EPA science 'overburdened by Congress'

[WASHINGTON] Scientific research at the Environmental Protection Agency (EPA) consists of "a discontinuous series of broad, shallow efforts" according to an assessment commissioned by the EPA's research office. This is blamed on a combination of over-reaching congressional mandates and short-lived efforts at reform by the agency's political leadership.

The report was prepared by Resources for the Future, an independent think-tank, in an attempt to explain the often-cited shortcomings in EPA's scientific programme. Almost since its foundation in 1973, critics have charged that the regulatory agency does not do the high-quality research needed to frame its regulations.

Mark Powell, the study's author, says that

"the primary impediment" to research at the EPA "is that it isn't a science agency, it is first and foremost a regulatory agency". As the report notes: "The EPA's primary constituencies tend—with some justification—to view science and analysis as an obstacle to regulatory action."

Although the dominance of the agency by lawyers and other non-scientists is damaging to its science programmes, Powell argues that the largest culprit is the stream of regulatory mandates from the Congress which the agency has to implement. "New responsibilities have been added, but you never see any of the old ones being removed," he says.

Many of the mandates require the agency to re-assess acceptable levels of pollutants at regular intervals of three or five years, result-

ing in short bursts of research, which, the report says, "often result in a cyclic pattern of shallow, episodic initiatives".

Science has also suffered, however, because of its failure to deliver the results which the agency needs and which proponents of research have occasionally promised. Some analysts have suggested that scientists "in their eagerness for a place at the policy table, inadvertently over-sold risk assessment over a number of years as the elixir for ailing environmental policies," the report says.

It adds: "unfortunately, the basic scientific tools of environmental regulation, toxicology, and epidemiology are simply inadequate to provide precise answers regarding the effects of pollutants at low ambient levels".

Powell notes that when the EPA was established, almost one-third of its budget was devoted to its Office of Research and Development (ORD), but that this quickly fell back to less than 10 per cent and now stands at 5.8 per cent. When its programme offices are included, the agency is thought to spend about 8 per cent of its budget on research and development.

Resources for the Future's report says that this should be doubled to 15 per cent, and that special provision should be made for the ORD and the programme offices to plan and jointly support 'mid-term' research. It says that although the ORD supports basic research in universities, and programme offices work to meet immediate EPA mandates, work that can be applied in three or five years time—such as the development of new analysis tools and methods—is often neglected.

The report says that the agency's scientific programmes tend to be championed by the political leadership of the agency, but shunned by its senior permanent staff. "It is the political-level leadership which has been primarily responsible for driving the change toward increased use of science," it quotes one senior official as saying. But the report adds that "in general, scientists have little stature and power within EPA".

An EPA official said that it had not had much time to review the report, which was due to be delivered this week. The official added, however, that its conclusions may not reflect recent efforts by the ORD to expand scientific peer review and develop a new external grant programme, Science to Achieve Results.

But Powell is pessimistic that the report will instigate change. Some officials at the EPA agree with its recommendations, he says, "but there is some despondency that any sort of strategic planning will be derailed, either by the Congress or by political appointees".

Colin Macilwain

Clinton gets the message on biomass energy

[WASHINGTON] President Bill Clinton last week announced plans to boost research on biomass energy sources, with a view to tripling the use of biomass fuels by 2010. These currently account for 3 per cent of US energy use.

Speaking at the US Department of Agriculture on 12 August, Clinton said that biomass would provide extra farm income while enabling the United States to cut greenhouse-gas emissions. "Bio-energy is a means to heat our homes, to fuel our vehicles, to power our factories, while producing virtually no greenhouse-gas pollution," he said.

Clinton announced a scientific task force headed by Bill Richardson, the energy secretary, and Dan Glickman, the agriculture secretary, to draw up a research plan by the end of this year to prepare to meet the target. The task force is expected to recommend significant expansion of the \$200 million that the United States spends each year on biomass research.

Biomass advocates say that advances in biotechnology—in particular the availability of cheaply-produced enzymes that break down the cellulose in plants—are set to transform

Mass observation: studying trees for 'coppicing'.

the economics of biomass as an energy source.

The President's Council of Advisors on Science and Technology recently recommended increases in research into new energy sources, including biomass. But Clinton said he was alerted to the potential of biomass energy by a "brilliant" article in *Foreign Affairs* by Richard Lugar (Republican, Indiana), chair of the Senate Agriculture Committee, and James Woolsey, former head of the Central Intelligence Agency. The president added: "It's not only brilliant, but a guy who is scientifically challenged like me can understand it."

Henry Kelly, assistant director for technology at the White House Office of Science and Technology, says: "The science says that the time is ripe for a major

initiative" in biomass research.

The existing US ethanol programme, which subsidizes the conversion of corn seed into ethanol fuel, has been roundly criticized as an agriculture subsidy programme. Critics point out that the intensive farming of the corn fed into the ethanol plants consumes more energy than the fuel that comes out of them.

That would change if cellulose in the rest of the corn plant, which is currently wasted, or in other crops such as switchgrass, could be cheaply broken down. According to Lee Lynd, an engineer at Dartmouth College, New Hampshire, research could find enzymes that will do this cheaply, perhaps reproducing themselves as they go.

Clinton's announcement comes during a summer in which low rainfall and depressed crop prices are creating a major farm crisis in the United States. Officials said that the announcement would do little to help farmers in the near term. But Clinton saw it as an opportunity to argue that action to counter global warming could provide economic benefits, in this case for farmers.

C.M.