

A wide-angle photograph of the University of Plymouth campus at sunset. The sky is filled with vibrant, colorful clouds in shades of purple, pink, and orange. In the foreground, a body of water reflects the sky and the buildings. A fountain with a central rock is visible on the right side of the water. The background features several modern university buildings with lit windows, and a tall, thin spire is visible on the left side.

Professor Dame Judith Petts DBE  
*Challenges & Opportunities for Science to  
Influence Policy*  
*2024 Clean Air Conference, Birmingham*



UNIVERSITY OF  
PLYMOUTH

# Science as policy

Science can only ascertain what is, not what should be, and outside of its domain value judgements of all kinds remain necessary

Albert Einstein, *Out of My Later Years*, 1936

Our aim should be to provide information to allow policy makers to develop and properly assess policy options, not to push a particular line

NERC *Science into Policy*, 2009

My experience is that most policy decisions are informed to greater or lesser extent by evidence but rarely is it practicable or desirable to base decisions entirely upon scientific evidence

Ian Boyd, Defra CSA, 2013

# Science and trust

When formal advice is perceived as advocacy, trust in that advice and in the adviser is undermined

Peter Gluckman, *CSA New Zealand*, 2014

When scientists start providing opinions about whether policies are right or wrong they risk becoming politicised. A politicised scientist cannot also be an independent scientist

Ian Boyd, *Defra CSA*, 2013

‘Those who take no interest in politics are doomed to live under the rule of unworthy people’ Plato

# Covid Inquiry – Module 1 The Resilience & Preparedness of the UK 2014

8 defects identified by scientists providing advice:

- Differences between roles of advisers to the UK government & devolved administrations
- Way experts were asked for advice limited their freedom to advise
- Not enough feedback on advice provided
- Advice overly weighted towards the biomedical science
- Lack of coordination and leadership – multiple departments receiving advice from 9 key scientific groups
- Advice not commissioned at the right time
- Advice may have been impacted by ‘group think’
- Too little challenge of the advice provided



# Science in Covid-19 Policy

## ‘Stick to the science’ but which?

- **Government science** – public health surveillance – at scale
- **Academic science** – new vaccines and diagnostics; non-pharmaceutical interventions – masks, lockdowns, social distancing etc (but where was the social and economic?)
- **Industrial science** – scaling up of ideas and making them available – at pace
  
- But Covid-19 was an exception in many respects – how can we make science/policy a constructive mix?



# Working with(in) the 'Politics Factory'

*Scientists like to see themselves as impartial and independent, but often this hides their own ideological (and funding) affiliations*

*Experts are also citizens who bring their own values to debates*

*Scientists see policy decisions as a complex mix of risks and benefits and scientific evidence is just one input*

*Much research is commissioned by those who want to solve the immediate political rather than fundamental problem*

*But - evidence is knowledge in a specific context – it works in that context, not all contexts*

*But....government needs to be seen to be taking science seriously.*

*These(advisory) committees may suffer group think, fractionalised views, overconfidence, risk aversion*

*Piles of research reports have been unread, unpublished and unused.*

*When delivered the political imperative which stimulated them had changed*

*To be effective scientific advice needs to be carefully packaged in ways which reflect certainty, impact and practicality*

**Professor Sir Ian Boyd, *Science and Politics*, 2024, Polity Press**



**UNIVERSITY OF  
PLYMOUTH**

# The science of communication & engagement

- Communication and public engagement seen as key enablers of individual action and behaviour change but how often is the science that understands and underpins these used or even funded?
- Risk perceptions; behaviour change; communication effectiveness; role for deliberative processes to inform policy
- Has been used in relation to air pollution messages and how public respond (DoH Risk Literacy, 2003)
- Translating the science behind deliberative processes into policy enabling and supporting tools – e.g. Government Sciencewise programme



# SCIENCEWISE-20-YEARS-OF-PUBLIC-VOICE.pdf

*‘We need to resist the temptation to talk at people about science, to think that the public messaging is all you need to get people on board and build trust. Public engagement allows us to listen, to gather important qualitative information and evidence, helping us to understand not just what the public thinks, but why they think it’.*

*Professor Dame Angela McClean, Government Chief Scientific Adviser*

*‘Science is TOO important to be left to the scientists’*

*Jack Stilgoe, Professor of Science and Technology, UCL*



UNIVERSITY OF  
PLYMOUTH



# Deliberative Processes in Policy-making

- Share some features in common with social research and other engagement methods. But emphasise:
  - **Independent oversight**, ensuring a diverse range of views and interests inform the questions explored and the information provided
  - **Public and experts (both scientific and policy) deliberating together** on the ethical and social issues raised by the science
  - **Public involved in problem solving** and balancing the tensions and trade-offs posed
  - **Identifying range of perspectives** held by the public
  - **Giving tailored feedback** about the findings and impact
  - **Independent evaluation**, providing assurance of a robust process and the credibility of the findings

**BUT – deliberative processes are neither cheap or quick**



## Public Engagement in Research - UKRI



- Extensive guidance from research councils over the last decade
- Supporting understanding of how policy is made and how to be involved in the policy process
- How to make sure are talking to the right person
- Building productive long-term relationships
- Funded policy fellowships, placement schemes, MP pairing schemes
- Knowledge brokers within institutions
- Writing to ensure science is understood and read

# Adaptive Policy-Making?

- Science not only supplies technical solutions but helps implement policy
- Improvement of urban air quality through low emission zones in many cities
- Each one a replicate within a large-scale, long-term experiment with robust evaluation
- Reasoning – air quality is an ethically-based problem which requires intervention. But is scientifically complex
- In this instance the judiciary intervened to require action by government



# Concluding thoughts:

- **Claims of impartial and essential science must be made carefully. Reliable sources always say what they don't know.**
- **Normative research can become prevalent in contested and complex policy areas.**
- **Evidence is always based on error (measurement, sampling, modelling, interpretation, etc etc).**
- **Multiple evidence strands always underpin complex policy areas.**
- **Those who want to influence policy must work at it – an academic paper (however brilliant!) is never sufficient.**
- **Understand your audience AND maintain scientific credibility.**
- **As a science advisor inside the policy world continue to champion open science and scientific freedoms**

