

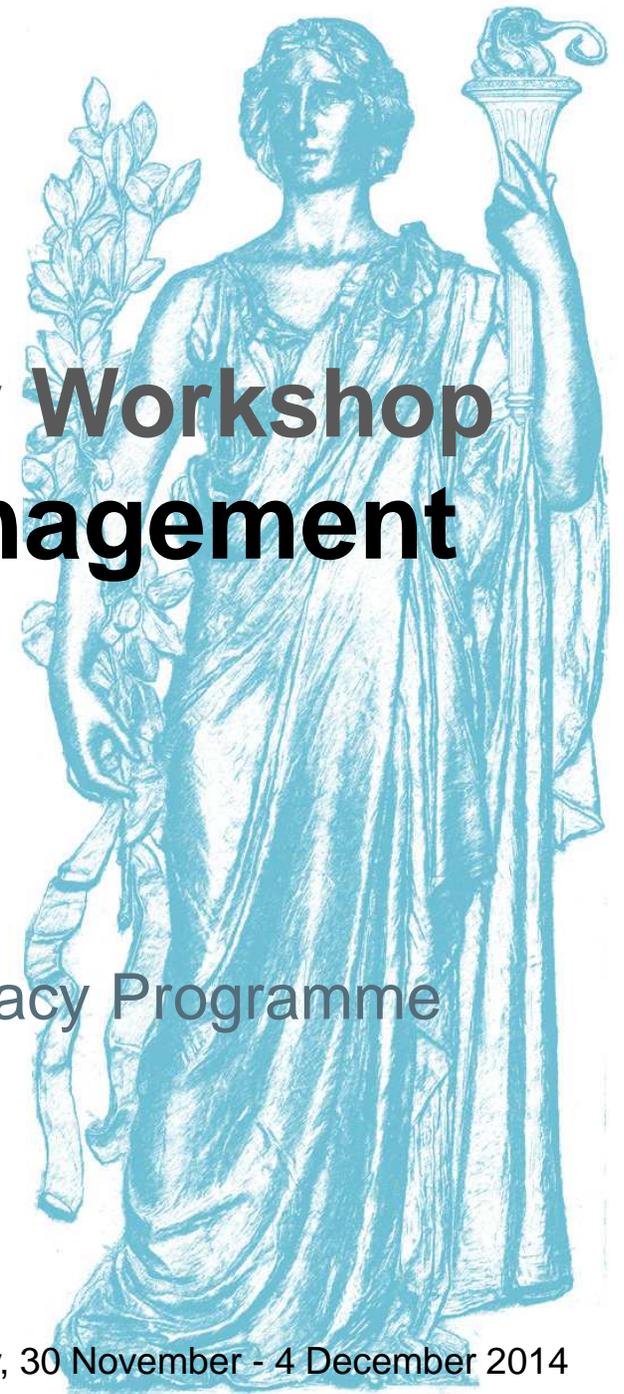
TWAS Science Diplomacy Workshop

Sustainable Water Management

Peter McGrath

Coordinator, IAP/IAMP

TWAS Science Policy/Science Diplomacy Programme



Sustainable Water Management, Trieste, Italy, 30 November - 4 December 2014

Science Policy & Science Diplomacy

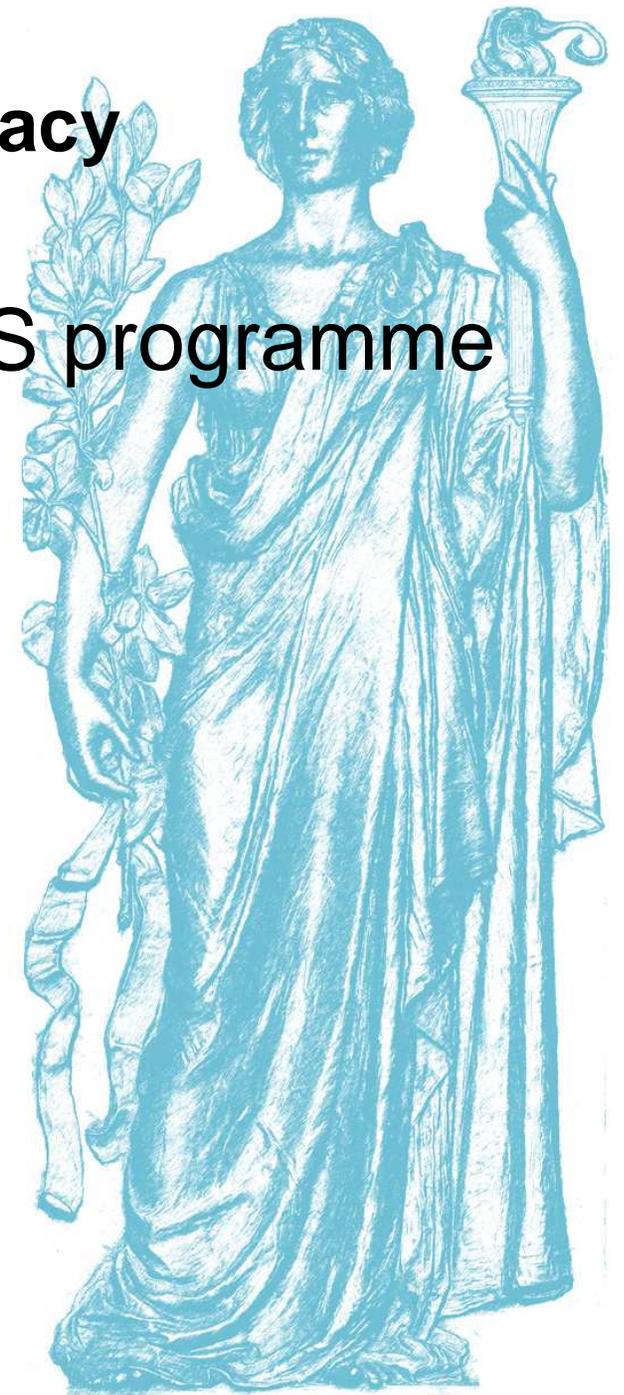
I. Aims and origins of the TWAS programme

II. The story so far

III. Aims of workshop

IV. Setting the scene

V. The workshop

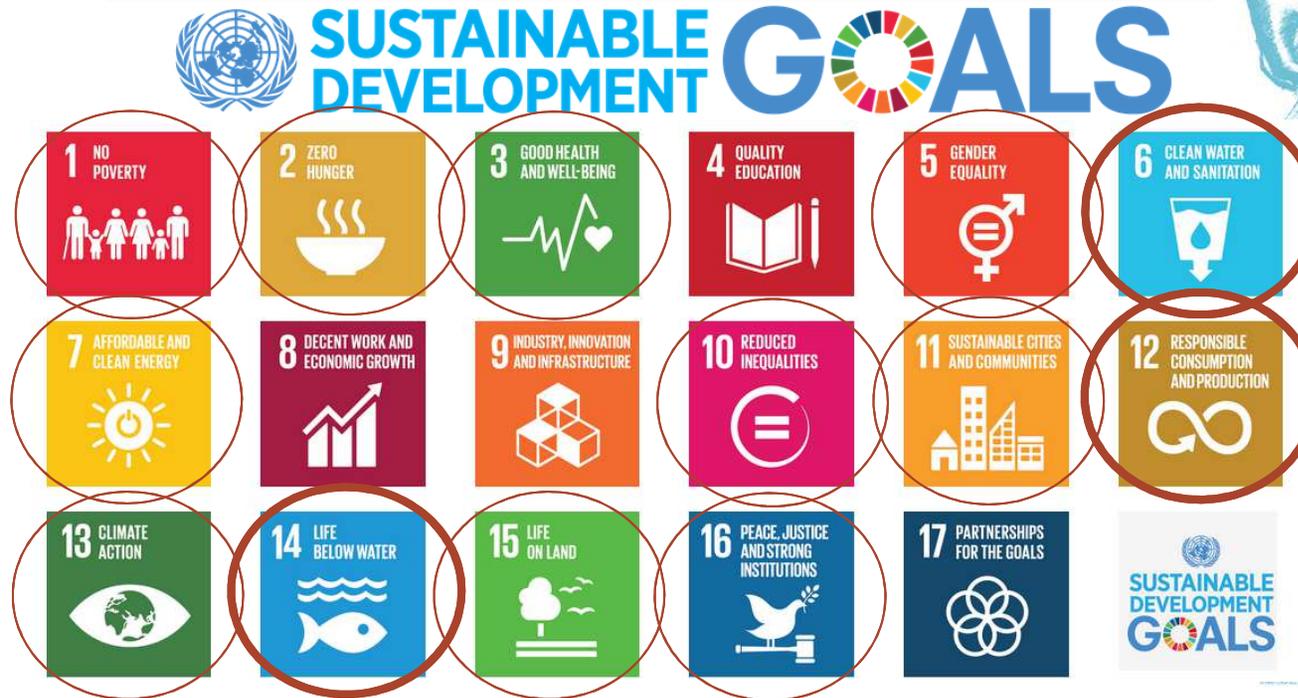


I. Science Policy & Science Diplomacy

Global challenges:

WEHAB: **W**ater, **E**nergy, **H**ealth, **A**griculture, **B**iodiversity

Sustainable Development Goals, 2015-2030

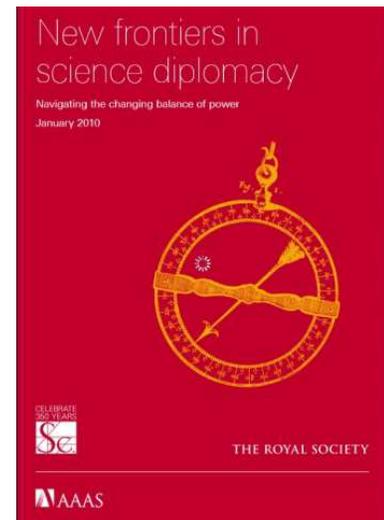


I. Science Policy & Science Diplomacy

What is 'science diplomacy'?

- Science *in* diplomacy – Informing foreign policy objectives with scientific advice
- Diplomacy *for* science – Facilitating international science cooperation
- Science *for* diplomacy – Using science to improve international relations between countries.

AAAS-Royal Society, 2009



I. Science Policy & Science Diplomacy

Tackling global challenges requires **scientific collaboration**.

No country can do it alone.

No country should want to do it alone.



Aim: To bring together the policy-making/diplomatic community with the scientific community (experts and young researchers) to discuss and assess policies on critical development issues.

I. Science Policy & Science Diplomacy

“The planet is imperiled by a host of vexing, ‘wicked’ issues for which there are no military solutions.

From climate change to diminishing biodiversity, nanotechnology to ecosystem collapse, genomics to cyberspace, these issues share one feature: they are rooted in science, driven by technology, and immune to the application of armed force.”

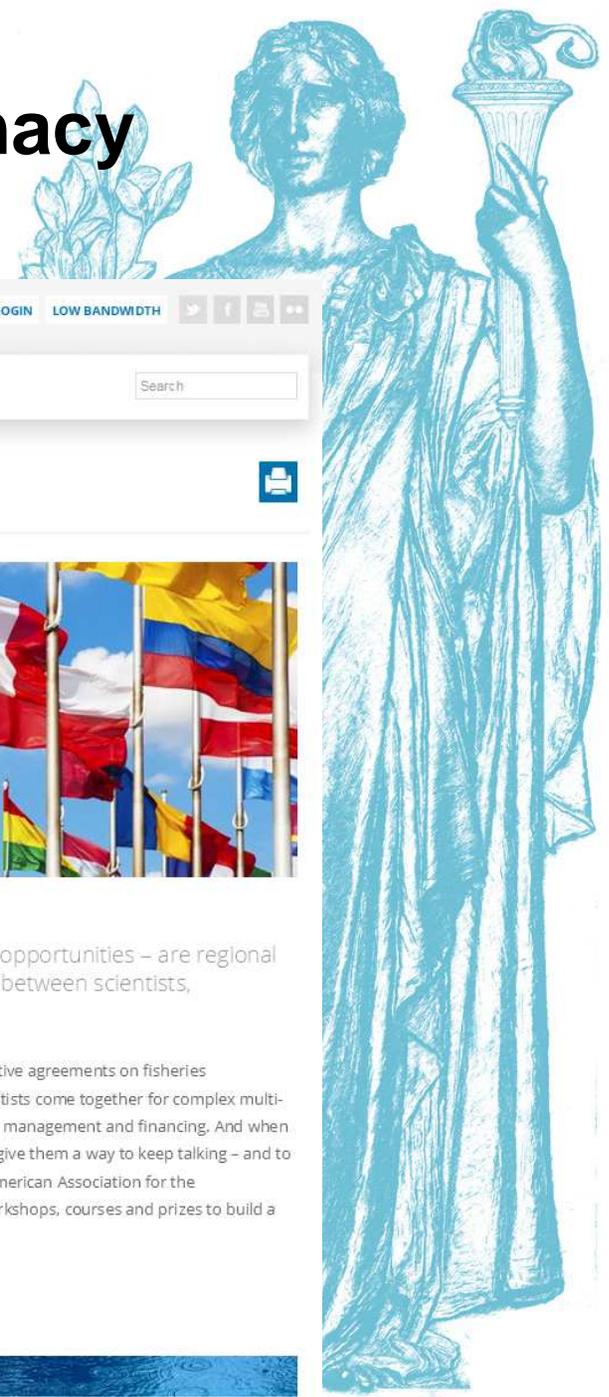


Daryl Copeland, Senior Fellow at the Canadian Global Affairs Institute and Policy Fellow at the University of Montreal’s Centre for International Studies and Research

Science & Diplomacy : <http://www.sciencediplomacy.org/perspective/2015/bridging-chasm>



II. Science Policy, Science Diplomacy - the TWAS Programme



<http://twas.org/science-diplomacy>

The screenshot shows the TWAS website interface. At the top, the logo reads "twas THE WORLD ACADEMY OF SCIENCES for the advancement of science in developing countries". Navigation links include "TWAS PLUS", "CONTACTS", "LOGIN", and "LOW BANDWIDTH". A secondary menu contains "ABOUT", "NETWORK", "OPPORTUNITIES", "SCIENCE POLICY", "NEWS", and "PUBLICATIONS". The "Science policy" page is active, featuring a sidebar with links to "Science Diplomacy", "CATALYST Project", "Solar Radiation Management Governance Initiative", and "Global Research Council". The main content area has a header image of various national flags and a section titled "Science Diplomacy" with a sub-header "Humanity's greatest challenges – and some of its most promising opportunities – are regional and global. Increasingly, the world requires effective partnerships between scientists, policymakers and diplomats." Below this is a paragraph explaining science diplomacy and a "2015" section listing a "TWAS Science Diplomacy Workshop on Sustainable Water Management". A "DONATE" button and "Support TWAS" section are also visible in the sidebar.



Science Diplomacy

Humanity's greatest challenges – and some of its most promising opportunities – are regional and global. Increasingly, the world requires effective partnerships between scientists, policymakers and diplomats.

Science diplomacy takes many forms: When nations come together to negotiate cooperative agreements on fisheries management or infectious disease monitoring, they need scientific expertise. When scientists come together for complex multi-national projects in astronomy or physics, their nations devise diplomatic agreements on management and financing. And when political relations between two nations are strained or broken, joint research efforts can give them a way to keep talking – and to build trust. Today, the need for science diplomacy is growing. In collaboration with the American Association for the Advancement of Science (AAAS), TWAS is leading a programme that includes lectures, workshops, courses and prizes to build a bridge between the worlds of science and diplomacy.

2015

- TWAS Science Diplomacy Workshop on Sustainable Water Management

The 4-5-day course will take place in Trieste, Italy, from 30 November to 4 December 2015. It will average participants to come from approximately:



III. Aims of Workshop

Activities:

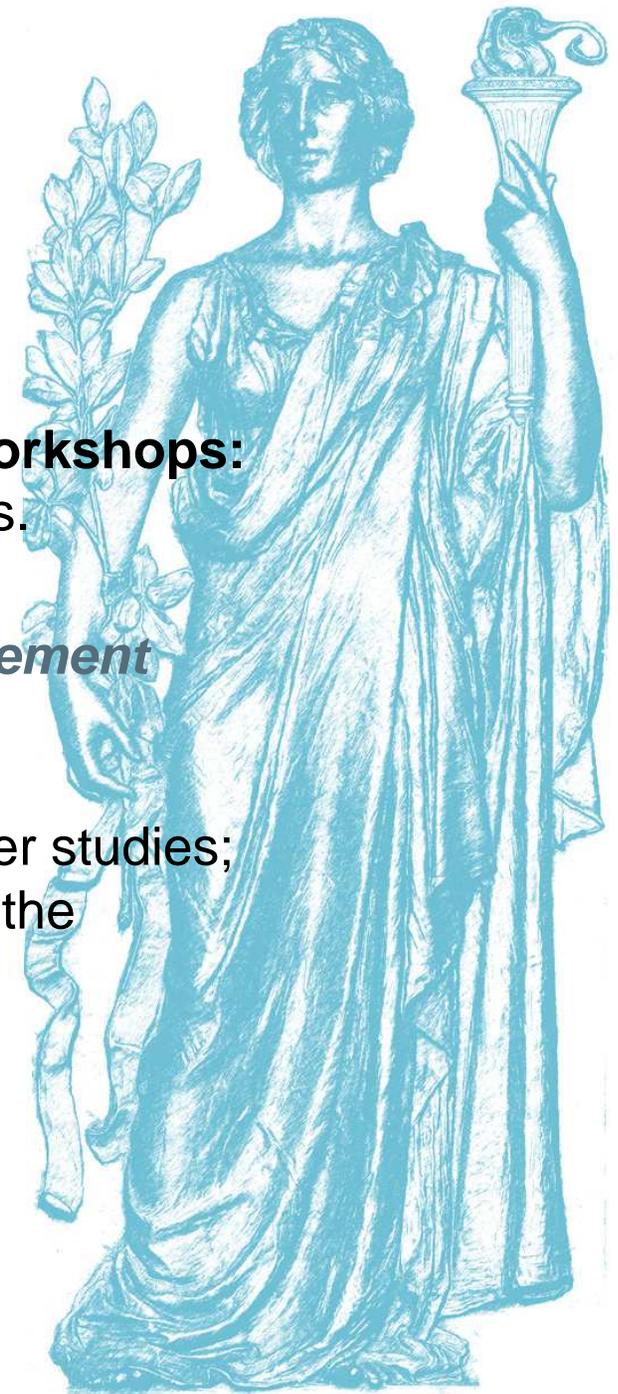
International Science Policy and Diplomacy Workshops:

Themes to cover different development challenges.

TWAS Workshop on Sustainable Water Management

Trieste, Italy, 30 November - 4 December 2015

- Scientists with expertise in water research;
- Young scientists/PhD students involved in water studies;
- TWAS science diplomacy 'ambassadors' from the diplomatic/policy community.



III. Aims of Workshop

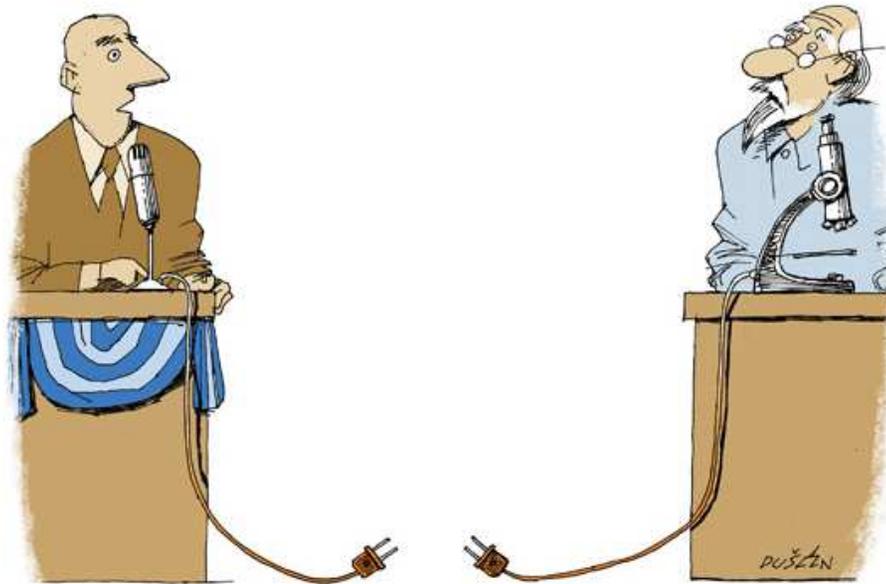
Aim: To bring together the policy-making/diplomatic community with the scientific community (experts and young researchers) to discuss and assess policies on critical development issues.

[The Scientist](#) » [Magazine](#) » [Critic At Large](#)

The Great Divide

A two-way bridge between science and policy is desperately needed.

By Didier Schmitt | December 1, 2013



© DUSAN PETRICIC

III. Aims of Workshop

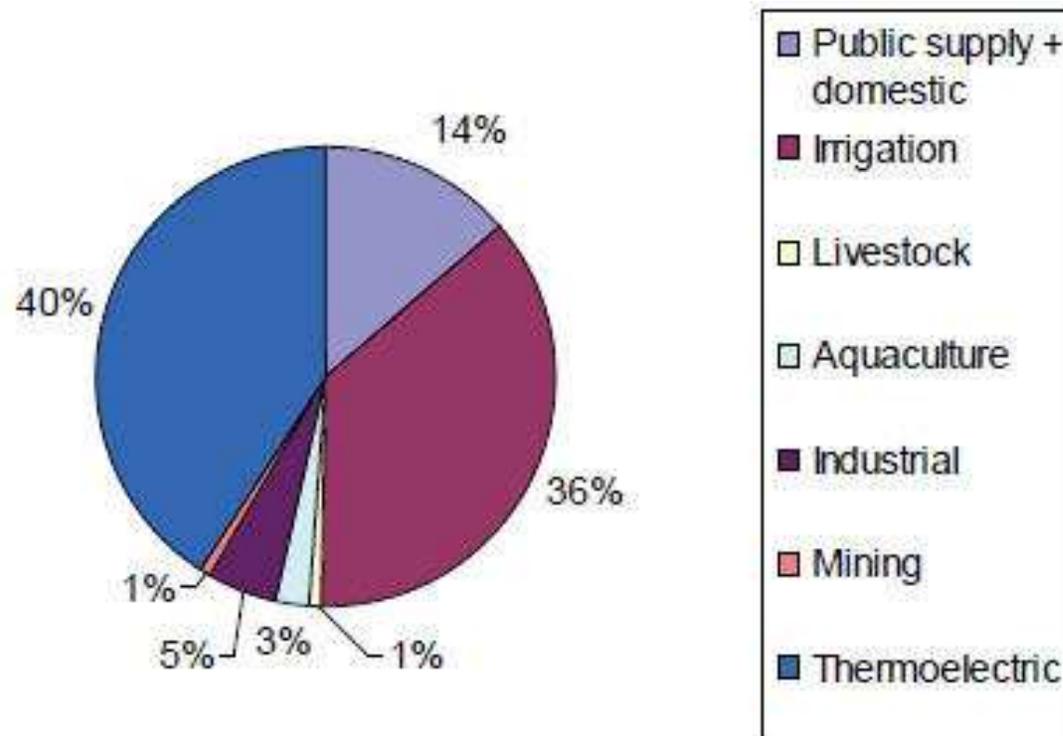
Aim: To bring together the policy-making/diplomatic community with the scientific community (experts and young researchers) to discuss and assess policies on critical development issues.

- To expose **young scientists** to the policy arena: capacity building regarding the direction, implications and future uses of their research; awareness of science-related careers in the decision-making positions;
- Guidance from **scientists** with expertise in the water research / policy interface;
- Opportunity for **policy-makers / 'science diplomacy ambassadors'** to update their knowledge of cutting edge science in their field.

IV. Setting the Scene

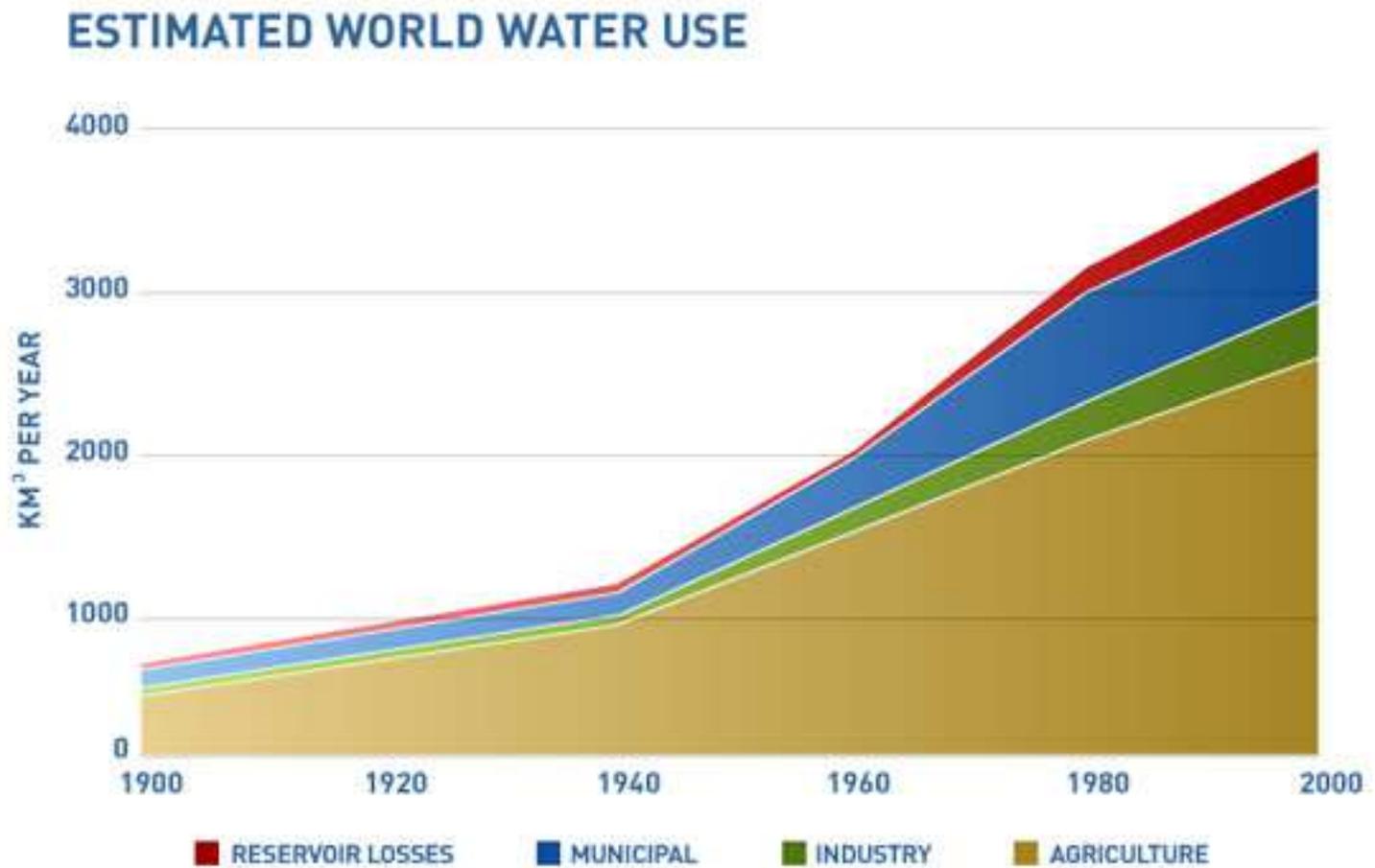
Integrated Water Resources Management (IWRM)

First proposed in 1977 during a UN-sponsored water resources conference in Mar del Plata, Argentina.



<http://www.zdnet.com/article/us-great-plains-southwest-at-extreme-risk-of-water-shortage-report-says/>

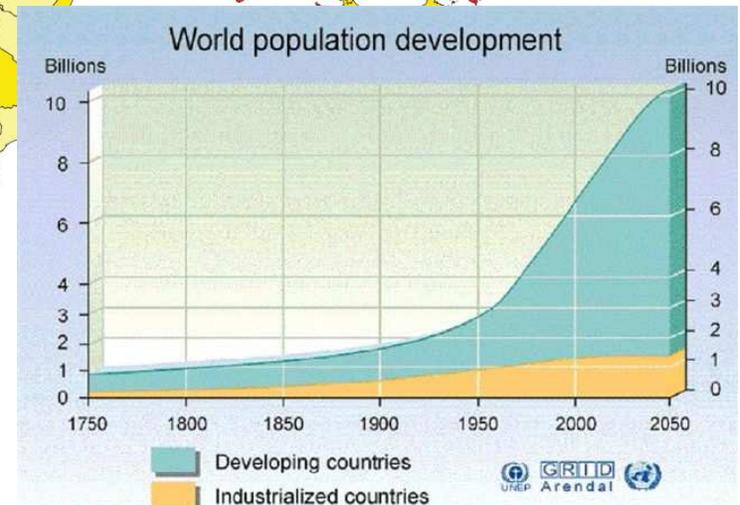
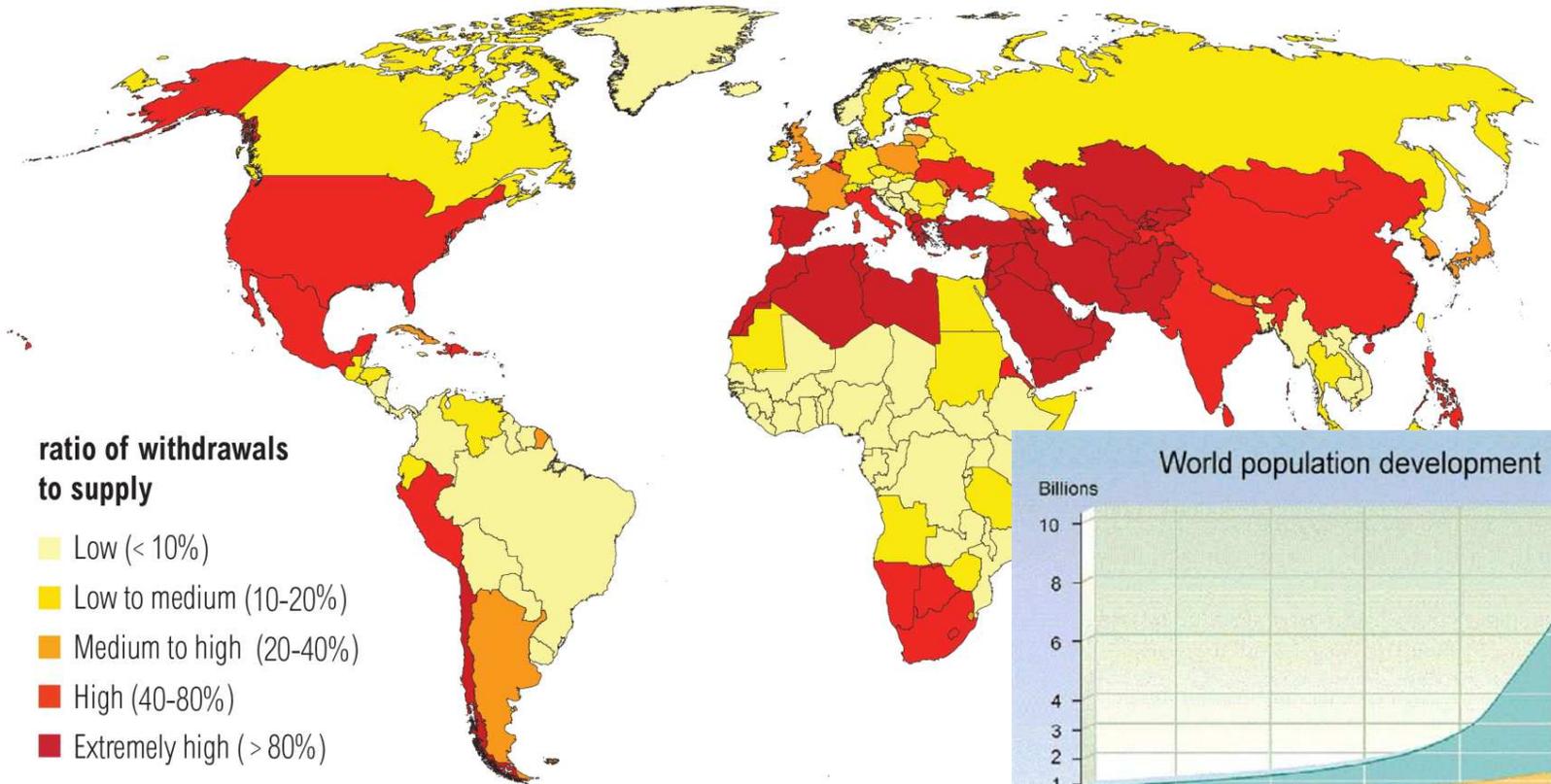
IV. Setting the Scene



Source: <http://www.fao.org/nr/water/art/2008/waterusegraph.jpg> [Accessed: 20.06.2012]

IV. Setting the Scene

Water Stress by Country: 2040



NOTE: Projections are based on a business-as-usual scenario using SSP2 and RCP8.5.

For more: ow.ly/RiWop

IV. Setting the Scene

5 principles of IWRM

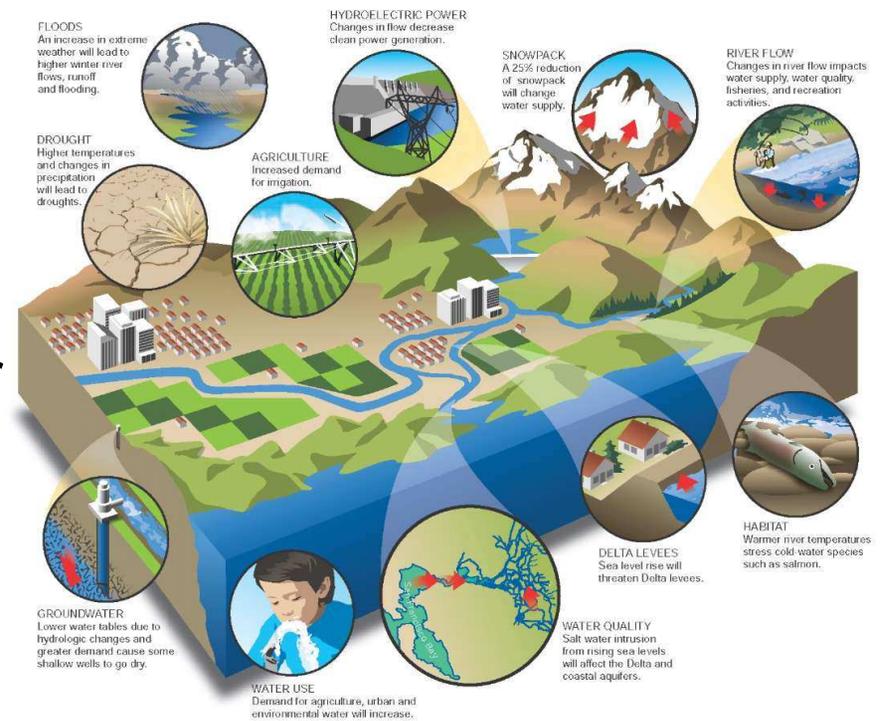
(Global Water Partnership, 2000)



- 1) Water is a finite and vulnerable resource;
- 2) A participatory approach is necessary;
- 3) The role of women should be emphasized;
- 4) The social and economic value of water should be acknowledged; and
- 5) The three **e**s of sustainability must be acknowledged: **e**conomic efficiency, social **e**quity and **e**nvironmental sustainability.

IV. Setting the Scene

But there is often a mismatch between political or societal boundaries and natural or geographical boundaries.
Varady and Morehouse, 2013



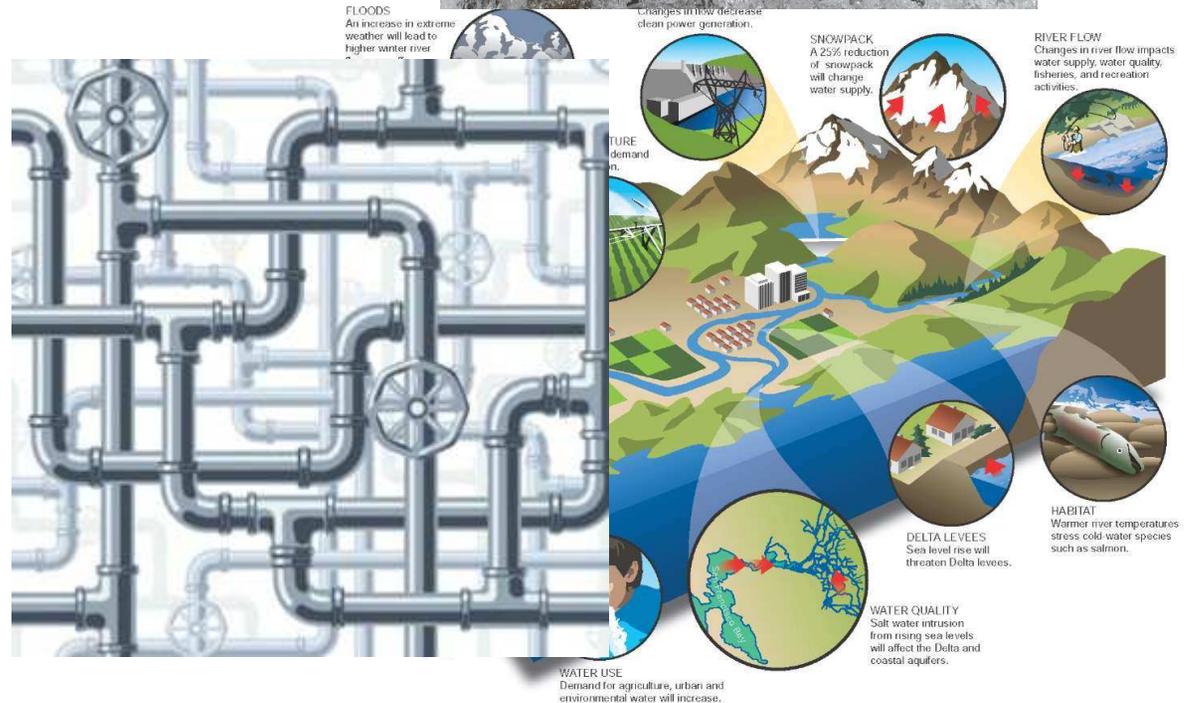
“The search for scientific bases for confronting problems of social policy is bound to fail, because of the nature of these problems. They are ‘wicked’ problems, whereas science has developed to deal with ‘tame’ problems.”

Rittel and Webber 1973

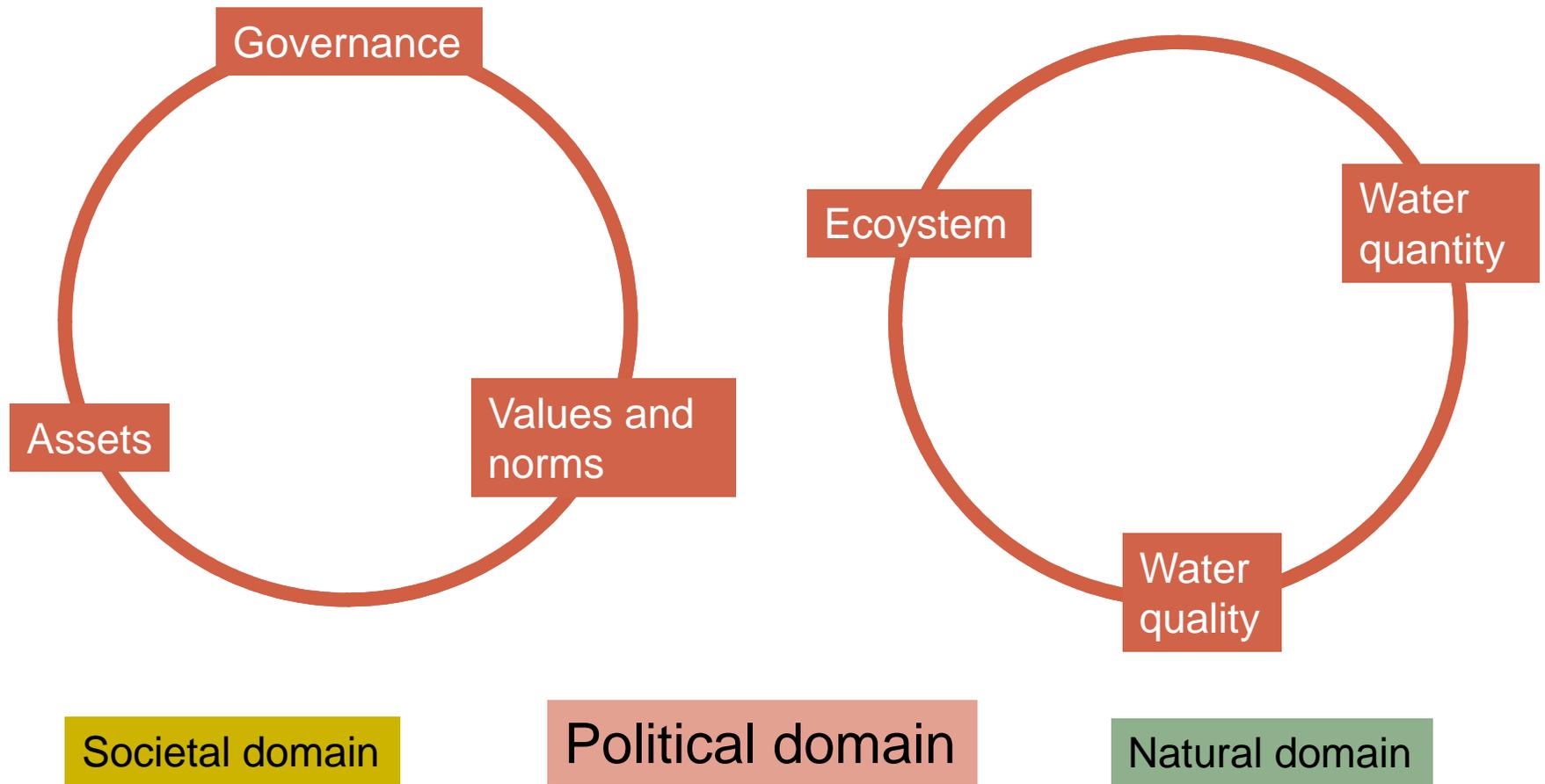
IV. Setting the Scene

Three types of water problems:

- 1) Simple;
- 2) Complicated;
- 3) Complex.



IV. Setting the Scene



IV. Setting the Scene

Water is a flexible resource

It can be used and re-used.

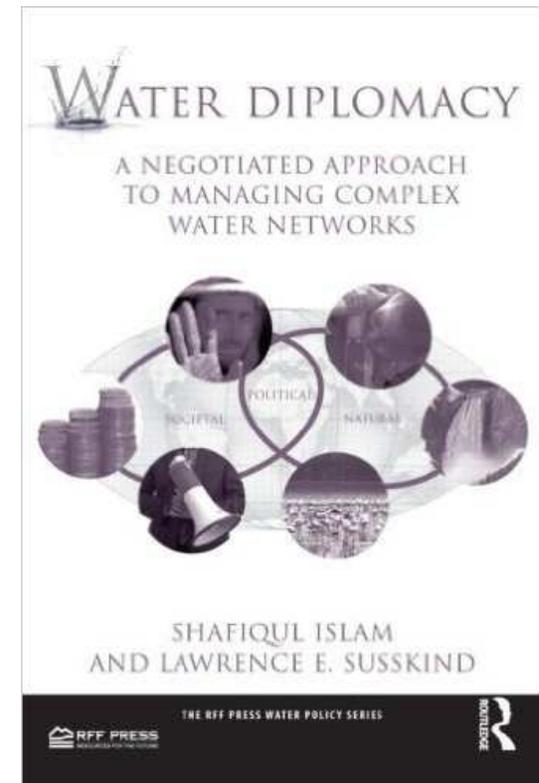
Water Diplomacy Framework (WDF)

Islam and Susskind, 2013

- 1) Water networks are open and continuously changing;
- 2) Water network management must account for interactions, non-linearity and feedback;
- 3) Water network management must be adaptive and use non-zero-sum (win-win) approaches to negotiation.

Structural connectedness: Who (what) is connected to whom (what)?

Action connectedness: Each action affects current state of the system and its future evolution

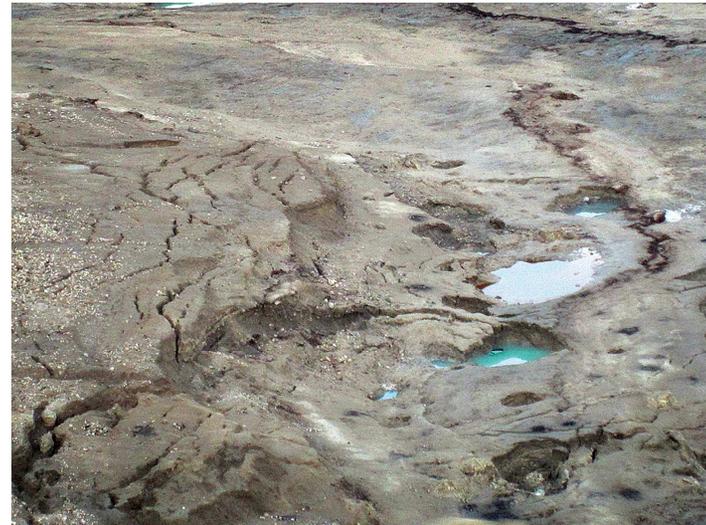


IV. Setting the Scene

“This water shortage incites new armed conflicts. Experts have solid evidence that water disputes are already an integral part of many countries’ international relations and water security is increasingly being addressed as part of national strategic security approaches.”

Dr Abdulla Ensour, Prime Minister of Jordan, keynote address during Stockholm’s World Water Week, August 2015.

<http://www.thesourcemagazine.org/a-new-path-to-peace/>



IV. Setting the Scene

“The Tigris-Euphrates river basin, which feeds Syria and Iraq, is rapidly drying up. This vast area already struggles to support at least ten million conflict-displaced people. And things could soon get worse; Iraq is reaching a crisis point.

To understand the consequences, look no further than Syria. Although water stress is certainly not the sole cause of the conflict there, it no doubt helped fuel the civil war. By 2011, drought-related crop failure had pushed up to 1.5 million displaced farmers to abandon their land; the displaced became a wellspring of recruits for the Free Syrian Army and for such groups as the Islamic State (also called ISIS) and al Qaeda. Testimonies gathered by reporters and activists in conflict zones suggest that the lack of government help during the drought was a central motivating factor in the antigovernment rebellion. Moreover, a 2011 study shows that today’s rebel strongholds of Aleppo, Deir al-Zour, and Raqqa were among the areas hardest hit by crop failure.

In other words, drought changed the economic, social, and political landscape of Syria.”

M. Al Jabbari, N. Ricklefs, R. Tollast

<https://www.foreignaffairs.com/print/1115287>



Water bottles



to avoid ...



V. The Workshop

Day 1 - Monday:

Welcome addresses

Day 2 - Tuesday:

- Introductions
- Overview
- Keynote presentations

Breakout Group session I: Analysis by thematic groups:

- Basic research
- Deployment
- Policymakers
- GenderInSITE

Each group will be tasked with thinking across different aspects of water management (drinking water and sanitation, sector use, water re-use, dams/river sharing/ watershed management, etc) to determine – from the perspective of the developing world – what should be the goals of development in the water sector, e.g. over the next 15 years; what resources/capacity exists to help reach those goals; and what are the gaps – especially in relation to your own group's expertise, but also thinking about what could be provided by the other two thematic groups; what about other issues such as gender, efficiency, etc.

V. The Workshop

Day 3 - Wednesday:

Presentation on application of electrochemical methods for water and wastewater treatment. IMR E&T s.r.l.

Afternoon: Site visit to Acquedotto Randaccio (local water treatment centre) sponsored by AcegasAps Amga

Evening: Free time in city centre plus dinner sponsored by IMR E&T s.r.l.

Breakout Group session II: Analysis by water sector:

- Drinking water and sanitation.
- Natural resources management inc. RAMSAR, watershed management.
- Agriculture and irrigation.
- Gender.

Each group will be asked to think across the different thematic areas (R&D, policymaking, deployment) to identify needs and gaps in developing equitable water management and the relevant SDGs, again looking from the point of view of the developing world, over the next 15 years.

V. The Workshop

Day 4 - Thursday: Morning

Groundwater in the FVG region – Bruno della Vedova, Università degli Studi di Trieste

Communicating with the public – Ed Lempinen, TWAS Public Information Officer

Breakout Group session III: Policy development exercise:

Participants will be divided into 3, 4 or 5 groups, each containing at least one policymaker, a scientist and an engineer/technical person.

The aim is to develop a whitepaper on a water diplomacy issue for a hypothetical developing country / group of countries.

V. The Workshop

Day 5 - Friday: Morning

Plenary discussions III: Policy development exercise

Ideally, groups will also submit (within the next 2-3 weeks) write-ups of their presentations that will be published on the TWAS website (2-4 pages).

Conclusions, recommendations, way forward.



Thank you!

Peter McGrath, Coordinator, IAP/IAMP
TWAS Science Policy/Science Diplomacy programme

mcgrath@twas.org

www.interacademies.org

www.iamp-online.org

www.twas.org

twas.org/science-diplomacy

