EXPANDING THE DIPLOMATIC TOOLKIT:
the further evolution of science diplomacy

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May 23 2019
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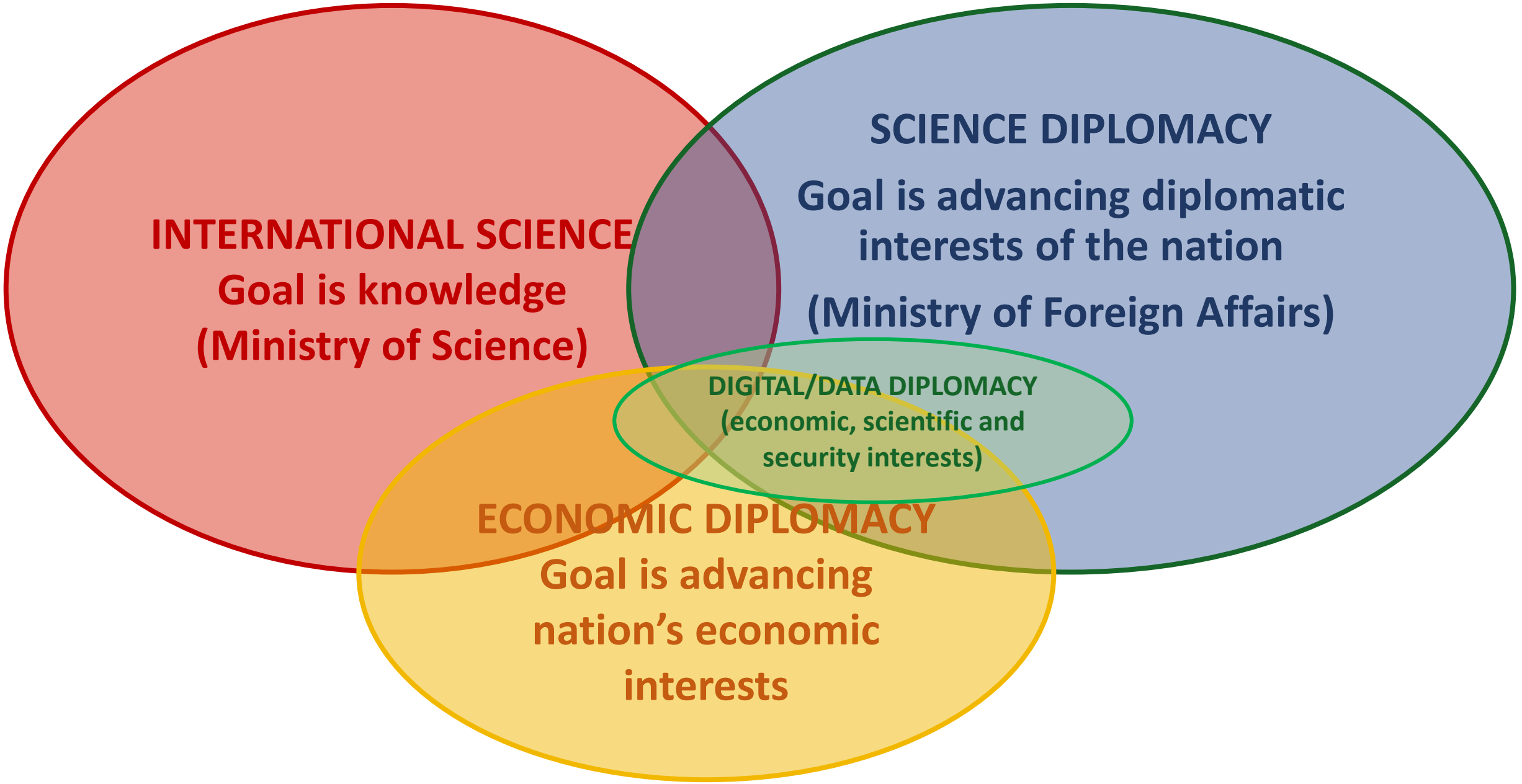
INTERNATIONAL SCIENCE
Goal is knowledge
(Ministry of Science)
SCIENCE DIPLOMACY
Goal is advancing diplomatic interests of the nation
(Ministry of Foreign Affairs)
DIGITAL/DATA DIPLOMACY
(economic, scientific and security interests)
ECONOMIC DIPLOMACY
Goal is advancing nation's economic interests

Science diplomacy is something more than, and differs in its primary intent, from traditional international scientific cooperation (although that too may have a diplomatic dimension).

Science diplomacy is the use of science or scientific knowledge to directly or indirectly advance diplomatic goals.

Science diplomacy

- Traditionally science diplomacy was seen as largely a strategy for large countries to project influence and soft power or to diffuse tensions
- But in the last decade, science diplomacy has been a valuable tool for small countries or for countries with emergent science and innovation systems
- Increasing overlap with issues of economics, trade, security, national identity
- Increasing need to use STI to address issues of global interest and the issues of the global commons
- Science diplomacy also has a major role to play in addressing geostrategic issues emerging from the rise of post-trust, populism and nationalism

Three eras of modern science diplomacy

SD in a time of global conflicts (1900-1950)

- Science in international collaboration for defense
  - Tizard mission
  - Manhattan project

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- Great power activity
- Use of science diplomacy to reduce conflict and sustain some relationships
  - IIASA
  - Antarctic Treaty
  - Intentional science communication
  - Soft power projection

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SD in a time of globalization and multipolarity (1990-2015)

- The global challenges; climate change, MDGs, SDGs
- Roles created in foreign ministries
- Smaller countries engaged
- The role of NGOs in SD
- The recognition of science diplomacy as a distinct discipline (2009)

But are we now entering a fourth era?

- The global conflict period (1910-1950)
- The cold war (1950-1990)
- Globalization and multipolarity (1950-2015)
- SD in a post-globalized but interconnected world (2016-)
  - Some retrenchment from a large power focus on science diplomacy
  - A new set of global challenges at a time when nationalism is rising and the rules-based global order is degenerating. The role of sciences in dealing with societal and geostrategic issues emerging from the rise of post-trust, populism and nationalism.
  - The SD challenges associated with new technologies
  - ? A rising reliance on non-governmental approaches

The nature of science is evolving

- Systems based
- Increasingly international

- Post-normal science

- Multi- and trans-disciplinary
- Social and natural sciences getting closer
- Greater recognition of multiple epistemologies

- The rise of data science and cyber science, big data, ML and AI

Science diplomacy (the 2009 AAAS-RS taxonomy)

Diplomacy for science

- Big science projects (square kilometer array, space station, large hadron collider, human genome project, etc)

Science for diplomacy

- Relationship building or maintenance (IIASA, USA-Cuba)

Science in diplomacy

- Arms treaty validation science, nuclear inspection science, chemical weapon management

Science diplomacy (the 2009 AAAS-RS taxonomy)

But there were gaps in this taxonomy

- Science and trade
- Science and aid
- Global commons issues
- Ungoverned spaces

The 2009 taxonomy does not give a country's Ministry of Foreign Affairs (or its Ministry of Science or other Ministries) a clear view of what science diplomacy can do for its goals, or what kind of capacities they need.

Science diplomacy: a broader and more utilitarian taxonomy

All national level diplomacy is undertaken ultimately in the national self-interest, but it is useful to parse it into three categories for the purposes of seeing it through a foreign ministry and whole of government lens:

- **SD in the direct national interest/to support national goals**
- **SD in the common interest**
- **SD in the global interest**

Gluckman PD, Turekian VC, Grimes RW & Kishi T, "Science Diplomacy: A Pragmatic Perspective from the Inside," Science & Diplomacy 6(4), December 2017. www.sciencediplomacy.org/article/2018/pragmatic-perspective

Science diplomacy for *direct national* interest

Voice/influence/soft power/reputation

- Relationship management
  - Develop relations, deepen extant relations
- Projecting a country's influence/interests (e.g. big power STI in ODA)
- Development assistance (donor or recipient)
- Give a country a global or regional voice

Science diplomacy for *direct national* interest

Voice/influence/soft power/reputation

Security

- Assistance in crisis, emergencies, disasters
- Technical aspects of treaties, agreements (e.g. arms control, chemical warfare)
- Tension reduction between parties
- Threats (e.g. cyber)

Economic

- Skills and technology development
- Trade
- WTO dispute resolution
- Technical aspects of treaties
- Standards and definitions

Science diplomacy for *direct national* interest

Voice/influence/soft power/reputation

Security

Economic

National need and capability

- Technical capabilities
- Access to R&D infrastructure
- Access to know-how, knowledge
- Develop domestic STI

Science diplomacy for *common* interest

Resource management

- Trans-boundary/regional resource issues
- Conservation/environmental management
- Biosecurity

Shared agencies

- Shared technical services and infrastructure (e.g. CDEMA, Pacific Commission, ANZFA, EFSA)

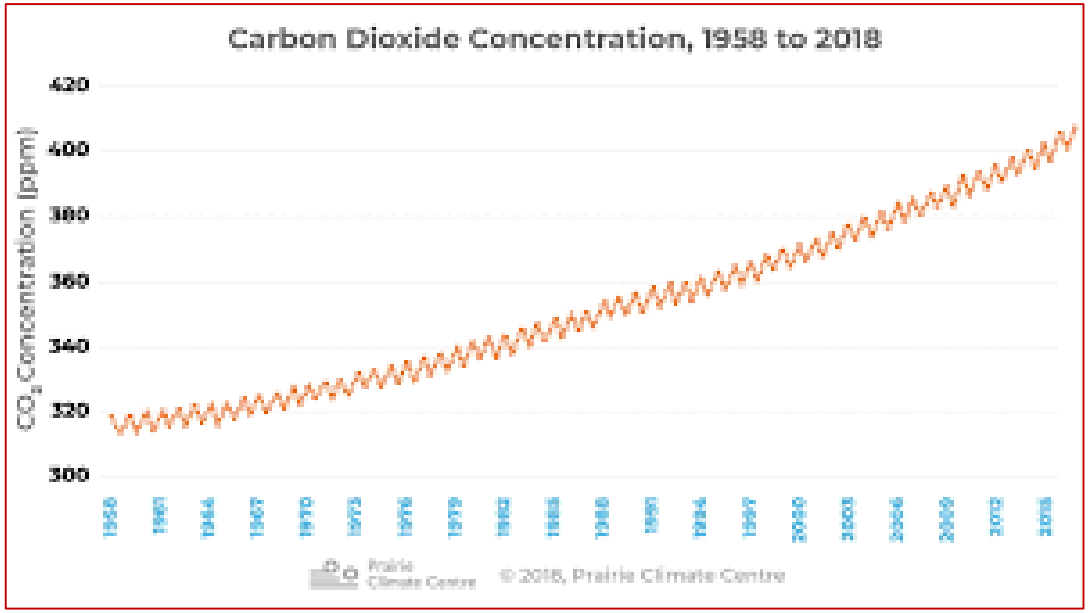
Shared crises

- Crisis and disaster management crossing boundaries (e.g. Iceland ash cloud)

Science diplomacy for *global* interest

Common and global challenges

- Climate change
- Sustainability (SDGs)



An example of direct national interest extending to global interest

In 2009, NZ recognized a challenge:

- Its economy is dependent on pastoral agriculture
- 55% of its emissions came from agriculture – highest per capita methane producer
- There was some evidence of high-end consumer resistance
- Reducing agricultural GHG was a developing world challenge; 20% of global emissions
- The science was complex and beyond NZ alone

An example of direct national interest extending to global interest

- The Global Research Alliance was proposed
- Diplomats and science advisors worked together to get >30 countries to agree to a unique form of big science approach
- NZ provides the small secretariat; now >50 countries including all major food producers, all major economies and both advanced and developing economies
- Multiple research streams: livestock, paddy rice, soil carbon, arable, farm systems
- Major progress by collaborative science
- Domestic and global needs aligned

Science diplomacy for *global* interest

Common and global challenges

- Climate change
- Sustainability (SDGs)

Geostrategic consequences of new technologies

- National identity and jurisdictional power
- Cyber security
- Autonomous warfare
- Tax base
- Social media and platform company generated issues
- Life science technologies

Digitalisation

Opportunities of AI and platform communication and transactions are obvious, but what of the threats?

- Concepts of autonomy
- Democracy
- Personal, community and national identity
- Transparency
- Accountability

https://www.ingsa.org/wp-content/uploads/2018/09/INGSA-Digital-Wellbeing-Sept18.pdf

Science diplomacy for *global* interest

Common and global challenges

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- ? Life science technologies

Geostrategic consequences of changing society

- Truth decay, anti-scientism

Science diplomacy for *global* interest

Common and global challenges

Geostrategic consequences of new technologies

Geostrategic consequences of changing society

Ungoverned spaces

- Space, oceans, sea bed, Antarctic
- Internet

Science diplomacy for *global* interest

Common and global challenges

Geostrategic consequences of new technologies

Geostrategic consequences of changing society

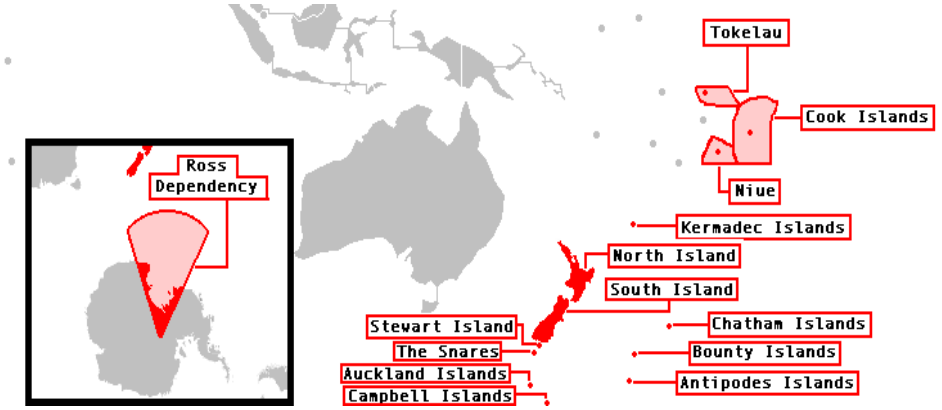
Ungoverned spaces

Addressing new technologies that may avoid jurisdictional control or require collective approaches

- Geoengineering
- Release of synthetic bacteria and advanced life science technologies
- Digital technologies

A small country perspective on science diplomacy

- New Zealand: population of 4.8 million, geographically isolated,
- W\ith 4th largest EEZ extending from tropics to Antarctic
- Advanced economy but still primary sector-based
- Reliant on a rules based global architecture and trade system
- Strives to be a good global citizen
- Has particular responsibilities to the Pacific SIDS
- Small formal diplomatic footprint
- What is its main existential threat?



Examples of NZ's use of science diplomacy

Direct

- Promoting relationships with countries where NZ has no permanent representation (e.g. UNSC)
- Policy learnings with similar countries (e.g. SAEI)
- STI capacity building and infrastructure (e.g. big data, cyclotron, incubators)
- Trade protection (e.g. WTO disputes, Project Concord)
- Crisis management (e.g. Kaikōura earthquake)
- Science based ODA

Common

- Security (e.g. biosecurity)

Global

- Ungoverned spaces (e.g. Antarctic treaty)
- Global Commons (e.g. climate change, Christchurch declaration)

About the Small Advanced Economies Initiative (SAEI)

- Established 2012 with the first meeting in Auckland, New Zealand
- Denmark, Finland, Ireland, Israel, New Zealand, Singapore, Switzerland – all advanced by IMF standards with populations <10 million
- Operating in 4 overlapping groups: science & higher education, innovation, economics, and foreign affairs/trade policy
- Initiative provides a forum for policy experts and officials from member states to consider policy issues and undertake analyses of common interest where the implications of small country size influence decision making
- Coordinated by a central secretariat in NZ

Small Advanced Economies Initiative

SAEI: why work together

Small Advanced Economies Initiative

- As large nations often dominate the STI statistics, trends in smaller nations are often hidden. For this reason, the interests of small advanced economies are overlooked in many global policy analyses.
- Due to their scale, small nations have the potential to collect and analyse data in ways not feasible for larger nations.
- With smallness also comes opportunity, for nimbleness of policy for example, and direct collaboration with counterparts overseas.
- By definition our small nations all have a limited population creating unique public policy challenges related to the availability of financial resources, critical mass and the movement of talented people.
- Issues of efficiency and resilience are exaggerated, and policy can be tested at a national level more quickly (**small countries can serve as 'test beds'**).

Science in a foreign ministry

Science diplomacy (influence projection, relationship management)

Technical advice and support

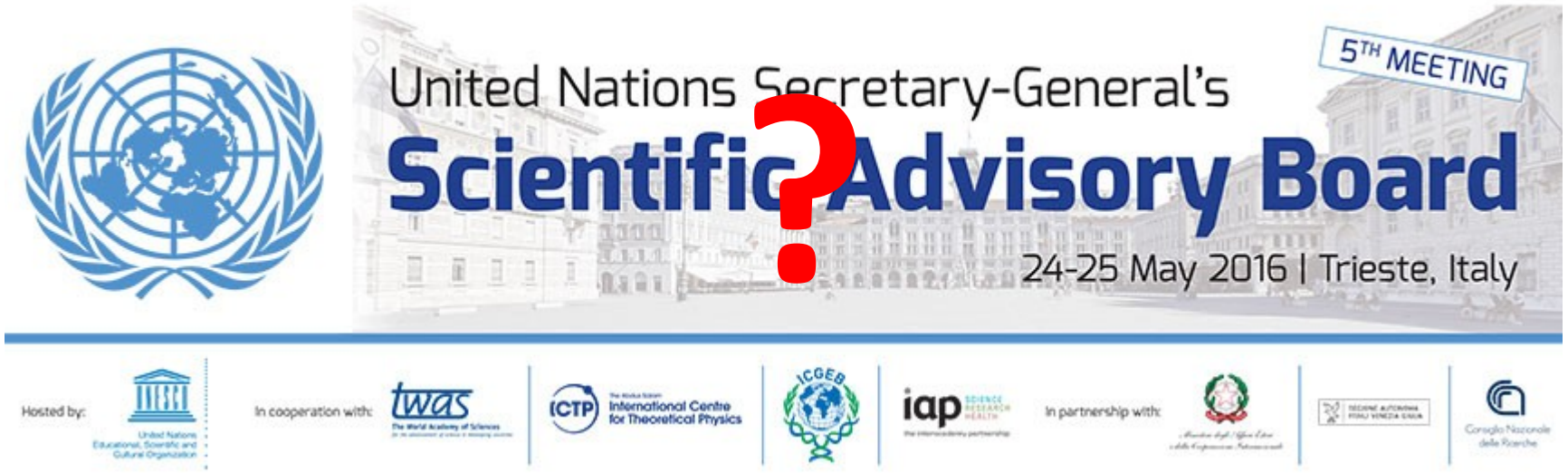
- Global and regional negotiations
  - Resource sharing
  - Environmental matters (climate change, etc)
- Trade negotiations
- ODA
- Security, defense and intelligence related – much of this requires coherent access to the scientific community

Capacity building/quality assurance

- Coordination and upskilling of those with science experience in Foreign Ministries

Science in international policy making

- International agencies may have their own science advisory processes
- But the complexities of the science-policy interaction are amplified in the international arena because most global agencies are ultimately responsive to national governments and jurisdictional override
- Thus while science to advance global interests may be the ambition of many scientists and NGOs, global interests are more likely to be achieved when nations support global or regional goals because of enlightened self interest
- Hence the importance of domestic science advisory mechanisms for progress on the international agenda and linkage to ministry of foreign affairs


5TH MEETING
United Nations Secretary-General's
Scientific Advisory Board
24-25 May 2016 | Trieste, Italy
Hosted by:
United Nations Educational, Scientific and Cultural Organization
In cooperation with:
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The World Academy of Sciences
ICTP
International Centre for Theoretical Physics
ICGEB
iap
In partnership with:
Consiglio Nazionale delle Ricerche

SDGs and the reality of policy making

- Governments do not organise themselves around the SDGs
- The goal, targets and indicators do not necessarily reflect national priorities or political process
- The SDGs were not developed with policy making as the main driver, yet policy making is a critical element
- Nation states have other frameworks that drive their policy choices and which have more resonance to policy makers and in the domestic political context (i.e. ‘bottom-up’)
- Thus to have impact resonance at the policy and political level, there needs to be some form of compelling and utilitarian linkage between current and evolving bottom-up domestic frameworks and the top-down SDG framework

The challenges of a post-globalized world - the role of science diplomacy

- SD in a post-globalized but interconnected world
  - Some retrenchment from a large power focus on science diplomacy
  - The role of sciences in dealing with societal and geostrategic issues emerging from the rise of post-trust, populism and nationalism
  - The SD challenges associated with new technologies
    - Life sciences: synthetic biology, meiotic gene drive
    - Digital:
      - Trans-national manipulation, deep fakes,
      - the power of platform companies,
      - IOT
      - Autonomous weapons
  - ? Rising reliance on non-governmental approaches

International Network for Government Science Advice

Operates under the aegis of International Science Council

Concerned with all dimensions and levels of science advice to policy makers

- Networking and information sharing
- Capacity building workshops (individuals, academies, institutions on both supply and demand side) and thematic workshops
- Partnerships (e.g. with JRC, UNESCO, OECD)
- Hosts Foreign Ministries Science and Technology Advisors Network (FMSTAN)

Membership: academics, practitioners, policy makers (>4000 members, 100 countries)

- African, Latin American, Asian chapters; North American and European chapters in development
- Parliamentary and urban chapters in development
- Science Policy for International Diplomacy and External Relations (SPIDER) division (in partnership with FMSTAN)

www.ingsa.org

INGSA

SPIDER: Science Policy in International Diplomacy and External Relations

- A division of INGSA
- Open to academics, diplomats etc interested in science diplomacy
- Meets jointly with FMSTAN
    - Technology facilitation and information exchange
    - Issues such as role of disruptive technology on nation state autonomy
    - Ethical conduct of scientists in transnational emergencies
    - Science in ODA
    - Science and science diplomatic perspectives on SDGs
- Latest meeting in Muscat Feb 2019, next Vienna Nov 2019, Geneva March 2020, Montreal Nov 2020
- More information: www.ingsa.org or g.mills@auckland.ac.nz

INGSA

FMSTAN: Foreign Ministries Science and Technology Advice Network

- Founded by USA, NZ, Japan and UK in 2016
- Managed by INGSA
- Chair; Yousuf Al Balushi (Oman)
- Now has >20 members including a number of LMICs
- Meets twice per year, in association with SPIDER
- Diplomatic observers welcome

FMSTAN
FOREIGN MINISTRIES SCIENCE AND TECHNOLOGY ADVISORS NETWORK

Implications of science diplomacy

- Science diplomacy should be a core part of all countries' diplomatic toolkit
- It has much broader dimensions than generally considered
- New frontiers are emerging e.g. digital/data diplomacy
- But it needs resourcing and active management

- Involves both track I and track II diplomacy
- Foreign ministries need access to scientists with diplomatic perspectives and who can act as knowledge brokers
- Foreign ministries need scientific input to know when they need to use science
- Other ministries must see their value to the diplomatic objectives even while they pursue their primary missions