A Global Science Corps for Developing Countries

Phillip A. Griffiths
Director, Institute for Advanced Study
Chair, Science Initiative Group

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A Global Science Corps: Background

In the Plenary session we discussed several related issues needed to strengthen S&T capacity in developing countries.

- Appreciation by development organizations that they need local scientific communities to be involved
- Development must in significant part happen from bottom up
- Scientists "on the ground" must be involved
- The scientific community can learn much from development community

The second issue is the need for greater involvement of the international scientific community.

- Communities can form both South-South partnerships – term used by Mohamed Hassan of TWAS – and North-South partnerships
- Partnerships of scientists can both plan and implement policies on the ground and communicate the value of S&T to the public and to governments

Genesis and Vision

A new organization that may facilitate both of these steps is the Global Science Corps.

Concept introduced by Dr. Harold Varmus, president of Memorial Sloan-Kettering Cancer Center, at the Nobel Prize Centennial in Stockholm in December 2001.

Vision of the Global Science Corps:

- Create a global corps that would place outstanding scientists in developing countries
- These scientists collaborate with local partners, share expertise, teach, and reach out to the educational and private sectors
- Models include elements of the Hughes Fellowships, sabbaticals spent abroad, university exchange programs, Doctors Without Borders
- Precedents: OECD countries, Scandinavians

Idea has found resonance among the scientific, government, foundation, and educational sectors; now moving toward implementation.

What is the Global Science Corps?

Provides a mechanism for academic scientists from the United States, Europe, and elsewhere to help build capacity in science through joint, active research across the broad spectrum of research, including basic research, clinical research, and even some downstream R&D at leading centers of research and teaching in the developing world.

GSC fellows might include individuals at several different career stages who wish to share their skills and experience:

- young scientists finishing post-doctoral work and looking for a novel and valuable experience before making a more permanent career commitment
- faculty members seeking sabbatical experiences that would expose them to new scientific problems
- senior scientists nearing retirement or recently retired; and others

Benefits of the Global Science Corps

Local scientists and advanced students will gain directly from training and research collaboration with the GSC fellows, an important step in the development of human capital for the host countries.

Benefits for host countries: GSC fellows may include:

- collaborate/interact with local scientists and students
- share their expertise beyond the host facilities
- lecture at local institutions, visit university laboratories

Benefits for GSC fellows: they may gain

- exposure to science in another culture
- opportunities to form long-standing research collaborations
- access to clinical and biological materials
- chances to address urgent local challenges, such as malaria, AIDS, and food security issues

Research conducted by GSC fellows/participants and their local collaborators could have a lasting and continuing impact on local economies, leading to the development of intellectual property and/or contributing to the development of exports.

The Global Science Corps, SIG, and MSI

Institutional support will come from

Science Institutes Group (SIG):

- Dr. Varmus is a member; international scientific leaders; expertise in development, technology in the private sector
- A small, independent NGO that advises and helps provide funding for a broader capacity-building program – the Millennium Science Initiative

Millennium Science Initiative (MSI):

- Support local scientific leaders in designing and implementing excellent research and training programs in developing countries
- promote world-class education and training
- forge linkages among research institutions, governments, and the private sector
- strengthen local institutions and leadership that can attract, support, and retain local scientific talent
- Underway in Chile, Mexico, Brazil; near implementation in sub-Saharan Africa; planning in Southeast Asia; discussions in South Africa
- Distinctive features: partnership with World Bank, foundations: bring scientists and development community in direct contact

Support for the GSC

To support the Global Science Corps, SIG is seeking to form partnerships with other bodies and institutions engaged in scientific capacity building, including

- the Office of International Science and Engineering of the National Science Foundation
- the Fogarty Center of the National Institutes of Health
- the Wellcome Trust
- the Medical Research Council of Great Britain

Much of what the GSC seeks to do is already happening, under a variety of auspices; sabbaticals, scholarships, etc. GSC objective:

- learn from and build on these experiences
- involve GSC fellows directly in capacity building
- integrate their activities into each country's overall development strategy
- MSI could provide venues for GSC

Implementation of the Global Science Corps

Next step: to introduce the GSC to countries where MSIs are currently located and others that have expressed interest in the GSC. Basic institutional structure for GSC will be put into place by the Science Institutes Group.

- The Global Science Corps will probably begin as a small pilot program to test the concept
- SIG will generate volunteer support among academic institutions across the United States
- SIG representatives have planned presentations to national academic organizations (e.g., the Association of American Universities, the National Association of State Universities and Land Grant Colleges, the American Association of Medical Colleges)

Implementation of the GSC will benefit from existing MSI programs.

- Involvement of international scientific community; quality control & peer review
- Research facilities for frontier science are scarce in much of the developing world – yet such facilities are a prerequisite if the GSC is to model excellent science
- Therefore, some existing research/training centers and the MSI institutes, headed by local scientists, will serve as host facilities during the first phase of the GSC
- Eventually, the GSC is likely to promote two-way exchanges with host countries and to involve a wider network of first-rate host institutions

Interest among local scientific communities is already high, and a number of countries have signaled their eagerness to participate.

Strengths and Advantages

The Global Science Corps can

- bring new emphasis to strengthening local capacity in S&T, unlike other programs
- help reduce brain drain (many scientists prefer to remain at home if they can do their work there; students who do graduate study at home and postdocs abroad more likely to return)
- build on the spirit of volunteerism that is a traditional strength of science
- impart some of that spirit to countries where S&T traditions are not fully developed

It can bring new energy to many essential tasks:

- direct certain talents where they are most needed
- introduce or advance programs in emerging and interdisciplinary fields
- offer training in essential modern instrumentation
- build international networks and linkages between institutions
- bring articulate advocates of S&T into contact with decision makers in developing countries

Conclusion

In my own view, a Global Science Corps fits the objectives of many development organizations, governments, and scientific groups that wish to promote S&T capacity in the developing world. While the pilot phase of the GSC should begin with care, there is no reason why a truly global effort cannot evolve and achieve a major impact on the advancement and uses of new knowledge.