

ple do not understand that science policy is about money and about priorities."

There has been some attempt to move in that direction. KBN, for example, has already carried out three separate exercises ranking the competence of the research institutes it funds. Similarly, its new research grants procedure (see below)

requires a detailed accounting of the likely outcome of proposed projects.

But each of these procedures, scientists claim, is open to corruption. In the grading of institutes, for example, relatively few have been given marks so low that their existence would have been threatened; most continue as before. Similarly,

there are arguments that the anonymous refereeing of grant applications is impossible in a relatively small scientific community, where experts in any field tend to be well known to each other.

Too often, critics claim, the result is an extension of the cronyism that used to flourish. "Science used to be a feudal system; the system has now been changed into an early capitalist system — but everyone is now corrupt," complains one university scientist.

In the circumstances, some argue that the positive aspects of the previous system may disappear if the transition to the new is too rapid. "The grants system, for example, risks leading to a disintegration of the scientific community, even at the level of individual institutes," says Edmund Przegaliński, director of the academy's Institute of Pharmacology in Kraków.

Others go further, claiming that the whole pace of change in Polish science has been too rapid. "I feel that the changes have been too big and too fast," says Henryk Frąckiewicz, director of the academy's Institute of Fundamental Technological Research (and formerly scientific secretary of the academy itself). "Only steady evolution can create a positive effect."

Such views, building on wider discontents in the scientific community, have helped to fuel the arguments of conservative critics in political circles. At least one prominent politician, for example, has recently demanded the abolition of the KBN, and the re-establishing the authority of the academy of sciences as Poland's main research funding body.

But supporters of reform claim that the problem lies elsewhere, namely in the refusal both of the government and of Polish industry to give sufficiently high priority to a strong national research base — including the need to train and support young researchers.

To support their case, they point to the low salaries of university faculty members which, at about 4 million zloty (US\$200) a month, is about the same as that of cleaning staff in government buildings — and can be as little as a third or a quarter of what new graduates earn as managers in industry.

The situation has historical roots. "In contrast with the former Soviet Union, science has never been well-paid in Poland," says Ziabicki. It also has many consequences. Many graduate students can often continue their studies only with financial support from their families. Further, many scientists take second jobs; one research director in Warsaw says that he is reluctant to fire a member of his group who turns up to work for only two hours each day, since it would be impossible to find a replacement.

To some, the solution is obvious: a 'rationalization' of the scientific community, both in universities and academy

A crusading reformer with a mission

Warsaw. Ten years ago, Witold Karczewski, then professor of neurophysiology at the Polish Academy of Sciences, was a leading member of a group of reformist scientists, all members of Solidarity, who prepared a set of proposals for the radical overhaul of Polish science.

Now, Karczewski not only heads the organization set up in 1990 to put such reforms into effect — the State Committee for Scientific Research (KBN) — but is also the longest surviving member of a cabinet whose political make-up has changed sharply since the communists were ejected from power in 1989.

"They call me the dean of the cabinet," says Karczewski, claiming that one of the reasons for his survival has been his determination to keep science above political turmoil. "We are an apolitical ministry," he says. "That's why I am still here."

Many of the reforms that Karczewski has led over the past five years have been warmly applauded by the scientific community. He takes particular pride in Poland's move away from the institutional funding of science through the Polish Academy of Sciences — previously responsible for the country's basic science — to a new research grant system.

"For the first time in the history of Polish science, we have a system of peer-reviewed grants," says Karczewski. "We have begun to break up the old feudal system of distributing research funds; for example, the new system allows young scientists to apply for their own research money."

Karczewski is also pleased at the evolution of the grant system towards greater selectivity. "At the beginning, my colleagues tended to give out as many grants as possible, and the success rate was far too high; this was totally wrong, and we are now turning the screw."

But Karczewski has been less successful in obtaining a significant increase in funding for research. Under the communist regime — as his critics frequently point out — research took around 1.5 per cent of the gross national product; this year it has dropped to 0.56 per cent of government spending, and, despite broad

promises from the prime minister, it is likely to stay at the same level in 1995.

Karczewski acknowledges that success in winning more support for Polish science will depend on whether it can be linked to broader goals endorsed by its country's industrial and political leaders. But he points out that a policy statement issued recently by the Minister of Finance, Gregori Kołodko, on the need to invest in human capital, includes a clause that says that the decline in Polish education and science must be stopped. "I have a weapon that I can use," he says.

But Karczewski is also aware that the difficulties experienced by Polish scientists (low salaries, lack of research funds) have given support to those who argue they were better off under the communist regime. "Some people would be willing to go back to the old, safe system," he says. "I find that unbelievable."

Yet even KBN is not blameless, even to reformers. Centralism persists. Under the 1990 reforms, all money for the laboratories run by government departments is now channelled through KBN. "Some people say that this is too centralized," Karczewski says. "During this transition period, tighter central control is unpleasant, but it is necessary."

Budgetary and political pressures on KBN have led Karczewski to make compromises which — like the broader policies of successive governments — have caused resentment among those impatient for more radical changes.

Despite earlier promises, for example, there has not yet been a significant weeding-out of less productive research groups or government laboratories.

After almost five years of juggling pressures for radical reform with the conservatism of the traditional communist structures responsible for science, Karczewski admits candidly that "it is a very hard job".

But he also says that he is "not willing to betray my fellow scientists". The feeling of support is reciprocal; whatever criticisms there are of the details of KBN's policies, many Polish scientists agree with one medical researcher that "he is the right man in the right job". **D.D.**



Karczewski: pride in progress of reforms