

**IAP: THE GLOBAL NETWORK OF SCIENCE ACADEMIES**

**STRATEGIC PLAN II**

**2010, 2011 and 2012**

*Adopted by the IAP General Assembly on 15 January 2010 at The Royal Society in London.*

## **EXECUTIVE SUMMARY**

### **IAP**

As one of the leading international science organizations, IAP brings together the combined expertise and talents of over a 100 academies of sciences worldwide and, through these academies, of the world's best scientific minds. IAP is unique in its ability to mobilize scientific excellence on a truly global basis.

IAP's mission statement is founded on the belief that science, scientific knowledge and scientific progress are an essential part of human culture and are vital to advance human welfare and well being. Much of the increased prosperity of the 20th century can be attributed to science-based innovation, but much remains to be done in the decades ahead to bring the benefits of science to all of humanity and to anticipate and provide solutions to the challenges facing the world today

Many of the tasks and targets IAP set itself in its first Strategic Plan for 2007-2009 have been achieved. IAP is now a more robust organization that is ready to take on the additional challenges set out in its second Strategic Plan for the years ahead. Whereas the first Plan focused on bringing more coherence to its activities and organization, the second Plan focuses on enhancing IAP's role in the world's decision-making arenas to continue demonstrating the social, economic and environmental value of science to society.

### **OBJECTIVES SP-II**

IAP's second Strategic Plan (SP-II) sets three overarching objectives:

- To position IAP as a recognized and independent provider of high quality global science advice.
- To initiate and support programs on capacity building, science education and science communication.
- To take a leading role in efforts to improve the effectiveness of international science cooperation.

In pursuing these objectives IAP will consolidate and build on its achievements so far. Ongoing commitments will be delivered and IAP will continue to welcome all initiatives of member academies for interacademy collaboration.

### **STRATEGIC AGENDA**

Each of the three objectives leads to a set of specific and concrete that activities that IAP will undertake in the years ahead.

#### **On global science advice**

IAP has been involved in providing science advice from its inception. However, under SP-II IAP will endeavor to enhance its role as a premier provider of merit-based science advice to decision-makers around the world. To that end IAP will:

- Actively support the recently created IAP-IAC Development Advisory Committee in its task to strengthen the relationship of IAP and IAC with UN organizations.

- Consult with appropriate international organizations on providing negotiators and policy-makers with high quality advice, particularly if they come from a country that lacks the required capacities.
- Explore opportunities for providing, on a more systematic basis, science advice to intergovernmental organizations, particularly the G21 and G77

### **On capacity building**

Capacity building of academies has always been an important objective of IAP. Under SP-II IAP will bring more focus to its activities in this area and reach out to a new generation of scientists. More specifically, IAP will:

- Continue to undertake and support especially those capacity building activities that are designed to enhance the advisory capacities of academies.
- Focus its capacity building efforts on academies in scientifically and technologically lagging countries and/or on creating academies in these countries.
- Issue a call for proposals to member academies for organizing (regional) workshops designed to strengthen the interaction between the science community and decision-makers.
- Issue a call for proposals to member academies for projects designed to engage young scientists in the work of the academy and it will strengthen its cooperation with the World Economic Forum other organizations on mobilizing young scientists for leadership roles.

### **On science education**

Improving the quality of science education worldwide has also been a long-term objective of IAP. In view of the generally recognized success of IAP's efforts in this area, IAP will:

- Continue its science education program by providing financial support to projects in this field proposed by member academies within the annual call for proposals.
- Await the report of the project *Global activities of the IAP science education program* to determine what changes, if any, to the program are needed.

### **On science communication**

IAP has regularly issued Statements on the scientific aspects of issues of special interest to global decision-makers. These Statements have had considerable impact and IAP will continue issuing them. However, under SP-II IAP will endeavor to strengthen its activities and those of its member academies in respect of science communication. In fact, enhancing IAP's role as provider of science advice and strengthening its involvement in science communication are complementary ambitions. In relation to science communication IAP will:

- Continue to prepare and issue timely Statements when merited, developing for each Statement a communication strategy to maximize its impact on target audiences.
- Seek to increase the number of Statements that emanate from special projects involving interested member academies and that are accompanied by a underlying Advisory Report.
- Continue to support workshops on the implementation of IAC reports. As appropriate, IAP will also organize workshops on the implementation of IAP Statements and Advisory Reports.
- Issue a call for proposals to member academies for projects to enhance the capacity of academies and their members to communicate more effectively with the media and the general public.
- Give special attention to proposals on enhancing an academy's ability to participate in the development of national science, technology and innovation policies.

### **On international science cooperation**

Under SP-II IAP will also endeavor to improve international science cooperation. Accordingly, IAP will:

- Actively support the recently created IAP-IAC Development Advisory Committee in its tasks to advise on improving the internal coordination between IAP and IAC and on establishing a secure financial base for IAP and IAC programs and projects.
- Be ready to initiate discussions with IAC and IAMP on initiating a process to merge the three organizations into a single body, tentatively named “InterAcademy Science Association”.

**On internal issues**

Lastly, under SP-II IAP also needs to address some internal issues. More specifically, IAP will:

- Move as expeditiously as possible in selecting and appointing a IAP Executive Director, cognizant of the operational restraints associated with its relationship with UNESCO.
- Organize an external, independent review of its operating procedures to determine what changes, if any, need to be made.

SP-II recognized that in tackling the above tasks and targets IAP will be confronted with risks and uncertainties, especially arising from its dependence on a single source of income, a lack of commitment among some member academies, the limited number of strategic partnerships, the extended range of its programs and activities and the delay in filling the Executive Director position. However, IAP is well equipped to deal with these risks and uncertainties, especially if the Executive Committee continues to address them wisely.

**FINALLY**

Too often, what the world expects from science is altogether different from what the world wants to hear from scientists.

Perhaps the single most important task facing IAP is to help the world understand what science can do - and what it cannot do - to tackle today’s critical global challenges.

Accepting the commitment to implement SP-II is just a first step. But a most essential step for science and science advice and – ultimately – the well-being of the world.

## TABLE OF CONTENT

<b>I.</b>	<b>CONTEXT AND PURPOSE</b>	1
1.	MISSION STATEMENT	1
2.	CHALLENGES AHEAD	1
3.	EVALUATION SP-I	2
4.	WORK IN PROGRESS	3
<b>II</b>	<b>STRATEGIC AGENDA</b>	5
1.	OVERARCHING OBJECTIVES	5
	1.1 <i>New</i>	5
	1.2 <i>Ongoing</i>	5
2.	GLOBAL SCIENCE ADVICE	6
	2.1 <i>Ongoing</i>	6
	2.2 <i>New</i>	6
3.	CAPACITY BUILDING	7
	3.1 <i>Ongoing</i>	7
	3.2 <i>New</i>	8
4.	SCIENCE EDUCATION	9
	4.1 <i>Ongoing</i>	9
	4.2 <i>New</i>	10
5.	SCIENCE COMMUNICATION	10
	5.1 <i>Ongoing</i>	10
	5.2 <i>New</i>	10
6.	INTERNATIONAL SCIENCE COOPERATION	12
	6.1 <i>Ongoing</i>	12
	6.2 <i>New</i>	13
7.	INTERNAL ISSUES	13
	7.1 <i>Ongoing</i>	13
	7.2 <i>New</i>	14
<b>III.</b>	<b>CONDITIONS FOR SUCCESS</b>	15
1.	UNCERTAINTIES AND RISKS	15
2.	ACTIONS TO BE TAKEN	15
<b>IV.</b>	<b>FINAL OBSERVATIONS</b>	17

## I. CONTEXT AND PURPOSE

### 1. MISSION STATEMENT

The opening paragraph of IAP's first strategic plan for the years 2007, 2008 and 2009 stated that IAP is one of the leading international science organizations that seek to address the challenges facing the world today and to bring the benefits of science to all of humanity.

IAP brings together the combined talents and expertise of over a 100 academies of sciences worldwide and, through these academies, of the world's best scientific minds. IAP is unique in its ability to mobilize scientific excellence on a truly global basis. IAP also strives to be free from national or disciplinary bias so that its actions and decisions are strictly merit-based: they should always reflect the best scientific evidence available regardless of political or economic expediencies.

For these reasons, the mission statement approved by the IAP General Assembly at its December 2006 meeting in Alexandria, Egypt, is as valid today as it was then.

*IAP and its member academies believe that science, scientific knowledge and scientific progress are an essential part of human culture and are vital to advance human welfare and well being. They also believe that the scientific method has much to offer in the pursuit of just and fair societies. These beliefs are the foundation of IAP and all it does. IAP is therefore committed to making the voice of science heard on issues of crucial importance to the future of humankind. To that end IAP will serve as platform for member academies to develop mutual collaboration, as well as common positions and actions. IAP will help member academies with efforts to improve their functions and structure, especially in relation to their effectiveness in advising governments and society. IAP will also support scientists with the creation of academies where none exist*

This mission statement provided inspiration and guidance for the development of IAP's first Strategic Plan for 2007, 2008 and 2009 (hereinafter: SP-I), as it will do for IAP's second Strategic Plan for 2010, 2011 and 2012 (hereinafter: SP-II).

### 2. CHALLENGES AHEAD

SP-II will build on the foundations laid by SP-I, especially as the external\* challenges identified in SP-I are as relevant today as they were then.

1. *Challenge 1:* How can IAP support member academies to enhance their visibility and to strengthen their capacity to provide advice to government and society?
2. *Challenge 2:* What can IAP do to support member academies with efforts to improve the image of science and to attract new generations to a career in science?
3. *Challenge 3:* What can IAP do to achieve the Millennium Development Goals and to participate effectively in the global partnership for development?
4. *Challenge 4:* How can IAP support member academies with efforts to strengthen cooperation between the natural sciences and other disciplines?

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\* Two other challenges dealt with internal issues: (*Challenge 6:* Should IAP consider creating a position for a Director to head its Secretariat and what else should it do to strengthen that Secretariat?; and *Challenge 7:* How should IAP proceed with enhancing transparency of decision-making and with strengthening systems for evaluation and accountability?). These challenges are no longer relevant for SP-II as they have been met under SP-I.

5. *Challenge 5:* What can IAP do to strengthen cooperation with other international science organizations, while developing at the same time a unique profile of its own?

The extent to which IAP has met these challenges during the SP-I period is variable, but they have not lost their relevance, especially in a climate of economic and financial uncertainties. Indeed, the issues facing mankind in relation to poverty alleviation, climate change, health risks, sustainable energy, etc. are now more urgent than ever before, while the need for science, science communities and scientists to help in tackling these problems is ever more pressing. This suggests that none of the above challenges should be taken off the list, but, rather, that one more challenge should be added for the years ahead.

6. *Challenge 6:* What can IAP do to ensure that academies of sciences and IAP itself are accepted more broadly by decision-makers worldwide as an independent and authoritative voice of science?

### 3. EVALUATION SP-I

Building on SP-I requires an evaluation of its results. The 19 action- and decision-items defined in SP-I provide a good framework for such an analysis. Below each of these items will be quoted in italics, followed by a brief assessment of IAP's performance.\*\*

1. *IAP will focus on empowering academies and strengthening its organization.*  
Under SPI empowering academies has been the central theme of all IAP programs and projects, while internally IAP adopted new procedures for program development, evaluation and approval.
2. *IAP will continue to act as an overall platform for interacademy cooperation.*  
IAP continued to support regional networks, it also supported pairing initiatives between academies and it promoted study visits of academies in Africa to academies in the North.
3. *For IAP empowering academies equals strengthening their advisory capacities.*  
Of the 10 projects approved in the SP-I period 6 aim directly at strengthening advisory capacities. IAP-organized regional workshops on IAC reports served the same purpose.
4. *The classification of activities in Statements, Programs and Initiatives remains.*  
[Non-operational item; no specific follow-up activities].
5. *IAP will issue approximately one or two Statements a year and ensure follow-up.*  
In 2008 all IAP Statements were published in a single, widely distributed volume. A new Statement on Ocean acidification has been issued and two other Statements are anticipated in 2009.
6. *IAP will review its ongoing Programs and decentralize when desirable.*  
All IAP activities in 2007-2008 were reviewed by the Review and Evaluation Committee. One program was terminated and others transferred to regional networks of academies.
7. *Capacity building for young academies remains a core IAP Program.*  
Much of the activities listed under 3 focused on young academies. IAP also supported regional activities and regional networks as mechanisms to support young academies.
8. *Science education remains within IAP or is transferred to regional networks.*  
Of the 10 projects approved in 2007 and 2008 four dealt with science education. Almost all science education activities are now handled by IAP supported regional networks.
9. *The status of Health education and Water research will be reviewed.*  
IAP has terminated its role in the Health education project. Support for Water research was continued by funding two projects in this field.

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\*\* For this purpose all IAP member academies were consulted to assess the extent to which they thought IAP had delivered its objectives and had had impact with decision-makers at national, regional and international levels. This consultation was developed and managed by the Royal Society.

10. *IAP will try to launch new Programs and improve their visibility.*  
Under its new procedures IAP issued a call for proposals to member academies in 2008 and 2009. It will do so again in 2010. A total of 10 projects was approved in 2008 and 2009.
11. *IAP will review the Initiatives on Natural disaster mitigation and GMOs.*  
All Initiatives were reviewed by the Review and Evaluation Committee, one was terminated and two were continued (Biosecurity and Natural disaster mitigation).
12. *IAP will try to launch new Initiatives and enhance their visibility.*  
A new Initiative on Digital knowledge resources was launched.
13. *IAP will seek to appoint a Director and to strengthen its Secretariat.*  
The Secretariat has additional temporary positions and UNESCO was requested to establish new posts. IAP also submitted to UNESCO a job description for a new position of Executive Director.
14. *IAP will develop improved procedures for programmatic decisions.*  
IAP now issues calls for proposals to its member academies on a regular basis. All projects and activities supported by IAP are now periodically evaluated.
15. *IAP will develop improved mechanisms to enhance accountability.*  
As mentioned before, all projects are now the result of a call for proposals open to all member academies, while all ongoing projects are regularly reviewed.
16. *IAP will seek additional funding and develop a new SP-I based budget.*  
While some additional funding was received, especially from the Chinese Academy of Sciences, IAP remains overwhelmingly dependent on a single source of income.
17. *SP-I is not without uncertainties and risks, but none seem fatal.*  
[Non-operational item; no specific follow-up activities].
18. *Prompt action by the Executive Committee will reduce the risks.*  
By acting promptly on the various action- and decision-items of SP-I the Executive Committee has contributed greatly to the results achieved under SP-I.
19. *IAP has a permanent Strategy Group.*  
Such a group – the “Programmes and Strategic Planning Committee” - has been established with the Royal Society acting as lead-academy.

The conclusion to be drawn from this survey is that IAP has achieved most of the tasks and targets it set itself in SP-I. Elements that contributed significantly to this success were the new system of issuing calls for proposals to all member academies; the regular review of all IAP projects and activities; the inputs in decision-making from the Programmes and Strategic Planning Committee; and - above all - the consistent efforts of the Executive Committee to implement SP-I. In terms of projects and procedures, IAP has transformed itself into a new organization that is fundamentally different from the pre-SP-I organization. The exception to this positive assessment is IAP's lack of progress in broadening its financial resource base. Although at the moment IAP has no acute financial problems, the fact is that it continues to be dependent on a single source of income: the - most generous - grant of the Italian government to TWAS (channeled through UNESCO) for the purpose of supporting IAP. This situation is not without risks.

#### **4. WORK IN PROGRESS**

This introductory chapter would not be complete without a brief survey of the projects and activities that have been, or are being, carried out with IAP support.

After much preliminary work in 2007, the following projects proposed by member academies were approved in 2008:

1. *Digital Knowledge Resources and Infrastructure in Developing Countries*. Lead-academy: US National Academy of Sciences.
2. *The IANAS Program on Science Education*. Lead-academy: Colombian Academy of Sciences.
3. *Promoting Best Practices in Science Education in Sub-Saharan Africa*. Lead-academy: Uganda National Academy of Sciences.
4. *Bridging Water Research and Management*. Lead-academy: Brazilian Academy of Sciences.

In 2009 six more proposals were approved:

1. *GMOs in Africa: challenges and opportunities*. Lead-academy: Academy of Science of South Africa.
2. *Primary Connections – Linking science with literacy*. Lead-academy: Australian Academy of Science.
3. *Science education for rural children in Sri Lanka through ICT*. Lead-academy: National Academy of Sciences of Sri Lanka.
4. *Global activities of the IAP science education program 2009*. Lead-academy: Academia Chilena de Ciencias.
5. *IANAS workshop on the science funding landscape in Central & South America*. Lead-academy: RSC: Academies of Arts, Humanities and Sciences of Canada.
6. *Strengthening collaboration between AASA Clean Water Program and the IAP water program workshop*. Lead-academy: Russian Academy of Sciences.

In addition to these projects of member academies, IAP also undertook a number of activities itself.

1. In cooperation with the InterAcademy Council (IAC), IAP organized a series of highly successful regional workshops on the implementation of two IAC report on, respectively, the position of women in science and on the transition to sustainable energy systems.
2. IAP and the Council of Canadian Academies hosted an "Inter Academy Workshop on Best Practices in Advisory Roles and Fellowship Appointments" in Trieste, Italy, in February 2009. Focus of this by-invitation-only meeting was how to improve outreach of academies to society at large and especially to decision-makers and young scientists.
3. IAP also participated in the "Annual Meeting of the New Champions" of the World Economic Forum in 2008, also known as the "Summer Davos", by organizing two highly successful sessions on science and society issues. More than 40 young scientists were selected from nominations by IAP member academies through a competitive, merit-based process. Apart from the two sessions, the meeting gave young scientists a unique opportunity to interact with young professionals from business, politics and technology.
4. In cooperation with the European Climate Foundation, IAP organized in 2009 three regional workshops to assist negotiators from developing countries in preparing for the upcoming round of climate negotiations. These workshops proved highly successful with IAP providing the required scientific information and the European Climate Foundation focusing on the socio-economic aspects of the negotiations.

## II STRATEGIC AGENDA

### 1. OVERARCHING OBJECTIVES

#### *1.1 New*

Although three years is a relatively short period for a strategic agenda, experience with SP-I shows that much can be accomplished in such a period provided the strategic agenda combines ambition with realism, focus with flexibility and innovation with continuity.

Reflecting the responses of member academies to the questionnaire that was sent out as part of the consultation process, the SP-II strategic agenda will consist of three overarching objectives:

1. To position IAP as a recognized and independent provider of high quality global science advice.
2. To initiate and support programs on capacity building, science education and science communication.
3. To take a leading role in efforts to improve the effectiveness of international science cooperation.

There are four principal reasons for focusing on the above three objectives for the SP-II period.

- Externally, they express the ambitions of IAP for the next three years, while they also provide a clear basis for initiating discussions with other organizations to explore and exploit opportunities for (strengthening) cooperation.
- Internally, they give credibility to a variety of ongoing activities of member academies and IAP, while at the same time they provide a framework for creating more focus in ongoing activities and in initiating new activities.
- They also respond to a challenge facing IAP more urgently than ever before: to ensure that academies of sciences and IAP itself are accepted more broadly by decision-makers worldwide as an independent and authoritative voice of science (see chapter I, paragraph 2).
- Lastly, as noted before (see chapter I, paragraph 3), IAP has now transformed itself into a much more effective and efficient organization, implying that IAP is now better prepared to foster stronger and more structural links with global decision-makers and decision-making bodies.

It is anticipated that these three overarching objectives will help streamline ongoing activities, whilst at the same time making them more effective and visible.

#### ***Decision 1***

Under SP-II IAP will focus on three overarching objectives: to position IAP as a recognized and independent provider of global science advice, to support programs on capacity building, science education and science communication and lead efforts to improve the effectiveness of international science cooperation.

#### *1.2 Ongoing*

The new objectives of the SP-II strategic agenda should not compromise its ongoing work program. Accordingly, IAP will continue to meet all existing commitments under SP-I in accordance with their original terms of reference.

#### ***Decision 2***

IAP will continue to support all projects approved under SP-I in accordance with their original terms of reference.

IAP's overall role as an informal platform and facilitator for interacademy collaboration and exchange of ideas will continue through the SP-II period. For this reason, IAP will continue to welcome requests from two or more member academies wishing to engage IAP in a cooperative initiative. This is especially true in situations where, perhaps for political reasons, it is difficult for academies to cooperate directly on a bilateral or regional basis.

***Decision 3***

IAP will continue to welcome initiatives from member academies for interacademy collaboration and endeavor to help facilitate these.

## **2. GLOBAL SCIENCE ADVICE**

### ***2.1 Ongoing***

IAP has been involved in providing science advice from its inception. Mechanisms that have proven their value include: issuing Statements on issues of topical concern to decision-makers; publishing reports on the outcomes of IAP workshops; and participation in meetings and discussions with decision-makers. Although with varying degrees of intensity, most member academies have also provided science advice to their national governments or - in cooperation- to regional bodies. All such activities should of course continue.

A more recent ongoing activity is the result of a MOU signed by the IAP and IAC Co-Chairs in 2008: the creation of a joint IAP-IAC Development Advisory Committee, which is now in the process of being established. The charge to be given to this Committee has three elements:

- To advise IAP and IAC on ways to strengthen the internal coordination and capacity of IAP and IAC programs and projects.
- To engage international and national leaders on ways to strengthen the voice of science in policy decision-making.
- To advise and assist the IAP and IAC on establishing a secure, independent financial base for support of IAP and IAC programs and projects.

In this context the second charge is of course most important. Among other things, the Committee should explore ways to improve the current ad hoc relationship of international science advisory organizations with UN organizations, one option being to create a more formal and structured interface.

***Decision 4***

IAP will actively support the IAP-IAC Development Advisory Committee in its task to strengthen the relationship of international science organizations with UN organizations.

### ***2.2 New***

There is one recent development that seems to offer an attractive model for a new way to reach out to stakeholders: the workshops organized in 2009 in cooperation with the European Climate Foundation to assist negotiators from developing countries in preparing for the upcoming round of climate negotiations. These workshops proved highly successful, in large part because the European Climate Foundation did what it does best (the economic and political aspects), while IAP did what IAP does best (the science aspects).

Based on this experience, IAP will begin consultations with relevant international organizations - governmental and non-governmental - to see what other topics on the international negotiating agenda lend themselves to a similar approach, that is: to organize workshops to help prepare negotiators and policy-makers, particularly from developing countries, by providing them with objective science advice on the issues at hand. Initially, such workshops could be organized on an *ad hoc* basis, but for issues that are likely to require a long term commitment - such as climate change - IAP should aim to develop a more structured relationship.

***Decision 5***

IAP will consult with appropriate international organizations on providing negotiators and policy-makers with high quality science advice, particularly if they come from a country that lacks the required capacities.

In addition to this specific initiative IAP will also seek to consult directly or through member academies with other potential stakeholders, especially intergovernmental organizations on creating new mechanisms for providing systematic science advice to such organizations. The G21 and G77 seem of particular interest for such an approach. If pursued diligently for some time, such actions will help to make IAP more visible in the international arena as a premier global science advisor, combining excellence and impartiality.

***Decision 6***

IAP will explore opportunities for providing, on a more systematic basis, science advice to intergovernmental organizations, particularly the G21 and G77.

### **3. CAPACITY BUILDING**

#### ***3.1 Ongoing***

Capacity building of academies has always been an important objective of IAP. In pursuing this objective IAP undertakes, *inter alia*, the following activities.

- IAP assists the science community of a country in efforts to create a merit-based academy of sciences where no such academy exists. One instrument used by IAP for this purpose is a set of model statutes to provide guidance in drawing up the specific statutes of a nascent academy. If needed, IAP will extend other forms of support, sometimes also in relation to physical infrastructure.
- IAP supports just one regional network of academies in a region and IAP welcomes proposals from such a network for joint activities. Indeed, of the projects approved in 2008 and 2009 (see chapter I, paragraph 4) most involve interacademy cooperation within a regional network of academies.
- IAP supports exchange programs between member academies, both among academies of the South and among academies of the South and the North. Such exchange programs usually involve the highest leadership of academies and their purpose is to share experiences and to explore best practices that may be useful in enhancing an academy's capacities.
- IAP organizes special workshops and conferences for selected member academies to also share experiences and explore best practices. The February "2009 Inter Academy Workshop on Best Practices in Advisory Roles and Fellowship Appointments" is a highly successful example of such an initiative.

All these activities have a common focus: strengthening the capacity of academies to advise national decision-makers. For this reason, IAP acts as clearing house for high-quality science advisory reports that

member academies can use in their communications with decision-makers. The regional workshops organized jointly by IAP and IAC on the implementation of the IAC reports on the position of women in science and on sustainable energy demonstrate that IAP and its member academies can do more than just distribute reports: the workshops were not only of high quality, but they also made the participating academies visible to the decision-makers of their respective countries and regions. Accordingly, IAP will continue to organize such “ implementation workshops” not just for future IAC reports, but also for reports emanating from IAP projects (see chapter II, paragraph 5.2).

***Decision 7***

Capacity building of academies remains a most important program of IAP and IAP will continue to undertake and support a range of activities, especially those designed to enhance the advisory capacities of academies.

**3.2 New**

In the past, IAP has always given priority to the needs of academies of sciences in developing countries. Under SP-II this will continue, but with a more precise focus on what has now been defined as a group of “scientifically and technologically lagging countries”. It is in these countries that IAP capacity building support is most needed to strengthen an existing academy or to assist scientists in establishing an academy.

***Decision 8***

IAP will focus its capacity building efforts on academies in scientifically and technologically lagging countries and/or on creating academies in these countries where there is a critical mass of scientists.

The regional workshops on the implementation of the IAC energy report demonstrate how useful it is for academies to interact directly and on a personal basis with national decision-makers, not only in relation to the issue at hand, but also to enhance their visibility and credibility. This helps strengthen advisory roles and may even pay dividends in terms of securing additional financial resources. For this reason, IAP will issue a call for proposals to member academies on organizing workshops in which the leadership of an academy (or academies in a region) will meet with politicians and civil servants to discuss ways of strengthening the interaction between science and policy-making communities, preferably around specific and timely policy issues.

***Decision 9***

IAP will issue a call for proposals to member academies for organizing (regional) workshops designed to strengthen the interaction between the science community and decision-makers.

Last, but not least: IAP’s future capacity building efforts will focus more strongly on engaging a younger generation of scientists in the work of academies or – more generally – in issues of science and society. As honorific societies, academies elect their members from among established scientists and these, once elected, tend to stay member for a long time, oftentimes for life. For this reason, many academies have adopted special programs to reach out to younger scientists. The results of such programs have been overwhelmingly positive: for young scientists an opportunity to widen their horizons and contribute to important societal issues and for an academy a fresh inflow of ideas and energy from a younger generation of talented scientists.

The need to engage younger scientists, but also the benefits of doing so for academies, are clearly demonstrated by the IAP-sponsored participation of young scientists in the 2008 and 2009 “Annual Meeting of the New Champions” of the World Economic Forum in China, also known as the “Summer Davos”. In cooperation with the World Economic Forum IAP requested member academies to nominate candidates for participation through a competitive, merit-based selection process, which in itself had the effect of bringing young scientists in touch with academies. At the meeting itself, the interactions between the participating young scientists and an equally talented group of young business leaders and entrepreneurs were most productive and creative. One meaningful outcome of the 2008 meeting was the establishment of an imaginative scientist-entrepreneur partnership program.

***Decision 10***

IAP will issue a call for proposals to member academies for projects designed to engage young scientists in the work of the academy and it will strengthen its cooperation with the WEF and other organizations on mobilizing young scientists for leadership roles.

## **4. SCIENCE EDUCATION**

### ***4.1 Ongoing***

Like capacity building, improving the quality of science education worldwide has also been a long-term objective of IAP. Indeed, in the past, IAP has successfully mobilized an ever larger number of member academies in efforts to improve science education and in making academies champions of science education reform in their respective countries. “Inquiry Based Science Education” is a key concept in all these efforts.

The IAP program in science education has primarily acted as a clearing house for sharing expertise, experience and high quality curriculum materials. IAP has also assisted in translating, adapting, assessing and improving such materials, especially from the science education programs of the American and French academies of sciences.

Of the 10 projects approved by IAP in 2008 and 2009, the following deal, or dealt, with science education.

- *The IANAS Program on Science Education* with the Colombian Academy of Sciences as lead-academy.
- *Promoting Best Practices in Science Education in Sub-Saharan Africa* with the Uganda National Academy of Sciences as lead-academy.
- *Primary Connections – Linking science with literacy* with the Australian Academy of Science as lead-academy.
- *Science education for rural children in Sri Lanka through ICT* with the National Academy of Sciences of Sri Lanka as lead-academy.
- *Global activities of the IAP science education program 2009* with the Academia Chilena de Ciencias as lead-academy.

As these four projects demonstrate, IAP’s involvement in science education covers all major regions of the world – Latin America, Africa and Asia – while it also covers both elementary and secondary schools. Much of the program’s success is the result of the relentless efforts of a single individual: the program’s international coordinator, Jorge E. Allende from Chile.

#### 4.2 *New*

Given the success of the program, it is obvious that IAP will continue its activities in relation to science education. For the time being no changes need to be made for the aforementioned project *Global activities of the IAP science education program* is specifically designed to take stock of the program through a series of meetings involving the international coordinator, the three regional coordinators (Latin America, Africa and Asia-Pacific) and four international experts. If any changes to the program are to be made, they should emanate from this project.

#### **Decision 11**

IAP will continue its science education program by providing financial support to projects in this field proposed by member academies within the annual call for proposals. IAP will await the report of the project *Global activities of the IAP science education program* to determine what changes, if any, to the program are needed.

### 5. SCIENCE COMMUNICATION

#### 5.1 *Ongoing*

The term “science communication” as such did not occur a single time in SP-I. Yet, IAP and its member academies have been involved in science communication in a variety of ways for many years. Accordingly, to define “science communication” as a third programmatic objective in the SP-II period is not a leap of imagination into the unknown, but rather an attempt to bring additional focus and mass to a range of ongoing activities.

Most of IAP’s science communication activities in the past have dealt with matters that may collectively be categorized under the heading “science for policy”, that is: providing advice to decision-makers on the science aspects of societal issues they have to deal with. The prime example of this approach is the issuing of Statements on topics of special concern to decision-makers worldwide. These have been widely and favorably received.

Recently IAP has adopted a Statement on Ocean acidification and IAP will continue to prepare new Statements whenever a need is identified, applying the same procedures as it used in the past. As always, IAP must continue to seek ways of maximizing the impact of Statements with relevant target audiences.

#### **Decision 12**

IAP will continue to prepare and issue timely Statements when merited, developing for each Statement a communication strategy to maximize its impact on target audiences.

#### 5.2 *New*

Under SP-II IAP’s new focus on science communication will consist of three main elements: improving the impact of Statements; improving the public relations capacities of member academies; and supporting the role of academies in the development of national STI policies.

In the past Statements were most often prepared under the guidance of the Executive Committee by a small group of academies, cooperating on an *ad hoc* basis. However, some Statements were the result of a small, more long term project of a group of academies (sometimes called in IAP-terminology an “Initiative”). Such Initiatives often also produced a fuller report on the issue at hand. At present IAP is sponsoring three such Initiatives: on Biosecurity, Natural disaster mitigation and Digital knowledge

resources. Past experience shows that there are significant advantages if a Statement emanates from an Initiative, rather than from an *ad hoc* group: there usually is more time and opportunity to bring together groups of experts to consider the issue at hand; as a result, there usually also is a fuller report to provide background information; and there is a group of academies with a strong interest in giving follow-up to the Statement and the report.

IAP will continue to issue Statements through the mechanism of a bringing together an *ad hoc* group of academies to develop a draft as this is a mechanism that has proven its value. However, in view of the advantages just mentioned IAP will seek to increase the number of Statements that emanate from a special, more long term project of a group of academies that have a special interest in the issues in question. Any such project should not only produce a Statement, but also a brief “Advisory Report” outlining in more detail than the Statement itself the facts and considerations on which the Statement is based. Such an approach will not only enhance the informational qualities of a Statement and its impact on decision-makers, but it will also bring together a group of academies to give follow-up to the Statement.

***Decision 13***

In addition to Statements drafted and issues on an *ad hoc* basis, IAP will seek to increase the number of Statements that emanate from special projects involving interested member academies and that are accompanied by a underlying Advisory Report.

There is one more reason to combine Statements with Advisory Reports. As was mentioned before, the joint IAP-IAC regional workshops on the implementation of IAC reports were highly successful and for that reason IAP will continue to support such workshops for any future IAC reports. However, if no new IAC reports were to come out in the near future, the combination of Statement accompanied by an Advisory report will provide IAP with the opportunity to organize regional “implementation workshops” on its own. The ability to continue organizing such workshops is crucial for IAP in view of their importance for capacity building, especially in relation to its core component: strengthening the advisory capacities of science academies in developing countries (see chapter II, paragraph 3).

***Decision 14***

IAP will continue to support workshops on the implementation of IAC reports. As appropriate, IAP will also organize workshops on the implementation of IAP Statements and Advisory Reports.

A second set of new initiatives in relation to science communication arises from the fact that in many countries academies of science are not very visible to the public at large and to national decision-makers. Also, in many countries the public perception of science and scientists is far from positive. Needless to say that this has negative implications for the advisory roles of academies and for the ability of science to attract young people. It is therefore with good reason that most IAP member academies from the North have special public relations officers or even departments, while their leadership and staff have often received special training on how to communicate more effectively with the media and the public at large. All this is missing in many academies in developing countries, even though such facilities are for them most essential as well.

Although it could also be listed under capacity building, IAP will therefore initiate, as part of its new science communication objective, projects to improve the public relations capacities of academies in developing countries, specially in scientifically and technologically lagging countries. These projects may relate to the media, as well as to the general public. Some academies may benefit from support in

appointing a public relations officer, others may prefer to organize training workshops for staff and/or academy officers, get support for publishing local newsletters or create or redesign a website. The methods may differ, but any project must be of direct benefit to an academy's capacity to communicate actively with the media and/or the public at large.

***Decision 15***

IAP will issue a call for proposals to member academies for projects to enhance the capacity of academies and their members to communicate more effectively with the media and the general public.

Lastly, one specific addition to the above actions, perhaps as a first step towards a more full-fledged initiative under SP-III. Although some Statements touched on it, the domain of "policy for science" – that is: providing advice to decision-makers on policies to promote science and to harvest its benefits for society - has so far seen relatively little IAP involvement. Indeed, the development of a national "science, technology and innovation" (hereinafter: STI) policy is usually a complicated process involving much more than just the science aspects. Even so, academies of sciences, assuming the government concurs, can in principle contribute meaningfully to the development of a national STI policy. Under SP-II IAP will therefore, if requested, assist member academies in preparing for that role. Of all possible forms of assistance, IAP will initially focus on an academy's capacity to get its message(s) across whenever a government seeks its input in the development of a national STI policy.

***Decision 16***

In approving projects proposed under decision 15, IAP will give special attention to proposals on enhancing an academy's ability to participate in the development of a STI policy.

## **6. INTERNATIONAL SCIENCE COOPERATION**

### ***6.1 Ongoing***

The present configuration of organizations involved in international science cooperation is quite confusing to outsiders: IAP, IAC, IAMP, ICSU, TWAS, as well as a host of regional networks of academies of sciences such as ALLEA, EASAC, NASAC, IANAS, FASAS, NASIC and AASA. Each of these organizations has been established for good reasons, but collectively they confuse potential stakeholders and target audiences. The present configuration also leads to significant coordination costs, whilst it has negative impacts on fundraising opportunities. For potential donors a single well-organized and well-managed organization is a far more attractive partner than a cluster of organizations that - to an outsider- all seem to be doing pretty much the same and that nevertheless compete with each other for funding.

IAP by itself cannot change all this, but the recently formed joint IAC-IAP Development Advisory Committee will at least explore some of these issues. The charge to be given to the Committee consists of three elements:

- To advise IAP and IAC on ways to strengthen the internal coordination and capacity of IAP and IAC programs and projects.
- To engage international and national leaders on ways to strengthen the voice of science in policy decision-making.
- To advise and assist the IAP and IAC on establishing a secure, independent financial base for support of IAP and IAC programs and projects.

In this context the first and the last charge are most relevant; for charge 2, see above chapter II, paragraph 2.1. If at some point in the future IAMP were to be included in this initiative, the Committee would still not cover the whole field, but it would at least address all interacademy organizations and the question of how their configuration can be improved, also for purposes of fundraising.

***Decision 17***

IAP will actively support the IAP-IAC Development Advisory Committee in its tasks to advise on improving the internal coordination between IAP and IAC and on establishing a secure financial base for IAP and IAC programs and projects.

**6.2 New**

The joint IAP-IAC Development Advisory Committee may produce important results, but the charge given to it assumes that IAP and IAC (and presumably IAMP) remain separate organizations. The question arises whether such an assumption should hold forever. As was mentioned above, the existence of three separate interacademy organizations creates a great deal of confusion in the outside world and appears a contributing factor in the reluctance of potential donors to come forward with financial support. It also limits the impact these organizations have on national and international decision-making.

IAP, IAC and IAMP each have a unique identity and history of their own. Merging them into a single body does not necessarily imply the end of that identity, nor does it automatically solve all problems mentioned above. Accordingly, it is best to move step by step. For example, a single new organization - an "InterAcademy Science Association"? - could initially have three separate operating arms: one for capacity building, science education and science communication (the traditional domain of IAP); one for merit-based studies by independent experts on issues of global concern (the IAC's role); and one for academy-based initiatives to improve global health (IAMP's functions). If so desired, each of these operating arms could even keep for the time being its own governance structure and operating procedures to the extent that this would not interfere with the *raison d'être* of the Association: to present a single well-organized and well-managed organization to the outside world, especially potential donors. In such an approach the Association's governing body could draw from the Co-Chairs of each the contributing organizations.

***Decision 18***

IAP stands ready to initiate discussions with IAC and IAMP on initiating a process to merge the three organizations into a single body, tentatively named "InterAcademy Science Association".

**7. INTERNAL ISSUES**

**7.1 Ongoing**

With a sense of urgency, SP-I raised the question of whether or not IAP needed to appoint a dedicated Executive Director. IAP has now submitted a job description for the creation of the position to the Director-General of UNESCO, implying that it is now within UNESCO's remit to move forward.

***Decision 19***

IAP will move as expeditiously as possible in selecting and appointing a IAP Executive Director, cognizant of the operational restraints associated with its relationship with UNESCO.

## 7.2 *New*

SP-I gave a great deal of attention to internal organizational issues, in particular the procedures for selecting, approving and evaluating project proposals. Although these procedures now have become part of IAP's working practices and routines, it will be useful for IAP to have, at the end of the SP-II period, its operating procedures reviewed by independent external experts with a view to determining what changes, if any, would be needed. Of particular importance would be how to more systematically monitor the impact of IAP activities.

### ***Decision 20***

In 2012 IAP will organize an external, independent review of its operating procedures to determine what changes, if any, need to be made.

### III. CONDITIONS FOR SUCCESS

#### 1. UNCERTAINTIES AND RISKS

Five issues could jeopardize the successful implementation of SP-II. In order of priority:

- **Funding** If the Italian government were to withdraw its funding or even reduce its volume, most IAP activities would come to a halt as soon as any reserve funds are depleted. As was mentioned before (see chapter 1, paragraph 3), at the moment IAP has no acute financial problems and there are no indications that the Italian government is re-considering its support of IAP. However, even so, it is a matter of some urgency that IAP takes action to eliminate its dependency on a single source of income. As was suggested before (see chapter II, paragraph 2.1) launching the joint IAP-IAC Development Advisory Committee must therefore be a matter of the highest priority.
- **Commitment** IAP may rightly claim that it supports member academies, but it is equally true that member academies support IAP as well. For this reason, risks arise from the fact that among IAP member academies there seems to be an inner circle that is fully engaged and an outer circle of academies that essentially take a spectator role. Not to take the figures literally: 20% of the members seem to do 80 % of the work and 80% of the members appear to handle the remaining 20%. The danger is that at some point the most active member academies feel they have done enough for IAP, while at the same time the other 80% lose interest in IAP.
- **Partnerships** With the exception of IAC and IAMP, IAP has few structural partnerships with other organizations, especially with organizations representing key stakeholders. Yet, the importance of such partnerships to achieving the objectives of SP-II is clearly demonstrated by the success of IAP's cooperative projects with the World Economic Forum and the European Climate Foundation (see chapter I, paragraph 4). Therefore, fostering partnerships with organizations of key stakeholders should be high on the agenda as a condition for success.
- **Focus** IAP is already spread quite thin. It supports a wide range of programs, projects and initiatives, oftentimes with relatively small amounts of money. All this requires a great deal of managerial and administrative overhead. This raises the question whether the various activities and decisions mentioned in chapter II will not overtax IAP and/or its member academies. There clearly is a need to ensure that IAP remains focused in the things it can do well.
- **Executive Director** Lastly, there is the uncertainty that UNESCO may not complete the recruitment procedure for filling the new position of IAP Executive Director in time. Also, regardless of UNESCO's procedural requirements, it may not be easy to find a suitable candidate to fill the position. Until now IAP has been fortunate in having the TWAS Executive Director – Mohamed Hassan – acting as IAP Executive Director. IAP may very well experience a leadership crisis if the TWAS Executive Director were to retire before the appointment of a (dedicated) IAP Executive Director is realized.

However, even with these uncertainties and risks IAP is now a much more robust organization than it used to be. This is true both for its internal organization and operation and for its interactions with member academies. It has not been easy to introduce - as suggested by SP-I - mechanisms like a Programme and Strategic Planning Committee, a Review and Evaluation Committee, as well as procedures like issuing calls for proposals and requiring regular progress reports for evaluation. All this essentially required of IAP to re-invent itself. Having all these elements now in place, IAP is presently a much stronger organization than it used to be.

#### 2. ACTIONS TO BE TAKEN

Some of the things IAP - and especially the Executive Committee - can do to mitigate the above uncertainties and risks have already been mentioned.

- First, the IAP Executive Committee should push hard to launch the joint IAP-IAC Development Advisory Committee. Even so, it may take quite some time before the Committee is fully operational: recruiting members of the highest caliber will take time. If it appears unlikely that the Development Advisory Committee will be able to produce concrete results within a reasonable timeframe, the Executive Committee should begin exploring alternatives to broaden the IAP financial resource base.
- Second, the Executive Committee can do much to mitigate the risk of IAP spreading itself too thin. For example, the Executive Committee can assist member academies in not wasting time and energy on preparing proposals that have little chance of getting approval by being very clear on the sort of proposals it seeks. Not issuing any calls for proposals other than the ones mentioned in chapter II will equally reduce the overhead of IAP and of member academies. Also, IAP should not routinely extend projects, but weigh their importance in competition with new projects.
- Third, the Executive Committee should take action to connect member academies in the periphery more closely to the work of IAP. Again, this may be done in all sorts of ways, but most effective is perhaps to support such peripheral academies in becoming active in a regional network. Through these networks they can then also be inducted in the work of IAP itself.
- Fourth, the Executive Committee should make every effort to foster partnership arrangements with stakeholder organizations. As a first step, the Executive Committee should arrange for preparing and disseminating a brochure that clearly communicates IAP's mission and unique selling points to potential partnership and funding organizations. In terms of content SP-II may provide essential guidance, but otherwise the brochure will need to be a totally different document.
- Lastly, the appointment of an Executive Director: as long as IAP is TWAS-administered, IAP will be dependent upon UNESCO to move forward. However, if it appears unlikely that the position can be filled before the retirement of the incumbent TWAS Executive Director, the Executive Committee should explore the possibility of appointing an interim Executive Director on the basis of a temporary contract.

All these actions are within reach and they can do much to reduce the uncertainties and risks mentioned in the previous paragraph.

#### **IV. FINAL OBSERVATIONS**

These are critical times for science and science cooperation. On the one hand, the pressure on science to come up with solutions for the challenges facing mankind is ever greater - on the other, in many countries the willingness of decision-makers to listen to science advice seems smaller than ever before. With exceptions, this dichotomy manifest itself at all levels of society: nationally, within governments, but also within the private sector; internationally, within the UN family of international organizations, but also within non-governmental bodies.

After an initial period of building the organization and its activities, IAP has now reached maturity - and the obligations that come with it. Perhaps the single most important task facing IAP today is to help the world understand what science can do - and what it cannot do - to tackle critical global problems. For IAP to commit itself to that task is essential if IAP is to help find answers to global threats such as climate change, infectious diseases, natural disasters, food, water and energy shortages and weapons of mass destruction.

IAP is now well-positioned to start building the much needed bridges between science and critical decision-makers. Its ability to mobilize, through its member academies, the best scientific minds of the world is a unique asset and so is its ability to take an impartial, merit-based look at the problems facing the world today, free from national or disciplinary bias. However, all these assets mean nothing if IAP and its member academies do not apply themselves to the daunting tasks ahead.

Accepting the commitment to implement SP-II is just a first step. But a most essential step for science and science advice and – ultimately – the well-being of the world.