

2005 ANNUAL REPORT OF THE IAC EXECUTIVE DIRECTOR

During 2005, the InterAcademy Council (IAC) continued to build upon its success in providing high-quality advisory reports on critical global issues, while at the same time renewing its internal organization for expanding the scope of its activities. In this year, the IAC and its partner organizations committed themselves to work together to help solve the great international challenges of our time.

Two important new studies were launched by IAC during 2005: “Women for Science” to be completed in 2006, and “Transitions to Sustainable Energy Systems” to be completed in 2007. Following the successful publication of its first two reports in 2004,* the IAC also undertook follow-up activities designed to implement the recommendations and action agendas of these reports.

In 2005 the IAC began a process of renewal and organization for undertaking a more ambitious array of projects in the years ahead. The IAC reconstituted the membership of the IAC Board, appointed new IAC Board Co-Chairs, adopted revised Bylaws and Rules of Procedure, and reconstituted the IAC Secretariat. It has also updated its financial management system to facilitate greater accountability and more diversified funding sources; and created a new IAC Website as a tool for providing more effective information dissemination and more efficient management of multiple IAC studies and activities.

Building upon all these accomplishments, the challenges in 2006 are to identify which critical global issues the IAC should address going forward and to secure the required human and financial resources for mobilizing the world’s best scientists, engineers, and medical experts to provide relevant knowledge and advice to national governments and international organizations.

BUILDING ON SUCCESS

1. New IAC Study: Women for Science

Recognizing that the low representation of women in science and engineering is a serious hindrance to global capacity building in science and technology, the IAC, at its annual meeting in January 2004, decided to initiate a short-term project for helping to remedy that situation. The IAC formed an Advisory Panel on Women for Science with the mandate to review previous studies, provide examples of successful and effective projects already implemented, and issue a set of actionable recommendations, addressed particularly to the world’s science and engineering academies. Ten persons were appointed by IAC to serve on the Advisory Panel:

Two Advisory Panel Co-Chairs:

* *Inventing a Better Future: A Strategy for Building Worldwide Capacities in Science and Technology*, 2004; and *Realizing the Promise and Potential of African Agriculture: Science and Technology Strategies for Improving Agricultural Productivity and Food Security in Africa*, 2004.

- Johanna (Anneke) LEVELT SENGERS, (USA)
- Manju SHARMA (India)

Eight Panelists:

- Ken-ichi ARAI (Japan)
- Jocelyn BELL BURNELL (UK)
- Ayse ERZAN (Turkey)
- Nancy IP (China)
- Lydia MAKHUBU (Swaziland)
- Armando PARODI (Argentina)
- Anne STEVENS (USA)
- Jennifer THOMSON (South Africa)

The work of the Advisory Panel has been assisted by Jan Peters, Study Director; Steven J. Marcus, Report Editor; Judy Hemingway, Statistics and Case Studies; and Laura van Veenendaal, Project Assistant.

The Advisory Panel first met in Paris in February 2005. They produced draft recommendations and an outline of the report, accepted individual writing assignments, and agreed on a production timetable for the report. The Advisory Panel Co-Chairs then met with IAC staff several times and communicated regularly with Advisory Panel members throughout the year.

The study began by circulating a questionnaire to all 95 science academies that belong to the InterAcademy Panel for International Issues (IAP). The academies were asked about programs that they had developed to attract and retain women in science and technology, the degrees of success of these initiatives, and the salient issues that they hoped the IAC Advisory Panel would address. Relevant reports from many of these academies, as well as government agencies, nongovernmental organizations, and universities around the world, were then assembled. With considerable knowledge of gender-equity issues in science and technology, Advisory Panel members provided additional information. All of these materials formed the inputs for the “Women in Science” report.

The IAC Advisory Panel members had access to a central group Website containing the input materials, both in their original forms and as they evolved into contributions to chapters. The Advisory Panel Co-Chairs, members, and staff, having gone through several rounds of writing, reviewing, and fine-tuning, presented a draft report to the IAC Secretariat in November 2005. This draft report was then submitted to an IAC peer-review process. Its final report is anticipated to be published in early 2006.

Financial contributions for this advisory study have been gratefully received from L’Oréal and an anonymous donor.

2. New IAC Study: Transitions to Sustainable Energy Systems

At the request of the Governments of China and Brazil, and with strong support from United Nations Secretary-General Mr. Kofi Annan, the IAC Board decided in February 2005 to launch an in-depth study on how to achieve global transitions to an adequately affordable, sustainable, clean energy supply. This IAC study, entitled “Transitions to Sustainable Energy Systems,” will be an important opportunity to provide scientific input to national and global decision-making. For example, the results are expected to influence (1) the implementation phase of the Kyoto Protocol, (2) the follow-up to the July 2005 G8 Gleneagles Summit Communiqué on Climate Change, and (3) the Asia-Pacific Partnership on Clean Development and Climate among Australia, China, India, Japan, South Korea and the U.S.

Organizing Group. The IAC Co-Chairs subsequently appointed a small Organizing Group, consisting of Drs. José Goldemberg (Chair), Shem Arungu Olende, Li Jinghai, Rob Socolow, Nebosja Nakicenovic, Mohamed El-Ashry, Rajendra Pachauri, and Michael Phelps. This Organizing met in Amsterdam on 25-26 April 2005 and produced a report to the IAC Co-Chairs regarding the following aspects of the proposed study:

- scope and content of the study (conceptual framework),
- modality of study-associated workshops,
- composition of the study panel,
- timeline and documentation of the study.

Commissioned Papers. The Organizing Group advised the IAC to commission a total of 19 papers on various topics considered important for the study, as “intellectual start capital” for the Study Panel. This advice has been carried out; 16 papers have been received and used as background/discussion material in workshops.

Study Panel. Taking into consideration nominations from science and engineering academies and advice from the Organizing Group, and following official IAC Study Panel selection and appointment procedures, the IAC Board formally approved in September 2005 a slate of candidates. Fifteen persons were subsequently appointed to the Study Panel:

Two Study Panel Co-Chairs:

- Steven CHU (USA)
- José GOLDEMBERG (Brazil)

Thirteen Study Panel Members:

- Shem ARUNGU OLENDE (Kenya)
- Ged DAVIS (UK)
- Mohamed EL-ASHRY (Egypt)
- Thomas JOHANSSON (Sweden)
- David KEITH (Canada)
- LI Jinghai (China)
- Nebosja NAKICENOVIC (Austria)
- Rajendra PACHAURI (India)
- Majid SHAFIE-POUR (Iran)
- Evald SHPILRAIN (Russia)
- Robert SOCOLOW (USA)
- Kenji YAMAJI (Japan)
- YAN Luguang (China)

The work of the Study Panel is assisted by Jos van Renswoude, IAC Director of Studies, in the capacity of Study Director; and Dilip Ahuja, Professor, Indian National Institute of Advanced Studies, as Special Advisor to the Study Panel.

IAC Energy Workshops. Two workshops were held in 2005: one in Durban, South Africa, at the end of October 2005, and one in Beijing, China, in mid-November 2005. In early January 2006, a workshop was held in Berkeley, California, hosted by Lawrence Berkeley National Laboratory.

The *Durban Workshop*—held as a satellite event to the World Conference on Physics and Sustainable Development—focused on energy challenges and controversies on the African continent. It had thematic emphases on the use of renewable energy sources (biomass, solar

and wind energy); on distributed, decentralized energy supply; as well as, on leapfrogging potential. The Workshop was chaired by Study Panel Co-Chair José Goldemberg.

The *Beijing Workshop*—hosted by the Chinese Academy of Sciences—was dedicated to aspects of the energy situation in China and thematically focused on energy efficiency (especially in building construction) and the application of clean technologies to the use of fossil energy sources (clean coal technology, enhanced oil recovery and carbon capture, use of gas hydrates). The Workshop was chaired by Study Panel Co-Chair Steven Chu.

The *Berkeley Workshop* was thematically dedicated to energy-related, cutting-edge science and technology. Topics included sustainable energy technologies and energy efficiency, potential hybridizing technologies, new plant and microbial approaches, energy transformation for transport and storage, and third and fourth generation fission nuclear energy. The participation of U.S. scientists brought attention to the U.S. energy situation. The Workshop identified new productive avenues of research that could have a strong impact on future local and global energy use. The Workshop was chaired by Study Panel Co-Chair Steven Chu.

Additional workshops are tentatively planned in Rio de Janeiro (end of March 2006), New Delhi (first half of April 2006), Paris (late spring/early summer 2006), London (late spring/early summer 2006), and the Asia-Pacific region (late spring/early summer 2006). Each of these workshops will address regional energy issues, as well as global energy issues thought especially relevant for a given region.

First Study Panel Meeting. The first meeting of the full Study Panel is scheduled to take place on 31 January – 2 February 2006 in Amsterdam, coinciding with the 2006 Annual IAC Board Meeting. This first Study Panel meeting will be of crucial importance for the Energy Study, as it will result in:

- a definitive conceptual framework for the study,
- a tentative layout of the report,
- a distribution of tasks within the Study Panel and between Panel and staff,
- a precise timeline for the study.

Input to this Study Panel meeting will consist of (a) the preparatory work done by the Organizing Group; (b) 16 commissioned papers on various energy issues; (c) the results of three workshops already held; and (d) the contents of a recently constructed, extensive database of existing reports, papers, and policy documents on energy and energy-related topics.

Study Timeline 2006–2007. Following at least two additional Study Panel meetings and related workshops in 2006, it is anticipated that a final report of the Study Panel will undergo a formal review process in late 2006 and be ready for publication by the IAC Board in early 2007.

Funding. Financial contributions for this study have been gratefully received from the Chinese Academy of Sciences, the Government of Brazil, the William and Flora Hewlett Foundation, the United Nations Foundation, and the Deutsche Forschungsgemeinschaft.

3. Follow-up to the IAC Report *Realizing the Promise and Potential of African Agriculture*

The IAC report *Realizing the Promise and Potential of African Agriculture: Science and Technology Strategies for Improving Food Security and Agricultural Productivity in Africa* was released in June 2004. The recommendations and action agenda in the report were addressed to universities; national agricultural research systems and institutions; the private sector; regional and subregional intergovernmental organizations; academic, scientific, and extension staff; nongovernmental and community-based organizations and the mass media.

An Ad Hoc Follow-up Committee was appointed by the IAC Board in October 2004. It was tasked to help transfer the responsibilities for follow up of the report's recommendations and action agenda to more appropriate national and regional organizations; and to communicate and inform target groups and others on the analysis, diagnosis, and recommendations formulated in the report and adopted by the IAC. The Committee was asked to coordinate its activities with other initiatives, such as the Hunger Task Force, the Sub-Saharan Africa Challenge Program (SSACP) of the Forum for Agricultural Research in Africa (FARA), the Science Council of the Consultative Group on International Agricultural Research (CGIAR) and the World Bank-supported International Assessment of Agricultural Science and Technology for Development (IAASTD).

This Ad Hoc Follow-up Committee consisted of the following members:

- Rudy RABBINGE, Dean, Wageningen Graduate Schools, The Netherlands
- Jim RYAN, Visiting Fellow, Economics Division, Research School of Pacific and Asian Studies, Australian National University.
- Peter MATLON, Deputy Director for Food Security, Rockefeller Foundation, USA
- Mohamed BESRI, Professor Hassan II Institute of Agronomy & Veterinary Medicine, Morocco
- Bongiwe NJOBE, Director General National Department of Agriculture, South Africa
- Wilberforce KISAMBA-MUGERWA, Director, International Service for National Agricultural Research (ISNAR)
- Monty JONES, Executive Director, Forum for Agricultural Research in Africa
- Huub LÖFFLER, Team Leader, Food and Health, BU Genetics and Breeding, Wageningen Agricultural University and Research Centre, The Netherlands

Following is a summary of the activities of the Ad Hoc Follow-Up Committee:

- ***Dissemination of the IAC report.*** Dissemination of the report through presentations and discussions by Committee members has brought the recommendations to the attention of various stakeholders, as perhaps among the most efficient ways to promote implementation. Committee members have made presentations and initiated discussions to take advantage of the momentum raised by the launching of the report in June 2004.
- ***Coordination with other panels, task forces, and working groups.*** During its working period, the IAC Study Panel had intensive contacts with other related initiatives, such as the Hunger Task Force (HTF) of the UN Millennium Development Goals Program, the SSACP/FARA, CGIAR, and the IAASTD. The Study Panel did so because it realized that the various activities may complement each other, leading to a multiplier effect. As a result of these interactions, a number of similar recommendations have been adopted by other organizations. Coordinating the implementation of these activities is still necessary.
- ***Transfer the responsibility for the recommendations to appropriate regional and national institutions.*** The Ad Hoc Follow-up Committee has been committed to the implementation of the recommendations, as was the IAC Study Panel. Yet the

Committee acknowledges the fact that the actual implementation is not and cannot be a task for the Committee or for the IAC. Many permanent organizations and institutions are better suited to bring the recommendations into action. Therefore the Committee assisted organizations and institutions in formulating their strategies and articulating their initiatives and in the process, encouraged implementation of the recommendations by the institutions.

- ***Final reporting of the Ad Hoc Follow-up Committee.*** The Ad Hoc Follow-up Committee reported a growing international focus on African agriculture and the inter-related role of science and technology. It also found encouraging that the initiatives of many organizations are complementary and strengthened by each other. The African Union; the New Partnership for Africa's Development (NEPAD); and other multilateral organizations, such as the Food and Agriculture Organization (FAO), the United Nations Environment Programme (UNEP), and the United Nations Development Programme (UNDP), have made policy statements and declarations demonstrating political will in agriculture and science and technology—at least at the continental and international levels. To enhance its priority to support development in Africa, the Government of the United Kingdom also has established a Commission on Africa. The Ad Hoc Follow-Up Committee concluded that these activities are all needed to create the enabling environment and strategies in which science and technology will flourish. What is needed now is a stronger political and institutional commitment at national levels by African countries themselves.

The Ad Hoc Follow-up Committee issued a final report to the IAC Board in October 2005, for consideration at its Annual Meeting in February 2006.

4. Follow-up to the IAC Report *Inventing a Better Future*

The IAC Board has made the building of science and technology (S&T) capacity in every nation a key focus of its work. The first IAC report, published in February 2004, entitled ***Inventing a Better Future: A Strategy for Building Worldwide Capacities in Science and Technology*** presents a roadmap for the many different efforts that will be needed to make this possible.

Publication of the Report in Several Languages. *Inventing a Better Future* has gained wider accessibility to date having been published in the following languages: English (by the Royal Netherlands Academy of Arts and Sciences), Chinese (by the Chinese Academy of Sciences), Arabic (by the Bibliotheca Alexandrina, Egypt), and Portuguese (by the Brazilian Academy of Sciences). Executive Summaries of the report have also been disseminated in French and Spanish.

Workshop on S&T and Development. An international workshop on capacity building for science and technology took place on 3-4 February 2005 in Amsterdam at the Royal Netherlands Academy of Arts and Sciences. The workshop was co-sponsored by the IAC; International Development Research Center (IDRC, Canada); the Department for Research Cooperation of the Swedish International Development Cooperation Agency (SIDA/SAREC); and the Science Initiative Group of the Millennium Science Initiative (MSI, USA). The purpose of this workshop was to lay the foundation for an action-oriented dialogue on the subject of S&T capacity building between members of the development community, decisionmakers, the scientific community, and the private sector. As a result of this workshop, discussions are underway within several national and international organizations regarding ways to improve regional and global sharing of information about current and planned programs and resources for S&T and development.

Measuring Progress in Building Worldwide S&T Capacities. During 2005, the IAC has been preparing to undertake a project—to be sponsored in conjunction with other organizations—whereby volunteering academies of sciences from all regions of the world will review current national S&T statistics in their respective countries. The participating academies will also be tasked to suggest improved statistics that better measure dynamic changes in the quality and effectiveness of national innovation systems and programs. A project proposal will be considered by the IAC Board at its Annual Meeting in February 2006. The project would focus on four thematic components:

1. National goals related to building S&T capacities;
2. Improved indicators of S&T capacity at the national level;
3. Improved indicators of S&T capacity at the institutional level (universities, independent research facilities, national academies);
4. Consistent long-term national and institutional efforts for data collection and analyses, allowing for monitoring of progress in achieving S&T goals.

International conferences would be convened during the project and at its conclusion to review results and to plan next efforts to improve S&T indicators in developing nations.

5. Statement to the UN General Assembly

During the summer 2005, the InterAcademy Council took the lead in developing a joint statement from the leadership of international scientific, engineering, and medical organizations to the Heads of State and Government, meeting at the United Nations General Assembly in September 2005. The joint statement calls upon them to strengthen worldwide capacities in science, technology, and innovation.

This unprecedented joint statement to the United Nations General Assembly urges stronger capacities in science and technology to allow humanity to achieve the UN Millennium Development Goals. In September 2000, 147 heads of State and Government—and 189 nations in total—committed themselves by year 2015 to reduce significantly global poverty and the related problems of illiteracy, hunger, discrimination against women, unsafe drinking water, and degraded environments and ecosystems.

The joint statement declared that to achieve the Millennium Development Goals, a concerted global effort among the world's scientists, engineers, and medical experts is needed to identify successful strategies and to help implement effective programs. Sustained progress in reducing poverty and related problems require strengthened institutions for science, technology, and innovation throughout the world, including in each developing nation. The signers of the statement committed their organizations to work with appropriate partners to help strengthen global capacities for achieving the Millennium Development Goals.

The signers of the statement include Bruce Alberts and Lu Yongxiang, Co-Chairs, InterAcademy Council (IAC); Jane Lubchenco, President, International Council for Science (ICSU); Yves Quéré and Chen Zhu, Co-Chairs, InterAcademy Panel on International Issues (IAP); David Challoner and Guy de Thé, Co-Chairs, InterAcademy Medical Panel (IAMP); John W. Zillman, President, International Council of Academies of Engineering and Technological Sciences (CAETS); Lee Yee-Cheong, President, World Federation of Engineering Organizations (WFEO); C.N.R. Rao, President, The Academy of Sciences for the Developing World (TWAS); and Jeffrey Sachs, Director, UN Millennium Project.

ORGANIZING FOR GROWTH

1. Membership of IAC Board

As required by the IAC Bylaws, the IAC Board reconstituted its membership in 2005. The IAC Bylaws prescribed that in 2004 the IAP would request its members to indicate whether they seek election to the IAC Board. The IAP Executive Committee and the IAC Board then entered a consultative process to develop a joint recommendation for the new IAC Board. This process was completed by the IAP and IAC in fall 2004. The IAC Board approved on 20 October 2004 the joint IAP/IAC recommendation with the required two-thirds majority vote.

As required by the IAC Bylaws, ten academies of the previous Board (Brazil, China, France, Germany, India, Japan, Malaysia, UK, USA, and TWAS) returned to the IAC Board, while five academies (Chile, Hungary, Iran, Turkey and the African Academy) joined as new members of the IAC Board. Five academies (Israel, Mexico, Russia, South Africa and Sweden) rotated off the IAC Board.

The new IAC Board took office at the end of the February 2005 Board meeting. The Board unanimously elected as IAC Co-Chairs for the term 2005-2009 Prof. Dr.-Ing Lu Yongxiang, President of the Chinese Academy of Sciences (replacing Prof. Goverdhan Mehta, who assumed the Presidency of International Council for Science (ICSU) in October 2005); and Prof. Bruce Alberts, President of the United States National Academy of Sciences (elected to a second term as IAC Co-Chair).

Since its February 2005 meeting, the IAC Board has had three changes in its composition: Martin Rees replaced Robert May as President of the Royal Society of London, Goverdhan Mehta replaced Jane Lubchenco as President of ICSU, and Frits van Oostrom replaced Willem Levelt as President of the Royal Netherlands Academy of Arts and Sciences.

Accordingly, at the end of 2005 the IAC Board was composed as follows: *Co-Chairs*: **Bruce Alberts**, former President, National Academy of Sciences, USA; **Lu Yongxiang**, President, Chinese Academy of Sciences; *Members*: **Reza Davari Ardekani**, President, Academy of Sciences of the Islamic Republic of Iran; **Engin Bermek**, President, Turkish Academy of Sciences; **Edouard Brézin**, President, Académie des Sciences, France; **Mohamed H.A. Hassan**, President, African Academy of Sciences; **Eduardo Moacyr Krieger**, President, Brazilian Academy of Sciences; **Kiyoshi Kurokawa**, President, Science Council of Japan; **Servet Martinez Aguilera**, President, Chilean Academy of Sciences; **R.A. Mashelkar**, President, Indian National Science Academy; **C.N.R. Rao**, President, Third World Academy of Sciences; **Martin Rees**, President, The Royal Society of London; **Salleh Mohd Nor**, Vice-President, Academy of Sciences of Malaysia; **Ernst-Ludwig Winnacker**, President, Deutsche Forschungsgemeinschaft; **S.E. Vizi**, President, Hungarian Academy of Sciences. *Observers*: **Yves Quéré**, Co-Chair, InterAcademy Panel on International Issues; **Frits van Oostrom**, President, Royal Netherlands Academy of Arts and Sciences; **Goverdhan Mehta**, President, International Council for Science (ICSU); **Achiel van Cauwenberghe**, President, International Council of Academies of Engineering and Technological Sciences (CAETS); and **Guy de Thé**, Co-Chair, InterAcademy Medical Panel (IAMP).

2. Institution Building for Growth in IAC Programs

New Bylaws and Rules of Procedure. The IAC Board in February 2005 adopted a new set of Bylaws and Rules of Procedure for the IAC. The new Bylaws and Rules of Procedure are intended not only to be more precise and complete technically, but to consolidate the lessons learned in the IAC's first four years.

Reconstituted IAC Secretariat. With the retirement of IAC Executive Director Albert Koers in April 2005, John P. Campbell, who served as IAC Associate Director from 2001-2005, was selected as IAC Executive Director. He assumed the position and re-located from Washington, DC to Amsterdam in May 2005. Jos van Renswoude was appointed IAC Director of Studies in January 2005, and will serve in the capacity of Study Director for the IAC study “Transitions to Sustainable Energy Systems.” Margreet Haverkamp continues as IAC Office Manager, a position she has held since 2001.

Improved Financial Management. In summer 2005, the IAC Secretariat and the Financial Office of the Royal Netherlands Academy of Arts and Sciences completed the development of a new financial management system for IAC, facilitating greater accountability and more diversified funding sources. These improvements will enable the IAC to undertake a greater number of projects while maintaining strict financial oversight and transparency for the host academy, members of the Board, and funding donor organizations.

A New Look for IAC. During fall 2005, the IAC, in conjunction with the publications office of the Royal Netherlands Academy of Arts and Sciences, redesigned the look of IAC materials—brochures, folders, stationary, business cards, as well as the Website main page—establishing a consistent “identity” for IAC-produced materials.

Expanded Website Features. During winter 2005, the IAC Secretariat undertook development of a new IAC Website as a tool for providing more effective information dissemination and more efficient management of multiple IAC studies and activities. A redesigned news section has been added to the main page, and password-protected sites were created for maintaining IAC Board and study panel information, updates, and drafts.

WORKING TOGETHER

In concluding this 2005 Annual Report, I would like to thank the IAC Co-Chairs, Bruce Alberts and Lu Yongxiang. It has been a privilege and an education to work closely with them on the critical decisions made during the course of the past eight months. I would also like to thank Albert Koers, my predecessor, who managed the IAC Secretariat until his retirement in May 2005 and thus initiated many of the projects described in this Annual Report. He continues to provide wise advice as IAC General Counsel for the many tasks before us and I look forward to our continued association.

In January 2000, scientific leaders from fifteen nations gathered together in Davos, Switzerland, to launch the idea of the InterAcademy Council. I recall the enthusiastic camaraderie of that gathering. The spirit of that historic meeting continues today. The IAC and its many partner organizations encompass a large international community of extraordinary individuals working together to make a difference for the world. In the years ahead, I very much look forward to working with the IAC Board and study panel members, as well as with the many friends and colleagues representing national and international scientific, engineering, and health organizations. Together, we can further advance the goals of IAC as first envisioned six years ago in snowy Davos.

John P. Campbell
IAC Executive Director
15 January 2006