

Experts Discuss Asia's R&D Future At Tokyo Conference

Monday, June 11, 2012

<http://www.asianscientist.com/features/future-of-asia-nikkei-inc-chi-huei-wong-takashi-shiraishi-2012/>

AsianScientist (Jun. 11, 2012) - Science policy makers in Asia must focus on innovation and cut out programs that don't work, urged two science experts from Taiwan and Japan.

Chi-Huey Wong, President of the Academia Sinica in Taiwan, together with Takashi Shiraishi, President of the National Graduate Institute for Policy Studies (GRIPS), were part of a *Science Opens New Frontiers for Asia's Future* dialogue in Tokyo, Japan hosted by Nikkei, Inc.

The dialogue was moderated by Junichi Taki, editorial writer and senior staff writer of science and technology at Nikkei Inc., at the *18th International Conference on the Future of Asia* on May 24, 2012.

Science policies in Japan and Taiwan

Translating scientific discoveries into clinical products was a priority in Taiwan, said Prof. Wong. In the past five years, more than 80 new drugs have entered clinical development in Taiwan, with 20 in the clinical pipeline for emerging diseases, he said.

Wong described two new initiatives, the Biotechnology and Pharmaceutical Act and The Fundamental Biology Act, which were implemented to encourage technology transfer and provide incentives for investors and scientists in Taiwan.

"For example, investors will have tax benefits; while scientists can play the role in a start-up company as an advisor or board director," Wong said.

Japan has chosen eight strategic areas to concentrate its resources on, said Prof. Shiraishi. For example, Prof. Shinya Yamanaka of Kyoto University has been very successful in his studies on induced pluripotent stem cells (iPS), and the Japanese government has expanded a large amount of resources in this area.

The Japanese government has also decided to focus on "life innovation or green innovation," said Shiraishi. These investments, however, were put on hold due to the March 16, 2011 Japan earthquake and tsunami, he said.

Change versus consistency

Prof. Wong urged for innovative research to be carried out in Taiwan. According to him, innovation is change that creates value, and scientists should not stop once they have published their research

discoveries.

"In academia, people think about originality, original discovery, and the goal is to publish the discovery and create knowledge. But if you want to think of the real impact, you have to go through the innovative process, and that is the barrier between academia and industry," he explained.

Although Taiwan has traditionally been a strong player in information and communications technology (ICT), the economy was still based on efficiency instead of innovation, he explained. Hence, the Taiwanese government has to introduce new policies to "bridge the gap between academia and industry."

Six new emerging industries have been earmarked in Taiwan, said Wong, three to do with biotechnology (agriculture, biotechnology, and healthcare), and others in green energy, tourism, and culture and creation.

Countering the need for change, Prof. Shiraishi said that Japan has 4,000 policy units within the government, which made a governmental change of policy quite "dangerous." Instead of a constant call for change, presenting a consistent policy directive was more important, he said.

More flexible science budgets and evaluation systems

Moderator Junichi Taki noted that a more flexible science budget would help scientists respond to a changing research landscape.

"In Japan, my impression is that once the budget is decided, it is pretty rigid, and it cannot be changed. And I think it is similar in most countries," Taki noted.

This point was agreed on by Prof. Wong, who noted that the problem was similar in Taiwan.

"So we tried to convince the (Taiwanese) government that the science budget must be more flexible... the funding for personnel, research, and traveling, so you can just give us big categories for us to plan the details," said Wong.

Scientists need to be evaluated differently, said Wong. Scientists were motivated in two ways, he explained: one, to explore the unknown based on curiosity, and second, the desire to solve problems. But mere curiosity leads to a mismatch between academia and industry, and policy makers should focus on meeting the "demand side."

"I think the evaluation system in academia emphasizes too much on publication. Of course, publication is one of the means to reach the goal. If you just stop there, you don't know if your research has a major benefit on mankind or not," Wong said.

"Often, scientists will come up with their own proposals, and they apply for funding and work on

their own problems. But industry does not appreciate what they have done."

Hard truths in Japan

Prof. Shiraishi discussed ways to make the granting mechanism more effective in Japan. For example, the University of Tokyo is strong in mathematics, while the Kyushu University is strong in hydrogen research, he said. A larger scientific budget should be allocated to those universities, while those universities that are top in Japan but not top ten in the world should receive budget cuts.

"In Japan, universities are rated and ranked. The University of Tokyo and University of Kyoto are ranked well, but it is more important to look at each department in terms of global ranking," Shiraishi said.

Shiraishi also touched on the topic of firing staff - a taboo topic in Japan.

"I said that firing people is very difficult in Japan but that is something we need to do," Shiraishi said.

Although R&D in Japan was comparable to global standards, Shiraishi warned that its global presence may decline in time to come.

"Ten years ago, for example, the semiconductor industry was very strong in Japan. Some of these have grown into larger hubs, while some have remained as they were, and new hubs appeared from emerging countries. Unfortunately, very few hubs in Japan have developed into larger hubs," he said.

Collaboration in Asia

Shiraishi noted that Korea, China, and Singapore were all emerging players in science. Based on global assessments on Japan's scientific performance, he said that the country was lagging behind Taiwan and China.

Wong suggested that more collaborations take place in Asia with Japan taking the lead. One way to do so was for Japan to establish a "vehicle for collaboration," such as a forum to encourage participation in the region.

"Although I still believe Japan is the leader of science and technology in Asia, I would like to see more collaboration within Asia," said Wong. "One way is to find areas of common interest and problem, such as emerging infectious diseases, energy, sustainable technology, agriculture and food safety, water supply, chronic disease associated with aging populations."

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