

Leadership at Johannesburg

Political difficulties may stifle the impact of next week's sustainable-development summit in South Africa, but researchers and others must continue to pursue solutions to sustainability issues despite a lack of direction from governments.

Whether they are attending the gargantuan World Summit on Sustainable Development or watching from the sidelines, scientists committed to addressing the meeting's issues should not lose sight of their capacity to make a difference.

The world still has a long way to go in tackling the challenge of achieving economic development and improved quality of life while conserving resources and the environment. But to a degree, it was a tiny but tenacious minority of scientists who first defined the challenge and have done much to address it. Researchers put climate change and the Earth's finite resources on the political agenda, and their voices were some of the loudest in calling for policies to be changed in response to these threats. Since the Earth Summit in Rio de Janeiro in 1992, these researchers have been more closely in tune with both the public and policy-makers, and have begun to coordinate themselves to pursue sustainable development in many more arenas. Yet there remains much more that individual researchers and their institutions can do.

It is true that many of the obstacles to a sustainable future are political. The Bush administration's resistance to treaties such as the Convention on Biological Diversity and the Kyoto Protocol is a serious impediment to progress. And although climate and habitat loss are issues of critical importance, many others, such as energy supply and the security of food and water, also merit urgent attention. In obstructing a coordinated global response to these challenges, the US government is holding the sustainable-development agenda to ransom.

Other governments are far from blameless. The European Union (EU) is making the right noises about sustainable development — most notably by increasing funding for research in developing countries under its Sixth Framework Programme — but it could do far more to commit to the ideal. It could, for example, make more credible moves towards dismantling its Common Agricultural Policy, which undermines agriculture in developing countries by lavishing subsidies on European farmers. And in science funding, long-term support for the multidisciplinary research that is needed to address sustainable-development problems remains difficult to secure. Even the Millennium Ecosystem Assessment — a paragon of how research can be brought to bear on the issue — has secured only four years of funding.

Rise to the challenge

Given the scale of the task, the conflicting interests involved and the short-term nature of politics, next week's summit could well be a public flop. But researchers should not despair. To throw up their hands and blame the problem on 'politics' would be folly. With a little help, there is a lot that science can achieve.

Take the Montreal Protocol, signed in 1987, which banned ozone-depleting chemicals. The problem of ozone depletion was initially identified as such by the scientific and environmental community. High-profile meetings and action by non-governmental organizations then convinced the relevant industries of the problem, even before there was conclusive scientific evidence. Seeing which way the wind was blowing, the industries came on board, and to a large degree the decision to ban chlorofluorocarbons (CFCs) was already made by the time international policy-makers signed it into law.

There are parallels here with Kyoto — companies that use large

amounts of fossil fuel are clamouring for solid political commitments on carbon emissions. Industry is understandably reluctant to invest in infrastructure that may be illegal in a few years' time. Actions that change behaviour without firm commitments from government are known as 'type-2 measures' in the arcane parlance of the Johannesburg meeting, and have great potential to allow scientists and industry to address some of the critical issues of sustainable development while policy-makers are still plucking up the courage to legislate on them.

There is much that scientific expertise can achieve — especially in deploying existing know-how in the places where it is most needed. There is an abundance of high- and low-tech solutions to water management and energy generation in countries that lack advanced infrastructure, yet they need to be put in place in a rational way. Rich countries also have much to gain from sustainable-development research. For example, the development of coastal areas in the United States is regulated largely by local authorities, yet the impacts of such development are often felt great distances away. Fishermen and farmers can be introduced to scientifically informed approaches to fisheries management and agriculture where policies are lacking.

Researchers' role

On an individual or institutional level, researchers can begin to foster relationships with their colleagues in poor countries and to look for ways to apply their research to sustainable development. The idea is not that science should dictate policy — that is the job of governments. But science can act, and act effectively, outside the political arena.

Progress is already being made. Several multidisciplinary projects that are well suited to informing sustainable policy decisions have been created (see News Feature, page 812). Examples include the Millennium Ecosystem Assessment, projects led by scientists such as Pamela Matson in Mexico's Yaqui Valley, and research at the Khatmandu-based International Centre for Integrated Mountain Development — a partnership of scientists in eight Himalayan countries. There are commendable efforts in developed countries too, such as the research that contributed to Europe's Convention on Long-Range Transboundary Air Pollution, and the University of Southern California's PhD programme on sustainable cities, which focuses on Los Angeles.

Plans are also afoot to develop much-needed scientific knowledge and research capacity in the developing world. Efforts to introduce more fuel-efficient cooking stoves, funded by the World Bank, have begun to pay off by reducing biomass burning and respiratory disease in places such as China and India. The partnership between the University of California, Berkeley, and Nairobi-based Energy Alternatives AFRICA to establish a photovoltaic electricity industry in Kenya is now spilling over into other African countries. The EU-funded European and Developing Countries Clinical Trials Programme, which is expected to be unveiled at Johannesburg, could attract developed countries to carry out the high-quality clinical trials for locally important drugs that are so desperately needed in Africa.

Progress towards sustainable development will continue with or without effective guidance from next week's summit. Scientists, working in concert with others, are showing that they can help to steer the world towards a more sustainable future. ■