

InterAcademy Council

Mobilizing the world's best science to advise decision-makers on issues of global concern

Expert Advice. The InterAcademy Council (IAC) is a multinational organization of science academies created to produce reports on scientific, technological, and health issues related to the great global challenges of our time, providing knowledge and advice to national governments and international organizations. Sound scientific, technological, and medical knowledge is fundamental to addressing critical issues facing the world today.

Sharing Knowledge. At the United Nations in February 2004, the IAC released its first report, *Inventing a Better Future—A Strategy for Building Worldwide Capacities in Science and Technology*. Subsequent reports include *Realizing the Promise and Potential of African Agriculture—Science and Technology Strategies for Improving Agricultural Productivity and Food Security in Africa (2004)*, *Women for Science (2006)*, *Lighting the Way—Toward a Sustainable Energy Future (2007)*, *Climate Change Assessments—Review of the Processes and Procedures of the IPCC (2010)*, and *Responsible Conduct in the Global Research Enterprise—A Policy Report (2012)*.

Global Experience. The IAC embodies the collective expertise and experience of national academies from all regions of the world. The current IAC Board is composed of presidents of fifteen academies of science and equivalent organizations—representing Australia, Brazil, China, France, Germany, India, Japan, Korea, Mexico, Morocco, Nigeria, Pakistan, the United Kingdom, and the United States, plus The World Academy of Sciences (TWAS)—and representatives of IAP – The Global Network of Science Academies, the International Council of Academies of Engineering and Technological Sciences (CAETS), and the InterAcademy Medical Panel (IAMP) of medical academies. Official observers on the IAC Board include the presidents of the International Council for Science (ICSU) and the Royal Netherlands Academy of Arts and sciences (KNAW).

Independent Judgment. When requested to provide advice on a particular issues, the IAC assembles an international panel of experts. Serving on a voluntary basis, panel members meet and review current, cutting-edge knowledge on the topic and prepare a draft report on its findings, conclusions, and recommendations. All IAC draft reports undergo an intensive process of peer review by other international experts. Only when the IAC Board is satisfied that feedback from the peer review has been thoughtfully considered and incorporated is a final report released to the requesting organization and the public. Every effort is made to ensure that IAC reports are free from any national or regional bias.

Diversified Funding. IAC projects are funded by multiple sponsors, including national governments, private foundations, and international organizations. The Royal Netherlands Academy of Arts and Sciences is the host organization for the IAC Secretariat. Participating academies contribute not only intellectual resources but also funding for developing new projects and special activities.

Foreword

In October 2013, the InterAcademy Council (IAC) was requested by the US National Academy of Sciences (USNAS) to conduct an independent, summative evaluation of the African Science Academy Development Initiative (ASADI). ASADI was a ten-year, \$20 million program undertaken by USNAS with support from the Bill & Melinda Gates Foundation. The review was intended to draw conclusions about the effectiveness of ASADI and to identify lessons that could help to guide future academy development initiatives in Africa and elsewhere.

Recognizing the importance of science academies in providing evidence-based advice and other service to their societies, the IAC Board agreed to undertake this review and appointed a Review Panel of five experts from several countries and a variety of disciplines. Professor Turner T. Isoun, Former Minister, Nigerian Federal Ministry of Science and Technology, served as chair of the panel.

From November 2013 through May 2014, the panel held two full meetings as well as numerous teleconferences. The panel also organized site visits to the academies in Nigeria, Cameroon, Uganda, Ethiopia, and South Africa that involved interviews with academy leadership, members, staff and a variety of stakeholders from government and non-governmental organizations. The panel collected a great deal of information through the site visits, interviews with ASADI staff, questionnaires, and other information provided by ASADI and by the African academies.

The document that follows is the result. First written in draft form, the final report incorporates the panel's responses to the IAC report review process during September and October 2014 that involved three expert reviewers plus a science academy president who served as review monitor. Upon the satisfactory completion of the report review process, the IAC Board approved the release of a pre-publication version of the report, which was presented at the 10th Annual Meeting of African Science Academies, held in Kampala, Uganda in November 2014. The panel makes recommendations in several significant areas. The panel urges the African academies—including those supported by ASADI as well as those that were not—to work proactively to strengthen and expand the capacity that they have developed in recent years in order to become more effective at serving their societies. The African academies (again including those supported by ASADI as well as those that were not), their governments, donors, the Network of African Science Academies (NASAC), the African Academy of Sciences (AAS), partner academies based outside of Africa, and global inter-academy organizations such as IAP—The Global Network of Science

Academies and the InterAcademy Medical Panel should also work to ensure that needed capacity-building efforts continue.

We thank all of the Review Panel members, external reviewers, and the review monitor who contributed to the successful completion of this report. Special appreciation is due to the panel chair, who devoted much time and effort to ensuring that the final product would prove valuable in the future. Financial support for this review was provided through the USNAS ASADI program, which received its funding from the Bill & Melinda Gates Foundation.

Robbert H. DIJKGRAAF
Co-chair, InterAcademy Council
Director, Institute for Advanced Study, Princeton,
New Jersey, USA
Former President, Royal Netherlands Academy
of Arts and Sciences

Daya REDDY
Co-chair, InterAcademy Council
South African Research Chair in Computational
Mechanics, University of Cape Town, South Africa
President, Academy of Science of South Africa

Contents

Foreward	v		
IAC Panel to Review ASADI		viii	
IAC Board	ix		
Report Review		x	
Preface	xi		
Executive Summary	1		
1. Methodology of the Review		11	
2. Review of ASADI's Formal Objectives			15
3. ASADI's Wider Impact		23	
4. Lessons Learned	37		
5. Beyond ASADI	43		
Appendixes			
A. Panel Member Biographies		55	
B. Use Made of ASADI Funds by the ASADI-Supported Academies			57
C. The ASADI Review Data Catalogue		61	
D. Publications from the ASADI-Supported Academies			69
E. Acronyms	77		
F. The ASADI Timeline		79	
G. Statement of Task	83		
H. SWOT analysis of the ASADI process		85	
I. Academy Evolution Tables: How ASADI Helped the Academies to Develop through Time			87

IAC Panel to Review ASADI

Turner T. ISOUN, *Chair*, Former Minister of Science and Technology, Federal Republic of Nigeria, Abuja, Nigeria

Mostapha BOUSMINA, Chancellor, Hassan II Academy Of Science and Technology, Rabat, Morocco

Heide HACKMANN, Executive Director, International Council for Science, Paris, France

Anne MILLS, Vice-Director, London School of Hygiene and Tropical Medicine, London, United Kingdom

MU Rongping, Director-General and Professor of the Institute Of Policy and Management, Chinese Academy of Sciences (CAS), Beijing, China

Project Staff

Ruth COOPER, *Study Director*, Based at the Royal Society of London, United Kingdom

Dorothy NGILA, *Study Coordinator*, Based at the Academy of Science of South Africa (ASSAf), Pretoria, South Africa

Martin INCE, *Consultant-Writer*, London, United Kingdom

InterAcademy Council Board

Robbert DIJKGRAAF, *Co-Chair*, Past President, Royal Netherlands Academy of Arts and Sciences (KNAW)

Daya REDDY, *Co-Chair*, President, Academy of Science of South Africa

Mostapha BOUSMINA, *Member*, President, Hassan II Academy of Science and Technology, Morocco

BAI Chunli, *Member*, President, Academy of Sciences for the Developing World (TWAS)

Ralph CICERONE, *Member*, President, U.S. National Academy of Sciences

Jamie URRUTIA FUCUGAUCHI, *Member*, President, Mexican Academy of Sciences

Raghavendra GADAGKAR, *Member*, President, Indian National Science Academy

Detlev GANTEN, *Ex-Officio Member*, Co-Chair, InterAcademy Medical Panel

Jörg HACKER, *Member*, President, German National Academy of Sciences Leopoldina

Mohamed H.A. HASSAN, *Ex-Officio Member*, Co-Chair, IAP – The Global Network of Science Academies

Andrew HOLMES, *Member*, President, Australian Academy of Sciences

KWUN Sook-II, *Member*, President, National Academy of Sciences, Republic of Korea

LI Jianghai, *Member*, Vice President, Chinese Academy of Sciences

Lai Meng LOOI, *Ex-Officio Member*, Co-Chair, InterAcademy Medical Panel

Volker ter MEULEN, *Ex-Officio Member*, Co-Chair, IAP – The Global Network of Science Academies

Bernard MEUNIER, *Member*, President, Académie des Sciences, France

Paul NURSE, *Member*, President, Royal Society of London

Takashi ONISHI, *Member*, President, Science Council of Japan

Jacob PALIS, *Member*, President, Brazilian Academy of Sciences

Atta-ur-RAHMAN, *Member*, President, Pakistan Academy of Sciences

Oyewale TOMORI, *Member*, President, Nigerian Academy of Science

Achiel VAN CAUWENBERGHE, *Ex-Officio Member*, Former President, International Council of Academies of Engineering and Technological Sciences (CAETS)

Michael CLEGG, *Observer*, Vice President for External Relations, International Council for Science (ICSU)

J.F.T.M. (José) VAN DIJCK, *Observer*, President, Royal Netherlands Academy of Arts and Sciences (KNAW)

Staff

Thomas ARRISON, Executive Director

Anne MULLER, Program Coordinator

Nina BOSTON, Senior Project Assistant

Report Review

This report was externally reviewed in draft form by experts chosen for their diverse perspectives and technical knowledge, in accordance with procedures approved by the IAC Board. The purpose of this independent review was to provide critical comments that would help produce a sound report that meets the IAC standards for objectivity, evidence, and responsiveness to the study charge.

The review procedure and draft manuscript remain confidential to protect the integrity of the deliberative process. Although the reviewers provided constructive comments and suggestions, they were not asked to endorse the conclusions and recommendations, nor did they see the final draft of the report before its release.

Reviewers of the report

The IAC thanks the following individuals for their review of this report:

Bruce ALBERTS, Chancellor's Leadership Chair in Biochemistry and Biophysics for Science and Education, University of California, San Francisco, California, USA

Lai-Meng LOOI, Senior Professor of Pathology, University of Malaya; and Co-Chair, InterAcademy Medical Panel, Kuala Lumpur, Malaysia

Cheryl DE LA REY, Vice-Chancellor, University of Pretoria, South Africa

Monitor of the review process

A review monitor was responsible for ascertaining that the independent examination of this report was carried out in accordance with IAC procedures and that review comments were carefully considered.

The IAC thanks the following for his participation as monitor in the review process:

Juan ASENJO, President, Chilean Academy of Science, Santiago, Chile

Preface

Platforms for Partnership

African academies of science can play a central role in providing independent, objective scientific and technological advice on policy issues of critical importance to Africa's development, targeting both their governments and other stakeholders. Generously supported by the Gates Foundation, the African Science Academy Development Initiative (ASADI) has worked to raise the profile of a select but very diverse group of African academies as strong, independent institutions, building upon the scientific merit of their members to form beacons for science and technology as a tool for development.

This review of ASADI has revealed both the strengths and the weaknesses of the program, identifying opportunities and threats for the future of science academies in Africa. It is offered as not just a "box-ticking" end of program review, but as a constructive way forward for academies in any country, highlighting what has worked well and what less well, with a view to learning from these lessons to improve future work in this area. The program has been particularly effective at building platforms for partnership and sharing good practice. One definition of capacity building that has been offered is "institutional performance improvement." The review process has provided an opportunity for the Panel to take stock of Africa's largest and most sustained program for science academy strengthening. We hope that this review will be a useful tool for academies everywhere that wish to build their institutional performance and capacity. At the same time, it helps articulate the value of academies to national, regional and continental policymakers.

Africa is not alone in facing science and technology capacity challenges. This review shows that working in partnership has benefits for all partners, and that the more deeply and widely knowledge can be shared, the greater its potential benefit. These lessons apply globally.

I would like to thank the members of the Panel and the Secretariat for their important contributions. I would also like to thank the many people who contributed throughout the review, including the staff at the US National Academies who have worked on ASADI, the members and staff of the ASADI-supported academies, and the many stakeholders whom the Panel interviewed in the course of conducting the review; they are listed in the Data Catalogue that forms Appendix C. They have all helped to bring clarity to what capacity building means and what it might look like in the future, not just in Africa, but in developed and developing countries everywhere.

Turner T. ISOUN
ASADI Review Panel Chair