Thwarting Brain Drain of Native Researchers from Developing Nations is Goal of Millennium Initiative

The Millennium Science Initiative is the new kid on the block of international science. It came out of science's favorite process -- serendipity -- and its mission is to nurture world-class science and scientific talent in the developing world. One of its lasting results may be to slow, if not halt the "brain drain" of bright young scientists from developing countries.

In the four years since the Millennium Science Initiative (MSI) was launched in collaboration with the World Bank, it has established 10 research institutes in Chile, five research entities in Mexico (in a first round initiative slated to grow larger), and 17 projects in Brazil. Initiatives are being planned for Africa, Vietnam and the Middle East.

Since its start in 1998, MSI has initiated or participated in discussions about strengthening the science and technology in eight countries or regions of the world. MSI starts represent the science spectrum, including life science, the environment, oceanography, agriculture, forest management and astrophysics.

According to MSI Chair Phillip Griffiths, the program hopes to encourage young scientists to stay home by keeping them interested and involved. Historically, when developing countries were building a capacity in S&T, students from that country were sent abroad, and 90% didn't go back, he explained.

"What we have found is that if the students get their graduate degree in their own country, they are much more likely to stay in their home country. If, after the graduate degree, the students do go abroad for a post-doc experience and to get that exposure, only 30% do not come back to their home country. We can prevent the brain drain problem," he asserted. As an example, he pointed out scientists from Chile who were at MIT have now gone back to Chile to be part of the MSI Chilean projects.

MSI's apparent fast-track success is due in no small measure to its serendipitous beginnings created by diverse individuals of similar intentions in different parts of the world. Griffiths, who also is director of the Institute for Advanced Studies (IAS) at Princeton, says this mix of individuals and their own goals brought the international scientific community, especially the best from developing countries, to the table along with the same caliber people interested in economic development.

"We have had initiatives before to strengthen science in developing countries, but it had always just involved the science community. We have never had both science and economic development working together," Griffiths pointed out.

The World Bank, with its carrot and stick resources, can get the governments, including ministers of finance, agriculture, public health and economics, to the table with the scientists -- and things are happening, says Griffiths.

The idea started in 1997 when the presidents of Argentina, Brazil and Chile met and agreed that S&T should be part of their legacy. Far away in Princeton, NJ, during that same period James Wolfensohn, World Bank president and chairman of the IAS board of trustees, convened a discussion about the role of S&T in the development function of the World Bank, including Griffiths and experts from the bank. Next came discussions at the National Academy of Sciences, UNESCO and the Third World Academy of Sciences, among others.

Finally, following a presentation about MSI by Griffiths at a convocation in Santiago funded by the Chilean government and the Carnegie Corporation and chaired by the president of Chile, the MSI concept was officially launched.

It's hard to grasp the image that anything that plays a significant role in distributing more than $300 million World Bank dollars and requires a co-pay by the governments involved as a "mom and pop" operation, as Griffiths good-naturedly describes MSI activities. But, the point of the analogy is that only a handful of people administer the science operation of the initiative: in addition to Griffiths, six individuals make up the Scientists Institute Group (SIG) responsible for MCI's scientific efforts, which operate along priorities set by host countries.

The flexibility of the MSI concept allows initiatives to vary in format, size and objectives, according to the needs and strengths of candidate countries and regions. Programs in place and under discussion encompass a wide spectrum, from in-depth basic research to the application of research results to economic and social needs.

The SIG board represents the world scientific community. Board members have served or are serving in leadership positions of the Third World Academy of Sciences and the International Council of Scientific Unions.

The six are Arlen Hastings, secretary and executive assistant to the IAS director; J. Tomas Hexner, a venture capitalist and development consultant; Chung Kim, president of the Korea Institute for Advanced Study; Jacob Palis, director of the Instituto de Matematica Pura e Aplicada; C.N.R. Rao, president of the Jawaharlal Nehru Centre for Advanced Scientific Research, and Harold Varmus, president and CEO of Memorial Sloan-Kettering Cancer Center.

The SIG board assures MSI projects are focused, have accountability, have a capacity to build a science enterprise and have the following qualities:

Scientific excellence is paramount.

The principal activity is scientific research, and the principal product is educated people.

They (Initiatives) are flexible and designed to take advantage of interdisciplinary opportunities and partnerships with the private and public sectors.

Researchers have the freedom to investigate new and/or interdisciplinary fields that existing institutions may be slow to approach.

Researchers are encouraged to capitalize on their innovations through consultancies, patents and consortia.

Each has a small, permanent scientific staff of very high quality and a flow-through of junior researchers and short-term visiting scientists.

Each has a leader of major scientific stature and proven leadership ability.

They are autonomous with respect to programs and objectives; at the same time, they maintain linkages to other institutions, the private sector, governments, and one another.

-- Bradie Metheny