

Sir Gordon Conway interview

Contaminated water, crop failure, flooding and earthquakes hit the poorest the hardest. The scientific community can help. Owen Gaffney met Gordon Conway, chief scientific adviser for the Department for International Development (DFID), to find out what we can do.

We would all like to say we made the world a better place. Gordon Conway is one of the few who can say they have. The ecologist, who has received many NERC grants throughout his career, made his name in the early 1960s while working in Sabah, North Borneo.

Gordon is a pioneer of sustainable agriculture, a set of practices for controlling pests and boosting yields without heavy reliance on chemicals. He helped mastermind ecologically sound farming on a global scale. These systems have greatly reduced famine in countries such as India and China, bringing millions of people out of poverty.

■ **You appeared in a poll of the world's top 100 intellectuals last year. How did that feel?**

I think what's important to understand is that it's the top 100 public intellectuals. It lists those with the most public impact in the United States. When I was president of the Rockefeller Foundation I spoke all the time on issues to do with agriculture and health. I ran major programmes on affordable housing, employment and race relations, so I would be with the mayor of Boston launching an employment programme one week, the next week I'd be with Kofi Annan launching a programme on HIV/Aids so I was very visible. It is flattering but I don't even know who won. [Noam Chomsky, Richard Dawkins came second.]

■ **Do you think being an ecologist brings something unique to your role as chief scientific adviser?**

I think the advantage of being an ecologist is that I have learnt to think about systems. Ecologists are very good at understanding what are the key processes in systems, and what are the key levers you need to pull to change a system.

It is significant that the government's previous chief scientist, Bob May, is an ecologist, the chief scientist at the Ministry of Defence, Roy Anderson, is an ecologist. The former head of the Food Standards Agency, John Krebs*, is an ecologist. John Lawton*, chairman of the Royal Commission on Environmental Pollution, is an ecologist. It is no coincidence. It's because of the way we think about systems.

**Both are previous NERC chief executives.*



Sir Gordon Conway is the author of *Unwelcome Harvest: Agriculture and pollution (1991)* and *The Doubly Green Revolution: Food for all in the 21st century (1997)*. He is DFID's first chief scientist. He subscribes to *Planet Earth* and his favourite meal is marmite on toast (with Siberian vodka). NERC and DFID work together on a number of projects, for example, the *Centre for Ecology & Hydrology* and the *Proudman Oceanographic Laboratory* are looking at the impacts of climate change, flooding and storm surges on low-lying regions such as Bangladesh.

■ How important is the environment to the poor?

Poor people depend on the environment. Over 70 percent of the African population are rural. They depend on agriculture which depends on soil and water. The environment is crucial to their lives and they often don't get enough access to it. They either don't have rights to the water or land or it gets appropriated by the rich.

I'm interested in systems where poor people get access to natural resources. The issue of soil and water conservation is interesting. I visited the Loess plateau in north-west China recently. This is an area of wind-blown sand and silt that has accumulated hundreds of feet deep over thousands of years. It's eroding like crazy. The World Bank, with DFID involvement, has created a programme to build new terraces for the farmers. The farmers are literally moving out of poverty before our eyes. I've never seen that before. They were living in caves ten years ago and now they're in houses. They've got surplus wheat they can sell, they have cattle, some have greenhouses where they grow flowers to sell. They are growing forests on the steep slopes.

The region has a population of around 19 million people so it's a good example of a large-scale development dealing with soil and water conservation in a way that preserves the environment and improves people's incomes. It's a real win-win situation.

■ Where do the scientists come in?

Let's say some academics do a bit of research on farming practices on an acre or ten acres. That's no use to us. What I want to know is how do you scale up some of these technologies? What I'm really interested in is: does it work for millions of farmers.

The need is for what I would call translational research. It's probably easier if I give you an example. If you take nanotechnology, you've got private companies developing materials made of nanoparticles that can coat toilets killing all the bacteria. You've also got researchers looking at how nanotechnology can be used to purify water. So these are two extremes, the private sector doing one thing, the fundamental scientists doing another. What you need is a whole load of research in between those two that's not looking at the fundamentals of nanotechnology but at the basic principles of how you apply nanotechnology to producing clean water. That's translational research. Translating basic applied science. There is not enough funding for this.

■ Much of NERC research deals with natural hazards: earthquakes, flooding, drought and volcanoes. How does this link with DFID?

One of the big issues is prediction and forecasting. We actually can't predict very much. The only thing we can predict is near-Earth objects. We know when they're coming and how close they will come. You can say what places are most likely to suffer from tropical cyclones, storm surges, extreme drought and so on. You can't really predict them, and with earthquakes and volcanoes there is very little predictive forecasting capacity. This is where NERC comes in. Your work in improving forecasting and prediction techniques is extremely valuable and I try to keep a close track of it.

■ What is the African Observatory?

We know many of the weather systems on the African continent are generated in central Africa and that a great deal of the world's climate depends on what's happening here, yet there is only one weather station every 26,000 square kilometres. This is way below what the World Meteorological Organisation recommends, so we're setting up this global climate observational initiative in Ethiopia to improve the availability of climate information.

■ What issues do you think will dominate this century?

I think environmental issues will dominate. This century is the critical century for this planet. We've got to get this century right, if we don't we will destroy ourselves. I think the climate change issue is every bit as serious as the press make it out to be. That's not to say the press get it right: all kinds of things are attributed to climate change that aren't true. But I will say this, the issues you write about in *Planet Earth* are absolutely crucial for the future of the planet.

■ What can we do?

There is a book called *Dune* by Frank Herbert. *Dune* was a great desert planet. The most senior position on the planet was 'planetary ecologist'. I rather like that idea. I think other planets need something similar, even Earth. You can quote me on that: Gordon Conway says there should be a planetary ecologist. Make sure you say I don't want the job!