Global Science Corps Workshop
Nairobi, Kenya
January 16-17, 2006

The Science Initiative Group, the Special Unit for South-South Cooperation in UNDP, and the African Academy of Sciences co-convened a meeting to assess the demand for, and to plan the development of, a Global Science Corps for Africa. The GSC will place scientists and engineers from scientifically advanced countries in research institutions in developing countries for one-year terms to engage in collaborative research and training. The primary focus of the Nairobi discussions was development of two targeted components of the GSC: a South-South program where GSC fellows from developing countries would be placed in other developing countries, and a Diaspora program where African émigrés would be placed in their home countries or elsewhere in Africa.

Videotaped remarks by Dr. Harold Varmus, President of the Memorial Sloan-Kettering Cancer Center, SIG Board member, and the creator of the GSC concept, opened the meeting. The sessions that followed were divided into formal presentations, working groups to establish recommendations in each of several categories, open discussion, and consensus on conclusions and recommendations.

The participants expressed enthusiastic support for the GSC concept, with the imperatives that every effort must be made to learn from, build on, and cooperate with other initiatives; that sustainability mechanisms must be built into the GSC; and that the GSC must be designed in a way that will maximize benefits to the host institutions and to the development of African science and technology more broadly.

Dr. Shem Arungu Olende, the new Secretary-General of the African Academy of Sciences, reflected the sentiments of the group when he said: "The idea and concept of Global Science Corps have come up at the most opportune time, and could go a long way in facilitating the development of science and technology in Africa and rest of the developing world. The scope for co-operation with host institutions in Africa is unlimited."

The meeting was conducted in English and French, and background materials were made available in both languages.

1) FORMAL PRESENTATIONS

Formal presentations fell into these categories:

- Examining Goals for the GSC in Africa
- GSC Partnership: African Institutions' Perspectives
- The GSC in Context: Complementary Initiatives

Most of the presentations are available in PowerPoint or text format at http://sig.ias.edu/2006meeting.

Briefly:

Examining Goals for the GSC in Africa

Mohamed Hassan, President of the African Academy of Science, Executive Director of TWAS, and a SIG board member, spoke about existing programs in north-south and south-south cooperation in science from which GSC can learn lessons and/or with which it might interact. For example, MSI institutes and TWAS centers of excellence could serve as GSC host sites.

Cosmas Gitta, Chief of the Division of Policy, Partnerships & Resources, Special Unit for South-South Cooperation in UNDP, said he viewed development of the GSC as a critical step towards permanent solutions to Africa's problems through science and technology.

Arlen Hastings, Executive Director of the Science Initiative Group, explained the relationship among the Science Initiative Group, Millennium Science Initiative, and the GSC, and provided an update on MSI progress and activities. MSI Institutes will be among the potential host sites for GSC Fellows.

Kiera Carlisle, Program Manager, Science Initiative Group, detailed the origins and development of the GSC to date and set out the goals for the meeting.

G.B.A. Okelo, the outgoing Secretary General of the African Academy of Sciences, reviewed some past initiatives to build capacity in science and technology through north-south and south-south cooperation and suggested that the discussion take into consideration successes and pitfalls of some of those past efforts.

Béatrice Séguin, Canadian Program on Genomics and Global Health, Joint Centre for Bioethics, University of Toronto, spoke about a study her program has been involved with to determine how Canada can draw on its Diaspora community to foster science and technology innovation in the developing world.

GSC Partnership: African Institutions' Perspectives

Francis Gudyanga, Research Council of Zimbabwe, listed Zimbabwe's S&T institutions and enumerated some of their shortcomings – mostly resulting from high faculty vacancy rates – that the GSC might help redress.

Vincent Titanji, Head of the Biotechnology Unit, University of Buea, Cameroon, talked about the potential for his research unit to become a host site, elaborating on the research and facilities available there. He emphasized that the GSC should be a partnership that is mutually beneficial to both the GSC fellow and to the host, rather than a donor/recipient model.

Berhanu Abegaz, Department of Chemistry, University of Botswana, likewise described his department as a potential GSC host site, the value of which would be enhanced by virtue of the department's affiliation with the Network for Analytical and Bioassay Services in Africa (NABSA) and the Southern and Eastern African Network of Analytical Chemists (SEANAC)

Paul Mugambi, President, Uganda National Academy of Sciences, stressed that the GSC should be designed in consultation with local scientists and that its research should address local problems, and he encouraged the participation of nationals in the Diaspora.

Shem Arungu Olende, Secretary-General, African Academy of Sciences and CEO, Queconsult Ltd, Nairobi, Kenya, spoke of the importance of establishing the GSC in a true cooperative spirit, with both sides benefiting. He went on to describe some of the many potential host institutions in Kenya. In terms of areas, he suggested that indigenous knowledge receive special attention, and that applications of research be emphasized.

The GSC in Context: Complementary Initiatives

Appolinaire Djikeng, President, NEPAD Council and Staff Scientist, The Institute for Genomic Research, USA, described the NEPAD Council as a group of young African professionals in and outside of Africa who volunteer to promote NEPAD initiatives. His report detailed some of the accomplishments of the NEPAD Council and suggested the potential value of GSC involvement in some of its initiatives.

Daniel Schaffer, Public Information Officer, TWAS, talked about a variety of TWAS capacity-building initiatives, with particular emphasis on south-south cooperation, and encouraged forging connections between these ongoing activities and GSC.

Alex Tindimubona, United Nations Economic Commission for Africa (UNECA), spoke about the experiences of the UN agencies in building capacity through scientific exchanges. He pointed out that the main goal of these exchanges is to link global and African developments in science and technology, and he offered lessons and recommendations to consider in developing the GSC.

Joseph Massaquoi, Director, UNESCO Regional Bureau for Science and Technology in Africa, described UNESCO's human resource capacity building programs in basic and engineering sciences in Africa. He suggested that a good resource for the GSC would be the African Network of Scientific and Technological Institutions (ANSTI), a UNESCO-created network which comprises 105 member institutions in 35 countries.

Francis Gudyanga, representing the ICSU Regional Committee for Africa, explained that the organization was formally established in 2005 to promote S&T in Africa. Activities will include dissemination of information; establishment of a database of experts; strengthened collaboration with key partners including TWAS, UNESCO, AAS, NASAC and NEPAD; and promotion of indigenous knowledge, centers of excellence, and capacity building.

Ousmane Kane, Executive Director, African Regional Centre for Technology, described ARCT's activities and strategic program to address some of Africa's major challenges. He also suggested priority areas for potential MSI/GSC focus and collaborative actions that might be undertaken, including development of strategic objectives, institution building, exchanges and networking, and evaluation.

2) WORKING GROUPS

Jill Conley, Howard Hughes Medical Institute, reinforced the GSC goals of bringing scientists together, building capacity, and advancing scientific knowledge, and she encouraged the meeting participants to keep those goals in mind as they developed recommendations for selection of host institutions and GSC fellows.

The participants broke into three groups to discuss 1) selection criteria for host institutions; 2) selection criteria for GSC fellows; and 3) metrics for evaluation. Each group produced suggestions that were refined in open discussion afterward, resulting in the recommendations in *Appendix 1*.

3) DISCUSSION

In the course of the discussion sessions, which were based loosely around the formal presentations, a number of themes emerged repeatedly. These notes therefore are organized not as a chronological report, but by themes/topics:

Stemming/Exploiting Brain Drain

The GSC was seen by some as a way to combat brain drain by helping to improve the conditions for scientists in African universities and research institutes, thereby encouraging talented researchers and educators to stay or even return. Others saw brain drain as a positive phenomenon, providing opportunities for African scientists to nurture their skills abroad in a way that would not be possible in their home countries. As one participant said of these émigrés, "Brain drain isn't betrayal…maybe their ambition should be exploited."

The GSC was recognized for its potential to make the best of brain drain by encouraging the Diaspora community to return to their home countries or regions, at least temporarily, to share the benefits of their experiences abroad, while helping to improve conditions for those remaining at home. Movement of scientists between different African countries and other countries in the south also was encouraged, and some thought the GSC should include opportunities for African scientists to spend 6-12 month periods in the north. The term "brain circulation" was offered as a more positively nuanced concept than brain drain.

Strategic Planning

Opinions varied on the degree to which the GSC should determine its scientific fields based on country and institutional priorities. Some felt strongly that the initiative should be explicitly focused on helping institutions develop their own strategic priorities, and that emphasis should be placed on scientific areas of direct potential benefit to the country or region.

However, as another participant asserted, "everything is a priority in Africa." Most participants leaned toward a practical approach, suggesting that the choice of fields in each case be based on the needs of specific countries and institutions and the availability and training of GSC fellows. In the end, the task will be to match supply to demand. The availability of funding also may be a limiting factor; this is discussed further below under "Funding and Sustainability."

Entrepreneurship and IP Issues

The participants shared the view that the GSC will be vastly more effective if an effort is made to create an interface between scientists and entrepreneurs, leading to product development and wealth. It was suggested that all actors in the continuum from basic science to application – including policy makers and private partners – be involved from the start of the activity, to encourage synergy and buy-in along the spectrum. It was noted that the experiences of ILRI and ICIPE are relevant in this context.

The need to establish Intellectual Property policies to govern the management of results arising from collaborative GSC research was firmly agreed upon..

Coordination with Other Initiatives

Africa has been host to a multitude of scientific capacity building initiatives, south-south, north-south and south-north scientific exchange programs, sandwich programs, scientific networks, grant and fellowship programs. Some have been initiated within Africa, others have come at the largesse of donor agencies, and many have been products of the UN agencies or other international organizations. They have met with varying degrees of success, and a varying sense of ownership by the communities meant to benefit from them. A significant portion of the GSC meeting was devoted to learning from, and coordinating with, these other initiatives. As one participant asked: "How does the GSC find its own identity, its own niche, while at the same time complementing existing initiatives?"

The formal presentations offered a good flavor of the variety of ongoing initiatives, both in Africa and involving Africans abroad, from which the GSC can learn lessons and with which it might develop partnerships. Many of the existing initiatives will be valuable in serving as and/or helping to identify and ensure appropriate conditions at host sites, and in helping to publicize the GSC and recruit participants from the Diaspora community.

Emerging from the discussion was an observation that existing networks and associations in the north could be tremendously helpful in promoting the program on the sending side. Among those mentioned were associations of universities in the United States and in Canada. Also potentially helpful is a new partnership between the African science academies and the US National Academies to develop capacity in selected African academies of science.

Participants highlighted these lessons from their experiences with existing initiatives:

- A sense of ownership is essential for success. This begins with broad involvement in establishing the program.
- To demonstrate commitment on both sides, the financial burden should be shared when possible between the host institution and the sending side.
- Care should be taken that donor/participant priorities do not take precedence over national/institutional priorities.
- While there may be interest and resources on both sides, success will ride on making appropriate matches, which has proven to be extremely challenging in the past. Host country/institute priorities should be taken into account, and care should be taken to avoid placements where fellows provide a stimulating but destabilizing presence.

- Collaboration will be effective only if information/communication technology is adequate. ICT resources at potential host sites must be critically evaluated, and possibly improved, before placements are made.
- Don't reinvent the wheel: Several participants suggested that a database of Diaspora scientists and host institutes be created to assist in the recruitment and matching process. However, it became clear in the course of discussion that a number of databases already exist, and that rather than reinventing the process, the GSC should draw on these existing resources.
- Endorsement and some financial commitment by host country governments are important but not sufficient alone to ensure success and sustainability.
- The GSC could learn from the ILRI and ICIPE experiences in taking discoveries to the marketplace.
- Logistical issues have made implementation of some initiatives problematic. Communication with and travel within Africa can be challenging. Visas and work permits are often difficult to obtain, and bank transfers sometimes take months. A participant suggested working through UNESCO to facilitate these practical tasks.

Funding and Sustainability

Fund raising efforts for the GSC are actively underway. Several U.S. universities have committed to offering the GSC as a sabbatical opportunity for their faculty members, and others in the U.S. and Canada are being recruited. A number of foundations and U.S. government agencies have been approached. Candidate MSI Centers will be encouraged to include a component in their budgets to host GSC fellows. UNDP provided a "preparatory assistance" grant to explore with SIG the feasibility of developing the south-south and Diaspora-south components – the current meeting is part of that exploration – and is a promising source of additional funds to implement the GSC.

Views on how extensive the fully-formed GSC should be ranged from 100 to 5,000 fellows per year, with the higher figure given by one participant as the minimum required to create a real impact on science in Africa. The reality is that the size of the program and the fields represented will depend on the availability of resources. UNDP, for example, is strongly oriented toward support of applied research; UNESCO is more focused on basic science; and one of the foundations that has expressed interest limits its funding to biomedical research. It is hoped that as the initiative grows, sources of support will become sufficiently diverse that placements can both reflect more fully national and institutional priorities and provide opportunities for fellows in a larger variety of fields.

Success in raising funds also will be influenced by the demonstrated commitment of host countries and institutions. Several presentations alluded to the high faculty vacancy rate at universities. The provision by those universities of stimulating intellectual and adequate material conditions will increase their likelihood of attracting GSC applicants and donor funding for their support.

Sustainability was discussed in three variants: sustainability of the overall GSC initiative; of individual collaborations; and of the lasting effects of collaborative research on Africa's development.

Overall sustainability is the most challenging. UNDP's funding cycle lasts three years. This is typical of agencies, and many foundations fund on a single-year basis. Financial resources will have to be identified on multiple fronts. One participant suggested that the meeting participants consider themselves a network for mobilization and advocacy to obtain both political and financial commitments.

Sustainability of individual collaborations will depend on support for continuing interaction between GSC fellow and host. At its most fundamental, this will mean ensuring adequate ICT resources at the host institution for ongoing communication. Beyond that, return visits by the fellow, invitations to the host or to others in his/her institution to visit the fellow's home institution, and formal linkages between the host and sending institutions, were suggested as ways to ensure that the value of the initial collaboration is extended.

Contributions of the GSC to Africa's development will be longer term and more difficult to measure. The key, as one participant stated, is to ensure that each placement stipulates clear capacity-building responsibilities and deliverables and that participants thereby leave something behind.

Governance and Implementation

The participants reached the following informal consensus on moving forward. Specific conclusions and recommendations are elaborated in the appendices.

The Science Initiative Group, in active consultation with the African scientific communities in Africa and in the Diaspora and with potential partner agencies, will establish a governing structure for the GSC.

An informal committee, comprising representatives of SIG, TWAS, AAS, UNECA, UNDP-SSC, NEPAD, ARCT, and ICSU-Africa, will be formed to provide guidance and contacts.

Host institutions will be identified according to the criteria in Appendix 1. Potential GSC fellows will be recruited through universities in the U.S., Canada and other countries, through Diaspora networks, and through notices in SciDev.Net and other media. With input from the organizations listed above, SIG will devise a matching and placement process.

Conclusion

The stated purpose of the meeting, according to UNDP-SIG agreement through which it was supported, was "to determine interest in science capacity building beneficiary institutions, selection criteria of fellows and host institutions, responsibilities of participating institutions and fellows, and input and buy-in of host institutions." The outcome of the two-day meeting was overwhelming enthusiasm for the concept, and informed guidance on practical and realistic steps to implement it.

SIG would like to express gratitude to UNDP for its important partnership and its financial support for the meeting and for the further development of the GSC, and to the workshop

participants for their enormously fruitful contributions and pledge of continued involvement and activism on behalf of the GSC.

--

Participants

Berhanu M. Abegaz, Department of Chemistry, University of Botswana, Gaborone, Botswana
Francis K. A. Allotey, Institute of Mathematical Sciences, Accra, Ghana
Shem Arungu-Olende, African Academy of Sciences and QueConsult Ltd, Nairobi, Kenya
Kiera Carlisle, Science Intiative Group, USA
Jill Conley, Howard Hughes Medical Institute, USA
Appolinaire Djikeng, NEPAD Council and The Institute for Genomic Research TIGR, USA
Emmanuel M.K.A. Edee, Department of Physics, University of Lome, Lome, Togo
Thomas G. Egwang, Med Biotech Laboratories, Kampala, Uganda
Carey Farquhar, National Institutes of Health/ Fogarty International Center, University of Washington, USA
Paulus Pierre Gerdes, Research Centre for Mathematics, Maputo, Mozambique
Cosmas Gitta, United Nations Development Program, Special Unit for South-South Cooperation, USA
Francis Gudyanga, Research Council of Zimbabwe, Harare, Zimbabwe
Mohamed Hassan, TWAS, Trieste, Italy
Arlen Hastings, Science Initiative Group, USA
Ousmane Kane, Academie des Sciences et Techniques du Sénégal, Dakar, Sénégal
Najia Kbir-Ariguib, Institut National de Recherche Scientifique et Technique-Soliman, Megrine, Tunisia
Caroline Lang'at-Thoruwa, African Women in Science and Engineering (AWSE), Nairobi, Kenya
Margaret Male, International Development Research Centre (IDRC), Nairobi, Kenya
Joseph Massaquoi, UNESCO Nairobi Office, Nairobi, Kenya
Peter Matlon, The Rockefeller Foundation, Nairobi, Kenya
Keto Mshigeni, ZERI Regional Office for Africa, The University of Namibia, Windhoek, Namibia
Paul Mugambi, Uganda National Academy of Science, Dept. of Mathematics, Makerere University, Kampala, Uganda
Laban Ayieko Ogallo, IGAD Climate Prediction and Applications Centre ICPAC, Nairobi, Kenya
Wandera Ogana, Department of Mathematics, University of Nairobi, Nairobi , Kenya
G.B.A. Okelo, African Academy of Sciences (AAS), Nairobi, Kenya
Jackie Olang, African Academy of Sciences, Nairobi, Kenya
Onesmo ole-MoiYoi, International Centre of Insect Physiology and Ecology ICIPE, Nairobi, Kenya
Roger Pelle, International Livestock Research Institute (ILRI), Nairobi, Kenya
Daniel Schaffer, The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy
Béatrice Séguin, Joint Centre for Bioethics, Canadian Program on Genomics and Global Health, University of Toronto, Canada
John Ssebuwufu, Association of African Universities, Accra, Ghana
Alex Tindimubona, United Nations Economic Commission for Africa (UNECA), Addis Ababa, Ethiopia
Vincent P.K. Titanji, University of Buea, Biotechnology Unit, Buea, Cameroon
Nelson Torto, University of Botswana, Gaborone, Botswana
George Vunni, School of Applied Sciences and Engineering, Columbia University, USA

Arlen K. Hastings 2/14/06

APPENDIX 1

WORKING GROUP RECOMMENDATIONS

Selection Criteria for Host Institutions

- The process should begin with a widely-circulated call for proposals, distributed without restriction in developing and developed countries.
- A host institution might be a research institute, or a department or faculty within a university. Endorsement by the head of the institute or university would be required, but direct interaction would take place with the host entity, to minimize bureaucracy.
- The host institution must formulate clearly defined needs. These could include capacity building, capacity strengthening, development of competencies in new areas, infrastructure enhancement, or a combination of these.
- The host institution must have a well defined research program.
- The potential impact to the development process in the region should be defined.
- The program presented must be compatible with the strategic plan and priorities of the host institution. Institutions that lack strategic plans or vision documents should be encouraged to create them, and to specify how the GSC fellow might help fulfill them.
- The application document should contain a description of the institution's infrastructure capacity, including personnel who would be involved, equipment, internet connection, and other facilities that are available, either at the institution itself or accessible nearby.
- The host institution should demonstrate that it has efficient logistical and administrative support systems, including transparent financial management, to assist with housing, visa arrangements, etc.
- GSC-designated experts should conduct a site visit to confirm points highlighted in the institutional application.
- There should be a designated host in the institute who will deal with GSC administration.
- The host institution should specify what type of fellow, expertise and scientific area would be most helpful, to assist in the matching process.

Selection Criteria for GSC Fellows

Mandatory:

- At least doctoral degree or equivalent plus a few years' experience.
- Publications: evidence that applicant has had publications in peer-reviewed journals.
- Teaching: experience in teaching including graduate level.
- Research: relevance to host institution or country.
- Mentoring experience, supervision of students.
- Evidence of commitment of home institution to release fellow from certain responsibilities.
- Full-time availability for duration of visit, including at least 80% time in host institution.
- Familiarity with host institution. (If needed, pre-visit will be arranged by GSC program prior to formal placement.)

Preferred:

- Prior collaboration with either host institution or others; experience in interaction with other institutions.
- Fund raising experience including grant-writing skills.

Additional Comments:

- The candidate will be judged by the quality of the proposed collaboration, including scientific merit, relevance to host institution, ability to parlay the placement into something tangible, motivation and vision for where collaboration will lead.
- Women will be encouraged to apply.
- A category of "Junior Fellows" also may be considered.

Metrics for Evaluation

Institutional:

- Number of joint publications.
- Number of grants applied for.
- Scientific productivity.
- Attendance at international meetings.
- Introduction of new course curriculum, leading to increased undergraduate and graduate enrollment.
- Number of students supervised at MSc or PhD level.
- Increased visibility evidenced by number of national and international awards.
- Institutional adoption of new technologies, e.g. new capacity in monoclonal antibodies, PCR, ICT, bioinformatics, other technologies, taken up by the institute and maybe by local industry.

Systemic:

- Impact of GSC program on society as a whole: e.g. development of a diagnostic or ore processing; private sector involvement; number of S&T policies influenced by visit; patents and patent applications; industrial process for poverty alleviation.

Program:

- Other funding partners attracted.
- Continued collaboration of GSC hosts and fellows outside GSC program.
- Continued involvement of GSC fellow in host country.
- Invitations to host staff and students to GSC Fellow's home institution.
- If fellow teaches, evaluations by students.
- Interim and final reports by host institute and GSC Fellow.
- Midterm review by external referees.

APPENDIX 2

CONCLUSIONS AND RECOMMENDATIONS

PREAMBLE:

WE the **PARTICIPANTS** in the **GSC-UNDP-SIG WORKSHOP**, co-hosted by **SIG, UNDP, AAS** and the **TWAS Regional Office for Africa,** held at **HILTON NAIROBI** on **JANUARY 16-17, 2006,** in our capacities as:

- **SENIOR SCIENTISTS** from **REPRESENTATIVE UNIVERSITIES, RESEARCH INSTITUTES** and **CENTRES** in **AFRICA and BEYOND;**
- **LEADERS of REPRESENTATIVE ACADEMIES OF SCIENCE** and **RESEARCH COUNCILS, RESEARCH LABORATORIES** in **AFRICA** and **BEYOND**;
- **REPRESENTATIVES** of selected **UN AGENCIES**, of selected **FUNDING AGENCIES**, and **FOUNDATIONS**, and also of new initiatives, such as the **NEPAD COUNCIL**,

NOTING the wide spectrum of scientific and socio-economic problems and challenges confronting the people of Africa, such as **POVERTY, MALARIA, HIV/AIDS, FOOD INSECURITY, MALNUTRITION** and **HUNGER**, **ENVIRONMENTAL DEGRADATION** and **DESERTIFICATION**, etc.;

NOTING ALSO the widespread problems of low agricultural crop productivity, loss of biodiversity, over-dependence on firewood and charcoal as primary sources of energy, especially in rural and peri-urban communities;

AWARE OF THE FACT that in the midst of these and a host of other problems, Africa is endowed with many talented African scientists within Africa and in the Diaspora, and a rich abundance of natural resources, most of which have hitherto been neglected due to lack of awareness of their potential socio-economic benefits, and also due to a multiplicity of other factors;

REALIZING that through the development of science and technology capacity, appropriate Government policies, and through training a critical core of African scientists and technologists and providing them with an enabling working environment, and through establishing appropriate partnerships and strategies, the people of Africa can harness the continent's rich natural endowments towards the attainment of the Millennium Development Goals;

APPRECIATING the catalytic role played by the AAS, TWAS, SIG, UNDP Special Unit for South-South Cooperation and GSC partnership towards facilitating the hosting of the workshop; and

CONSIDERING that the vision, the mission and the objectives of the SIG-UNDP-GSC initiative are in consonance with aspirations of the African Union, NEPAD, ARCT, TWAS, AAS, TWNSO, AAU, ICSU, UNECA, UNESCO, UNU-INRA etc.,

HEREBY WELCOME the **GSC** initiative and make the following conclusions and recommendations:

RECOMMENDATIONS :

The GSC will:

1. Offer a framework for scientists from the US, Canada, and other developed countries , including scientists in the African Diaspora, to contribute to the development agenda;
2. Convert brain drain to brain gain through Diaspora engagement;
3. Ensure co-ownership by stakeholders and equitable partnerships of hosts and fellows;
4. Allow for flexible placement of Diaspora scientists, e.g. by region versus country of origin, according to mutual needs;
5. Emphasize and provide incentives for mentorship by senior local scientists in host countries;
6. Ensure African participation and representation in the governance structure of the programme, in the interest of equitable partnership/co-ownership;
7. Serve as an instrument to bring S&T into the development agenda in target countries;
8. Play a role in building/improving the S&T training and research infrastructure in Africa;
9. Be driven by priorities of target countries, with a focus on capacity building in those countries;
10. Promote South-South collaboration within Africa and between African and other countries;
11. Address problems of communications within and mobility across Africa;
12. Require stringent criteria for selection of host institutions, fellows and evaluation;
13. Emphasize basic and strategic research;
14. Identify implementable targets to be achieved by 2012 (5 years);
15. Include a built-in mechanism for sustainability to ensure that the North-South and South-South partnerships are long-lasting;
16. Seek synergies and complementarity with existing initiatives (e.g. NEPAD, UNESCO, AAS, TWAS, ICSU, AU, etc.);
17. Assist in developing a strategy towards industrialization in Africa e.g. manufacture of value-added products (electronics, pharmaceuticals, nutriceuticals, etc.);
18. Encourage mentorships and transfer of entrepreneurial skills to target countries; engage private/public partnerships;
19. Determine a process for ensuring intellectual property rights;
20. Promote cultural and social dimensions of S&T, thus enhancing technology diffusion/penetration to the grass roots.

The Workshop Participants will:

1. Seek political commitment for sustainability and will act as advocates for the GSC programme;
2. Explore the possibility of creating a database of African experts/institutions, ideally by consolidating existing databases;
3. Help to define level and scope – budget, number of fellows, duration – and to vet potential host sites and help determine placements, possibly through a committee appointed by SIG and including representatives of MSI, TWAS, AAS, AAU, ICSU-Africa, UNECA, UNDP-SSC, NEPAD;
4. Explore funding sources, including but not limited to the African Development Bank; Technical Cooperation Funds in Nigeria, Egypt, elsewhere; Africa Renaissance Fund, Ministry of Foreign Affairs, South Africa; NEPAD; African Capacity Building Foundation; Development Bank of Southern Africa/ Knowledge Management Africa; foundations; European Union (Edulink).

APPENDIX 3

ACRONYMS

AAS – African Academy of Sciences
AAU – Association of African Universities
ANSTI – African Network of Scientific and Technological Institutions
ARCT – African Regional Centre for Technology
AU – African Union
AWSE – African Women in Science and Engineering
GSC – Global Science Corps
ICIPE – International Centre of Insect Physiology and Ecology
ICSU – International Council for Science
IDRC – International Development Research Centre
ILRI – International Livestock Research Institute
MSI – Millennium Science Initiative
NABSA – Network for Analytical and Bioassay Services in Africa
NASAC – Network of Academies of Science of African Countries
NEPAD – New Partnership for Africa's Development
SEANAC – Southern and Eastern African Network of Analytical Chemists
SIG – Science Initiative Group
TIGR – The Institute for Genomic Research
TWAS – The Academy of Sciences for the Developing World
TWNSO – Third World Network of Scientific Organizations
UNDP-SSC – United Nations Development Program Unit on South-South Cooperation
UNECA – United Nations Economic Commission for Africa
UNESCO – United Nations Educational, Scientific and Cultural Organization
UNU-INRA – United Nations University Institute for Natural Resources in Africa