Taiwan aims to become sci-tech island

In Taiwan, an overseas education is highly valued. Unlike many Western countries, where senior government officials and politicians are often trained lawyers, many senior bureaucrats and almost all the government ministers in Taiwan have PhDs from overseas universities, mostly in science and engineering. Science and technology is an increasingly important government priority.

The country's research and development budget is growing by 10 per cent a year, despite the fact that overall government spending is only increasing by 3 per cent. The government is determined to build Taiwan into a 'sci-tech island' by increasing funding and improving the quality of its researchers.

Last December, Taiwan published its first white paper on science and technology. Later this year legislators at the Executive Yuan will debate a science and technology basic law, which will make it easier to recruit overseas nationals and simplify regulations for intellectual property rights. Political support for science and technology reaches to the top of government. Taiwan's prime minister recently set up a science and technology committee, which he chairs, to improve policy implementation. The deputy prime minister, Chao-Shiuan Liu, is the former chairman of the National Science Council (NSC).

Political backing for recruitment

Opportunities are opening up for researchers, particularly ethnic Chinese, as a result of this political momentum, increased funding, and a series of new national programmes, including a three-year agricultural biotechnology programme launched in July. There are also now more opportunities for non-Chinese postdoctoral fellows, especially at Academia Sinica, Taiwan's national academy of sciences.

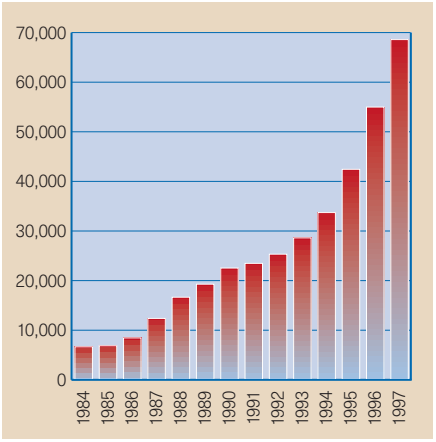
Taiwan has become attractive academically to newly graduated researchers and to more senior people, according to Chao-Han Liu, president of National Central University, who returned from the University of Illinois in 1990. The NSC supports newly returned researchers by making it relatively straightforward for them to win research funding. After only a few years it is possible to win grants of up to US$0.5 million to equip laboratories. "It is a once in a lifetime opportunity," says Liu. A 'frontiers sciences' programme' launched last year selects five or six researchers a year from the 3,000 life science grant holders. Each receives a five-year grant of NT$3.5–8 million a year (US$100,000–200,000). Among the first five holders is a 36-year-old at Academia Sinica who recently returned from the United States.

According to young researchers in Taiwan, facilities are comparable if not better than those at universities in the United States. There is also less pressure to bring grant money into the department, so people can concentrate more on their research.

From 1987 to 1993 was a golden period for Taiwan's universities: funding increased and universities built new facilities and departments. Many positions became available in engineering and information technology. But overall university funding is now flat and opportunities in these fields, where Taiwan is now relatively strong, are more competitive. One vacancy receives up to 130 applications. But funding for university research is now a priority and is increasing by 15 per cent a year. "We need to beef up university research and recruit the best minds," says Steve Hsieh, vice-chairman of the NSC.

A shift in opportunities towards the life sciences is also taking place as new institutes are set up and universities expand their life science departments. Opportunities are also arising in the social sciences and research into sustainable development. National Central University, for example, a medium-sized comprehensive university which is trying to establish itself as one of Taiwan's key research orientated universities, set up a life science graduate school five years ago. This year, it received permission to start an undergraduate programme and will recruit 15–20 new faculty members over the next five years.

Academia Sinica has been a magnet for senior researchers returning to the region. Many of the heads of its 23 institutes are scientists returned from overseas. This trend is set to continue, with senior staff retiring, new institutes planned and general expansion at the academy. This year, the preparatory office of the Institute of Biological Agricultural Sciences was set up and a new Centre for Applied Science and Engineering is awaiting final approval. Eight people have been recruited for the Institute of Biological Agricultural Sciences and it will recruit a further eight or so principal investigators every year for the next few years, according to Shang Fa Yang, academy vice-president.



On the up and up: growth in jobs at the science-based industrial park in Hsinchu.

The national agricultural biotechnology programme launched last month will fund at least 60 new projects, according to Yang. This, Yang believes, will force universities to recruit more faculty members and will lead to a 20 or 30 per cent annual increase in the number of people doing biotechnology related research in Taiwan.

Investing in health

The National Health Research Institutes (NHRI) opened in January 1996. According to its director, Cheng-Wen Wu, it will be the equivalent of the US National Institutes of Health. The new organization has been ferociously recruiting staff from overseas. More than half of its planned 10 divisions have been set up and it plans to double in size to 400 or 500 over the next five years.

In January this year, Ming-Chu Hsu joined the NHRI as director of the division of biotechnology and pharmaceutical research. She was previously the research director of the department of oncology at Hoffmann-La Roche in the United States. She is building a research team and is excited by the prospects ahead. She plans to recruit 20–25 PhDs over the next two years to work in an "integrated drug-discovery group". Hsu is also looking for experienced project managers. Her team will concentrate on three areas: chemical pharmaceuticals; diagnostics including biochips and biosensors; and biological pharmaceuticals.

The NSC-administered science-based industrial park in Hsinchu has created 70,000 jobs (see graph), and has helped to make Taiwan a leader in the production of personal computers and integrated circuits. Following this success, a new science park will open later this year in Tainan, in the south of Taiwan. A third science park is already being planned, and extensions to the Hsinchu park are also proposed, to concentrate on biotechnology related industries.

The NSC has a series of programmes to attract overseas researchers to Taiwan (see www.nsc.gov.tw), including a postdoctoral programme with 500 positions available a year for terms of between three months and three years. These posts attract monthly salaries of NT$50–60,000 (US$1,450–1,750), year-end bonuses and air fares. The council also has a short-term visiting programme for 300 scholars a year and an 'honourable visitor programme' through which it invites 40 senior scientists to promote international collaboration. Distinguished visiting scientists receive return air tickets and an honorarium of up to US$600 a day.

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