Science Informing Policy Making

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Experience at US National Academy of Sciences Providing Science Advice

- More than 200 reports per year, 85 percent requested by US government, with full text released to press and public
- Highly-qualified experts serving on study committees, views balanced to aim for objective assessments with supporting evidence
- Rigorous report review process to avoid non-scientific, self-serving, and political statements to serve as neutral independent expert advisor
- Studies generally viewed as objective and credible, and frequently highly influential

Observations From My Academic and NAS Experience

- Scientists who provide science advice are often asked to -- or choose to -- provide advice that goes beyond what science can say (or cannot say) about an issue
- But value judgments are required to recommend decisions or actions or tradeoffs that can affect people or things people value
- Scientists have no special authority or expertise in making value judgments

What Scientists Can Do When Giving Advice on Public Policy Issues

- Be clear about what science can say from current scientific knowledge with levels of confidence, and what science cannot say because of scientific uncertainties
- Be clear when value judgments are being made when giving advice, and explain the supporting rationale and evidence for the recommendations

Value Judgments Arising From Scientific Uncertainty

- Evidential Value Judgments are involved with concerns about what counts as sufficient evidence and where to set the standards of proof for making a decision, i.e., “how sure is sure enough” is as much of a value judgment as “how safe is safe enough”
- Policy-makers often grapple with how much scientific evidence is necessary, and what level of scientific uncertainty is acceptable, to justify decisions with costs, risks, and impacts

My Advice to Scientists Aiming For Influential Science Advice

- Good science advice sometimes needs sound judgments based on the experience of wise individuals with varied backgrounds even if rigorous supporting evidence is not always available
- Telling a good story with persuasive anecdotes to make the case for recommendations is often more influential with policy makers than dryly-written committee reports with mounds of data and rigorous evidence
- Challenge is to provide the best science advice with the best supporting evidence, clarity on value judgments, and communicated in a compelling way

Experience Inside State Department as Science & Technology Adviser

- Every country wants to upgrade its S&T capabilities to contribute to innovation and economic growth to build a knowledge-based society and bottom-up “innovative ecosystem”
- Engaging with best scientists and technologists worldwide becomes a prerequisite
- In order to capitalize on what science can contribute to public policy, every country needs a “science advisory ecosystem”

Science Advisory Ecosystem (individuals and institutions)

- Scientists in Government (science researchers, science administrators, science fellows, civil servants in policy formulation process, chief science advisors, decision-makers, politicians)
- 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)
- High quality science journalism

My Advice to Policy Makers on Getting Good Science Advice

- Science advising is a “contact sport” requiring lots of interaction for scientists to understand the questions of policy makers and policy makers to understand the qualified answers of scientists
- Create a “science advisory ecosystem” with scientists providing advice via many different routes inside and outside government
- Find at least one science institution outside control of policy makers providing independent, objective, expert, credible, trusted advice that is made public