAN INSTITUTE FOR ADVANCED STUDIES IN BASIC SCIENCE

NATIONAL RESEARCH COUNCIL
OF THE NATIONAL ACADEMIES

THE AFRICAN SCIENCE ACADEMY
DEVELOPMENT INITIATIVE

PROGRESS AND PROMISE

THE NATIONAL ACADEMIES
Advisory Board on Science Engineering and Medicine
Implications: “Diplomacy for Science” Foster International STI Collaboration

- Staying at the Cutting-Edge & Training Next Generation Requires Engaging with the Best Scientific and Engineering Minds Everywhere
- Essential to Address Challenges Facing Our Countries, Regions, and the World
- Needed in Research and Development, especially in Pre-Competitive Fundamental Research
- Essential for Affording Many Large Research Facilities, Accessing Unique Research Environments, and Developing New Insights

What Can Diplomacy Do to Support International STI Collaboration

- Advocate for international STI collaboration
- Reduce barriers and roadblocks to collaboration
- Facilitate new international STI linkages
- Seek new seed funding for STI collaboration
- Provide more STI trained personnel in embassies
- Advertise domestic STI strengths to potential foreign partners
- Survey foreign STI capabilities for potential collaboration
- Help foreign STI institutions to find the right domestic partners for collaboration
Every Country Needs A Globally Engaged Science Community

- Crucial for conducting basic research, training next generation, generating new knowledge
- Essential for sparking innovation & economic growth through links with the productive sector
- Critical for societies to receive its advice on public policy issues where S&T insights needed
- Important for advancing diplomacy through international collaboration & global engagement
Science Advisory Ecosystem for Governments and Public

- **Scientists in Government** (policy-makers, science advisors, scientists, science fellows)
- **Scientists outside of Government** (government scientific advisory committees, independent non-governmental scientific advisory committees, scientific professional societies and academies, other scientific NGO’s, individual scientists, international scientific organizations)
- **Scientists serving as science journalists**

Science Advice from Scientists Outside Government

- **Engage with the Government** (scientists understanding policy-makers questions)
- **Provide non-political objective advice and identify scientific uncertainties and value judgments** (independent, expert, credible, trusted advice that is made public)
- **Support high quality science journalism** (where most policy-makers learn about science)
Sustainable Development

• 1987 Bruntland Report could have signaled the important role of S&T in achieving Sustainable Development by saying:

• Sustainable Development “meets the needs of the present while expanding the ability of future generations to meet their own needs” (instead of saying “..without compromising the ability of future generations to meet their own needs”)

Our Common Journey

a transition toward SUSTAINABILITY

NATIONAL RESEARCH COUNCIL
Science, Technology, and Innovation (STI) for Achieving the SDGs

• Science can advise on challenges, actions that can make a difference, indicators for monitoring progress, and the search for innovative solutions
• Robust science-policy interface and growing STI capacity needed in every country and internationally to help inform decisions and implement solutions
• Every country should develop and make public its “roadmaps” for achieving each of the 17 SDGs (recognizing linkages and interdependencies)
• At the international level countries can learn from each other and address the global commons

Our Legacy to Future Generations

• Our Greatest Legacy to Future Generations, in Addition to Avoiding Wars and Conflicts, may be Building Knowledge-Based Societies and Accelerating Expansion of Scientific Knowledge and Useful Technologies
• Research Universities will be Essential for Supporting the Development of Knowledge-Based and Innovative Societies as Well as Solving Our Current Global Challenges
Thank You

Email contact: bcolglaz@aol.com and bcolglaz@aaas.org