“(Mis)Communication Between Scientists and Policy Makers”

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Recent scientific advances raise profound questions. For instance: Who should access the 'readout' of our personal genetic code? How will our lengthening life-spans affect society? Should we build nuclear power stations -- or wind farms -- if we want to keep the lights on? Should we use more insecticides, or plant GM crops? Should the law allow 'designer babies'? How much should computers invade our privacy?

Such questions don't register much in election campaigns. That's partly because they transcend party politics. But it's more because they're long-term---and tend to be trumped by more urgent items on political agendas.

But often science has an urgent impact on our lives. Governments and businesses, as well as individuals, then need specialist advice -- advice that fairly presents the level of confidence, and the degree of uncertainty.

Issues come up unexpectedly. For instance, in April 2010, the eruption in Iceland that disrupted air travel raised urgent questions about vulcanology, about wind patterns, and about how volcanic dust affects jet engines. In that instance, the knowledge was basically there: what was lacking was coordination, and an agreement on the acceptable level of risk.

Sometimes, though, the key science isn't known. An example was the outbreak of BSE or 'mad cow disease' in the UK in the 1980s. At first, experts conjectured that this disease posed no threat to humans, because it resembled scrapie in sheep, which had been endemic for 200 years without crossing the species barrier. That was a reasonable conjecture -- and comforting to politicians and public. But it proved wrong. The pendulum then swung the other way. Banning 'beef on the bone', for instance, was in retrospect an over-reaction, but at the time seemed a prudent precaution against a potential tragedy that could have been far more widespread than it actually turned out to be.

Likewise, the UK and US governments were prudent to stock up vaccines against swine flu -- even though, fortunately, epidemics have so far proved milder than feared. Indeed, if we apply to pandemics the same prudent analysis whereby we calculate an insurance premium -- multiplying probability by consequences -- we'd surely conclude that measures to alleviate this kind of extreme event should actually be scaled up. (And these measures need international cooperation. Whether or not an epidemic gets global grip may hinge, for instance, on how quickly a Vietnamese poultry farmer can report any strange sickness.)
Incidentally, there’s a mismatch between public perception of very different risks and their actual seriousness. We fret unduly about carcinogens in food and low level radiation. But we are in denial about ‘low-probability high-consequence’ events that should concern us more. The recent financial crash was one such; but others that haven’t yet happened -- lethal pandemics are one example -- should loom higher on the agenda.

The varied topics mentioned above show how pervasive science is, in our lives and in public policy. President Obama certainly recognised this. He filled some key posts in his administration with a ‘dream team’ of top-rate scientists. He opined that their advice should be heeded “even when it is inconvenient -- indeed especially when it is inconvenient”.

It is of course not the scientists, but the elected politicians who should make decisions. (And a major reason why we need wider science education is to ensure that politicians and voters have enough ‘feel’ for the issues to decide wisely). But the role of scientific advice is not just to provide facts, still less to support policies already decided. Experts should be prepared to challenge decision-makers, and help them navigate the uncertainties. But there’s one thing that scientific advisors mustn’t forget. Whether the context be nuclear weapons, nuclear power, drug classification, or health risks, political decisions are seldom purely scientific: they involve ethics, economics and social policies as well. And in domains beyond their special expertise, scientists speak just as citizens, with no enhanced authority.