



The realities of providing science advice

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Introductory comments

- Thanks for asking me to contribute INGSA discussion; great to be in Africa
- My background
 - Work with our CSA, Sir Peter Gluckman c. 15% of my time
 - Research scientist in government lab... pest management/biosecurity
 - Focus on developing meaningful solutions for pest threats & impacts
- My experience v much re giving advice to govt etc not developing policy
- Will try to draw on this experience in today's discussion

Introductory comments

- Current challenges for science...
 - Post-truth sentiments (false facts, fake news etc)
 - Anti-intellectualism
 - Everyone has opinions because of Google
 - Social media echo-chamber effect/ lobbying etc
 - Challenges of post normal science
- These aspects will come up in today's discussion

Introductory comments

- A few observations before we start...
- Big difference in policy for science versus science for policy
 - Today focus on science for policy
 - Of course policy for science still matters; bad science a waste of money
- My experience v much re giving advice to govt etc not developing policy
- Two things will come up severally today:
 - science advisory ecosystem
 - The need for honest brokers in science

Introductory comments

- The science advisory ecosystem... quite a few players; all have views different roles.

Science Groups

Individual academics

Academic societies/professional bodies

Government employed practicing scientists

Scientists within regulatory agency

Independent think tanks

What works units etc

National academies

Government advisory boards/science councils

Science advisors

Introductory comments

There are two strands in what follows:

Scientific advocacy and science knowledge brokerage

Introductory comments

- Scientific advocacy

The meaning of this is obvious... a danger arises when it becomes lobbying

Introductory comments

- Honest brokers...
 - What is known, what is the expert consensus
 - What is not known
 - Other caveats
 - The inferential gap, risk management
 - How it relates to other considerations, alertness to social implications
 - Options and tradeoffs

Introductory comments

- Will come back to these points in what follows:

A quick summary of what INGSA is

International network of Government Science Advisors (INGSA) founded in 2014 under the aegis of the International Council for Science

Memorandum of understanding with UNESCO

Concerned with all dimensions and levels of science advice to policy makers (subnational, national, international)

- Networking
- Research and academic network
- Knowledge source,
- Capacity building workshops (individuals, academies, institutions on both supply and demand side)
- Thematic workshops
- Partnerships (e.g. with European Commission Joint Research Centres, UNESCO)
- Principles of science advice

Membership : academics, practitioners, policy makers (>2,800 members, >75 countries)

African chapter, Latin American, Asian and Science Diplomacy chapters under development.

www.ingsa.org



The science – policy nexus

- » Presumption: That governments are more likely to make better decisions when they use well-developed evidence wisely
- » Virtually every challenge a government faces has a scientific dimension
- » But science alone does not make policy; many values and political considerations
- » The interface arrangements have impact on uptake
- » Is robust science available, will it be used, misused, manipulated or ignored?
- The challenge of populist politics and media
- The vilification of elites and experts
- But science and scientists also have played a role in creating the problem
- » The need for an effective and trustworthy science advisory ecosystem that combines the skills of brokerage with trust and diplomacy (a form of ‘policy entrepreneurship’)

(Robust) evidence informed policy making

~~Evidence based policy~~

Policy making by democratic governments is primarily about establishing:

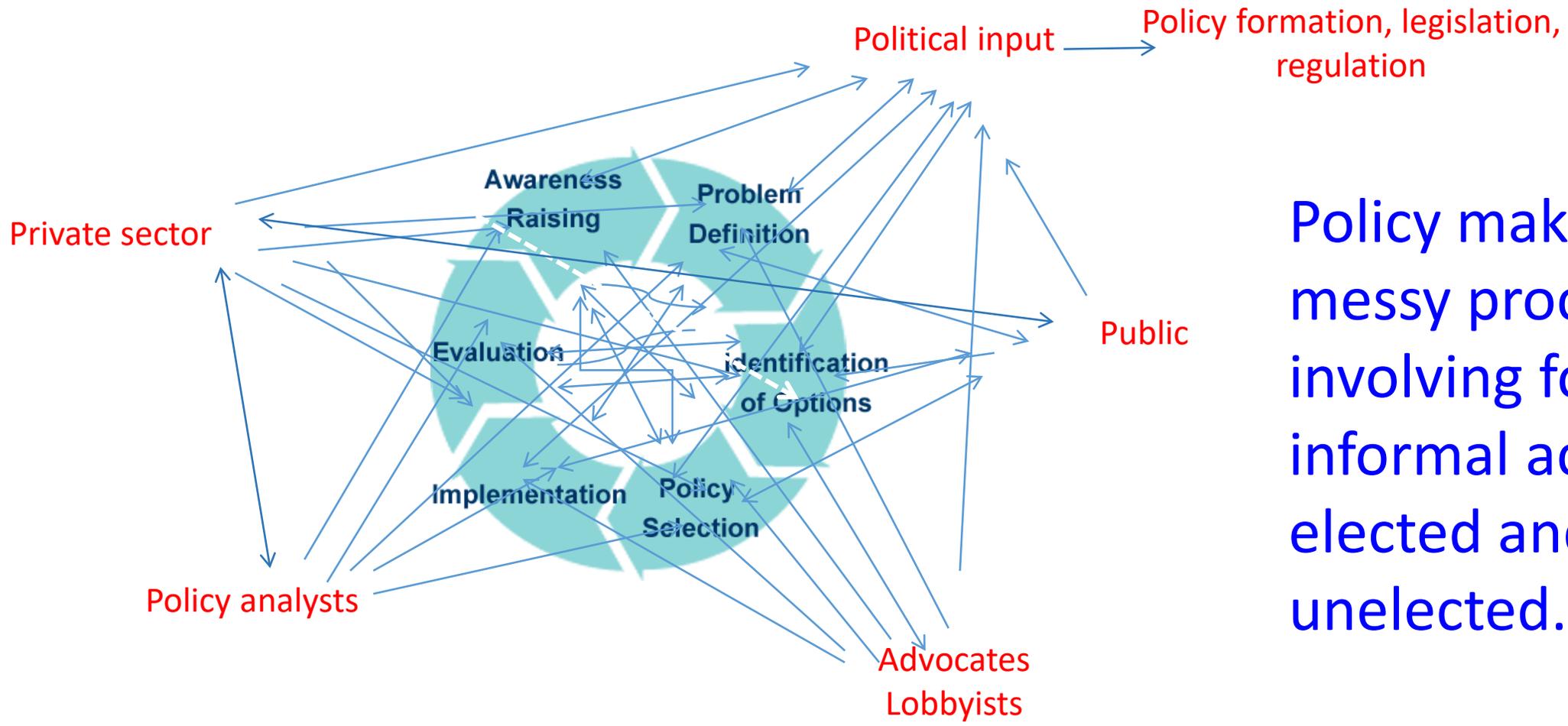
1. A set of strategies to guide decisions which often have objectives which may not always be clear and are generally impacted on by acute externalities as well as by values.
2. Choosing between options which have differential impacts on different groups of stakeholders and have both short-term and long-term political objectives and inevitably have spillover effects
3. A set of high-level operational strategies to implement these decisions
4. Evidence informed policy making is distinct from implementation science but the distinction is not always clear.

What and where is evidence?

- Politicians and policy makers have many sources of evidence
 - Tradition
 - Prior belief
 - Anecdote and observation
 - Science
- Scientific evidence is argument supported by information produced according to a set of formal processes
- Scientific processes aim to obtain relatively objective understandings of the natural and built world. Science is defined by its processes which are designed to reduce bias and enhance objectivity.
 - But important value judgments lie within science especially over what question and how to study it. But the most important in the context of policy is the sufficiency and quality of evidence.

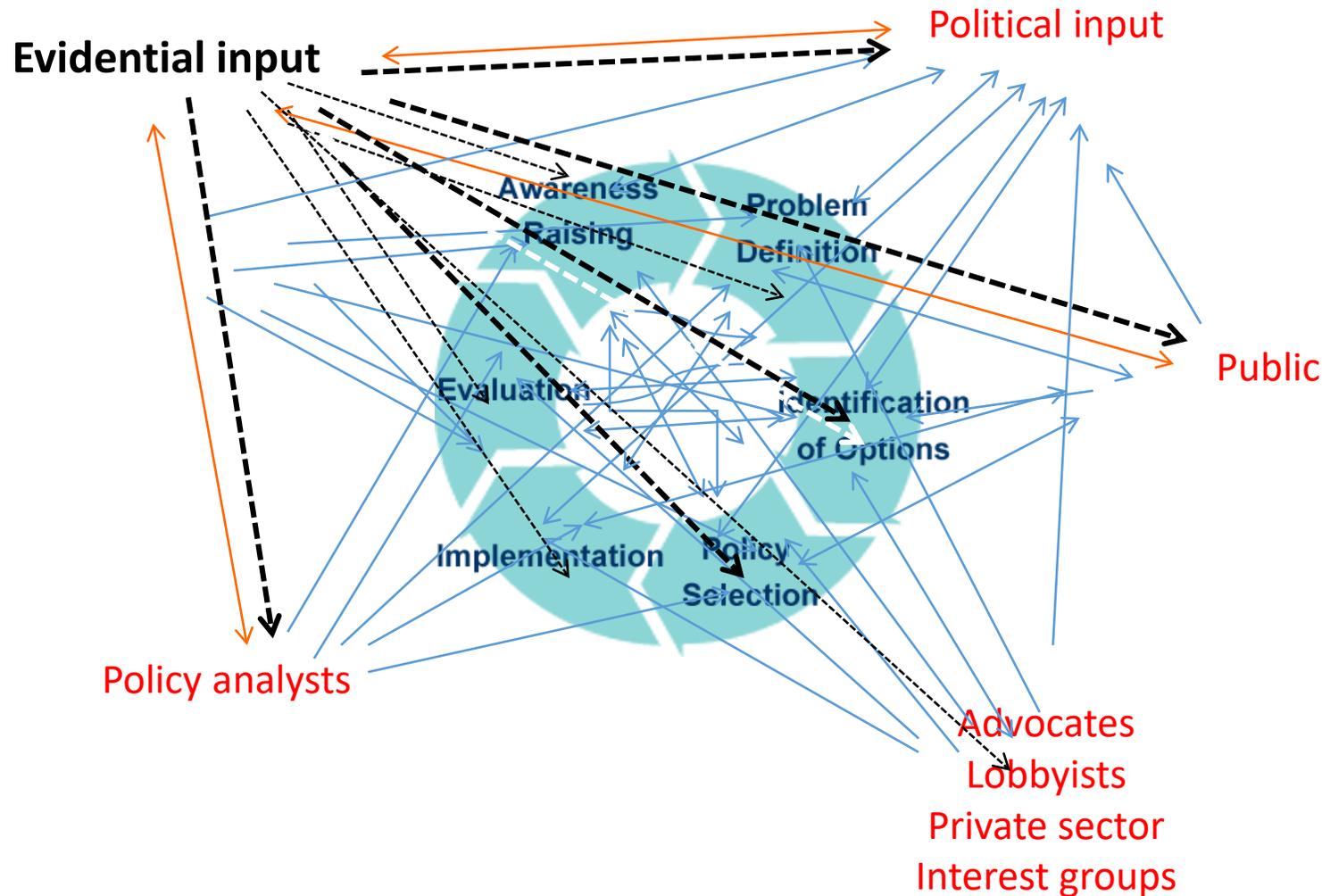
The policy process is rarely as described in textbooks





Policy making is a messy process involving formal and informal actors, elected and unelected.

So what is the value of science advice in the 'post-trust context'?



More important than ever

But it matters how it is done

It needs sensitivity to the complex dynamics

It needs to work with this complex entanglement of formal and informal actors

Scientists and policy making; scientists are:

- Very good at problem definition
 - Very good at public advocacy (and pleading for money !)
 - Less so at finding workable, scalable and meaningful solutions
 - They often approach the policy maker with considerable hubris.
 - They often fail to consider the multiple domains that go into policy formation
- But they can have a critical role in the policy process by operating through the science advisory ecosystem. This is what INGSA is about.

Policy makers:

- » Have limited bandwidth and often limited manouvability
- » They lurch to problems
- » The policy cycle is generally very short and getting shorter
- » Most relevant science incomplete and much is ambiguous
- » They cannot be expected to be scientific referees

Here there is a serious need for translation and brokerage

Policy makers see evidence is one of a number of inputs

In what sense is science advice privileged and how is that privilege maintained? The role of the broker comes in here.

Further
discussion
to follow

The challenge of science at the policy-societal nexus

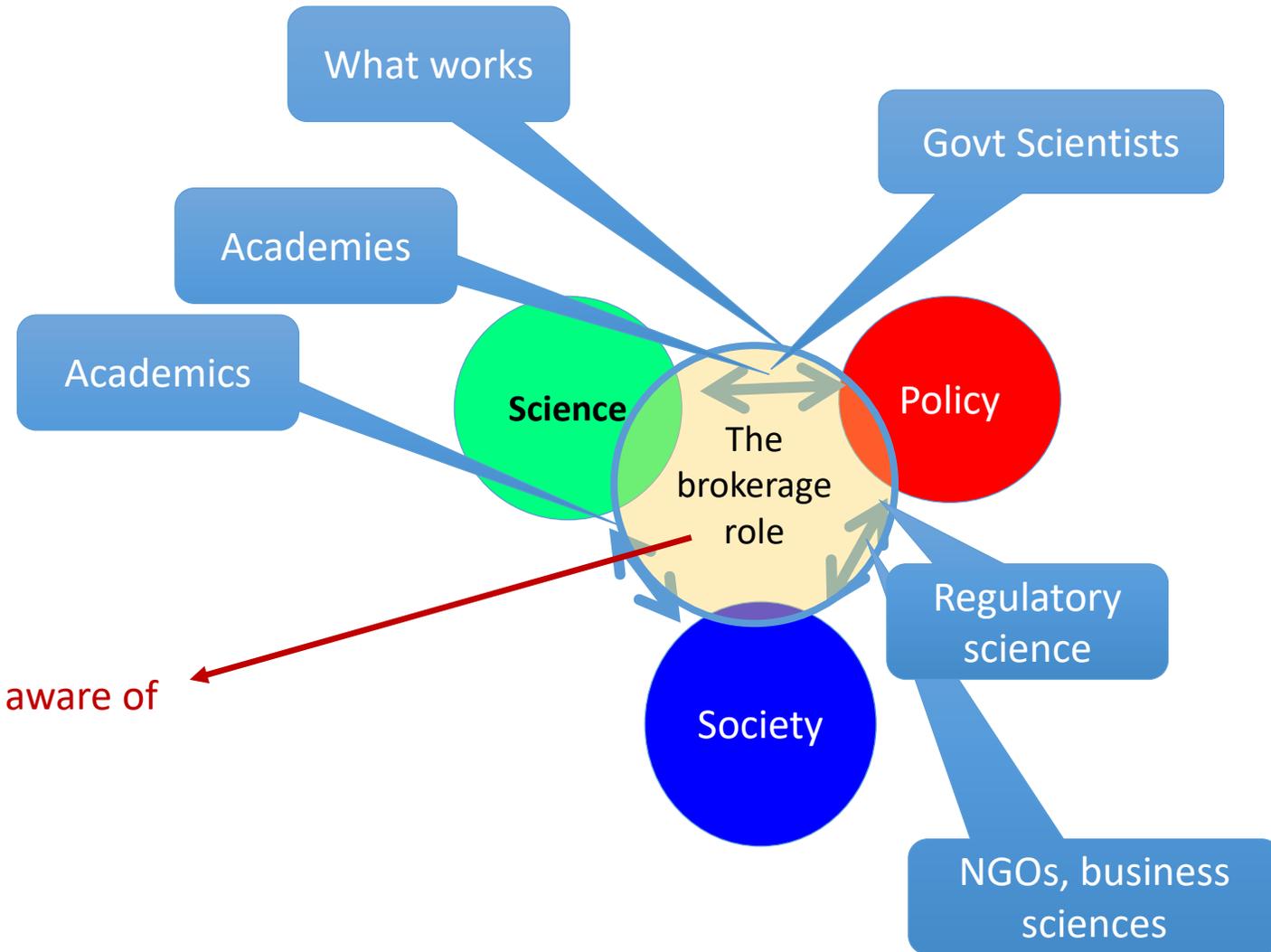
- Too much science
 - The changed nature of science
 - The challenge of values within and beyond science
 - The post-normal nature of much science
 - Different perceptions of risk
 - Different perceptions of expertise
 - The behavior and reciprocal perceptions of scientists and policy makers
 - The utilitarian positioning of science
 - Implications for the future of public science
 - The post-expert environment (everyone is an 'expert' with the internet)
- Incomplete knowledge
 - Need for urgency
 - Great social interest
 - Cuts across values systems
 - V short time horizons
- Political risk
 - Scientific risk
 - Peoples' perceived risk etc
-
- The diagram consists of two rectangular boxes on the right side of the slide. The top box contains five red bullet points: 'Incomplete knowledge', 'Need for urgency', 'Great social interest', 'Cuts across values systems', and 'V short time horizons'. A red arrow points from the left side of this box to the list item 'The post-normal nature of much science'. The bottom box contains three red bullet points: 'Political risk', 'Scientific risk', and 'Peoples' perceived risk etc'. A red arrow points from the left side of this box to the list item 'Different perceptions of risk'.

Enhancing the uptake of scientifically developed knowledge into public policy

The four audiences

- Politician
- Policy officials
- Media and public
- The science community

The broker has to be aware of all of this interaction



More specifically who does what in the science/advisory ecosystem?

The next few slides tease this out hwo the elements fit together...

Different science group roles in a science advisory ecosystem...

Science Groups	Advocate	Broker
Individual academics	+++	
Academic societies/professional bodies	+++	+
Government employed practicing scientists		+
Scientists within regulatory agency		+++
Independent think tanks	+	++
What works units etc	++	++
National academies	+++	++
Government advisory boards/science councils	+	++
Science advisors		+++

Nature of advice via different science groups...

Science Groups	Informal but external	Deliberative (unsolicited)	Deliberative (requested)	Informal and internal
Individual academics	++			
Academic societies/professional bodies		++		
Government employed practicing scientists			+	
Scientists within regulatory agency			++	
Independent think tanks	+	++	+	
What works units etc		++	+	
National academies		+++	++	
Government advisory boards/science councils			+	+
Science advisors			++ (conduit)	+++

↑
INGSA

Different science groups; different roles in a science advisory ecosystem

Science Groups	Knowledge generators	Knowledge synthesizers	Knowledge brokers	Policy implementation
Individual academics	+++	++		
Academic societies/professional bodies		+		
Government employed practicing scientists	+++	+		++
Scientist within regulatory agency		++	++	
Independent think tanks		++		
What works units etc		+++	+	++
National academies		+++	+	
Government advisory boards/science councils		++	+	+
Science advisors		+	+++	++

The requesters/users for science advice wrt different science groups...

Science Groups	Public	Unsolicited Policy input	Requested policy advice	Politician
Individual academics	+	+++	+	±
Academic societies/professional bodies	±	++	+	±
Government employed practicing scientists		±	+	
Scientist within regulatory agency			++	
Independent think tanks	+	++	+	
What works units etc		+	++	
National academies	±	+++	++	
Government advisory boards/science councils		+	++	+
Science advisors	++	++	+++	+++

The nature of advice offered by different science groups

Science Groups	Policy for science	Evidence for policy: options (strategic)	Evidence for policy: Implementation (operational and tactical)	Evidence for policy: Evaluation (strategic and tactical)	Horizon scanning	Crises
Individual academics	+	±	±	±	±	
Academic societies/profess'l bodies	+++	+	+	±	±	
Gov't employed scientists		+	++	+	+	+
Scientists within regulatory agencies		+	++	++	+	+
Independent think tanks		++	±	±	+	
What works units etc			++	±		
National academies	+++	+			++	
Gov' t advisory bds/science councils	++	+	+		+	
Science advisors	+	++++	++	++	++	++++

Role of science advisors in crises and emergencies

- In emergencies, evidence and science become core to decision making.
- Many emergencies have scientific or technical dimensions
- Decisions are urgent
- CSAs are members of national crisis/security councils in several jurisdictions:
- CSA's roles in developing national risk registers; suggested the core argument for CSAs

- Also kick the tyres, consider dimensions often beyond those in the decision-making forum, translation between policy maker and technical input, link to scientific community especially with regard to large awkward issues; public communication.
- The NZ experience in last 4 years : earthquakes, aquifer contamination, biosecurity incursions, pandemic risk, lead contamination, infant formula contamination scare, ecoterrorism threat.

The skillset for effective external advisory input

- Understanding of the complexities of science
- Get beyond single disciplines (natural and social sciences)
- Understanding the policy 'cycle'
- Being timely
- Understanding the limits of advocacy versus brokerage

- Understanding brokerage

- What is known, what is the expert consensus
- What is not known
- Other caveats
- The inferential gap, risk management
- How it relates to other considerations, alertness to social implications
- Options and tradeoffs

← NB... a lot about INGSA

- Remembering there are multiple audiences
- Avoiding hubris
- Maintaining integrity and trust

The skillset for effective external advisory input (cont)

- That close to the executive of government
 - Informal
 - Instant in crises
 - Repeated and iterative
 - Identify opportunity and need
 - Conduit to science community
 - Maintain the integrity of input
- The broader academy
 - Expert committees, professional bodies, national scientific academies
 - Generally deliberative and formal
 - Single point intervention
- TRUST is critical
- Other players
 - Scientists within ministries and agencies

Internally within the policy environment there is a need for...

- Explaining the complexities of science
- Moving beyond single disciplines (natural and social sciences)
- Understanding the policy 'cycle'
- Being linked to the key players in the policy 'cycle'
- Understanding brokerage (see earlier slide)

Personal skills incl

- Excellent diplomatic skills
- Policy entrepreneurship without advocacy
- Good communication skills to the four audiences,
- Understanding of the post-trust environment
- Avoiding hubris
- Maintaining integrity and trust with the four audiences

Academies and science advice

- A source of deliberative advice (solicited or unsolicited)
- Many academy reports have little impact on policy – why?
 - Not timely, not requested, not needed
 - Do not answering policy relevant questions directly
 - Often not well equipped to deal with post-normal issues
 - Do not always appreciate the policy space and assume a linear model from evidence to policy
 - Do not understand the nature of brokerage
 - Language not accessible
 - Focused on showing academic standing
- Many academies need to rebuild and represent themselves to have greater impact (*and deal with issues of elitism, post-expert, post-trust, post-truth, post-fact etc*)

Discussion...