



IN DECEMBER 2001, HAROLD VARMUS (NOBEL PRIZE LAUREATE IN PHYSIOLOGY AND MEDICINE 1989) INTRODUCED THE CONCEPT OF THE GLOBAL SCIENCE CORPS (GSC) DURING A SPEECH AT THE NOBEL FOUNDATION IN STOCKHOLM, SWEDEN, TO MARK THE CENTENNIAL ANNIVERSARY OF THE NOBEL PRIZE.

GLOBAL SCIENCE CORPS ON THE MARCH

The Global Science Corps (GSC) initiative, as conceived by Harold Varmus, would enable scientists from developed countries to work for extended periods in scientific institutions in developing countries. Since the concept was first presented some four years ago, the Science Initiative Group (SIG), located on the campus of the Institute of Advanced Study in Princeton, New Jersey, USA, and the driving force behind the creation of the Millennium Science Institutes in the developing world, has assumed responsibility for turning the GSC concept into reality.

The GSC is now gaining momentum. Several universities in the United States – including Princeton and Tufts – have agreed to allow their professors to take sabbaticals to participate in the programme. Meanwhile, in January 2006, the United Nations Development Programme Special Unit for South-South Cooperation (UNDP-SSC) sponsored a workshop in Nairobi, Kenya, to examine whether the GSC concept might prove a valuable addition to existing efforts to boost scientific capacity in Africa. The overwhelming response among the African scientists who attended the workshop was 'yes'.

The editor of the TWAS Newsletter recently conducted a phone interview with Varmus, who spoke from his office in New York City. The conversation focused on the roots of the GSC concept and the initiative's prospects for future success. Varmus has been president and chief executive officer of the Memorial Sloan-Kettering Cancer Center since January 2000, following a seven-year stint as director of the US National Institutes of Health. As a professor of microbiology and immunology at the University of California School of Medicine in San Francisco, he shared the Nobel Prize in physiology and medicine with his colleague J. Michael Bishop, now vice-chancellor at the University of California in San Francisco, "for their discovery of the cellular origin of retroviral oncogenes", which has extensively influenced scientific knowledge about mechanisms for tumour development. Excerpts of the interview follow.

What gave rise to the concept of the Global Science Corps (GSC)?

The roots of the idea for the GSC reside in two different personal experiences. At first glance, these experiences may seem unrelated. Yet, together they not only helped to crystallise the value of the project in my mind but also made me realise that the aims of the project were eminently achievable.

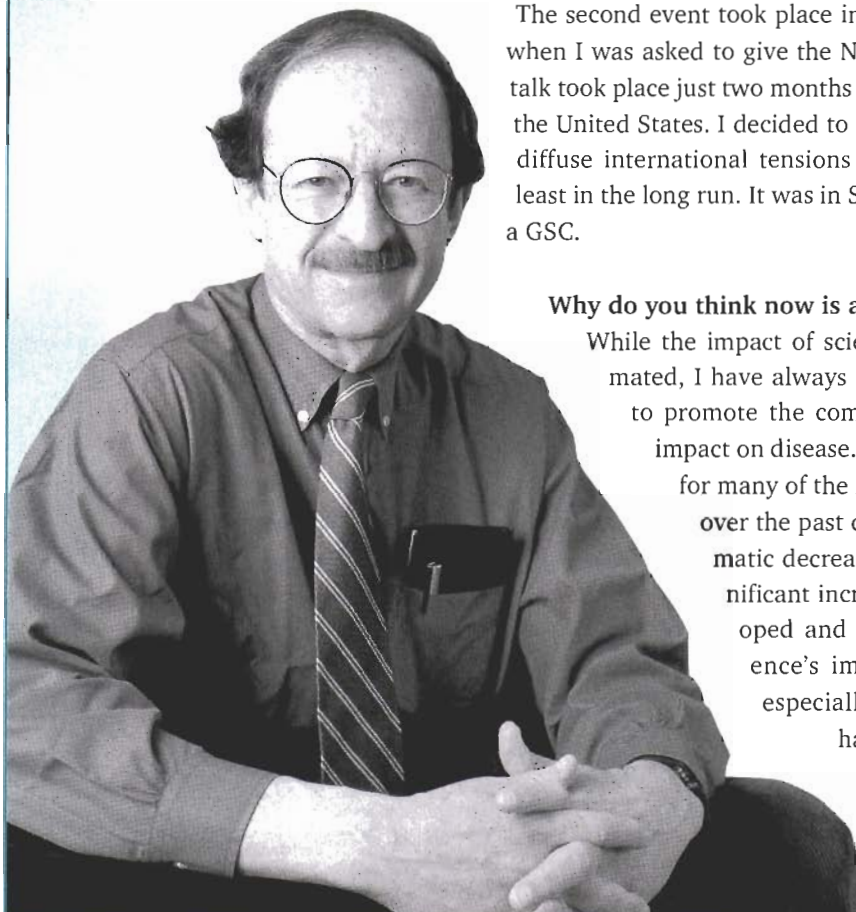
The first event took place in the mid 1990s. At the time, as director of the US National Institutes of Health, I was invited to travel to western Africa, where I visited the Malaria Research and Training Centre in Bamako, the capital of Mali. The centre's well-trained scientists, who enjoy extensive collaborations with colleagues around the world, use a variety of modern techniques to conduct world-class studies on the malarial parasite and its insect host.

Witnessing the centre's work proved to me that scientists in the North could travel to poor countries in the South and do good challenging science while making important contributions to our global society.

The second event took place in Stockholm, Sweden, in December 2001, when I was asked to give the Nobel Foundation's centennial speech. The talk took place just two months after the 11 September terrorist attacks in the United States. I decided to discuss how science might be able to help diffuse international tensions and promote global understanding – at least in the long run. It was in Stockholm that I first presented the idea of a GSC.

Why do you think now is a good time to push for this idea?

While the impact of science on society should not be underestimated, I have always thought that science could do even more to promote the common good. Take, for example, science's impact on disease. It's true that science has been responsible for many of the most significant advances in public health over the past century – advances that have led to a dramatic decrease in childhood mortality rates and a significant increase in life expectancy both in the developed and much of the developing world. Yet, science's impact on the disease burden of people, especially poor people living in poor countries, has been less than we think. Ronald Ross won the second Nobel Prize for medicine in 1902 for laying "the foundation for successful research and methods" in



combating malaria, and Robert Koch won the Nobel Prize in medicine in 1906 “for his investigations and discoveries in relation to tuberculosis”. And, in 1952 Selman Waksman won the Nobel Prize in medicine for devising an effective treatment for tuberculosis with streptomycin. Yet, some 50 years later, malaria infects over three million people worldwide annually, killing one to two million, and tuberculosis is still responsible for some three million deaths each year. In fact, you can argue that both diseases pose a greater threat to public health today than they did a few decades ago.

Yet, such disconnects between scientific research and improvements in public health, especially in developing countries, may finally be narrowing thanks to the efforts of many different organizations – for example, the United Nations with its recent emphasis on the Millennium Development Goals that highlight the importance of public health as a prerequisite for sustain-



able economic development; the World Health Organization, which has proven instrumental in leading global efforts to detect and curb the spread of infectious disease; the Bill and Melinda Gates Foundation, which has made public health in poor countries the centrepiece of its philanthropy; and the Multi-Lateral Initiative on Malaria, TB Alliance and many other non-profit organizations, which have been uncompromising advocates of increasing global investments in medical research and public health not only as a moral imperative but as a core aspect of sustainable development in developing countries.

I view the GSC as part of these larger trends, which embrace science as a fundamental tool for addressing problems of global poverty and disease. Recent global events, marked by increasing suspicion and distrust among cultures, make it even more imperative that we develop mechanisms like the GSC for promoting exchanges among people who share common interests yet live in distant lands.

How do you envision the GSC will work?

The concept is easy to articulate but not so easy to execute. Simply put, the GSC is designed to provide a framework that enables scientists from the developed world to work for extended periods in scientific institutions in the developing world. For young scientists, it is intended to offer an opportunity for a compelling experience that could possibly shape their entire careers.

For mid-career scientists, it might help re-energize their commitment to science adding a sense of idealism to work that may have become routine with time; and for senior scientists, it may help them continue to contribute to their profession in unexpected but rewarding ways.

But like so many other things in life, the devil – and, consequently, the prospects for success – is found in the details. For the GSC to succeed, there must be a strong administrative structure that can, for example, help identify universities and research centres in the developing world that are capable of receiving scientists from the developed world and putting them to work on projects that are personally challenging and, at the same time, valuable to the nation or region in which the institution is located.

There are also a broad range of logistical challenges that may seem trivial at first but, in reality, are not. The fact is that moving abroad for a year or two, especially to a poor, developing country, is not easy and requires a good deal of assistance. For example, where will the scientists live? What accommodations will be made for family members? Who will cover health insurance costs? What guarantees will there be that a position will be available when the scientist returns home?

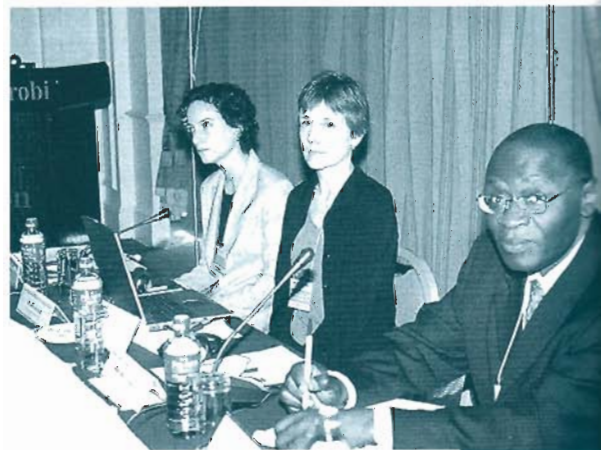
All of these details require attention and resources. That's why I was delighted to see SIG assume responsibility for this project. SIG has successfully managed the Millennium Science Initiative (MSI), which has led to the creation of a series of scientific centres of excellence in the developing world, most notably in Latin America.

Partnering with the UN, SIG is now applying its broad-based managerial and networking skills to transforming the GSC from a concept into reality. It is working directly with universities, encouraging administrators to extend sabbaticals to faculty members to allow them to participate in the project; it is partnering the UNDP-SSC, which recently sponsored a conference in Nairobi, Kenya, to gauge interest in the concept in Africa; it is applying for grants from several foundations to secure the necessary resources to succeed; and it is soliciting guidance from such experienced international organizations as TWAS, hoping the Academy can provide assistance, for example, in identifying universities and research centres in the developing world that are willing and able to host scientists from the North.

To succeed, the GSC will not only need funds but also an extensive network of contacts in both the developed and developing world. SIG is clearly well positioned to accomplish both tasks, and its direct involvement in the initiative is one of the reasons that I am guardedly optimistic that we will see progress in the implementation of the programme over the next year.

How will you measure the success of the GSC?

The first measure of success will be to entice scientists in developed countries to take advantage of this opportunity. We hope to have from five to twenty people participating in the project over the next two years. They are likely to receive sabbaticals from their home institutions, which will





continue to pay a large portion of their salaries during their stays abroad. We also hope to convince several foundations that the project is worthy of their support and to garner the backing of international organizations as well.

Once we have people who have spent some time abroad, they will be able to speak from experience. I am convinced that their personal testimonials will encourage others to follow. Everyone involved in the GSC initiative realizes that simple arithmetical indicators will not be a sufficient measure of the programme's success – even if several hundred scientists are involved on an annual basis. It is equally important to have participants involved in worthy projects that contribute directly to both global scientific knowledge and social well-being, especially in poor countries. Again, while recording the number of articles published in peer-reviewed international journals will be a useful indicator, it will not be sufficient. We also want the projects to contribute directly to improving economic and social conditions in the host country and to serve, as well, as a strong foundation for building lasting friendships that extend beyond professional concerns and that help to nurture a greater appreciation and understanding of other cultures.

This is undoubtedly a challenging set of goals. But I would argue that we live in challenging times that deserve – and indeed require – bold action. And that is what I hope the GSC is able to deliver on a scale and scope commensurate with the support it receives and the enthusiasm that it generates. I, for one, think that is worth the effort, and I hope that others do too. ■

*For additional information
about the Global Science Corps, see
...❖ www.globalsciencecorps.org*