

A pandemic of hindsight?

We must learn lessons from the handling of the flu pandemic to improve future research and public-health responses to emerging diseases, but retrospective hindsight and recriminations are not the answer.

Later this week, the Council of Europe's parliamentary assembly, a 47-member-state body that promotes democracy and human rights in Strasbourg, France, is scheduled to vote on a resolution expressing alarm over the World Health Organization's (WHO's) handling of the H1N1 influenza pandemic.

The council should think twice. In conversations with more than a dozen flu researchers and public-health officials from Australia, the United States, the United Kingdom and several other countries, *Nature* heard many objections to the conclusions of the report on which the resolution is based. Angus Nicoll, a senior influenza expert at the European Centre for Disease Prevention and Control (ECDC) in Stockholm, says that in the ECDC's opinion: "The conclusions of the report do not fit the facts as we see them, and as are backed up by science."

Certainly, the council's inquiry into the pandemic started off by taking a strong angle, with a December 2009 parliamentary motion entitled 'Faked pandemics — a threat for health'. The motion asserted that "to promote their patented drugs and vaccines against flu, pharmaceutical companies have influenced scientists and official agencies, responsible for public health standards, to alarm governments worldwide".

Similar ideas are reiterated in the inquiry's draft final report, which was adopted on 4 June by the council's health committee, and which also contains the resolution to be voted on this week (see go.nature.com/tXThYG). "Drug firms 'encouraged world health body to exaggerate swine flu threat,'" declared Britain's *Daily Mail* newspaper that day, in a typical headline.

It is this kind of response that the WHO's defenders find so potentially damaging — not least because it can only encourage the conspiracy theories that already swirl around the pandemic, and diminish public confidence in health authorities. It is indeed vital that health authorities are transparent in their dealings with industry. But the drug industry is a necessary partner in a pandemic response, as the producer of antivirals and vaccines. It would have been irresponsible to exclude top academic experts from the decision-making just because of industrial competing interests, which do not necessarily represent conflicts of interest. Critics also tend to forget that in spring 2009 the WHO and national officials

were struggling with large scientific uncertainties, and the possibility that millions of people would die if the response was inadequate (a reality that the Council of Europe report does acknowledge).

Paul Flynn, a UK Labour Member of Parliament and rapporteur of the inquiry, says he could not fully address *Nature's* queries as to the accuracy of the science of some statements in the report, given the short deadline, but says he feels that these are minor and do not significantly alter its conclusions. "I will, of course consider your comments, but our concerns remain unchallenged," he says, adding that he would have any errors corrected in the final report. He questions the criticism of the report, saying that he believes industry lobbyists are working to undermine it.

The resolution states that the council is "alarmed" about the WHO's, the European Union's and national governments' handling of the pandemic, arguing that some decisions taken led to "distortion of priorities of public health services across Europe, waste of large sums of public money, and also unjustified scares and fears about health risks faced by the European public at large". It also affirms its concern over possible "undue influence" on decisions by the pharmaceutical industry. Some of its recommendations, such as calls for greater transparency, and creating a public fund for research and trials independent of industry, are sensible. But many researchers dispute its highly critical analysis of the pandemic response, which is expanded on in an accompanying 15-page explanatory memorandum.

That said, however, there are plenty of lessons to be learned from the WHO's response to the pandemic. Fortunately, there is at least one independent review that seems to be looking for those lessons in the right way — slowly and impartially, and without indulging in 20/20 hindsight. The 29-member panel, chaired by Harvey Fineberg, the president of the US Institute of Medicine, is due to deliver its findings at next year's World Health Assembly. Meanwhile, several national investigations are also under way — as the flu pandemic played out, it was largely national governments, at least in the rich countries, not the WHO, that led the pandemic responses. And they have plenty of their own lessons to learn. ■

A full accounting

The BP spill should help make the case for bringing ecosystem services into the economy.

On 14 June, BP promised to put US\$20 billion into an escrow account to pay for damage caused by the 22 April sinking of its *Deepwater Horizon* drilling platform off the coast of Louisiana — an event that has left a geyser of crude oil gushing into the Gulf of Mexico for two months, at a rate currently estimated as high

as 60,000 barrels (9.5 million litres) a day. The beneficiaries of this fund are expected to be fishermen, hoteliers, charter-boat operators and other Gulf-coast business owners who have lost income, as well as states and other entities with clean-up costs.

Left unclear, however, is whether payment will ever be made for the loss of 'ecosystem services' that benefit everyone but are owned by no one. One such service is the carbon sequestration provided by marsh plants and ocean plankton. How will BP make good the value lost if the oil kills enough of them to hasten climate change? Another service is the buffering that coastal marshes provide to nearby communities from the Gulf's many hurricanes.

Who pays if the oil destroys the marshes entirely?

The 1989 *Exxon Valdez* oil spill in Alaska raised similar questions, and sparked a flurry of research in the once-obscure discipline of ecological economics, which seeks to estimate quantities such as the 'replacement cost' of an ecosystem — or even an individual organism. (Killer whales cost \$300,000 at the time; cormorants were a bargain at \$310 apiece.) The Gulf oil spill seems likely to inspire another surge of research in this field. Indeed, ecological economist Robert Costanza at the University of Vermont in Burlington has already estimated a \$34-billion to \$670-billion price tag for the loss of Gulf ecosystem services.

Costanza also has a suggestion for how to avoid such harm in the future: force companies that want to drill, dig or otherwise extract resources to take a more serious account of environmental risks before they start. He and his colleagues have argued that the best way to do this is to demand that each company put up an "assurance bond": a sum of money large enough to rectify damages if things go wrong (see go.nature.com/styAyz). The amount of the bond would be set by an independent government agency or government-chartered body, and be based on the total value of the ecosystems at risk. In BP's case, Costanza says, the company would have had to put up something

like \$50 billion to get permission to drill in the Gulf, or about two to three times the \$20 billion they are having to pay now. The very size of that bond, in turn, might have made the company more likely to invest, say, \$500,000 in a functional blowout preventer.

Other experts favour a variant of this idea in which large, risky enterprises would be required to carry insurance against ecosystem services claims — an approach that would essentially put the insurance companies in charge of policing safety practices.

These and other variants seem well worth exploring as a way to bring ownerless ecosystem services into the marketplace. Congress and the US administration should take the idea seriously. But the science behind putting a price on nature must also improve. After all, any attempt to extract a multi-billion-dollar compensation for ecosystem damage seems likely to wind up in court. So scientists' cost estimates will have to be sound enough to convince judges and juries, not just make for an interesting journal article.

Such an increase in rigour is hardly bad news for research. If ecosystems services science gets a boost from the spill, that may be one of the few silver linings to the dark plume that continues to gush in the Gulf of Mexico. ■

The right kind of elitism

National academies can be pivotal in speaking up for science, both to those in power and to the public.

Britain's Royal Society is 350 years old this year, and its track record is one worthy of celebration. It stands today as a relatively successful model of what an independent national academy can achieve, having made itself both highly regarded in the corridors of power and prominent in public debates on major science-related issues (see pages 1002 and 1009).

Such success cannot be taken for granted. In many parts of the world, scientific academies either lack real independence from the state (as in China) or else struggle to make themselves heard within it (as in Italy). And even where academies have established an independent voice — other notable examples include those in the United States, the Netherlands and Sweden — they must still maintain the difficult balance between taking stances that are full-throated enough to make the news, yet not so rash as to tarnish their reputation for impartiality.

As the Royal Society has demonstrated, however, scientific academies able to navigate these treacherous waters can offer authoritative input on contentious public-policy issues such as climate change, or the regulation of human embryonic stem-cell research, and can thus enrich public debate by ensuring that science is properly heard.

Sometimes that input will be articulated through technical reports, such as those produced in large numbers by the US National Academy of Sciences through its operating arm, the National Research Council. Academies also exert influence through informal consultation with government officials, and by influencing the selection of their government's scientific advisers.

But these traditional avenues are only part of what academies can

do to exert influence today. They can also issue more concise statements for wider audiences. And they can proactively engage with the public and the media in the same way that corporations and environmental pressure groups do — by anticipating or responding rapidly to events, and making sure that science's voice is heard amid the general cacophony.

The Royal Society has, in recent years, used this kind of engagement to good effect. Academies that are seeking similar impact, such as new and reconstituted ones in Africa and the Leopoldina, which assumed the official status of Germany's national academy only three years ago, need to be similarly bold and outward-looking in their approach.

Their memberships should note, however, that in order to have an independent voice, at least some of their funding must come from non-government sources. To exert influence, they must also carefully nurture connections with people and institutions inside government who genuinely want independent scientific input — and who can tell the difference between such advice and propaganda. Without that audience, no amount of earnest objectivity will establish a place for a scientific academy inside the framework of a state.

And even successful academies need to keep an eye on their own processes, and resist the opaqueness and cliquishness that can afflict any self-appointed club. Ten years ago, for example, the US National Academy of Sciences staunchly resisted what it now concedes were positive advances in the transparency of its processes. And just recently it has noticed that Asian-Americans, who have become ubiquitous in American universities, are largely absent from its own ranks.

Academies can still have a crucial role in taking scientific truth to the public, and to the heart of government. But to do so, they must constantly strive to properly represent an increasingly diverse scientific community. And they must adapt their processes and actions to a political and media landscape that doesn't sit still for 350 minutes, never mind 350 years. ■