Trouble at home

Coming back to Spain after holding a postdoc position abroad, José Pablo Zamorano (above) finds himself at a career crossroads. Prospects for permanent employment in his native country appear bleak, and, at 35, he is approaching the age limit for a postdoc position in other EU countries.

The Spanish government has tried to minimize the postdoc 'brain drain' since 1992, when it established a scheme to find work for scientists who received postdoc training abroad. It hoped that giving them three-year 're-entry' positions would staunch the flow of Spanish scientists to other countries. But after participating in such a programme, Zamorano, like many other young Spanish scientists who sought training abroad, finds himself looking for work in other countries again — permanent public-sector jobs are still scarce in Spain.

New policies do not seem to be addressing the need for more permanent posts. Under the new National Plan for Research, Development and Technological Innovation, the government has pledged to create 2,000 new jobs in the public sector for newly qualified and senior postdocs during 2000–03. But contracts range from five years for newly qualified scientists, to ten years for more senior investigators. Jordi Petriz, a postdoc who had to leave the Cancer Research Institute in Barcelona when his temporary contract ended, received wide coverage in the Spanish media in July because the end of his contract coincided with the publication of his article in *Nature Medicine*. Petriz, an expert in the functional aspects of stem cells, believes the situation for Spanish postdocs is worsening. "There are really bright people abroad who cannot return to Spain," he says.

Spaniard Valentin Fuster, director of the Department of Cardiology at the Mount Sinai School of Medicine, New York, says that the situation in Spain is the result of "a complete absence" of long-term planning of biomedical research by the government. But he hopes that the creation of the new Ministry of Science and Technology will help to improve the scientific policy in the country.

Less bureaucracy would also help, says Zamorano. He noticed that in England, where he did a postdoc at the University of Nottingham, local research directors had far more control over how many researchers they hired. Research directors also have more autonomy in choosing their own postdocs. "Here, the contract is not decided by the group but by the state," Zamorano says. But there is one promising sign. On 8 September Rolf Tarrach took over as the new president of Spain's main research organization, the Higher Council of Scientific Research. Tarrach regards recruiting postdocs who have received training abroad as an urgent priority. ■

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comply with national regulations requiring residency or working permits — usually because their institution or department had issued the wrong kind of contract.

Money can also be a problem. When researchers apply for a fellowship in another country, they have no idea what their actual monthly salary will be when they arrive. The EC offers a fixed fund for the fellowship, with a monthly rate for the salary, which varies between EC member states. But the fellow's salary will be affected by local taxation, social security and pension schemes, and these in turn depend on the fine detail of the contract that the university or research centre draws up. Although model national contracts are available, there is no obligation to stick to them. In the Netherlands, for example, contracts vary from faculty to faculty.

In Britain, where a third of Marie Curie postdocs take up their fellowships, many fellows have suffered deep salary cuts because of the decline in the value of the euro. Juan-Antonio Gilabert, a Marie Curie fellow in molecular biology at the University of Oxford, says that Oxford is one of the most expensive places to live in Britain. "After transformation of your euro salary into pounds, the salary is not very good and not enough to live on in the UK," he says. Fellows with dependent families in the United Kingdom are particularly hard up.

> Many European universities still have a closed-shop attitude favouring the local candidates.

Many fellows say that dealing with the administrative issues in a foreign country was simply too great a problem and took a lot of time. "I lost too much time with administrative questions and social security problems," says one fellow who participated in the anonymous survey. "Europe is not yet ripe for such a mobility." And some fellows say host institutions, which manage the fellowship fund and pay the fellow's salary, are taking money that they are not entitled to have. Another anonymous MCFA fellow writes: "We need rigid, enforceable guidelines on what the host institution can and cannot do with the money."

Administration problems

Meinhard Ober, a researcher in the materials testing institute at the University of Stuttgart, and until recently the national coordinator of the German MCFA group, says: "Most of the problems are with the administration of the university and the foreign country. The administration problems come from the fact that the number of fellows is very small [in any one institution]." A recent MCFA conference in Germany proposed that all fellows in one country should be employed by a single company — to ensure standard terms and conditions.

Emilios Harlaftis, acting chairman of the Greek MCFA and an assistant professor at the Institute of Astronomy and Astrophysics in Athens, faced similar administrative problems when he took up his fellowship in the UK. He agrees that companies should be administering these fellowships. "Clear and practical directives to the national institutes and universities are missing," he says.

And the news is not necessarily good for fellows returning home. Many MCFA fellows complain they have lost all contacts with networks at home, face unemployment when they return, and are in a worse position than when they left because local candidates are favoured over those from abroad (see "Trouble at home", above).

Patrik Floreen, an EC scientific officer with expertise on Marie Curie fellowships, says mobility problems are not in the hands of the commission. "All these things relate to national law," he explains. Taxation and

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are modern and the equipment top line, he says — although Taiwan's sub-tropical climate can take some getting used to, particularly for someone originally from the chillier environment of Seattle, Washington.

There is a sizeable expat community living in one part of Taipei, so some foreigners may not feel it necessary to learn Chinese, says Roffler. It is acceptable to write grants in English, although the abstract must still be in Chinese. But to get the most out of the experience, he believes "you have to be open to new cultures and be willing to learn the language". When asked whether he thinks about moving back to the United States, he says: "Oh, sure." But now married to a Taiwanese woman, with a young family and an established lab, such a move is made all the more difficult.

A view from the benches

British-born Jon Wright also found a research opportunity at the Institute of Biomedical Sciences. Wright received his PhD in computational chemistry in 1995 from the University of Essex, where his studies centred on the molecular modelling of bioreductive agents. At that time, Wright says, there were too many PhDs in his field in Britain for the number of available postdocs. This, coupled with a desire to see more of the world, led him to apply for positions abroad. He found the postdoctoral position in Taiwan through an electronic mailing list for computational chemists.

"I applied for the position not really knowing much about Taiwan and was accepted. I had never been to Taiwan and even had to look at a map to find it," he says. He arrived there on New Year's Eve 1995, not knowing anything about the language or culture.

Wright says he intended to stay two years, but found the research environment so good that he changed his mind. His work focuses on the binding affinities of the protein p53. When he first arrived, he was one of only a handful of foreign postdocs in the institute; today, they number between 20 and 30.

"There seems to be a real preference [here] for foreign postdocs working under local professors," says Wright, as they tend to have fewer family commitments. The hours are long but this is offset by being able to take long vacations, he says. "It is not uncommon for foreign postdocs to work six months of six-days-a-week and then to take a month's leave."

The language is hard but the people are friendly, he says. "When you first arrive you are totally reliant on the goodwill of people in your lab to help you find somewhere to live, work out bus routes and open bank accounts." Even after almost five years, he says, his Chinese is terrible. "It is not necessary to speak Chinese to survive here," he explains. But as all official business, including memos, is in Chinese, "you must have someone in the lab willing to be a translator".

Salaries for postdocs are on the low side compared with Britain and the United States. The trade-off, says Wright, is that tax is very low — with exemptions and deductions, most postdocs pay less than 10% tax. But it is also rare for foreign postdocs to be promoted up the ranks — although this may change in the future.

For those contemplating a move eastwards, Wright's advice is: "Go … but give it at least three months to try to get over the culture shock." He also recommends learning as much of the language as possible and pursuing an activity outside work to build up a social network. Wright plays soccer and now has an ongoing collaboration with a chemistry group at the Academia Sinica that resulted from discussing research problems over a beer after a game.

CHI-MING CHANG/ACADEMIA SINICA

Roffler: at home at the Academia Sinica's Institute of Biomedical Sciences in Taiwan.

A tale of two cities

For Charles Rhodes, professor of physics at the University of Illinois in Chicago, the chance to become one of the founding professors of a new interdisciplinary research organization in Japan was too good an opportunity to pass up. The Tsukuba Advanced Research Alliance (TARA) was established at the University of Tsukuba in 1994.

TARA's mission was to serve as a new model for cultivating interactions between academia, government and industry in Japan. The professors' committee selected Rhodes — the only non-Japanese — to represent the nanotechnology area. "They wanted international contact and so I was sort of a symbol of that," says Rhodes, who worked at TARA between 1996 and 1997. Rhodes received his PhD from the Massachusetts Institute of Technology in 1969 and conducts research on high-energy-density states of matter.

He worked out an agreement with his home institution which allowed him to divide his time between Chicago and Tsukuba, and for almost two years held down both jobs. But it was a punishing schedule, with Rhodes travelling between Tokyo and Chicago about once a month. To stay in touch often meant being in the office at odd hours because of the time difference, with Rhodes sometimes doing the 12-mile round trip to and from his Tsukuba office by bicycle. "You do that very many times and you've got to know why you're there," he says.

But there were rewards. "We got things done that we couldn't have done in the United States," says Rhodes, who was given about US$2 million to build up a group in Tsukuba. In the early years, Rhodes says TARA, which represented about 1% of the total number of professors at Tsukuba, brought in 10% of research funds to the university. But that level of performance can be hard to sustain, he says. "You do it for a while but you can't do it for ever. Two jobs is a lot," he quips. The organization still exists, although most of its founding members have now moved on or are retired.

Nevertheless, for Rhodes, the project proved "very fertile from an ideas standpoint". He is now building a new computational physics group in Chicago as the outgrowth of ideas that were generated in Japan.

As with Geller and Roffler, Rhodes felt it was important to learn the language. "Since I'm interested in languages, it's not a problem. They [the Japanese] like to see that you respect the culture." In the end, whether or not these interactions prove fruitful has little to do with science and everything to do with the ability to communicate, he says. ■

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Correction

In Careers and Recruitment last month (*Nature* **407,** 427–430; 2000), the photograph on page 428 was incorrectly identified as José Pablo Zamorano; it was, in fact, Jordi Petriz.

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