

— an energy project on a scale unprecedented in human history. To ensure that carbon dioxide from at least some of these plants is stored away in geologically suitable repositories requires more than research; it needs political will.

Evidence of such political will would include regulations or fiscal incentives to design plants so that carbon-capture equipment can be retrofitted to them with relative ease. And those who build plants must be convinced that, at some time in the future, any carbon dioxide they emit will be a cost to their businesses.

Carbon capture and storage is no panacea. It substantially decreases the efficiency of all existing plant types. It also requires an enormous infrastructure — putting carbon dioxide back down into the ground requires pipes and pumping comparable to that needed to bring oil and gas up out of it. Some reservoirs may turn out to be flawed, leaking carbon back over decades or centuries. Even under the most optimistic assumptions, less than half of human-produced carbon dioxide emissions could possibly be captured and stored.

Even so, carbon sequestration is the only credible option that would allow the continued use of fossil energy without the threat of dangerously altering Earth's climate system. Speeding up its deployment must therefore become a priority on the global energy agenda.

Parallel development of several different approaches to carbon

sequestration will be needed. The more hands-on experience that's gained with carbon capture from different plant types, and with carbon storage in different kinds of underground reservoir, the easier it will be to convince governments and industry to begin carbon sequestration on a commercial scale.

But political negotiations, regulatory frameworks and further research and development need not await the results of existing pilots. The G8 nations, together with China, India, Mexico, Brazil and South Africa, should tell their energy industries in no uncertain terms that carbon production will cost them, and that sequestration is a partial solution available in the short term. In some situations, subsidies and other incentives may be justified.

As the largest and fastest-growing emitters, respectively, the United States and China need to take the lead on this. Not all the approaches to carbon capture will work out, and some money will doubtless be wasted. But the risks are small compared with the potential benefits of making some significant inroads into carbon dioxide emissions. ■

**“Carbon sequestration is the only option that would allow the use of fossil energy without the threat of dangerously altering Earth's climate system.”**

## Toronto crossroads

The international AIDS meeting still has a purpose.

It has become fashionable over the years to knock the International AIDS Conference, which opens this weekend in Toronto. The usual critique is that the meeting is too messy, too noisy and lacking in compelling, new science. But these complaints miss the point of a unique biennial gathering that brings scientists, activists and drug-company and government officials into close and often contentious contact.

Laurie Garrett, a former journalist and a fellow at the Council on Foreign Relations in New York, has summed up the case for the prosecution. “What began in 1985 as an annual gathering of scientists, aimed at sharing laboratory findings and information from the battlefronts in the war on HIV, has been transformed into a meeting of 17,000 consultants, bureaucrats and activists fighting one another for money to build a huge global AIDS treatment program, employing tens of thousands of people,” she wrote in *The New York Times* during the last meeting, in Thailand in 2004.

It is certainly true that the AIDS meetings have changed over the years, and that would-be participants must, from time to time, question the value of their attendance.

But it is vitally important that science continues to be represented in this forum. The need for science to inform and lead the fight against global AIDS has never been greater. This goes far beyond the laboratory research required to overcome the obstacles that have stymied the search for an AIDS vaccine. It extends to the need to help steer the allocation of resources in fighting the AIDS epidemic, which took some 2.8 million lives last year.

To give one example, policy-makers and scientists were worried a

few years ago that the availability of drug treatments in sub-Saharan Africa would lead to a rise in drug resistance and increases in risky behaviours. Some even used this fear as a reason for dragging their feet over the delivery of the drugs to people in poor countries.

But as we report on page 617 of this issue, scientists working on treatment roll-out programmes have found that patients in Africa adhere to their regimens just as well as those elsewhere. The main impediment to effective drug treatment in sub-Saharan Africa is not drug resistance, it turns out, but rather interruptions to drug supplies caused by logistical and financial issues that governments and donor agencies need to address.

At the Toronto meeting, researchers will also present studies on other important questions, such as the effectiveness of abstinence education and of condom promotion in AIDS-prevention programmes. They will discuss the challenges of starting clinical trials to test whether drugs can protect exposed people from contracting HIV — an approach strongly opposed by some activists — and consider the difficulties in monitoring treatment effectiveness and drug resistance in poor countries.

Discussions such as these can have a much greater impact on policy if they occur at a forum such as the Toronto meeting, in front of audiences that contain activists and government officials, as well as researchers. As scientists in this field are well aware, it is almost impossible to fully disentangle activism and politics from science in AIDS. That is why the scientists' presence at the AIDS meeting is so important.

The biennial ritual of activists heckling drug-company officials or tearing down their stands may seem trite, the political speeches tiresome, and the appearances by Hollywood figures and other celebrities frivolous. But that's the world we live in. Full participation in the AIDS meeting will, as it has in the past, serve to invigorate researchers and ensure the continued relevance of their work. ■