theguardian

Search

Top 20 things scientists need to know about policy-making

There are some common misunderstanding among scientists about how governments make their policy decisions

Top 20 things politicians need to know about science

Chris Tyler
theguardian.com, Monday 2 December 2013 13.29 GMT

Formulating policy on issues such as drugs, the science budget and nuclear power is not as straightforward as some would have you believe. Photograph: Reuters

When scientists moan about how little politicians know about science, I usually get annoyed. Such grouching is almost always counterproductive and more often than not betrays how little scientists know about the UK's governance structures, processes, culture and history.

So when the Guardian reported on a Nature article that listed 20 things that politicians should know about science, I started reading it with apprehension, half expecting my head to explode within a few paragraphs.

I needn't have worried. The authors, Professors William Sutherland, David Spiegelhalter

and Mark Burgman, have produced a list that picks up on many of the challenges that scientists report when engaging with policy makers, and it does so in a constructive way.

It has been printed out and stuck on my wall. It has been passed around the office. I am sure to reference it often.

But the fact remains that all too often, scientists blame politicians for failures when science meets policy-making, when in truth the science community needs to do much more to engage productively with the people who actually make policy.

There are similarities with long-standing and successful efforts to improve the relationship between science and the media. Fiona Fox, the director of the Science Media Centre, has repeatedly and correctly asserted that "the media will 'do' science better when scientists 'do' the media better". I believe that the same is true of science-policy connections.

So here is a list of 20 things that I and my fellow science advisers at the Parliamentary Office of Science and Technology think scientists should know about policy. We knocked up the list in just an afternoon last week but it should stimulate debate, and if anyone were to print it out and stick it on their wall or pass it round their labs, it probably wouldn't do any harm.

Here we go, in no particular order ...

1. Making policy is really difficult

The most common science rant about policy making includes a flippant comment about policy decisions being straightforward. I've heard people say that it is "obvious" that the UK should decriminalise drugs; stimulate the economy by doubling the science budget; reform our energy economy by investing extensively in nuclear. Such decisions are not straightforward at all. Public policy is always more complex than it seems, involving a wide range of inputs, complicated interactions with other policies, and varied and unpredictable outcomes. Simple solutions to complex problems are rarer than most people think.

2. No policy will ever be perfect

Whatever the decision, the effects of policy are almost always uneven. For example, any changes to taxes and benefits will leave some people better off and other worse off; and while the research impact agenda has been undoubtedly positive in some respects, it has caused problems in others.

3. Policy makers can be expert too

Scientists often consider themselves as the "experts" who engage with policy makers. In my experience, many policy makers are experts too. Some have excellent research credentials, and frequently they understand the research base well. When I worked at the University of Cambridge, one of my jobs was to connect researchers to policy makers; the researchers often told me how much they learned from speaking to policy makers. In other words, if you are a scientist talking to a policy maker, don't assume that you are the only expert in the room.

4. Policy makers are not a homogenous group

"Policy maker" is at least as broad a term as "researcher". It includes civil servants ranging from senior to junior, generalist to specialist, and to those in connected agencies and regional government; it includes politicians in government and opposition, in the Commons and the Lords; and then there are all the people who might not directly make the decisions, but as advisers can strongly influence them.

5. Policy makers are people too

See number 12 of the Sutherland, Spiegelhalter and Burgman list. Policy makers are people who, despite extensive training and the best of intentions, will sometimes make bad decisions and get things wrong. Also, they may – like scientists – choose to act in their own interest ...

6. Policy decisions are subject to extensive scrutiny

... which is why, like science – which mitigates human nature insofar as it is possible with the principles of academic rigour and peer review – policy is regulated by professional guidelines, a variety of checks and balances, and scrutiny that comes from a wide range of institutions and angles. For example, Parliament scrutinises government and the House of Lords scrutinises the House of Commons.

7. Starting policies from scratch is very rarely an option

A former government minister once told me that, on taking office, he decided to meet with a number of academics to seek advice on how to fix his particular policy domain –

which was, and still is, largely broken. He found the experience to be deeply frustrating because everyone he met said: well, if you were designing the system from scratch, this is what it should look like. But he wasn't; he needed solutions that could evolve from within the existing ecosystem. This rule applies in a lot of policy areas, from infrastructure to education, from the NHS to pensions.

8. There is more to policy than scientific evidence

Policies are not made in isolation. First there is a starting point in current policy, and there are usually some complex interactions between policies at different regional scales: local, national and international. This is true of policy areas such as drugs, defence, immigration and banking regulations. Law, economics, politics and public opinion are all important factors; scientific evidence is only part of the picture that a policy maker has to consider. Most of the major policy areas that consistently draw opprobrium from scientists are far more complicated than just scientific evidence: energy, drugs and health, to name just three.

9. Economics and law are top dogs in policy advice

When it comes to advice sought by policy makers, economics and law are top dogs. Scientific evidence comes further down the pecking order. Whether or not this is the best way to make policy is not the point, it is just a statement of how things work in practice.

10. Public opinion matters

Many of the most important public policy decisions are made by people who were directly elected, and most of the rest are taken by people who work for them. We live in a democracy and public opinion is a critical component of the policy process. The public is directly involved in many planning decisions and public opinion is a consideration in the distribution of healthcare providers, schools and transport services. Complex policy areas such as drugs, alcohol, immigration and education, are all heavily influenced by public opinion.

11. Policy makers do understand uncertainty

It is commonly asserted by scientists that policy makers prefer to be given information that is certain, and I have even heard some say that policy makers don't understand uncertainty. On the contrary: politicians are surrounded by and constantly make formal and informal assessments of uncertainty (for example, when considering polling

information) and civil servants are expert at drawing up policy options with incomplete information (which is just as well because complete information is a fantasy). It is true to say that policy makers are not fond of information so laden with caveats that it is useless. Better than hazy comments about policy makers not understanding uncertainty, the Sutherland, Spiegelhalter and Burgman list is a productive explanation of what knowledge and skills would help policy makers.

12. Parliament and government are different

In the UK, the distinction between parliament and government is profound. Parliament – the legislature – debates public issues, makes laws and scrutinises government. Government – the executive – is led by select members of parliament and is responsible for designing and implementing policy. Parliament is made up of over a thousand MPs and peers, with a small staff of only a few thousand. Government is made up of only a hundred MPs and peers, with a staff of hundreds of thousands. For the record, I work in parliament.

13. Policy and politics are not the same thing

Policy is mostly about the design and implementation of a particular intervention. Politics is about how the decision was made. Policy is mostly determined in government, where the politics is focused by ministers, the cabinet, and the party leadership. In the House of Commons, there is less policy and more politics.

14. The UK has a brilliant science advisory system

The UK is leading the world with its science advisory system. Every government department has (in theory) a chief scientific adviser reporting to his or her own private secretary (the top departmental civil servant) and to the government chief scientific adviser, who reports directly to the prime minister. In parliament, we have the Parliamentary Office of Science and Technology, and in addition science advisers in the library research services and select committee offices.

15. Policy and science operate on different timescales

When policy makers say that they need information soon, they mean within days or weeks, not months. This is not a flaw of the system; it is the way it is. If scientists want to engage with policy they need to be able to work to policy makers' schedule. Asking policy makers to work to a slower timetable will result in them going elsewhere for

advice. And make your advice concise.

16. There is no such thing as a policy cycle

I have seen many flow charts depicting "the policy cycle". They usually start with an idea, move through a sequence of research, design, implementation and evaluation, which then feeds back into the start of the cycle. Fine in theory, but in practice it is a lot more complicated. Policy making is iterative; the art of the possible.

17. The art of making policy is a developing science

We live in exciting times for policy making. Various initiatives for better governance are under way, including ones for opening up the policy making process, and others for building evaluation into policy implementation. The new What Works Centres are roughly based on Nice (the National Institute for Health and Care Excellence, the healthcare body that recommends which treatments the NHS should use), but instead it will consider how to reduce crime, stimulate local economic growth, promote better ageing and use early intervention better. Research evidence, particularly from the social sciences, will play a key role. In another innovation, the Cabinet Office is set to establish a Policy Lab.

18. 'Science policy' isn't a thing

When policy makers talk about "science policy", they are usually talking about policies for things like research funding, universities and innovation policy. Researchers additionally use "science policy" to talk about the use of research evidence to help deliver better policies in a wide range of areas. I find it helps to distinguish between "policy for science" on the one hand, and "science for policy" on the other.

19. Policy makers aren't interested in science per se

Well some are, but on the whole, policy for science is pretty niche. Policy makers tend to be more interested in research evidence to inform policy making, but let's be clear: they are not interested in philosophical conversations such as "what constitutes evidence" or "the difference between science advice, social science advice and engineering advice". Policy makers care about research evidence insofar as it helps them to make better decisions.

20. 'We need more research' is the wrong answer

Policy decisions usually need to be made pretty quickly, and asking for more time and money to conduct research is unlikely to go down well. Policy makers have to make decisions with incomplete information (see #11) so they may exhibit frustration with researchers who are unable to offer an opinion without first obtaining funding for a multi-year research programme. I'm not saying that more research isn't often needed; it is. But it is not the answer I would ever choose to give to a policy maker seeking scientific advice.

Dr Chris Tyler is director of the Parliamentary Office of Science and Technology. He is on Twitter @cptyler and Google+