

Report of the InterAcademy Workshop on:

Best Practices in Advisory Roles and Fellowship Appointments

Held in Trieste, Italy

12-13 February, 2009

the
INTERACADEMY PANEL
on international issues

iap



Council of Canadian Academies
Conseil des académies canadiennes

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February 2009

Dear Colleague,

Thank you for your interest in the InterAcademy Workshop on Best Practices in Advisory Roles and Fellowship Appointments. This event sprung from our collective desire to provide a forum for academies to discuss, share successes and challenges, and look for opportunities for mutually beneficial international collaborations on issues such as engaging decision makers through advisory processes, performing science-based assessments, the fellowship appointment process and outreach to society.

This first workshop was a success. A number of exciting initiatives were shared, ranging from the creation of a Young Academy, to science education programs for school children, to MP-scientist pairing schemes. Participants learned a great deal and through the workshop and associated informal networking opportunities numerous opportunities for joint working and more-focused topics for future international discussions were identified.

We would like to thank all the workshop participants for providing thought-provoking presentations and engaging in discussions. We also want to acknowledge and thank those who worked so hard in planning the workshop, in particular Muthoni Karethi and Joanna Lacey from the IAP, and Christina Stachulak and Eleanor Fast from the Council of Canadian Academies. We also thank Howard Alper, IAP co-chair for his enthusiasm and support of the project and valuable advice along the way. We are particularly grateful to Christina Stachulak, Program Director, Council of Canadian Academies, without whose inspiration, patience and dedication the workshop would not have taken place.

We hope you find this report informative, and we look forward to working with you in the future to build upon the workshop's success. Please don't hesitate to contact eleanor.fast@scienceadvice.ca for more information or with any questions or comments.

With best regards,



Mohamed Hassan
Executive Director
Inter Academy Panel



Peter J. Nicholson
President
Council of Canadian Academies



Summary

The Council of Canadian Academies (www.scienceadvice.ca) and the InterAcademy Panel (www.interacademies.net) jointly organized a Workshop on Best Practices in Advisory Roles and Fellowship Appointments. The workshop, held at the offices of the IAP secretariat in Trieste, Italy on 12-13 February 2009, brought together 60 participants from 43 countries representing five continents¹ to discuss common issues and challenges of Academy organizations. Sessions addressed topics such as Outreach to Society, Engaging Decision Makers, Fellowship Appointments, Roles in Providing Advice, and Approaches to the Assessment Process.

The workshop included representatives from some of the oldest and most developed Academies such as the UK Royal Society, Germany's Leopoldina, and the United States' National Academies, as well as smaller and emerging academies including, for example, the academies of Zimbabwe, Sudan, and Tajikistan and Montenegro. The workshop highlighted that despite huge differences in resources and staffing levels, academies across the world fill broadly similar roles and face many common challenges. These include engaging youth in academy activities, diversifying the fellowship, effectively communicating science, and engaging decision makers. Focusing on key outcomes of the discussions among participants, 24 conclusions were drawn to guide potential "next steps". These are detailed in the report which follows. The overarching messages from the workshop included the following:

- **The IAP should consider launching a major project on science communication.**
- **The IAP is well positioned to play a coordinating role in forging and expanding links between academies and young scientists. The first step in this process would be to systematically gather and disseminate information on what is currently taking place internationally, and to build on successful initiatives, including dissemination of information on young academies.**
- **Academies have a role to play in promoting science education at the school level. Examples of successful outreach initiatives in this area exist and could be adapted for use by other academies.**
- **There is currently a poor understanding of the priorities of individual academies. This information (which could be gathered via the ongoing survey process) would be of great value for regional and international coordination.**
- **Academies all face challenges in engaging decision makers. As a first step all IAP meetings and events as well as the events of individual academies, should include policy-makers as integral participants.**
- **The value of academy advice lies in the independence of its source academy, and that must be diligently protected.**
- **Academies share with other academic institutes the challenge of defining the most current and valid indicators of true excellence. Care must be taken to ensure that the "right" things are being measured.**

¹ See Appendix 2 for full list of participants.



Overview of the workshop and report structure

The InterAcademy Workshop on Best Practices in Advisory Roles and Fellowship Appointments was a one and a half day event divided into eight sessions. Each session had one to four presentations, followed by a moderated discussion period. The agenda can be found in Appendix 1. The report below is an overview of the highlights and main conclusions from each session. This report can be read in conjunction with the slide presentations in Appendix 6. These presentations will provide greater detail on many presentations and are organized in the order they were presented². For more details or clarification on the workshop or this report, please contact eleonor.fast@scienceadvice.ca

About the InterAcademy Panel

IAP is a global network of the world's science academies, launched in 1993. Its primary goal is to help member academies work together to advise citizens and public officials on the scientific aspects of critical global issues. IAP is particularly interested in assisting young and small academies achieve these goals. Through the communication links and networks created by IAP activities all academies will be able to raise both their public profile among citizens and their influence among policy makers. Please see www.interacademies.net for more information on the IAP.

About the Council of Canadian Academies

The Council of Canadian Academies supports independent expert assessments of the science (broadly understood) that is relevant to matters of public interest. A not-for-profit corporation, the Council's three founding member Academies are - the RSC: The Academies of Arts, Humanities and Science of Canada; the Canadian Academies of Health Sciences, and the Canadian Academy of Engineering. The Council is independent of government, but benefits from a \$30 million founding grant in 2005 from the Government of Canada in support of the Council's core operations through 2015.

As a new organization, the Council has spent a great deal of time learning from other academies while developing and fine-tuning its own review processes. Recognizing the opportunity for academies to learn from each other, the Council co-operated with the IAP in organizing this workshop. Please visit www.scienceadvice.ca for more information on the Council of Canadian Academies.

² Not all participants used slides.



The Evolving Role of Science Academies

Moderator Professor Arto Mustajoki, President, Finnish Academy of Science and Letters

Speaker Dr. Paulo de Goes, Head of the International Office, Brazilian Academy of Sciences; Associate Director, InterAcademy Council

This introductory session provided an overview of the history of science academies, the evolution of their roles and the development of regional and global umbrella organizations. Key to the definition of an Academy of Science were:

- that election to Fellowship constitutes a significant national or international honour;
- the ability of the organization and its Fellows to provide counsel to its government on questions of national, regional or global concern; and
- the ability of the organization to represent the scientific community of its country in international bodies.

Increasingly the success of an academy depends on engagement in public life, in addition to the traditional elements of the strength of its scientific expertise, credible processes for electing members and attention to issues of independence and ethics.

This session highlighted the following:

- 1. Academies are institutions of tradition.**
- 2. Academies vary in size, shape and mandate, but independence is at the heart of their value to society.**
- 3. A changing world demands an evolving role for academies, and increasingly they are moving into advisory roles.**
- 4. The recognition of Academies by government in legislation distinguishes them from self-organized non-governmental organizations (NGOs).**

Best Practices and Future Directions in Fellowship Appointments

Moderator Professor Ahmad Mohammed El Hassan, President, Sudanese National Academy of Sciences

Speakers:³ Professor Narinder Kumar Gupta, Senior Vice-President, Indian National Science Academy

Professor Hans Hilgenkamp, The Young Academy, Royal Netherlands Academy of Arts and Sciences and IAP Young Scientist, 2008 World Economic Forum

Professor Roderick Macdonald, President-Elect, The RSC: The Academies of Arts, Humanities and Sciences of Canada

³ Professor Tilman Brück, German Young Academy of Sciences and IAP Young Scientist, 2008 World Economic Forum, was scheduled to speak in this session but was unfortunately unable to attend.

Fellowship of an academy is recognized as one of the highest honours for a scholar, and the processes for electing fellows reward outstanding careers in research and scholarship, largely measured through records of publication.

This diverse session looked at the processes used by academies for nominating and electing fellows, and the influence of process on the type of fellowship that results. Much of the discussion focused on the topic of engaging youth. Prof. Hilgenkamp described the early years of the Young Academy in the Netherlands. This institution, based on the model of the German Young Academy, was formed in 2005 and has 40 elected members. There are 10 new members elected each year, and membership lasts for 5 years. In general, new members are within 10 years of having completed their PhD. There was considerable interest from many academies participating in the workshop in the idea of the Young Academy as a mechanism to engage youth in their own academies. The challenge of what role could be found for young academicians who had “graduated” from their five year term, but who still had expertise and enthusiasm to offer the academy was raised. Other ways to engage youth were also offered: For example, Prof. Gupta noted that there are 15-20 awards annually to young scientists in India (under the age of 35).

Professor Macdonald described how the RSC had been reorganized in 2005 in an attempt to diversify the fellowship in terms not only of age, but gender, and language as well, although these changes have not yet resulted in significant alteration of the Fellowship's makeup. The importance of developing appropriate criteria and applying those criteria rigorously was discussed, as well as the inertia inherent in having fellowship committees which often like to reward people like themselves. The diversification initiative of the RSC is not a form of “affirmative action” but rather a concerted effort to broaden the pool from which fully qualified fellows could be drawn.

The need to find ways to recognize interdisciplinary scholars and researchers was addressed, with both the Indian and Canadian academies describing efforts to recognize and reward interdisciplinarity. Another topic was the challenges faced by academies with a fixed number of fellows; it was suggested that these academies face extra challenges in establishing greater diversity due to the limited turnover. For example Professor Gupta described that the Indian Academy caps its fellowship at 1000 living fellows, and appoints a maximum of 30 each year.

This session highlighted the following:

- 5. Scientific merit must remain the primary criterion for fellowship.**
- 6. Academies CAN change the way fellows are appointed in order to bring in “new blood” including youth, emerging disciplines (including social sciences), and greater gender, linguistic, ethnic or social diversity.**
- 7. Creation of a Young Academy is one mechanism to involve younger scientists in an academy and to allow their voices to be heard. It also has the potential to revitalize the classical academy it is affiliated with.**



Academies Outreach to Society

Moderator Mr. Moneef Zou'bi, Director General, Islamic-World Academy of Sciences

Speakers: Professor Jorge Allende, Coordinator of IAP's Science Education Programme at the Chilean Academy of Sciences

Ms. Shelley Peers, Education & Public Awareness Manager, Australian Academy of Science, Managing Director of *Primary Connections*.

Professor Howard Alper, IAP Co-Chair and Foreign Secretary, The RSC: The Academies of Arts, Humanities and Sciences of Canada

This session explored the role of academies in encouraging public engagement in science and promoting science in society. The first two presentations in the session concentrated on award-winning programs to engage school children in science. Prof. Allende described a Chilean program promoting inquiry-based science education, which has attracted significant funding from both Chilean and external sources, and has had the effect of raising the Academy's profile and making it more relevant to decision makers. For example, Prof. Allende said that they had been invited to meet with Congress as a result of students in the program enthusiastically describing science as their favourite subject.

Ms. Peers gave an overview of a partnership between the Australian Academy of Science and the Australian Government on their program - *Primary Connections: linking science with literacy*. It has both a professional learning component and curriculum resources to support inquiry-based science education. The program has attracted considerable funding, won education awards, and provided a mechanism to engage the most senior levels of government. The Australian Academy is preparing to present the *Primary Connections* initiative to an international audience and other academies may be able to learn from the Australian experience.

Professor Alper described a number of ways in which the RSC reaches out to society, including lecture series in partnership with local municipalities; breakfast presentations to parliamentarians (called Bacon and Eggheads); the creation of the category of institutional membership, through which universities are engaged in academy affairs and also provide a financial contribution to the academy; and the creation of regional offices. The engagement of a stakeholder advisory group was a first step in many of these reforms.

During the discussion media relations emerged as a major challenge for academies. It was proposed that the IAP could play an important role in developing best practices, host a workshop or learning event, and form partnerships with other international organizations, such as the World Federation of Science Journalists.

This session highlighted the following:

- 8. Science education is a key outreach activity that academies of science must engage in. Some academies have effective programs that could be adapted for use in other countries.**
- 9. Academies can't expect to reach the entire population with outreach activities. There is a broad range of useful approaches but outreach is most effective when targeting specific groups with carefully identified issues.**



- 10. Awareness among the media of academy activities is important for enhancing impact, and is currently a weakness. It is proposed that IAP could seek links with the World Federation of Science Journalists.**

The Challenges and Opportunities of Multilateral Initiatives

Moderator Professor Christopher Chetsanga, President, Zimbabwe Academy of Sciences

Speakers: Mr. John Campbell, Executive Director of the Inter Academy Council

Professor Volker ter Meulen, Chair, European Academies Science Advisory Council; German Academy of Sciences Leopoldina

Professor Simon Schwartzman, Brazilian Academy of Sciences

A variety of examples of multilateral initiatives was presented in this session and included both Academy-led projects and efforts spearheaded by others but to which the Academy's participation lent important credentials and opened doors.

There are a number of multilateral and regional initiatives under the umbrella of the IAP, these include the Federation of Asian Scientific Academies (FASAS), All European Academies (ALLEA), Network of African Science Academies (NASAC), European Academies' Science Advisory Council (EASAC), Association of Academies of Sciences in Asia (AASA), and the Caribbean Scientific Union (CSU), all of which serve as observers of IAP activities.

This session demonstrated that multilateral initiatives which link academies within a region can provide a mechanism to enhance and formalize interaction with policy-making organizations within the region. For example, EASAC was formed to allow academies to collaborate in providing advice to the European Commission, Parliament and Presidencies. IANAS engages with bodies such as the Organization of American States, the InterAmerican Development Bank and the Caribbean Community and Common Market.

The IAC releases its reports to a global audience, but depends upon action within individual nations for impact. The role of the IAP in disseminating and promoting IAC reports was also highlighted.

This session highlighted the following:

- 11. Engagement of decision-makers is key in multilateral initiatives, whether they are bottom-up with academy support, or academy led.**
- 12. The IAP and its member academies have a role in coordinating multilateral initiatives, and ensuring that reports have impact.**
- 13. It is useful for academies to be aware of the work of others, both ongoing and completed.**



Preliminary Findings of the IAP Survey of Member Academies

Moderator Professor Soordursun Jugessur, President, Mauritius Academy of Science and Technology

Speaker Dr. Sergio Pastrana, Foreign Secretary, Cuban Academy of Sciences and Chair, IAP Membership Committee

In March 2008, the IAP launched a survey of all IAP members in order to learn more about their structure, activities, advisory roles and processes. This session provided an overview of the preliminary findings. There have so far been 59 responses to the survey and Dr. Pastrana explained that once all 100 responses have been collected, there will be a full report circulated. The intent is to create a resource describing a standard set of data from each IAP member academy (2-4 pages per academy). This will be the first comprehensive dataset with information from all member academies. Dr. Pastrana issued an appeal to all academies that have not yet completed the survey to do so in a timely fashion. The main conclusions from this session were that:

- 14. The survey results will enable standardized information to be available on each academy.**
- 15. There have been limited surveys of academies in the past. The current work will be a valuable start and will be a platform for further work.**

The Role of Academies in Providing Advice

Moderator Professor Andrzej Gorski, Vice President, Polish Academy of Sciences

Speakers Dr. John Boright, Executive Director, International Affairs, US National Academy of Sciences

Dr. Sergio Pastrana, Foreign Secretary, Cuban Academy of Sciences and Chair, IAP Membership Committee

Ms. Ruth Cooper, Senior Policy Advisor, The Royal Society, U.K.

Academies play a variety of roles in providing advice. Responses to a pre-workshop survey (see Appendix 4) showed that 77%⁴ of respondents produce position statements, and 85%⁵ conduct major assessments of scientific issues. However, the financial resources and the number of staff available to support advisory roles also vary tremendously.

In this session the US, UK and Cuban academies described the long-standing mandates and roles played by their academies in providing advice. Dr. Boright described the engagement of the National Academies with the new US administration, and Dr. Pastrana provided details of the Cuban Academy's long standing interaction with the Cuban president and staff.

⁴ 20 out of 26 respondents to the question.

⁵ 22 out of 26 respondents to the question.



Demand for advice from the Royal Society (UK) is such that they have put in place a policy advisory group to assist them in prioritizing the issues upon which to engage. For example, in a three month time frame they provided advice in response to 7 out of 22 requests. It was emphasized that the development on strong relationships with decision-makers is a key element of the effectiveness of efforts to provide science advice.

This session highlighted the following:

- 16. Engagement with decision makers throughout the process is key to having impact.**
- 17. All IAP academies should have a website for transparency and visibility (it was noted that the more established academies may be in a position to provide assistance).**
- 18. It was suggested that an IAP workshop on the provision of science advice topic be held in Africa in order to raise the profile of the important role academies can play in providing independent, evidence-based advice to the decision-making processes of government.**
- 19. The process of producing reports provides important opportunities to engage youth, decision makers and other stakeholders (through panel membership, advisory roles, review, etc.)**

Approaches to the Assessment Process

Moderator Dr. Juan Asenjo, Vice President and Foreign Officer, Academia Chilena de Ciencias

Speakers Professor Roseanne Diab, Executive Officer, Academy of Science of South Africa

Dr. Peter Nicholson, President, Council of Canadian Academies

This session provided an overview of two assessment processes. Both of these were modeled on the US National Academies model, consisting of the formation of expert panels including both academy fellows and non-academy experts, a thorough peer-review process and a policy of only releasing completed reports to the sponsor (often government), not involving them in the report drafting process. Generally, the reports are released to the sponsor a few weeks before public release in order to allow them to develop communications materials. Greater detail on the assessment process can be found in the presentations in appendix 6. This type of assessment presents some risk to the sponsor as they cannot control the results of reports, but also ensures objectivity, independence, quality of advice, and public credibility.

Sources of funding for assessment projects emerged as an issue in this session, with the Council of Canadian Academies operating primarily on a 10 year founding grant from the government of Canada, whereas other academies conduct assessments using funds from the sponsor of the particular assessment, or draw from private academy funds. The online survey also revealed tremendous diversity in the types of funding used to conduct assessments.⁶

This session highlighted the following:

⁶ See appendix 4.



20. **Rigorous peer review processes are essential to guarantee an objective, high-quality, evidence-based assessment.**
21. **Even when based on an established model, minor variations in process are important to fit institutional size, circumstances, and the degree of consensus needed.**

Engaging Decision-Makers

- Moderator Professor Gunnar Öquist, Permanent Secretary, Royal Swedish Academy of Sciences
- Speakers Dr. Tanveer Naim, Consultant, COMSTECH, Pakistan
- Dr. Philippe Galiay, European Commission
- Professor Tarek Hussein, President, Academy of Scientific Research and Technology, Egypt
- Dr. Tracey Elliot, Head of International, Science Policy Centre, The Royal Society, U.K.

Engaging decision makers is necessary to ensure uptake and relevance of any advisory function. There are multiple competing demands for the attention of decision makers, and it can be a considerable challenge to engage people in the work of academies.

This session discussed the issue from a number of perspectives, and the participation of two non-academy representatives was valuable. Dr. Elliott and Dr. Galiay described pairing schemes between scientists and Members of Parliament (or Member of the European Parliament). These schemes involve an MP spending time in a scientist's laboratory, and then that scientist shadowing the MP/ MEP for a period of time. The MP/ MEP gains a greater understanding of the way science works, and the scientist improves his or her understanding of how to speak to decision makers.

The credibility of academies is key when engaging decision makers, and it is necessary to establish that credibility on a long term and sustained basis. Prof. Hussein highlighted that decision-makers must feel part of a dialogue when advice is offered. The need for "quiet diplomacy" through ongoing networking and other activities was mentioned by Dr. Elliott in her presentation and highlighted in the discussion period.

Engaging decision makers is an ongoing challenge for all academies, and there is no easy answer, but it was agreed that engagement is essential in order to ensure relevance and uptake of advice. There is a need to nurture the capacity of scientists in the role of advisor, a capacity that is currently in short supply. This requires training with the same attention and rigour as is expected for scholarly activity. This session highlighted the following:

22. **The IAP could consider developing a "toolbox" of strategies and approaches for engaging decision makers.**
23. **MP-scientist pairing schemes have been useful where used and could be applied in other countries**
24. **Academies need to be politically astute, use a variety of means to engage decision makers and take advantage of all opportunities including "quiet diplomacy" to ensure that the voice of science is included at the decision-making tables.**



List of the 24 workshop findings

1. Academies are institutions of tradition.
2. Academies vary in size, shape and mandate, but independence is at the heart of their value to society.
3. A changing world demands an evolving role for academies, and increasingly they are moving into advisory roles.
4. The recognition of Academies by government in legislation distinguishes them from self-organized non-governmental organizations (NGOs).
5. Scientific merit must remain the primary criterion for fellowship.
6. Academies CAN change the way fellows are appointed in order to bring in “new blood” including youth, emerging disciplines (including social sciences), and greater gender, linguistic, ethnic or social diversity.
7. Creation of a Young Academy is one mechanism to involve younger scientists in an academy and to allow their voices to be heard. It also has the potential to revitalize the classical academy it is affiliated with. Another mechanism are the Frontiers in Science Programs that involve active engagement of younger scientists.
8. Science education is a key outreach activity that academies of science must engage in. Some academies have effective programs that could be adapted for use in other countries.
9. Academies can't expect to reach the entire population with outreach activities. There is a broad range of useful approaches but outreach is most effective when targeting specific groups with carefully identified issues.
10. Awareness among the media of academy activities is important for enhancing impact, and is currently a weakness. It is proposed that IAP could seek links with the World Federation of Science Journalists.
11. Engagement of decision-makers is key in multilateral initiatives, whether they are bottom-up with academy support, or academy led.
12. The IAP and its member academies have a role in coordinating multilateral initiatives, and ensuring that reports have impact.
13. It is useful for academies to be aware of the work of others, both ongoing and completed.
14. The survey results will enable standardized information to be available on each academy.
15. There have been limited surveys of academies in the past. The current work will be a valuable start and will be a platform for further work.
16. Engagement with decision makers throughout the process is key to having impact.
17. All IAP academies should have a website for transparency and visibility (it was noted that the more established academies may be in a position to provide assistance).



18. It was suggested that an IAP workshop on the provision of science advice topic be held in Africa in order to raise the profile of the important role academies can play in providing independent, evidence-based advice to the decision-making processes of government.
19. The process of producing reports provides important opportunities to engage youth, decision makers and other stakeholders (through panel membership, advisory roles, review, etc.)
20. Rigorous peer review processes are essential to guarantee an objective, high-quality, evidence-based assessment.
21. Even when based on an established model, minor variations in process are important to fit institutional size, circumstances, and the degree of consensus needed.
22. The IAP could consider developing a “toolbox” of strategies and approaches for engaging decision makers.
23. MP-scientist pairing schemes have been useful where used and could be applied in other countries
24. Academies need to be politically astute, use a variety of means to engage decision makers and take advantage of all opportunities including “quiet diplomacy” to ensure that the voice of science is included at the decision-making tables.



Appendix 1: Agenda

for the InterAcademy Workshop on:

Best Practices in Advisory Roles and Fellowship Appointments

Trieste, Italy

12-13 February, 2009

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INTERACADEMY PANEL
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Council of Canadian Academies
Conseil des académies canadiennes

Day 1 - Thursday, February 12

12:00 – 12:15 Welcome

- Professor Mohamed H.A. Hassan, Executive Director, TWAS and IAP
- Dr. Peter Nicholson, President, Council of Canadian Academies

12:15 – 12:30 Opening Remarks

- Professor Howard Alper, IAP Co-Chair; Foreign Secretary, The RSC: The Academies of Arts, Humanities and Sciences of Canada

12:30– 14:00 Buffet lunch, Adriatico Guest House Cafeteria

14:00 – 14:30 The Evolving Role of Science Academies

Science academies are institutions of tradition and recognize the highest scientific achievements. But many academies are also forging new paths in the 21st century. They are investigating new ways to reinvigorate their fellowship with new criteria for appointment, using new means to engage the public and youth in science, and are constantly striving for the best mechanisms to provide advice to decision-makers. This session will look at the evolving role of science academies and the challenges they face.

Moderator: • Professor Arto Mustajoki, President, Finnish Academy of Science and Letters

Speaker: • Dr. Paulo de Goes, Head of the International Office, Brazilian Academy of Sciences
Associate Director, InterAcademy Council



Day 1 - Thursday, February 12

14:30 – 15:45 Best Practices and Future Directions in Fellowship Appointments

Fellowship of an academy is recognized as one of the highest honours for a researcher, and the processes for electing fellows reward outstanding careers in research and records of publication. This session will explore the appointment process, discuss the current criteria and learn from experiences of participants on broadening criteria. The session will also look at how the fellowship appointment process can complement other activities of academies such as advisory roles and public engagement in science, and how academies work to engage young researchers.

Moderator: • Professor Ahmad Mohammed El Hassan, President, Sudanese National Academy of Sciences

Speakers: • Professor Narinder Kumar Gupta, Senior Vice-President, Indian National Science Academy

- Professor Hans Hilgenkamp, The Young Academy, Royal Netherlands Academy of Arts and Sciences and IAP Young Scientist, 2008 World Economic Forum
- Professor Roderick Macdonald, President-Elect, The RSC: The Academies of Arts, Humanities and Sciences of Canada

15:45 – 16:15 Coffee Break



Day 1 - Thursday, February 12

16:15 – 17:30 Academies' Outreach to Society

Academies often have prominent roles in encouraging public engagement in science, indeed this outreach may be a key part of their mandate. This session will share best practices in outreach to society and discuss the impact of outreach on the public and on policy making, in addition to the impact that successful outreach activities can have on an academy and its fellows.

Moderator: • Mr Moneef Zou'bi, Director General, Islamic-World Academy of Sciences

- Speakers: • Professor Jorge Allende, Coordinator of IAP's Science Education Programme, Chilean Academy of Sciences
- Professor Howard Alper, IAP Co-Chair and Foreign Secretary, The RSC: The Academies of Arts, Humanities and Sciences of Canada
 - Ms. Shelley Peers, Education & Public Awareness Manager, Australian Academy of Sciences

Conclusion of day one

17:30 – 19:30 Free time

19:30 Dinner, Principe di Metternich Restaurant, Grignano



Day 2 - Friday, February 13

9:00 – 10:15 The Challenges and Opportunities of Multilateral Initiatives

Multilateral and regional initiatives can leverage individual Academy's resources to enable larger projects, broaden awareness and enhance international co-operation among fellows. Multilateral initiatives in providing advice can also have more impact than advice from an individual Academy though a special effort may be required to focus the work and stimulate its uptake.

Moderator: • Professor Christopher Chetsanga, President,
Zimbabwe Academy of Sciences

Speakers: • Mr. John Campbell, Executive Director of the Inter
Academy Council

- Professor Volker ter Meulen, Chair, European
Academies Science Advisory Council; President,
German Academy of Sciences Leopoldina
- Professor Simon Schwartzman, Brazilian Academy
of Sciences (Inter American Network of Academies
of Sciences)

10:15 – 10:45 Coffee Break

10:45 – 11:15 Preliminary Findings of the IAP Survey of Member Academies

In March 2008, the IAP launched a survey of all IAP members in order to learn more about their advisory roles and processes. This session will provide an overview of the preliminary findings and will highlight the range of advisory roles of IAP member academies.

Moderator: • Professor Soordursun Jugessur, President,
Mauritius Academy of Science and Technology

Speakers: • Dr. Sergio Pastrana, Foreign Secretary, Cuban
Academy of Sciences and Chair, IAP Membership
Committee

Day 2 - Friday, February 13

11:15 - 12:30 The Role of Academies in Providing Advice

Academies have different mandates. Some focus predominantly on their role as fellowship organizations and have a limited advisory role, while others have many staff dedicated to the advisory process and provide advice on numerous issues each year. This session will explore in depth the roles of academies in providing advice, and look to the future as to what opportunities and challenges exist.

Moderator: • Professor Andrzej Gorski, Vice President, Polish Academy of Sciences

- Speakers: • Dr. John Boright, Executive Director, International Affairs, US National Academy of Sciences
- Dr. Sergio Pastrana, Foreign Secretary, Cuban Academy of Sciences and Chair, IAP Membership Committee
 - Ms. Ruth Cooper, Manager, International Policy Section, The Royal Society, U.K.

12:30 – 14:00 Buffet lunch, Adriatico Guest House Cafeteria

14:00 – 15:00 Approaches to the Assessment Process

Academies take many different approaches to assessing the evidence in order to provide the best possible advice. This session will provide an opportunity to discuss the challenges and successes associated with different approaches.

Moderator: • Dr. Juan Asenjo, Vice President and Foreign Officer, Chilean Academy of Sciences

- Speakers: • Professor Roseanne Diab, Executive Officer, Academy of Science of South Africa
- Dr. Peter Nicholson, President, Council of Canadian Academies

15:00 – 15:30 Coffee Break

Day 2 - Friday, February 13

15:30 – 16:55 Engaging Decision-Makers

Advice from academies is most useful when the intended audience is eager and ready to receive it. Whatever the target audience - from heads of state to the general public - there are always many other demands for their attention. Engaging decision-makers so that they are aware of the value of advice from academies, creating an environment where decision-makers solicit advice, and making understanding the advice a priority can be a much greater challenge than developing the advice in the first place. This session will discuss ways in which decision-makers can be engaged and the mutual benefits of such engagement.

Moderator: • Professor Gunnar Öquist, Permanent Secretary,
Royal Swedish Academy of Sciences

Speakers: • Dr. Tanveer Naim, Consultant, COMSTECH,
Pakistan

- Dr. Philippe Galiay, European Commission
- Professor Tarek Hussein, President, Academy of
Scientific Research and Technology, Egypt
- Dr. Tracey Elliot, Head of International Policy, The
Royal Society, U.K.

16:55 - 17:30 Conclusions and Closing Remarks

Summaries by Moderators

Closing remarks: Professor Mohamed H.A. Hassan, Executive
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Best Practices in Advisory Roles and Fellowship Appointments

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APPENDIX 3: SPEAKER AND MODERATOR BIOGRAPHIES

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for the InterAcademy Workshop on:

Best Practices in Advisory Roles and Fellowship Appointments

Trieste, Italy

12-13 February, 2009

a global network of science academies
iap



Council of Canadian Academies
Conseil des académies canadiennes

Jorge Allende, President, Academia Chilena de Ciencias

Jorge E. Allende completed his PhD at Yale and did post doctoral work at Rockefeller University and at the US National Institutes of Health. He joined the Faculty of Medicine of the University of Chile in 1961. He was the first Director of the Instituto de Ciencias Biomedicas (ICBM) of the Faculty of Medicine, University of Chile (1996-2002). Since 2006 he has been Vice President, Research and Development of the University of Chile. He has published more than 150 original research works.

Professor Allende has dedicated much effort to the organization of activities leading to the scientific integration of Latin America especially through the organization of a series of training courses on techniques of molecular biology (1968-1988) and the creation of the Latin American Network of Biological Sciences (RELAB). In recent years, he has contributed to the creation of the Project of Inquiry Based Science Education in Chile which benefited more than 90,000 children in 190 schools in 15 regions of the country in 2008.

Professor Allende is a member of: National Academy of Sciences, USA; Institute of Medicine of the National Academies of Sciences, USA; Chilean Academy of Science, Chilean Academy of Medicine; National Academy of Exact, Physical and Natural Sciences of Argentina; the Academy of Sciences of the Developing World (TWAS); the Indian National Academy of Sciences; Founding Member of the Latin American Academy of Sciences (ACAL). He is the coordinator of the global program on science education of the Inter Academy Panel.

Professor Howard Alper, IAP Co-Chair; Foreign Secretary, The RSC: The Academies of Arts, Humanities and Sciences of Canada

Howard Alper is currently Visiting Executive at the International Development Research Centre (IDRC), and Distinguished University Professor at the University of Ottawa. His basic research spans organic and inorganic chemistry, with potential applications in the pharmaceutical, petrochemical, and commodity chemical industries. He has published 513 papers, has 37 patents, and has edited several books.

Alper has received numerous prestigious fellowships and awards for his work in Chemistry. For example, in 2000, the Governor General of Canada presented him with the first Gerhard Herzberg Canada Gold Medal in Science and Engineering. The following year, he was given the National Merit Award for contributions to the Life Sciences. In 2002, he received the Le Sueur Memorial Award of the Society of Chemical Industry (U.K.). In 2004, he was made an Honorary Fellow of the Chemical Research Society of India, and in 2006, Honorary Fellow of the Chemical Institute of Canada.

Alper was appointed as a Titular Member of the European Academy of Arts, Sciences, and Humanities in 1996. He was appointed as an Officer of the Order of Canada in 1999, and in 2002 he received the award of Officer, National Order of Merit, by the President of the Republic of France. He was named President of the Royal Society of Canada for a two-year term commencing November 2001, and currently serves as its Foreign Secretary. In 2004, he was elected to a three-year term as Co-Chair of the InterAmerican Network of Academies of Science (IANAS). In December 2006, he was elected Co-Chair of the InterAcademy Panel (IAP) for a three-year term. In 2007, he was appointed Chair of the Government of Canada's Science, Technology and Innovation Council.

He is passionate about Canada, research and chocolate.



Rajaona Andriamananjara, President, National Academy of Arts, Letters and Sciences, Madagascar

Dr. Rajaona Andriamananjara has been President of Madagascar's National Academy of Arts, Letters and Sciences since 2002, having served as President of its Moral and Political Sciences Section from 1991 to 2002, and Full Member since 1980. He is also a Fellow of the African Academy of Sciences, and a Member of UNESCO's 18 member World Commission on Ethics of Science and Technology (COMEST).

After completing university studies in the USA, first in Public Affairs (BA Princeton University), then in International Affairs (MA George Washington University), and finally in Economics (PhD University of Michigan), he became an economist at the International Monetary Fund (Washington, DC, USA). Upon his return to Madagascar, he assumed the position of Adviser in the Directorate of Planning, before being appointed Director General of Planning. He is the founding Director General of the Institute of Madagascar for Techniques of Planning (IMaTeP).

He has written extensively in his field and carried out numerous teaching and training activities both in Madagascar and abroad (USA, Africa, Europe).

John P. Boright, Executive Director, Office of International Affairs, US National Academies

Dr. Boright has served in several governmental positions. From 1994 to 1995 he served as Deputy to the Associate Director for National Security and International Affairs at the Office of Science and Technology Policy in the Executive Office of the President. During the period from 1989-1994 he served as Deputy Assistant Secretary for Science and Technology Affairs at the Department of State overseeing U.S. science and technology agreements with other countries, international space policy and program matters, and the science officer system at U.S. Embassies. During the period 1987 to 1989 John served as Director of the Division of International Programs, at the National Science Foundation, where he developed international cooperative arrangements and U.S. access to science and engineering in other countries, particularly with Japan, other Asian countries, and Eastern Europe. Prior to 1987 he served for 10 years at the Department of State, including a four year tour (1982-86) as Counselor for Scientific and Technological Affairs at the U.S. Embassy in Paris. John's earlier professional experience include works at the Goddard Space Flight Center, the U.S. Arms Control and Disarmament Agency, and the U.S. Mission to IAEA in Vienna, Austria.

John served from 1995 to 2002 as Board Member and Chair for the Science and Technology Center/Ukraine, and also as Chair of the OECD Global Science Forum from 1995 to 2004. He has received numerous awards for outstanding service. He is a member of Phi Beta Kappa and received a BA and PhD in Physics from Cornell University.



Tilman Brück, German Young Academy of Sciences and IAP Young Scientist, 2008 World Economic Forum

Professor Tilman Brück is Head of the Department of International Economics at the German Institute for Economic Research (DIW Berlin) and Assistant Professor of Development Economics at Humboldt University Berlin. He studied economics at Glasgow University and Oxford University and obtained his doctorate in economics from Oxford University. His research interests include the economics of household behavior and well-being in conflict and post-conflict economies and the economics of terrorism and insecurity.

Professor Brück is a co-founder and co-director of the Households in Conflict Network (HiCN) and the coordinator of the Network for the Economics of Terrorism (NEAT). He has also worked as a consultant for the European Commission, Department for International Development (DfID, UK), Gesellschaft für Technische Zusammenarbeit (GTZ, Germany), International Labour Organisation (ILO), KfW Bank (Germany), the Organisation for Economic Co-operation and Development (OECD), United Nations Development Program (UNDP) and the United States Agency for International Development (USAID) and has extensive experience in commenting on current economic policy issues in the media.

Professor Brück is a research affiliate of the Poverty Research Unit at Sussex (PRUS) and of the Brooks World Poverty Institute (BWPI) at the University of Manchester, a research fellow at the Institute for the Study of Labor (IZA) and an elected fellow of the German Young Academy of Sciences.

John Campbell, Executive Director, InterAcademy Council

John P. Campbell is Executive Director of the InterAcademy Council (IAC), headquartered at the Royal Netherlands Academy of Arts and Sciences in Amsterdam. He is responsible for the management of all IAC programs and activities, including the IAC Secretariat and IAC studies. From 2001 to 2005, he was Associate Director of the InterAcademy Council; and served as staff director of the first IAC report, published in 2004, "Inventing a Better Future: A Strategy for Building Worldwide Capacities in Science and Technology".

From 1993 to 2001 he was director of inter-academy programs for the US National Academy of Sciences in Washington, DC. He served as staff director for international conferences of scientific academies on Science and Technology and Cities (Istanbul, 1996) and Science and Technology and Global Sustainability (Tokyo, 2000). From 1987 to 1992, he was project director for the US Government-University-Industry Research Roundtable Working Group on the US Academic Research Enterprise. Earlier work included Fellow, United States House of Representatives, Committee on Science and Technology; Senior Policy Analyst for Science and Technology, Texas Select Committee on Higher Education; and Program Officer, US National Commission on the International Year of the Child. He holds degrees from Tulane University and the University of Texas at Austin.



Christopher J. Chetsanga, President, Zimbabwe Academy of Sciences

Professor Chetsanga earned his PhD at the University of Toronto and was a post doctoral fellow at Harvard University. From 1972 to 1983 he was Professor of Biochemistry at the University of Michigan, and from 1983 to 1993 was Professor, Chair of Biochemistry, Dean of Science, Pro Vice Chancellor and Acting Vice Chancellor at the University of Zimbabwe. From 1993 to 2003 he was Inaugural Director General at the Scientific and Industrial Research and Development Centre (SIRDC). He is currently a science policy research development and management consultant. Professor Chetsanga has discovered two enzymes and published more than 100 scientific papers, reviews and commentaries.

Professor Chetsanga has extensive board and committee service, currently he is: Member, American Society for Biochemistry and Molecular Biology; Fellow, Academy of Sciences of Developing World (TWAS); Fellow, African Academy of Sciences; Fellow and President of Zimbabwe Academy of Sciences; Member, Advisory Board on Science & Technology, UN Economic Commission on Africa; Chairman and Director of local and international Boards; Chairman of National Council on Higher Education.

Ruth Cooper, Senior Policy Adviser, Science Policy Centre, Royal Society (UK)

Since joining the Royal Society 18 years ago, Ruth has worked on international and science policy activities, spending time in several sections as the work of the Society has evolved and been restructured. Ruth is responsible for the Society's engagement with global organizations such as the International Council for Science (ICSU) and InterAcademy Panel. She also coordinates the Royal Society's innovative Frontiers of Science meetings for young scientists, environmental research programs and human rights portfolio.

Prior to the Royal Society, Ruth worked on zoological nomenclature at the Natural History Museum and in an administrative capacity at the Institute of Biology.

Paulo de Goes, Head of International Office, Brazilian Academy of Science

Dr. Paulo de Goes is presently the Head of the Office of International Affairs of the Brazilian Academy of Sciences (BAS) and an Associate Director of the InterAcademy Council. Prior to his position at the BAS he worked as an expert in science and technology policies at the National Research Council and at the Brazilian Ministry for the Environment, when he was member of the Brazilian delegation in charge of organizing the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992. Since that time he has developed his research activities on the role of the UN in adopting new concepts such as sustainable development and governance, as part of its agenda.

Dr. de Goes has also studied the role of important social actors (diplomats, specialists, scientists, NGO's and staff members of international organizations) in the international public sphere. His present research deals with the role of the scientific international organizations and networks (IAP, IAC, ICSU, TWAS, IANAS, among others) as loci of interaction of scientists in building partnerships between developed and developing countries. He holds a doctorate in Social Anthropology and published several articles on international science policies.

Roseanne Diab, Executive Officer, Academy of Science of South Africa

Professor Diab is the Executive Officer of the Academy of Science of South Africa (ASSAf) and a senior professor in the School of Environmental Sciences, University of KwaZulu-Natal. She is a Member of ASSAf and is recognized for her research contributions in the field of atmospheric sciences, particularly air quality, and more generally environmental management. She supervises a large number of postgraduate students and has successfully graduated 37 Masters and PhD students.

Professor Diab has been a Fulbright senior research scholar, is a member of a number of international bodies such as the International Ozone Commission (IOC) and the Commission on Atmospheric Chemistry and Global Pollution (CACGP), and serves on the editorial board of top journals such as Atmospheric Environment.

Ahmed Mohamed El Hassan, President Sudanese National Academy of Sciences

Prof. El Hassan is Emeritus Professor of Pathology, Institute of Endemic Diseases, University of Khartoum, Sudan. Previously he has been Chair of the Department of Pathology, Dean of the Faculty of Medicine and Deputy Vice-Chancellor at that university. He was also Professor and Chairman of the Department of Pathology, and Director of Publications and Translations, College of Medicine and Medical Sciences, King Faisal University, Saudi Arabia.

Prof. El Hassan has held numerous high-profile positions in Sudan including Minister of Higher Education, Chairman of the Medical Research Council, Director of the Institute for Tropical Medicine Research, National Research Council, and the Director of the Institute of Endemic Diseases. He is currently Advisor to the Women's Initiative Group.

Prof. El Hassan has received several prestigious awards including the Shousha Prize, World Health Organization; Donald Mackey Prize, Royal Society of Tropical Medicine and Hygiene; El Zubair Prize for Medicine, Government of Sudan; El Neelain Order Government of Sudan. He has 230 publications in infectious diseases, cancer, renal diseases, genetics, gastroenterology and cardiovascular disease.

Tracey Elliott, Head of International, Science Policy Centre, Royal Society (UK)

Tracey joined the Royal Society in July 2008. Her role is to ensure that the Society's science policy work is internationalized, using the very best international expertise and strategic partnerships to inform, disseminate and scale up its policy output.

Prior to the Royal Society Tracey worked at the Government Office for Science, under the UK Government's Chief Scientific Adviser, where she was responsible for government-to-government relations in science and innovation with India, China, South Africa and Brazil. She was also responsible for the wider science capacity building agenda, notably in Africa.

Tracey has a PhD in Biological Anthropology from Durham University and a B.Sc. in Anatomical Sciences from Bristol University. She has a Masters in Business Administration from Kingston University.

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Trained as an engineer, Dr Philippe Galiay received a PhD in Physics from the University of Strasbourg in the field of holography. After experience in research, teaching and international technology transfer with Asia, he worked for 5 years for a French Regional Council (Pays de la Loire), promoting European and inter-regional cooperation in research.

He joined the Commission (DG Research) in 1996 coordinating Research and Regional Community policies. He participated in the creation of the Science and Society Directorate and in the preparation and launching of the White Paper on Governance and the Science and Society Action Plan in 2001. He is presently in charge of Governance issues in the unit "Governance and Ethics", notably concerning civil society participation in research, nanotechnologies, energy and environment issues. He was responsible for the preparation of the recommendation to the Member States on a Code of Conduct for Responsible Nanosciences and Nanotechnologies Research.

Narinder Kumar Gupta, Vice-President, Indian National Science Academy

Professor Gupta works in the area of large deformations of metals and composites at low, medium and high rates of loading. His research finds application in development of constitutive behaviour of materials, understanding of the basic mechanics of large deformation, design for crashworthiness of road and air vehicles, design for safety in defence applications and in design of metal forming processes. He has published his research in over 200 national and international journals, guided a large number of PhD and M.Tech. students, and undertaken national and international research and consultancy projects. He has been visiting Professor or Fellow at numerous universities worldwide and has served on the editorial board of many journals.

Professor Gupta is past President of the Indian Society of Theoretical and Applied Mechanics and past President of the Indian Society of Mechanical Engineers. He has been Chairman of the National Committee of Indian National Science Academy for the International Union of Theoretical and Applied Mechanics (IUTAM) and the International Mathematical Union (IMU); he is member of IUTAM Bureau and its Congress Committee, and Chairman Solid Mechanics Panel of the International Conference of the Industrial and Applied Mathematics. He is member or chairman of several other national and international academic bodies.

Professor Gupta is Fellow of Indian National Science Academy, Indian National Academy of Engineering, National Academy of Sciences, India, Aeronautical Society of India, Institution of Engineers and TWAS. He is recipient several honours and awards including the Erskine Award (New Zealand) and the Alexander von Humboldt (Germany) Research Award. He has been conferred Doctor Honoris Causa of the Russian Academy of Sciences.

Professor Gupta was conferred Padma Shri by the President of India in 1991.



Mohamed Hag Ali Hassan, Executive Director, IAP; President, African Academy of Sciences

Professor Hassan is Executive Director of IAP, Executive Director of TWAS, President of the African Academy of Sciences (AAS) and Chairman of the Honorary Presidential Advisory Council for Science and Technology in Nigeria.

After obtaining his D.Phil. (University of Oxford, 1974), he returned to Sudan as professor and Dean of the School of Mathematical Sciences at the University of Khartoum. He was the 1985 TWAS Fellow in Mathematical Sciences. He received the Comendator (1996), Grand Cross (2005), and National Order of Scientific Merit, Brazil; and Officer, Order of Merit of the Italian Republic, 2003.

Professor Hassan's membership includes: Founding Fellow, AAS, 1985; Fellow, Islamic World Academy of Sciences, 1992; Honorary Member, Academia Colombiana de Ciencias Exactas, Físicas y Naturales, 1996; Corresponding Member, Académie Royale des Sciences d'Outre-Mer, Belgium, 2001; and Foreign Fellow, Pakistan Academy of Sciences, 2002.

Hans Hilgenkamp, The Young Academy, Royal Netherlands Academy of Arts and Sciences; IAP Young Scientist, 2008 World Economic Forum

Professor Dr. Hans Hilgenkamp obtained his M.Sc. and PhD (1995) in Applied Physics at the University of Twente, Enschede, The Netherlands, specializing in superconductivity. Between 1995 and 2000 he worked as a post-doc at the IBM Zurich Research Lab, Switzerland and the University of Augsburg, Germany, before returning to the University of Twente. In 2005 he was appointed there as a full professor. Since 2007 he is also visiting professor in the Faculties of Science and Engineering at the National University of Singapore, and in the fall of 2007 he spent three months at CSIRO Sydney, Australia.

Professor Hilgenkamp is a board member of the Young Academy of the Royal Dutch Academy of Sciences. His research relates to the physics and applications of materials with unconventional electronic properties, such as high temperature superconductors and related compounds. He has published about 100 articles, and holds three patents. He has been awarded the Dutch 'VIDI' and 'VICI' research grants and the University of Twente Central Education Prize.



Tarek Hussein, President, Academy of Scientific Research and Technology, Egypt

Dr. Mohamed Tarek Hussein is a theoretical physicist whose research focuses on phenomenological models of hadronic interactions in particle physics and the clustering phenomena of particle production in hadron-nucleus and nucleus-nucleus interactions. He is the President of the Academy of Scientific Research and Technology in Egypt and Professor of Theoretical Physics and Vice Dean for Education at the Faculty of Science, Cairo University (2004-2007). Since 2006 he has also been the manager of Cairo University's Center for Advanced Interdisciplinary Sciences. He is a Member of the Council of Atomic Energy Authority, Egypt.

Dr. Hussein received his B.Sc. and PhD in High Energy Particle Physics from Cairo University and has spent most of his career there. In 1995, he was awarded the Egyptian Prize in Physics and in 2000 he was awarded the Kingdom of Saudi Arabia Medal in Physics.

Dr. Hussein coordinated the Egyptian National Committee on Synchrotron-light for Experimental Science and Applications in the Middle East (SESAME) in 2006. He is also a member of the Egyptian Physics Society.

Prof. Soodursun Jugessur, President, Mauritius Academy of Science and Technology

A scientist and engineer with an M.Sc in Physics and a D.Sc in Electrical Engineering (Quantum Electronics), Prof. Jugessur served the United Nations from 1982 to 2000 as the Chief of the Science and Technology Section of the Economic Commission for Africa (UNECA). During the last years of his tenure, before retiring, he led the North Africa Sub-Regional Development Center in charge of social and economic development.

Before joining the United Nations, he was the Head of the School of Technology and Pro-Vice Chancellor of the University of Mauritius, where he joined as a Lecturer and left as a Professor of Industrial Technology (1970-1982). Presently he is the Chairman of the Mauritius Research Council, and Chairman and Pro-Chancellor of the University of Mauritius. He has published widely, and his latest book "Science-Based Development, Policy Issues" has laid the basis for a proper national science and technology policy.

The Mauritius Government, in recognition of his contribution to education and social reform, presented him with the Insignia of Commander of the Star and Key of the Indian Ocean (CSK), and more recently, with the very high award of the Grand Officer of the Star and Key of the Indian Ocean (GOSK).



Roderick Macdonald, President-Elect, The RSC: The Academies of Arts, Humanities and Sciences of Canada

Roderick Macdonald is F.R. Scott Professor of Constitutional and Public Law at McGill University, where he was Dean of Law (1984-1989). He was co-Director of the Community Law Programme at the University of Windsor (1976-1979), chaired the Task Force on Access to Justice for the Ministère de la justice du Québec (1989-1991), served as Director of the Law and Society Programme of the Canadian Institute for Advanced Research (1989-1994), participated in the Ontario Civil Justice Review (1995), and was founding President of the Law Commission of Canada (1997-2000).

Professor Macdonald was elected to the Royal Society of Canada (RSC) in 1996, and was named a Fellow of the Pierre Trudeau Foundation in 2004. In April 2007, Professor Macdonald was awarded a Killam Prize, Canada's most distinguished annual award for outstanding career achievement in research. In September 2007, he was honoured with the University of Ottawa Section de droit civil's Ordre du mérite and in November 2007 was awarded the Sir William Dawson Medal for the Social Sciences by the RSC. In November 2008 he became President-Elect of the RSC.

Arto Mustajoki, President, Finnish Academy of Science and Letters

Arto Mustajoki is Professor of Russian Language and Literature at the University of Helsinki. He has been Dean of the Faculty of Arts and Vice-Rector responsible for study and research affairs at the University of Helsinki. He was a member of the Board of the Academy of Finland (2001-2006) and Chair of the Research Council for Culture and Society of the Academy of Finland.

Professor Mustajoki has numerous domestic and international academic responsibilities including as a Member of the European Strategy Forum on Research Infrastructure, and the Network Board of HERA (Humanities in the European Research Area). He became President of the Finnish Academy of Sciences and Letters in 2008.

Professor Mustajoki has consulted for the World Bank and the European Union and has policy research interests in peer review practices, socio-economic impact of research, research evaluation, and allocation of resources

Professor Mustajoki is an Honorary Doctor with the Russian Academy of Science and an Honorary Professor at Moscow State University. He received the Order of the Friendship of Nations (Russia) in 1990, and the Finnish Commander Order in 1994.



Tanveer Naim, Consultant, Pakistan

Dr. Syeda Tanveer Kausar Naim was trained in the universities of Pakistan, UK, Germany and Australia. She is currently working as consultant on Science, Technology and Innovation Policy to the Organisation of the Islamic Conference (OIC) standing Committee on Scientific and Technological Cooperation.

During 2001-2004 she served as Chairperson, Pakistan Council for Science and Technology (PCST) and as secretary to the National Commission on Science and Technology. As Chairperson of PCST, Dr. Naim was instrumental in proposing strategic plans and policies to the government for restructuring of the research and development and higher education systems so as to integrate them into the mainstream of national development plans and policies. She convened a multi-disciplinary group of public and private sector experts for preparation of the Technology Based Development Vision for Pakistan in which key projects in each sector of the economy were identified. This vision was presented and approved by the cabinet on 1st August 2007.

Dr. Naim played a key role in the conclusion of a landmark agreement on science and technology collaboration between Pakistan and the United States in 2003, an important element of the long-term bilateral strategic partnership. Dr. Naim also negotiated the terms for sending Pakistani students for hi-tech and advanced studies abroad as well collaborative bilateral projects and programs with China, the United Kingdom and the Republic of Korea.

She is Member of the United Nations Educational, Scientific and Cultural Organization's (UNESCO) International Advisory Board on reform of Higher Education and science and technology in Nigeria, Member of the Gender Advisory Board of UNESCO and Member of the Advisory Committee of Science Development Network. As a consultant to UNESCO and European Union she reviewed the science, technology and innovation policies of Maldives, Malaysia, Nigeria and Turkey.

Peter Nicholson, President, Council of Canadian Academies

Dr. Peter Nicholson has a PhD in Operations Research from Stanford University, an M.Sc. in Physics from Dalhousie University and completed a computer science faculty stint at the University of Minnesota. He has complemented this academic background with a series of assignments alternating between the public and private sectors. These have included senior executive positions in the banking, telecom and fishing industries; and a variety of federal government positions including Finance (1994-95) and the Prime Minister's Office, where he was Chief of Policy (2004-05). Dr. Nicholson also served as Special Advisor to the Secretary-General of the OECD (2002-03).

He has served in a broad range of voluntary roles including the National Advisory Board of Science and Technology; the Fields Institute for Research in Mathematical Sciences (as founding chair); the Research Council of the Canadian Institute for Advanced Research; and as founding chair of the Members of the Canada Foundation for Innovation.

In 2002 Dr. Nicholson was appointed a Member of the Order of Canada.

Gunnar Öquist, President, Royal Swedish Academy of Sciences

Professor Gunnar Öquist's field of research is stress and adaptation mechanisms in photosynthesis with a particular emphasis on elucidating the physiological responses of photosynthesis under the combined conditions of low temperature and high light. Professor Öquist has more than 150 publications in international journals. He was head of the Department of Plant Physiology at Umeå University between 1981 and 2003.

Professor Öquist was the head of the Swedish Natural Science Research Council (1993-1999), and since 2003 has been the Permanent Secretary of the Royal Swedish Academy of Sciences. He has been member of the Board of the European Science Foundation, the European Research Advisory Board and is currently member of the Board of Bergen University and the Board of the Danish National Research Foundation. Professor Öquist has also led several national and international reviews of science and research.

Professor Öquist is member of the Royal Swedish Academy of Sciences, the Royal Society of Canada, the Australian Academy of Sciences and Academia Europea.

Dr. Sergio Pastrana, Foreign Secretary, Cuban Academy of Sciences; Chair, IAP Membership Committee

Dr. Sergio Jorge Pastrana is educated in Cuba. His interests in international cooperation relate to the history of early international contacts of the Cuban scientific community, and its influence on the building of a national scientific capacity in Cuba, a subject on which he has published and lectured both, in Cuba, and abroad.

Pastrana has been involved in the establishment and coordination of international programs of cooperation of the Academia de Ciencias de Cuba since 1975. He has been a Secretary to the Cuban National Committee for the International Council for Science (ICSU) since that year. In 1983 he was appointed as head of the Department for Academic Cooperation of the Cuban Academy.

From 1992 to 1996 he was the representative of the Government of Cuba to the Implementing Committee, and eventually to the Executive Council, of the Inter American Institute on Global Change Research (IAI). From 1994 to 1996 he was appointed as Deputy Director for International Cooperation at the Ministry for Science, Technology, and Environment of the Republic of Cuba. Since 1996 he has been the Foreign Secretary of the Cuban Academy of Sciences. He has served in different commissions and boards for Cuban scientific institutions and societies, and presently he is a member of the Advisory Commission on International Relations of the Minister for Science, Technology, and Environment of Cuba.

Pastrana is a member of the Caribbean Academy of Sciences and a member of the Board of the Caribbean Scientific Union. Since 2003 he has been a representative of the Cuban Academy to the Executive Council of the Inter Academy Panel on International Issues, where he has been directly involved in the groups coordinating initiatives on Biosecurity and Genetically Modified Organisms, and presently chairs the Membership Committee. He is an Ordinary Member of the Executive Board of ICSU for the period 2005 to 2011.

Shelly Peers, Education and Public Awareness Manager, Australian Academy of Science

Shelley Peers is Education and Public Awareness Manager at the Australian Academy of Science and Managing Director of their "Primary Connections" Project. She holds a Master of Education (Research) focussing on teacher professional learning. She was a medical biochemist before training as a primary school teacher and teaching in classrooms for seven years.

Shelley has held roles as a syllabus writer, curriculum developer, and science education officer before managing the implementation of science education programs in state and catholic education systems from Preschool to Year 12. She then held the role of Senior Project Officer to the Director of the Queensland Studies Authority before becoming A/Deputy Director of the Strategy Branch of QSA. In 2007 Shelley was awarded the Nancy Fairfax Churchill Fellowship to study inquiry-based primary science education programs in France, the UK and the USA.

Simon Schwartzman, Brazilian Academy of Sciences

Simon Schwartzman is a senior researcher at the Instituto de Estudos do Trabalho e Sociedade in Rio de Janeiro. He studied sociology, political science and public administration at the Federal University of Minas Gerais, Belo Horizonte, Brazil (1958-1961), attended UNESCO's Latin American School of Social Sciences (FLACSO) in Santiago de Chile (1962-1963), and obtained his PhD in political science from the University of California, Berkeley in 1973. He is a member of the Brazilian Academy of Sciences, and a recipient of the Brazilian Order of Scientific Merit.

He taught and worked as a researcher at the Federal University of Minas Gerais, Instituto Universitário de Pesquisas do Rio de Janeiro, Fundação Getúlio Vargas and the Universidade de São Paulo. From May 1994 to December 1998, he was the President of Brazil's National Statistical Office (Fundação IBGE). In 2004 he was the Robert F. Kennedy Visiting Professor of Latin American Studies at Harvard University, in the Department of Sociology. His earlier work dealt with political change in a historical and comparative perspective, with special emphasis on Brazil. More recently, he has worked with the sociological and political dimensions of the production of knowledge, in science, technology and education.

Volker ter Meulen, President, German Academy of Sciences Leopoldina; Chair, European Academies Science Advisory Council

Volker ter Meulen studied medicine in Münster, Innsbruck (Austria), Kiel and Göttingen, received a training in virology at the University of Philadelphia, USA, and in pediatrics at the University Hospital of Göttingen. In 1975 he became Chairman at the Institute of Virology and Immunobiology, University of Würzburg. His major research investigations have been directed towards the study of the etiology and pathogenesis of persistent viral infections with particular emphasis of the central nervous system.

Professor ter Meulen was twice Dean of the Faculty of Medicine at the University of Würzburg and due to the recognition of his research achievements and his experience in heading a medical faculty successfully, ter Meulen has served as a member of many national and international committees giving scientific advice to policy makers and society. Since 2003 he has been the President of the Germany Academy of Sciences Leopoldina.

Appendix 4: Summary of Responses to the Online Survey of Advisory Roles

Presented at the InterAcademy Workshop on:

**Best Practices in Advisory Roles
and Fellowship Appointments**

Trieste, Italy

12-13 February, 2009



**Council of Canadian Academies
Conseil des académies canadiennes**

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BACKGROUND

In December 2008, an online survey was launched to learn more about the activities and approaches to advisory roles of participants in the InterAcademy Workshop on Fellowship Appointments and Advisory Roles. The survey was open until 31st January and can be found at <http://freeonlinesurveys.com/rendersurvey.asp?sid=bbj88hmjw0k8haw519879>.

After accounting for duplications, there were 26 responses to the survey. A breakdown by question is presented in the following pages; each question is presented as it was written in the survey and a summary of the answers to the question follow. Not all respondents provided an answer to every question, so the number of responses to each question is indicated.

The survey was administered by the Council of Canadian Academies, in collaboration with the InterAcademy Panel. For more information on the survey, or to receive an Excel spreadsheet of all results, please contact eleanor.fast@scienceadvice.ca.

OVERVIEW OF RESULTS

In general, the results of this survey highlight the huge differences among academies^{1,2} in terms of resources, but showed that in general most academies aim to fill the same kind of role in their country, representing the best of science across a range of disciplines, providing advice on scientific issues, encouraging participation and improving the quality of science in their country.

The survey showed that the advisory functions of academies take many forms, but most academies include major written reports as a form of advice; these reports vary enormously in size and scope from a few thousand dollars to over a million, and take from a few weeks to two years to complete. Nearly all academies use invited experts to inform the preparation of major studies. In general, reports are aimed at a government

¹ Throughout this document, “academy” is used to indicate the entity responding to the questionnaire, though the name may vary according to the country.

² The results of this survey are not necessarily applicable to all academies, just to the subset of respondents.



audience, are paid for by academies or sponsors, and are generally peer-reviewed (internally, and in many cases externally), prior to submission.

This survey demonstrates that academies share many of the same aspirations and engage in many similar processes. It highlights the tremendous benefits for all academies in sharing experiences and challenges in workshops such as this one; with so many different approaches to similar goals, there are valuable lessons for us all.



RESPONSES TO QUESTIONS

Question 1: What is the name of your academy?

26 responses

There were 26 responding academies. Please see table 1 (on last page) for list of respondents.

Question 2: What fields are represented by your academy? (Please check as many as apply).

- Natural sciences.
- Health sciences.
- Social sciences.
- Engineering sciences.
- Arts.
- Humanities.

26 responses

As shown in figure 1, all 26 academies who responded represent the natural sciences, and almost all represent health and engineering (25 each). Social sciences (17), humanities (11) and the arts (6) are represented by fewer academies. The lower representation of humanities and arts is likely due to many countries having academies dedicated to these disciplines.

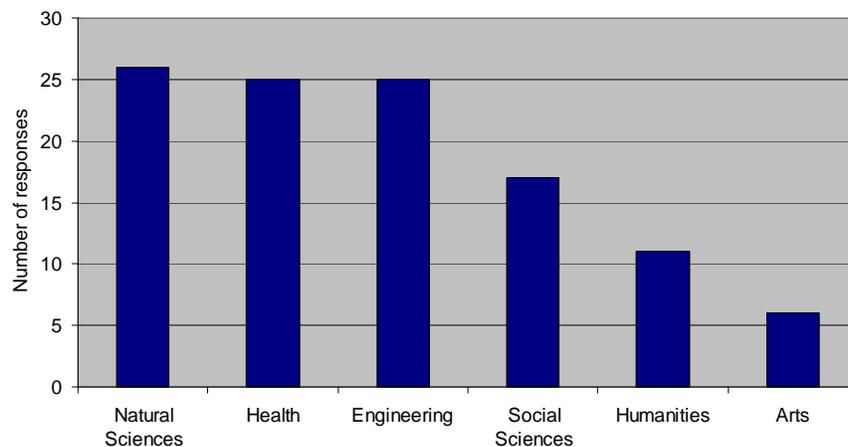


Figure 1: Fields of academic study represented by academies

Question 3: How many employees (full time equivalent) are engaged by the academy secretariat?

26 responses

There was huge variety among respondents in the number of employees. Responses ranged from four academies which have no full time secretariat, to the National Academies of Sciences (US) which has 1200 employees. The median number was 26. Please see table 1 for data.

Question 4: Other than appointment of members (or academy fellows), which of the following activities is your academy regularly engaged in?

- *Sponsorship of lectures, symposia, conferences.*
- *Awarding of prizes or other forms of recognition of merit.*
- *Submission of position statements to governments and/or to the general public.*
- *Grants or awards to support students.*
- *Grants in support of the conduct of research.*
- *Publication of journals of scholarly research.*

26 responses

The responses to this question show that nearly all academies engage in a variety of activities, even those with limited secretariat support. As shown in figure 2 below, almost all academies sponsor lectures, symposia and conferences (23); awarding of prizes (21); and submission of position statements (20). Over half of respondents produce journal publications (18). Less common activities are funding research (11) and student awards (9).

Other responses to this question included:

- Travel grants for researchers.
- International activities and capacity building (3).
- Support and coordination of professional societies.
- Acting as a think-tank.
- History of science.
- Technical services for standards and calibration.



- Technology transfer activities.
- Women in science.
- Portal for science education in schools.
- MP-scientist pairing scheme.
- Addressing cases of violations of human rights of scientists and medical personnel.

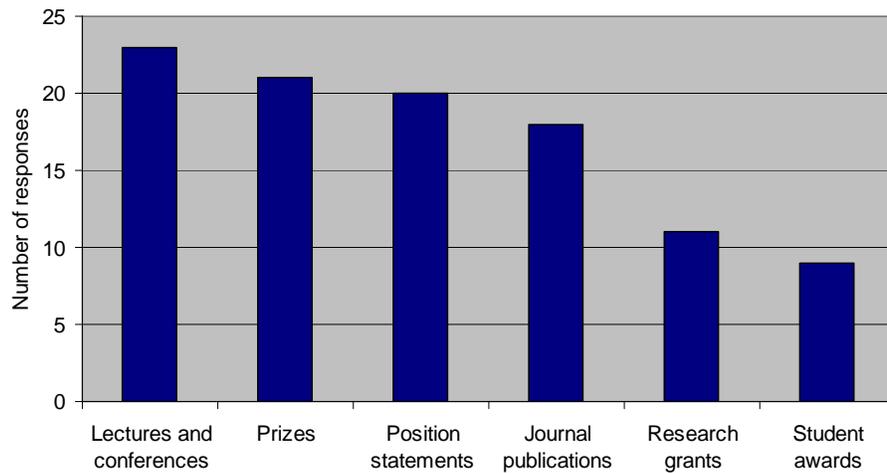


Figure 2: Types of activities carried out by academies.

Question 5: What form does the academies advice-provision take? (Please check as many as apply).

- Short academy-endorsed written position statements.
- Private advice delivered to government either orally or via confidential letter.
- Major studies in the form of major written reports.
- Submissions to formal governmental or parliamentary inquiries.
- Workshops and workshop reports.

25 responses

Responses to this question show that the vast majority of academies engage in a variety of advisory functions, in fact only three academies report engaging in only one type of advisory activity. As shown in figure 3 below, the commonest form of advice are workshops and major written reports, though all activities are undertaken by at least half of respondents.

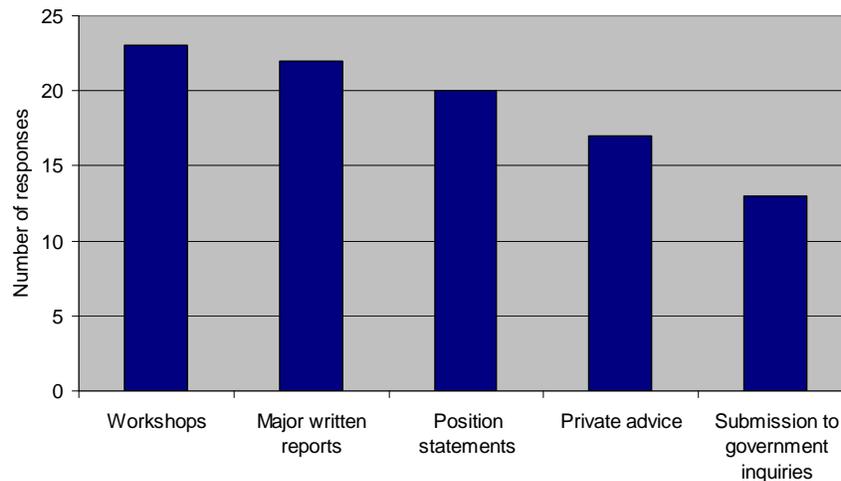


Figure 3: Mechanisms for providing advice

Question 6: If your academy performs formal studies on subjects of public interest: (please check as many as apply)

- Are they self initiated?
- Are they undertaken for government?
- Are they undertaken for private sector businesses or business organizations?
- Are they undertaken for some other sponsor?

25 responses

Results for this question show that the majority of studies are self-initiated (23), and most are performed for the government (17). Few academies perform studies for private sector businesses (5). Four of the responses for the “other” category stated that these were being undertaken for international organizations such as United Nation agencies or international NGOs.

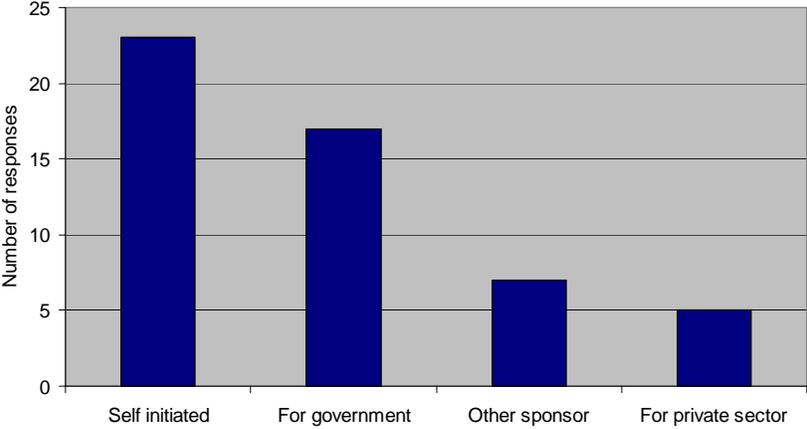


Figure 4: Characteristics of formal studies undertaken by academies.

Question 7: How is the work identified in question 6 carried out? (Please check as many as apply).

- By panels of experts.
- By academy staff.
- By consultants retained for the purpose.

25 responses

Most academies make use of expert panels (24) to perform advisory processes. Academy staff develops advice (18) in over half of responding academies, and consultants are used by 11. Other responses included universities, government ministries and NGOs.

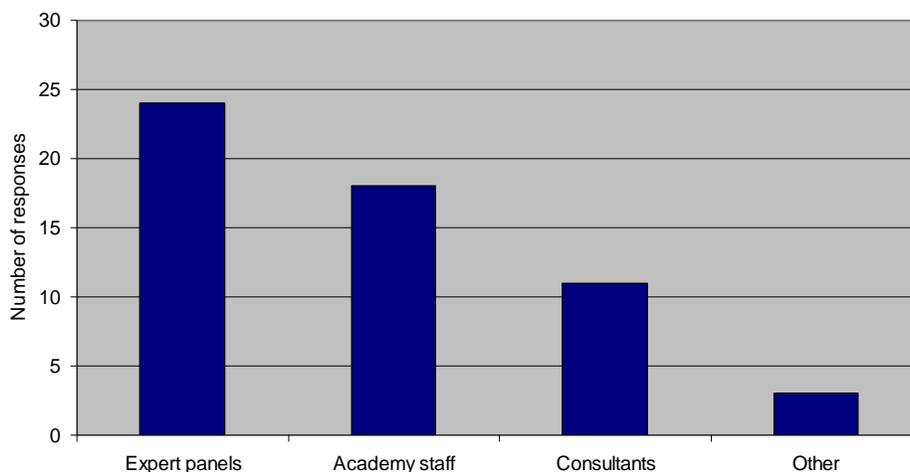


Figure 5: Personnel engaged to carry out assessments

Question 8: If the academy prepares major reports (see Question 5 above), then what is the scale of a typical example of such a report? (Please provide typical ranges):

- *Length of report.*
- *Time to complete.*
- *Approximate cost.*

22 responses

Academy responses are provided in table 1 (on last page). Length of reports varies between 2,500 and 100,000 words, with a median of 25,000 words. Time to complete varies from two months to two years, with a median of 6 months. Cost is extremely variable, ranging from US\$5,000 to US\$2 million, with a median of US\$31,000. The results of this question highlight the huge variability in the types of reports being produced, and the resources available.



Question 9: *Approximately how many studies would your academy undertake per year?*
25 responses

The number of studies undertaken per year varies between one and a hundred, with the only five academies reporting completing over 10 studies per year. The median number of studies completed per year is four; full details are found in table 1 (on last page). As shown in figure 6, in general academies with more employees carry out a greater number of assessments each year.

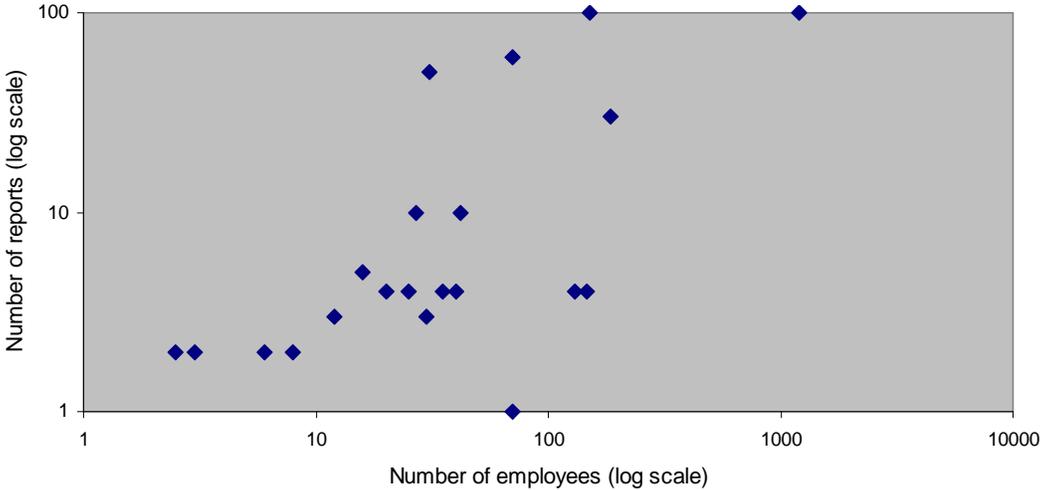


Figure 6: Number of employees plotted against the number of reports produced annually by each academy.

Question 10: Does the academy (or a panel appointed by the academy) draw on outside views to inform the preparation of a major study?

- No.
- Invited experts.
- Broad public input (e.g. via a website or other call for comment).

25 responses

As shown in figure 5 below, the most common form of outside views is from invited experts (22). Nine academies reported soliciting broad public input, and two did not seek outside views in the preparation of reports.

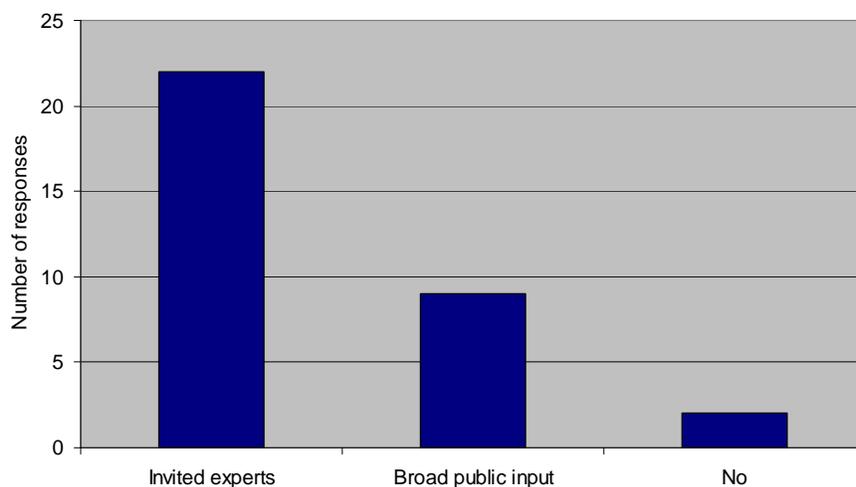


Figure 7: Outside views drawn upon for the preparation of major studies.

Question 11: What steps does your academy take to ensure quality of output? (For example, does the academy have an independent peer review process to help guide the advice of studies?). Please describe very briefly your quality assurance processes.

25 responses

Answers to this free-form question were coded by the Council of Canadian Academies as none, internal peer review (within the academy performing the work), or external peer review (in this case there may also be internal review). As shown in figure 6 below, most academies employ review processes before releasing reports. This takes the form of external peer review (10) or internal review (14), only one academy does not require review prior to release. Some academies require approval of their Council or Board prior to report release.

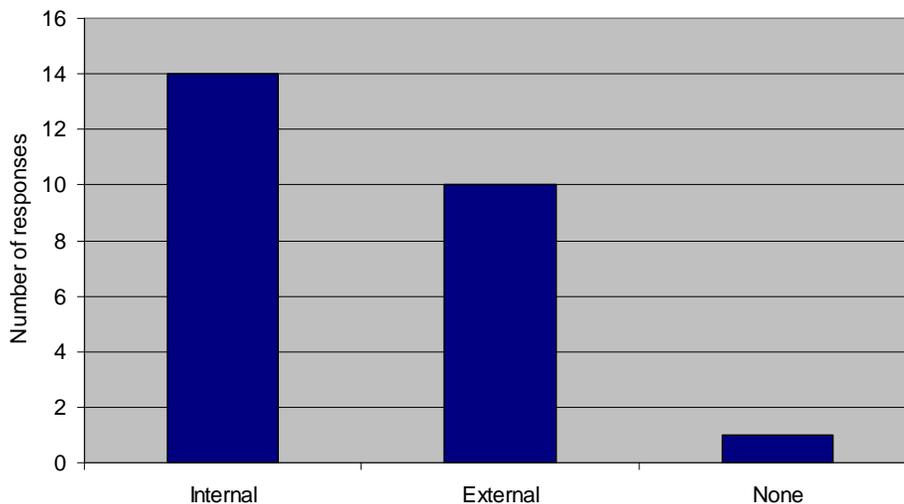


Figure 8: Review processes used by academies before releasing reports

Question 12: By what process does the academy seek to develop member consensus on the content of its reports, statements and other forms of advice put forward as positions of the academy?

24 responses

There was a wide range of responses to this question, a summary of which is listed below:

- Through general meetings of the Academy (5).
- Through workshops (3).
- Via the Academy website (2).
- Via email.
- Through the media.
- There is no process to develop consensus of the full membership of the academy, which is not asked to endorse the individual reports.

Question 13: What is done to maximise the impact of the advice? (e.g. media relations, public symposia, newsletter). Briefly describe any measures taken to evaluate the impact of advice.

24 responses

Nearly all academies report using media relations of some form to publicise reports. Some have public symposia or other mechanisms for raising awareness. Difficulties in assessing the impact of advice were highlighted by several respondents. Some use uptake by government as the primary measure, and record mentions in the media, as well as mentions in parliament. A summary of responses is recorded below:

On publicising reports:

- Media relations (5).
- Public symposia (3).
- Personal copies to policy makers (3).
- Via website or email lists (3).



- Newsletter (2).
- Presentation at major conferences.
- On the space channel.

On evaluating impact:

- No mechanism for evaluation.
- Need to improve evaluation.
- Impact can only be measured by positive legislation and favored budgets.
- There is no generally applicable process to evaluate the impact of the advice. Academy leadership and professional staff leadership are charged with addressing questions of impact, for example in all of the regular periodic program reviews.
- Personal interviews with government officials.
- Gather evidence of action taken following recommendations by the Academy.



Question 14: How are major studies funded? Please indicate the rough proportion of studies that are supported in each way.

- Contract with a sponsor.
- Academy.
- Other.

22 responses

The survey results for this question show that on average about half of studies are funded by academies themselves, just under 40% through a contract with a sponsor and about 10% by other means. However, as shown in figure 6, this varies tremendously among academies, with some academies funding assessments solely from their own funds, others solely through sponsorship, and many via a combination of the two.

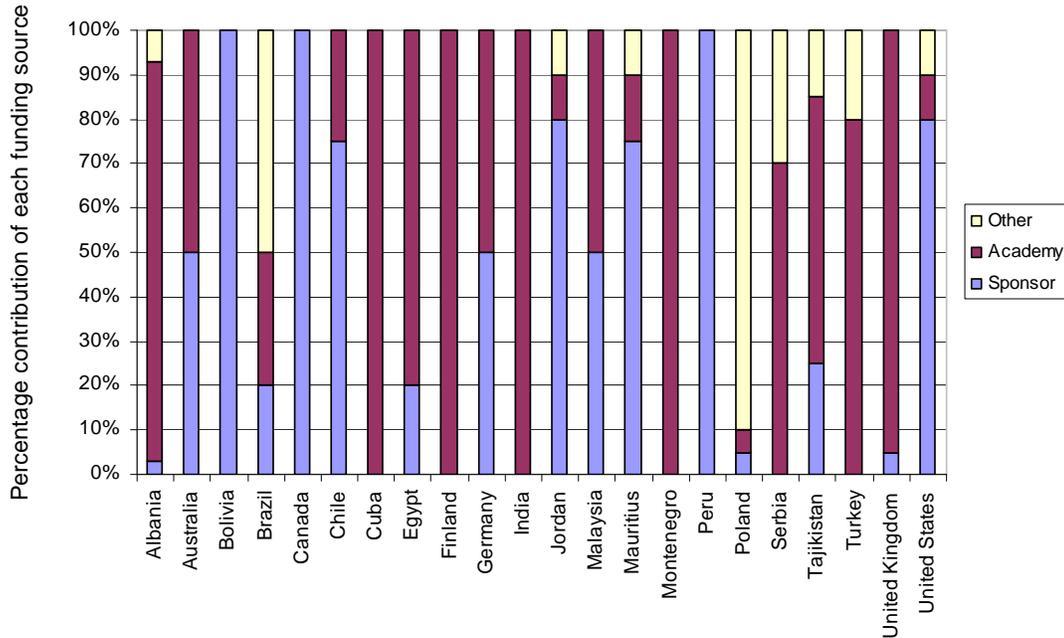


Figure 9: Funding sources for studies by each academy

Question 15: Are academy reports and other key documents made accessible in English?

- *Always.*
- *Usually.*
- *Occasionally.*
- *Never.*

24 responses

About one third of respondents answered each of always, usually and occasionally. No respondents indicated that reports are never made available in English.

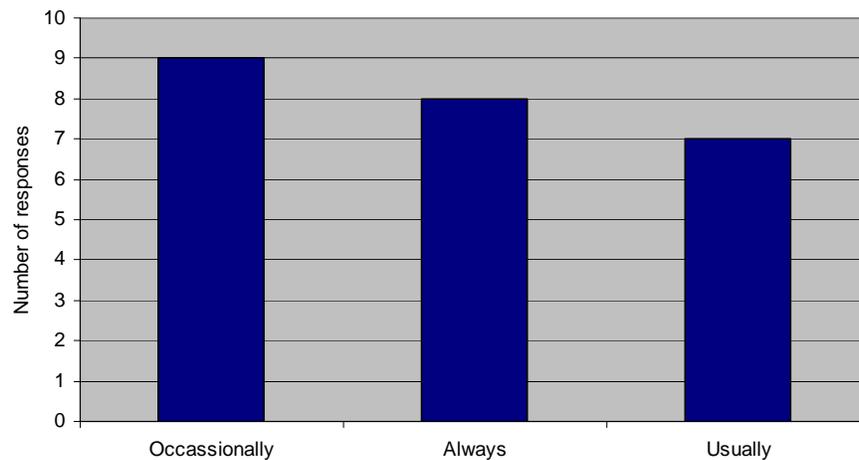


Figure 10: Number of academies making reports available in English always, usually or occasionally.



Question 16: If possible, please provide one or two examples of recent topics of studies or advice. For whom were these prepared? What forms did they take – e.g. written report; short report; short position statement; oral presentation? Were there any other partners engaged in these outputs?

24 responses

Most responses to this question concentrated only on the first aspect – providing examples of recent topics. Where format was indicated it was either via a written report (11), workshop (3) or letter (2). Only one respondent directly addressed the question of whether partners were involved, indicating that there were no partners. A list of topics provided in response to this question appears below:

- Proposal for a Law on Agricultural Development.
- Assessment of the National Innovation System.
- Study Report on the Amazon Region.
- Regulatory Challenge of the Nanoscale.
- Energy from Gas Hydrates: Opportunities and Challenges for Canada.
- Analysis and Projections of Chilean Science.
- Input contribution to National Position on Human Cloning.
- Written Report on the State of the Art of Hydrology in Cuba.
- Treatments of National Diseases.
- Energy use of peat and its consequences.
- School violence.
- Opportunities and Challenges of Vaccination.
- Women in Science in India.
- A report on the outbreak of water contamination at Northern Jordan.
- Earthquake and Tsunami Hazards and Risk.
- Study on Skadar Lake (Montenegro).
- Supervision of the Strategy of Energy for Montenegro.
- Hypertension – current situation and state of research in Poland.
- The institutionalization of the activities of young scientists.
- Ground water in Sri Lanka.



- Report on doctoral education.
- Management options for the UK's stockpile of plutonium.
- Sustainable biofuels.
- A major set of reports currently in preparation will assess the technical readiness of the entire range of energy technology options.

Question 17: Does your academy engage in any form of outreach with the general public and / or with youth or disenfranchised groups? What form does this take?

23 responses

There were 23 academies which indicated they perform some kind of outreach to the general public. The most common form is via public events such as conferences, lectures, seminars and workshops (11), open meetings of academies (2), a newsletter (2) or through articles in the media (2). A selection of responses appears below:

- Series of lectures for science secondary school teachers
- The Academy supports activities such as science fairs, and popularization of journals and periodicals.
- Conducting scientific clubs.
- The Academy's monthly meetings are open to general public.
- Participation in international human rights activities.
- After an earthquake, to prepare an intensity map of the area affected.
- Talks on science topics in schools, by invitation.
- Our Bulletin reaches an academic and government audience, but we plan to increase its circulation.
- Once a month the Academy organizes free meetings, open to the general public, with leading Polish scientists representing various domains who, in an accessible way, present recent research findings (Wszechnica).
- The Academy invites outstanding, internationally recognized foreign scientists. Within the last six months meetings with two Nobel Prize awardees (Prof. James D. Watson and Prof. Jean-Marie Lehn), were organized for students and interested public.
- All conferences and symposia organized in the Academy are open for public and each meeting is advertised in the media.



- The Academy has recently initiated a project to stimulate interest in science among rural children through information and communications technologies (ICT).
- The few studies undertaken are sponsored by private donations from the Academy Council members or undertaken by unpaid volunteers
- Prof El Hassan President of SNAS (Sudan) published the following article in the local press and also presented them in workshops and conferences locally and abroad. These included: cancer of the breast in Sudan, cancer of the cervix in Sudan, Burkitt lymphoma in Sudan, and asbestosis. All these topics are major health problems in Sudan
- Informing the public on scientific matters affecting their daily lives and science education for children are major priorities of the Academy. Outreach to the public is through the Academy's website, science education portal and announcements to the media (newspapers).
- There is a wide range of public programs, such as public lectures, publications aimed at a popular audience, and programs to assess the progress in involving women and minorities in science careers.



Table 1: Results for questions 1, 3, 8 and 9

Q. 1. Academy name	Q.3. Number of employees	Q.8. Study length	Q.8. Time to complete (months)	Q.8. Cost (US\$)³	Q.9. Studies per year
Academy of Sciences of Albania	31				50
Australian Academy of Science	30	10-100 pages	2-24	\$2,000 to \$20,000	3
Academia Nacional de Ciencias de Bolivia	8	30,000 words	6	\$20,000	2
Brazilian Academy of Sciences	40	30-150 pages	6-12	\$50,000	4
Council of Canadian Academies	16	30,000-80,000 words	12-24	\$350,000	5
Academia Chilena de Ciencias	3	book of 250 pages	12	\$100,000	2
Academia de Ciencias de Cuba	12	4000-5000 words	3-6		3
Academy of Scientific Research and Technology, ASRT, Egypt	150	10-100 pages	1-6	\$2,000 to \$10,000	100
Finnish Academy of Science and Letters	6	30 pages	6	\$50,000	2
German Academy of Sciences Leopoldina	25	5,000-90,000 words	4-36		4
Academy of Medical Physical and Natural Sciences of Guatemala	1				
Indian National Science Academy	70	120 pages	12	\$100,000	1
Royal Scientific Society, Jordan	20	Tens of pages	up to a few	\$5,000 to \$50,000	4
Academy of Sciences Malaysia	35	2,500 – 25,000 words	up to 24	up to \$2 million	4
Mauritius Academy of Science and Technology	0				2
Montenegrin Academy of Sciences and Arts	27	up to 60 pages	up to 12	\$65,000	10
Academia Nacional de Ciencias (Peru)	2.5				2
Polish Academy of Sciences	186			\$5,000	30
Serbian Academy of Sciences and Arts	146	up to 2500	2-3		4
National Academy of Sciences of Sri Lanka	0	35,000 words	3	\$1,000	1
Sudanese National academy of Sciences (SNAS)	0	50 pages	1	\$2,000	2
Academy of Sciences of Republic of Tajikistan	70	58,000	3	\$10,000	60
The Turkish Academy of Sciences	42	Up to tens of pages	Up to several		10
The Royal Society	130	55,000 words	12-14	\$40,000	4
National Academy of Sciences (USA)	1200	30,000 to 100,000 words	12 – 18	\$700,000 to \$2,000,000	100
Zimbabwe Academy of Sciences	0	2,500	2	\$10,000	1
Median	26	25,000	6 months	\$31,000	4

³ Costs were converted from the currency reported into US\$ using www.xe.com on 2 Feb 2009.

APPENDIX 5:
SUMMARY OF THE FINDINGS OF
THE SURVEY OF THE MEMBERSHIP
COMMITTEE OF IAP

Trieste, February 12, 2009

Introduction.

Though Academies of Sciences are among the oldest social institutions with a continuous existence that we can find today, there is little organized information to document their characteristics. In 1993, Dr. Joseph C. Kiger published an International Encyclopædia of Learned Societies and Academies that described Academies and Learned Societies of all kinds for fifty countries. That is the first attempt at a description of modern Academies that we know of. Kiger included both, Academies of Sciences as well as Academies and Learned Societies of many other kinds.

In the year 1998, IAP organized a workshop in Tobago, to discuss the advisory role of Academies, and for that meeting Dr. Peter Collins of the Royal Society of London prepared a report that summarized a survey he ran and which included replies from 29 Academies of Sciences which were members of IAP at that time.

In early 2008, IAP turned 15 years old, and decided to run a survey among its members to identify its constituency. IAP charged the Membership Committee with this task. The questionnaire for the survey was elaborated by the Committee, and later discussed and approved by February of that year by the Executive Committee. The survey was answered by 58 academies of sciences before the end of 2008. We hope to be able to increase the number of replies in early 2009. The table that summarizes those replies appears as annexes 1 and 2 to this report.

Besides, the Membership Committee of IAP consulted web pages that were recognized for every IAP member, and is trying to complement those replies to the questionnaire of the survey that were received with information that could be found in the net. Information about web pages of academies appears in annex 1 as well.

Finally, in preparation of the Trieste workshop, the Canadian Academy launched another survey, this one taken online, to acquire more information regarding the advisory role of Academies. To avoid conflicting with previously ran surveys this was run in the last few months preceding the workshop. Its results are to be presented at the meeting but the replies were shared with the Membership Committee to complement information presented in the annexes.

The works previously mentioned, and the replies to the questionnaires, confirmed that Academies of Sciences have many different histories, forms and structures, but they share a number of characteristics. The main idea behind this effort was to identify similarities and regularities among all different academies, in order to build an informative base to compare and report about the work that academies do, their respective roles, the way they have evolved and their relationship towards society.

The immense majority of Academies of Sciences have a core membership of Academicians that are granted that title for life. Though processes for the

nomination of candidates for election vary extensively, almost every academy elects members through a process of selection that includes a ballot for final decision. This is a process that in a way guarantees their independence of criteria in what their collective views are.

In contemporary societies, this independence of criteria can be considered an important asset in terms of what could become an undisputable source for independent authoritative advice to decision making. In human societies in which knowledge could be decisive in the search for a sustainable way of development, this would become the most important role for academies of sciences, although we have learned not all academies have a formal way to convey this advice.

Thus, within the IAP's aim of capacity building of academies of sciences this should be considered the most important ultimate objective. Of course, in an advisory relationship there are at least two partners, so it becomes also very relevant to evaluate what kind of recognition exists between advisers and decision makers and eventually support the academic institution to be an effective adviser. This will be one of the main themes for this First Workshop on the Role of Academies to be held in Trieste in February 2009.

However this is not the only task widely shared by Academies, and others are as important in terms of the public recognition of science. Another characteristic widely shared by most academies is that they grant peer recognition of scientific achievement within their societies in the form of prizes.

Although those prizes are probably the most publicized of their outreach activities (take for instance the Nobel Prize granted by the Swedish Academy together with others), that is not the only way to convey scientific prestige to the knowledge of the wider public, since the immense majority of academies also make public their collective views and those of their members and wider constituency through a number of ways, both electronically and in paper.

Finally, one of the most important function of academies is to also represent their collective constituency, both within their local societies and also abroad, as well as in international organizations of scientists, so this representative role which in many cases is linked to the local identity goes beyond national boundaries and becomes part of the national (or regional) identity. Together with their international partners, national academies carry our important international activities of many kinds.

We would try to describe the information collected through the survey on those topics and probably try to distinguish pro's and con's of those characteristics for some of the academies involved.

Scope of the Survey of the Membership Committee.

The survey was run for all the membership and observers in IAP as of 2008, and those are 100 Academies which are members and 11 Academies which are Observers. Of all academies of sciences recognized and identified in the world, only six national Academies were not members of IAP at that moment. Those are the National Academies of Afghanistan, Azerbaijan, Costa Rica, Peoples Democratic Republic of Korea, Vietnam and Zambia. Those have been unable to become IAP members for different reasons. They have been approached from time to time by different representatives of IAP and eventually we hope they would be able to join the Inter Academy Panel.

Since 2008, there can be more than one Academy member of IAP per each country. At least three other further academies have been identified in countries that are already represented within IAP. We shall contact those academies to explore their possible future involvement in IAP activities.

As stated in IAP statutes, countries that do not yet have an Academy and are intending to organize one can adhere to IAP through other relevant institutions. Some of those organization of scientists are already represented within regional organization of academies, but in general terms we can confirm that at this moment the membership of IAP is quite representative of Academies of Sciences that exist today all over the world.

Academies: their characteristics and their aims.

Origins

The origin of the academic institution in modern times follows the example of Plato's Academy in Greece and is the result of the process of social development known as the Enlightenment that evolved in Europe during the XVII century; within it, academies became part of the process of birth of the European Nation-State that happened at the end of the series of wars of succession that came to a close with the Peace of Westphalia (and others related) around the mid XVII Century.

While this was the reason of the origin of this structure in Europe at the time and that is why we find the few initial such organizations in Italy, UK, France and the different German states, there were varied reasons for the establishment of similar organizations elsewhere. However, in every case there was a wish for recognition, on the one hand, of national identity, and on the other hand, of excellence in knowledge.

Membership

According to their membership academies were born and grew following two basic models. Either their membership was unlimited as in the Royal Society of London, or they had a closed number of members, following the example of the Academie des Sciences in France. All but one of the member academies of IAP

have an elective membership. There is just one Academy that has no membership at all.

In practice, for most of them, the membership of Academies has evolved in time to include several types of fellows or members. It is difficult to classify those, since even the same terminology sometimes refers to quite different situations. Take for example: Member of Merit can refer both to the category of the most distinguished and thus more empowered members, and at the same time in other academies it is given to those who becoming older are retained within their membership but with no capacities or responsibilities left.

However, we can characterize membership in academies saying that generally, there are a core number of permanent members with full capacities that form the nucleus of the Academy, and then in most academies there are a wider number of membership categories that could include one or several of the following:

- Foreign or distant members which are not supposed to attend sessions of the Academy.
- Junior members out of which full members are elected
- Honorary members which are not active within the academy but are recognized for their contribution.

Though there is no definite answer regarding how membership should be organized and which case works better, we have observed the trend that due to increased life expectancy, academies with closed number of members have devised ways to increase membership in order to allow for active scientists to become involved in academic life at an earlier time, while at the same time ways have been devised to phase out members that due to old age become passive in their academic involvement.

What is essential to identify here is that the main strength of Academies resides in how representative their membership is, and how active they can be in carrying out that representation within society at large.

Responsibilities in Management

Generally speaking, at the national level there are five main tasks regarding Science, Technology and Innovation. First, there is a Science Policy Task; second, we find the Administrative Task of funding and programming research and technological innovation; third, there is the Monitoring, Evaluation and Assessment Advisory Task; fourth, there is the Education and Building Manpower Capacity Task; and finally, five, we have the Research and Development Task, of running labs and maintaining research activities.

Different countries have different structures to deal with those tasks, but if we take the cases that are most commonly found, the first task is typically found within a Ministry or National Secretariat, and the second one is found in a National Commission, Foundation or Council. These two first tasks are typically governmental and as such are in most cases the responsibilities of administrative bodies. The third task can be found generally at an Academy,

although there could be other advisory instances within the administration. In those cases, however, probably the incumbent person in charge in any advisory capacity would be a member of the Academy as well, anyway. Education is to be found always in Higher Education Facilities, but members of Academies are always close to those as well. Finally, actual research and development activities can be found in a variety of established organizations and can be quite distributed within the administration in any given country, going from University labs and centres, to national institutes under a variety of sponsoring institutions and even multinational research facilities.

As Science, Technology and Innovation became the main drives for social and economic development worldwide, countries of all sizes and stages in development started to establish mechanisms to address those issues. Not all countries followed the same path to organize their national effort in Science, Technology and Innovation, and in several cases an existing academy, or a new one, took on one or sometimes more than one of those roles.

According to their main tasks we can recognize several different types of Academies, and one first division can be found in academies that administer research activities through research facilities and centres, like the academies in say China, Hungary or Egypt, and those that do not have research capacities at all, like those in the USA, Great Britain, or France.

Within those that administer research institutions there is a wide spectrum, which goes from those which are the main national research administrator, like it is the case in China, to those that merely establish institutes and research groups or facilities that eventually become independent or are turned to the responsibility of other structures, like in the case of the Swedish Academy.

All this is the result of what has been an important argument throughout the XX century regarding the institutional research capacities and their respective efficiencies, which started by favouring or not the establishment of permanent research institutes over the more flexible scheme of research groups within universities. Ultimately, this is a responsibility that can be included within those of an academy or it can reside elsewhere in the administration. However, in the case of those academies that directly administer research activities, this generally becomes their main task, and it occupies most of their time and efforts.

With increasing developments in science and more complex experimental challenges, research facilities have become so big, expensive and complicated that sometimes are not even to be managed by a single country, nation or government, and they become multinational endeavours, like the International Space Station, or the Large Hadron Collider. Even within one country, sometimes big research facilities have to be shared by several scientific institutions. There are all kinds of arrangements between industry, government and many different stakeholders to organize, fund, and carry out research activities, but whenever that task is within the responsibilities of the National Academy of Sciences, it is so cumbersome that it may diminish any other objective within the aims of the institution.

Recognition of Excellence and outreach

One of the most publicized activities of Academies is the granting of prizes. Generally, academies establish or are given the responsibility to organize and support the process for the identification and recognition of the best examples of science related proficiency. Starting from the Nobel Prize established by the Nobel legacy within the Swedish Academy, scientific prizes have been increasingly recognized and diversified, and in most cases, are under the responsibility of the national academy that becomes an independent bona fide supporter of the recognition of excellence in science related activities.

Though this is the most significant activity academies carry out in terms of widespread public impact, it is not the only one and increasingly so, academies have been involved as well in popularization activities towards public recognition and appraisal of scientific endeavours.

Last, but not least, another very important role of Academies is the publication of journals, newsletters, magazines and monographs that might become the voice of the collective scientific community any given academy represents. In recent times, this outreach feature of Academies has become also part of the World Wide Web. In annex 1 we have tried to collect all recognized URL's that exist for academies of sciences. This is an activity in which more established academies can be of very useful help to small ones, by helping them create, establish and host a website, or translate its contents into English for easy dissemination.

The advisory role of Academies

This will be treated elsewhere in the workshop.

The representation of the scientific community

At the national level, although there might be different organizations that represent the national scientific community, as could be several NGO, unions and societies, whenever there is an Academy of Sciences, this becomes the quintessential collective representative of scientists before the rest of national society. In most cases, national academies are created, established or recognized by law, and this guarantees an official status to this body in relation to both: State and Government.

Though Academies had existed already in Europe for over 300 years and elsewhere for close to 50 years, it was not until the very last year of the XIX Century that an international meeting of Academies was convened in 1899. In spite of the increasing realization that science and technology were one of the main drivers of development, scientific multilateral disciplinary organizations only appeared in the second half of the XIX Century and international multidisciplinary activities in Science are a phenomenon that only developed during the XX Century, and even then, due to a complex international scene, at a very slow pace.

It was not until 1931 that the International Council for Science (ICSU) was established as a result of those efforts started in 1899 by that International Association of Academies (IAA) and continued after the First World War, in 1919, by the International Research Council (IRC). Even at that time, many countries became ICSU members not represented by their Academies. Of the 40 original National Members, less than half were represented by their National Academies of Sciences. It was not until the second half of the XX Century, after the Second World War, that ICSU could really start to develop its network of international links. In 75 years, ICSU has become the main representative of the international scientific community for the organization and promotion of international science, through the establishment and follow up of international multidisciplinary initiatives.

In 1993, a group of national academies of sciences started the Inter Academy Panel for International Issues (IAP) initiative. This organization appeared as a convener of the collective voice of its members in relation to international affairs. IAP was born out of the realization that national academies of sciences, the type of organizations formed by scientists elected by their peers in recognition of their merits, have a strong independent voice within each of their countries. An international association of such academies, therefore, could collectively provide highly qualified advice at an international level on problems related to science and its applications. It soon was realized that to do so effectively, programs and initiatives to gather this collective voice had to be organized. It was also understood that academies of sciences, born locally under differing conditions, were of a varied nature. As the notion that knowledge was to be found in any country and society became evident, it was also apparent that there were different levels of development within the community of academies and another important role IAP had to assume was to help upgrade the local capacities of the less developed academies. This will eventually allow us to bring local knowledge to bear on the solution of local problems, and to integrate such expertise into the collective wisdom of the whole Inter Academy Panel.

Conclusions.

Conclusions are open to discussion as a result of the workshop.