

Independence days

Japan wants to reform its university system, in part to match the competitive and entrepreneurial spirit of US academia. That won't be easy, says David Cyranoski.

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K. KAMOSHIDA/GETTY IMAGES (LEFT); KYODO

Standing before the upper house of Japan's parliament in May 2001, Prime Minister Junichiro Koizumi stunned officials from the education ministry by saying that he wanted the country's 99 national universities to be cut loose from state control. "We should privatize ones that can be privatized, and hand over ones that can be handed over to local governments," he asserted.

The universities had been widely criticized for not being competitive internationally. Koizumi's remarks were in response to a parliamentarian who noted that the annual survey on the competitiveness of 49 countries, compiled by the business school IMD International in Lausanne, Switzerland, ranked Japan last in terms of university education and entrepreneurship.

In the end, the universities will not be privatized, but Koizumi's comments have added impetus to reforms that should see Japan's universities change fundamentally over the next two years. The plan — named the Toyama plan after education minister Atsuko Toyama — has three pillars: giving universities administrative autonomy; making them compete to host research 'centres of excellence'; and consolidating the system through mergers.

There is general agreement that Japanese academia would benefit from increased competition. But is the system ready for such



All change: Junichiro Koizumi (left) and Atsuko Toyama want to transform Japan's universities.



an upheaval? Many researchers say that the plan will only succeed if it is backed by a solid system to evaluate research and teaching — which they fear is not yet in place.

What's more, some scientists are suspicious of the government's motives. They fear that the plan is an effort to save money and give academia a commercial focus. "The most important thing is to decide the purpose of the reform," says Nobel laureate Ryoji Noyori, a chemist at Nagoya University. "They should aim for energizing researchers and educators, not producing some financial result."

Currently, Japan's national universities



Could the domination of Japan's education system by the University of Tokyo (above) be enhanced by the proposed mergers of smaller institutes?

are agents of the state, and their staff are civil servants. But in 2004, they will become independent organizations. Rather than answering directly to the education ministry, each will report to two governing councils, one of which will take about half of its members from outside the university. The universities will still get government funding, but how much will depend on their success relative to other universities, and they will also have new freedom to get funding from private sources.

University presidents, formerly figureheads elected by faculty members, will be directly responsible for their university's success — like a US university president or a corporate chief executive. "Until now, everything has been done by consensus," says Masahiko Endo, president of Hirosaki University in Aomori, northern Japan. "Now presidents will be chosen for having a policy that can balance research and education and make the university succeed." Presidents will be selected by a committee formed from members of the two governing councils — although it is not yet clear whether new presidents will be appointed at all of the universities from day one.

Already, existing university presidents

have seized on the new 'centres of excellence' programme as a chance to preview their coming authority. More than 450 groups, each comprising about 20 professors, from 163 public and private universities applied to work on strategic, often interdisciplinary, research problems. Earlier this month, 113 teams at 50 universities were chosen to receive grants of between ¥100 million and ¥500 million (US\$800,000 to \$4 million) per year (see *Nature* **419**, 547; 2002) for five years.

The scheme was designed to encourage more competition between universities, while promoting interdisciplinary collaboration within each institution. "We broke the barriers between departments," says Akira Shimokohbe, vice-president of the Tokyo Institute of Technology.

In some cases, university presidents gave a nudge to reluctant faculty members. One molecular biologist at a university near Tokyo says that his group had little chance of being named as a centre of excellence, but spent the summer working on a proposal anyway. "It would have been better to wait until next year, but the president said we had to do it," he says.

Responsible care

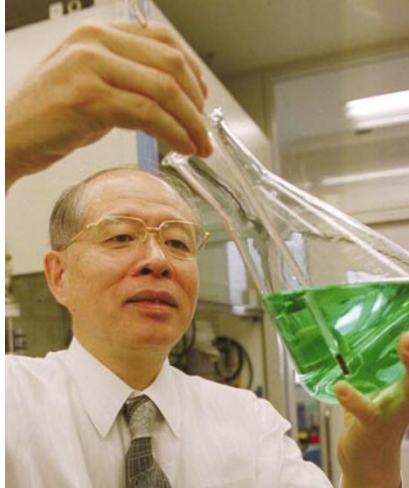
The vigour with which university presidents embraced the centres of excellence scheme suggests they are happy with increased competition. Most academics are also enthusiastic about reforms that allow them to carry over unspent portions of their equipment budget to subsequent years, or to hire staff without having to obey civil-service restrictions.

But for senior researchers, such freedom comes at a price. The loss of civil-servant status also applies to professors, who will be evaluated periodically to check that they still deserve their elevated position. If they are worried, most are not letting on. "We have already been proving ourselves to peer-reviewed journals and grant committees, so this won't be anything new," argues Mitsuhiro Yanagida, a molecular biologist at Kyoto University.

Officials at the education ministry hope that the new system will encourage universities to headhunt top researchers, who in turn will look for the best place to pursue their career. In the past, Japanese universities have been infamous for their 'inbreeding', with researchers staying at the same institution for their whole career. "Younger people can no longer expect to stay at one place for life," says Shimokohbe. Indeed, some researchers predict that up-and-coming scientists will soon start moving to universities to join a centre of excellence.

But these trends are causing some alarm at smaller, regional universities. They fear losing staff and being pressured into unequal mergers. The Toyama plan calls for a reduction in the number of universities, perhaps by as many as half, through amalgamations.

Already, some 12 mergers involving 24 universities are under way, with many more being considered. The mergers aim to share



Ryoji Noyori worries that the reforms are aimed at financial gain rather than academic excellence.

administrative costs and to improve the position of smaller universities in fields such as biomedical sciences by, for example, bringing medical schools together with universities that are strong in biological sciences but lack a hospital.

But critics fear that the merger mania could kill off pockets of strong research in regional universities. The reforms could also further concentrate resources in a system that is already dominated by the University of Tokyo and six other former imperial universities. "We need a system with many peaks," warns Yuichiro Anzai, president of Keio University, a private university in Tokyo.

Measure for measure

With a solid evaluation system, resources would naturally move to researchers doing the most innovative research — wherever they are working. But it is the readiness of Japanese academia to conduct thorough evaluations that is the main focus for concern over the Toyama plan.

Tsutomu Kimura, president of the National Institution for Academic Degrees, which has been developing a system to evaluate universities on how well they meet their own teaching and research goals, admits that the practice in Japan is immature. "Until now there have been 'soft evaluations' on a friendly basis," he says.

Many researchers say that funding bodies have fallen back on a system of rewarding well-connected researchers at major universities. "The problem is that the funding system is mostly top-down, and the people at the top are often retired researchers or bureaucrats who are out of touch with current research," says one biologist.

Some scientists argue that the best hope of breaking the 'old boy' network is to involve foreign researchers in evaluations. "It would only work if mostly foreigners were used," claims Yanagida. Tei-ichi Sato, director of the Japan Society for the Promotion of Science, one of the country's main research granting agencies, believes that applications for funding will increasingly be made in English to expand the scope for international peer review. But how

soon the system as a whole will embrace evaluation by foreign experts, and what will happen in the meantime, are still open questions.

Other scientists are worried that evaluation schemes will fail to recognize excellence in teaching, and base decisions on universities' research records alone. "The universities are not all the same," says immunologist Tadamitsu Kishimoto, president of Osaka University. "We may have to make a division between research and teaching."

Kishimoto and others also fear that evaluation will be connected too closely to government objectives to promote fields that may be crucial to Japan's future economic competitiveness. "It will be very dangerous if this competition is only geared towards fashionable science such as information technology, nanotechnology or proteomics," says Kishimoto.

The government certainly sees the universities as contributors to a strong economy. Last month, the education ministry decided to put a technology-transfer office — devoted to commercializing research discoveries — on each national university campus. So if researchers must tailor their projects to government priorities for economic growth, will the universities really become autonomous? "The reforms are likely to make universities, especially middle-ranking ones, more dependent than independent," claims Yanagida.

Almost everyone agrees that Japan's university system has much to learn from US academia. But although the government's reforms are designed, in part, to recreate elements of that system, critics point to important differences that will make it hard for Japanese universities to become genuinely autonomous and entrepreneurial. Most importantly, the United States enjoys a tradition of private donations from individuals that is not at all developed in Japan.

In April, for instance, Harvard University received a donation in the will of chemist Herchel Smith, one of the pioneers of the contraceptive pill, which brought his contributions to the university to about US\$100 million — four times what Osaka University receives in an average year. "Such donations from individuals are unheard of in Japan," laments Kishimoto. ■

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