



iap

the global network of science academies

ANNUAL
REPORT
2015

Vision and Mission

IAP is a global network of 111 science academies, bringing together the world's best scientific minds. Its goals are threefold:

- to increase the number of high-quality, independent and evidence-based statements prepared by IAP member academies, working both individually and together, that provide advice on critical issues of global significance to governments and society;
- to develop programmes for scientific advisory capacity building, and for the contribution of academies to science education, science communication and other science-related issues of global or regional significance; and
- to forge closer collaboration among science academies and other scientific institutions.

Science academies play a vital role in supporting, promoting and communicating science, influencing national and international policy on science-related matters, and fostering the next generation of young and talented scientists.

Reflecting the principles of its membership – independence and objectivity – IAP strives to be free from national or disciplinary bias to ensure that its actions and decisions are strictly merit-based and reflect the best scientific evidence available. Consequently, it is one of the leading organizations in the world with the intellectual capacity, credibility and independence to function as an authoritative and impartial adviser on scientific issues of regional and global importance.

In March 2016, IAP members, along with the membership of two other global academy networks, the InterAcademy Medical Panel (IAMP) and the InterAcademy Council (IAC), agreed to establish the InterAcademy Partnership. It is expected that this new Partnership will help increase the visibility and impact of the activities of academies as they work together in regional and international networks, speaking with 'one voice' to governments, international organizations and other stakeholders.

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ANNUAL REPORT **2015**

IAP Annual Report 2015

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Muthoni Kareithi: Administrative assistance

We would like to thank colleagues from member academies and regional networks who supplied reports on their 2015 activities.

We would also like to thank Jeremy McNeil, chair of the IAP Publications and Communication Committee, for comments and edits on the text.

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Message from the co-chairs

Dear member academies, colleagues,

After three years of discussions and preparations, we are pleased to confirm that three inter-academy networks have formally come together under a single umbrella organization, the 'InterAcademy Partnership'. This historic decision, which comes 23 years after the foundation of IAP, will ensure that our academy networks can build on their past successes and move forward together with renewed strength and optimism.

The final decision to form the InterAcademy Partnership took place at the IAP General Assembly, held in Hermanus, South Africa, immediately after the IAP conference on 'Science Advice'. The conference itself was a great success, with some 200 participants, including representatives from nearly 80 academies of science, medicine and engineering – making it the largest gathering of academies ever and a very appropriate occasion at which to take the decision to combine forces.

We would like to place on record, therefore, our thanks to the Academy of Science of South Africa (ASSAf) for hosting these meetings, especially for their efforts in securing sponsorship for the conference and for all the effort they put into its organization.

We must also thank the Indian National Science Academy (INSA) for hosting a joint meeting of IAP, the InterAcademy Medical Panel (IAMP) and the InterAcademy Council (IAC) in New Delhi, India, in September 2015. During that meeting we finalized plans to establish the InterAcademy Partnership. We are also grateful to the Academy of Sciences Malaysia for the support it provides to our science education/science literacy programme, and to all the other academies who have contributed to our fundraising and membership donations campaign, as well as to those who have provided in-kind support for hosting meetings. (Their contributions are listed in the appendices). The support of our member academies and regional networks gives our work greater impact and relevance across the globe.

The IAP General Assembly in South Africa also saw the election of a new IAP Executive Committee. We congratulate all those academies who make up the new EC and we look forward to working with you in the years ahead.

Of course, the election of a new co-chair means that Mohamed Hassan – after his long association with IAP – no longer has an official role. However, we are delighted that he has agreed to act as a 'special adviser' to IAP, which is very fortunate given his considerable experience with the Trieste System, UNESCO and our main sponsor, the Italian government.

Although preparations for the IAP conference and General Assembly, as well as the move towards the establishment of the InterAcademy Partnership took a great deal of time and effort during 2015 and early 2016, we are pleased to announce that our regular activities carried on as usual. We are sure that you will find something of interest in the reports of our various programmes and projects in the following pages, which certainly attest to the outreach and impact that IAP and its network of academies is having.

Indeed, because the IAP conference and General Assembly marked the transition to the new InterAcademy Partnership, we have decided that this Annual Report should also cover those events, too, so our 'annual' report, therefore, covers 15 months, from January 2015 to March 2016.

Now, having formed the InterAcademy Partnership, our work must continue. While we go about updating and rebranding our websites and other materials, we are also busy searching for funding to implement our project ideas.

The international community adopted three major agreements during 2015 – the Sustainable Development Goals, the Sendai Framework for Disaster Risk Reduction (2015-2030) and the Paris Agreement adopted by the UN Framework Convention on Climate Change. These examples underline the importance of the policy advice that the scientific community can provide as the global community moves towards their implementation over the next 15 years and beyond.

We hope, therefore, that we will continue to engage all of our academies and regional networks as we move forward together, collectively stronger than before, into this new 'inter-academy era'.

Krishan Lal
IAP Co-chair

Volker ter Meulen
IAP Co-chair

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OVERVIEW

Looking Back



IAP, the global network of science academies, focuses on promoting cooperation and capacity building among the world's merit-based science academies, especially with respect to policy-relevant scientific issues.

This IAP Annual Report differs from previous editions as it covers a period of 15 months – from January 2015 to March 2016 - because the IAP General Assembly in South Africa was held on 2 March 2016. This event marked a watershed moment in the history of IAP as member academies voted to establish the InterAcademy Partnership.

In addition to the administrative procedures required to establish the InterAcademy Partnership, IAP continued to engage with international scientific and science-policy issues by supporting its four affiliated regional networks, continued its activities in the promotion of science education and science literacy, as well as supporting individual member academies conduct a range of projects.

New partnership

A major focus of IAP's 2015 activities was working with the InterAcademy Medical Panel (IAMP) and the InterAcademy Council (IAC) to form a single, over-arching organization that represents all academy networks – the InterAcademy Partnership.



Steering Committee of the InterAcademy Partnership (left to right: R. Dijkgraaf, M. Hassan, D. Reddy, V. ter Meulen, L. Looi and D. Ganten).

The main aim of the InterAcademy Partnership is to increase the visibility and impact of the academies as they work together in regional and international networks, especially with regard to providing evidence-based policy advice and perspectives on global issues requiring scientific input. From now on, the three organizations will speak with 'one voice' to governments, international organizations and other stakeholders, with the hope that advice and recommendations issued jointly by all academies will be clearer and carry more weight.

Working towards the establishment of the InterAcademy Partnership, the Executive Committees of IAP and IAMP, together with the Board of the IAC, held a joint meeting in September 2015 hosted by the Indian National Science Academy (INSA) in New Delhi, India. The goal was to review and refine the statutes for the new umbrella organization as well as joint Strategic and Implementation

Plans. Final approval of these items, along with the formal establishment of the InterAcademy Partnership, took place on 2 March 2016 at the IAP General Assembly in Hermanus, South Africa.

The four main strategic priorities of the InterAcademy Partnership closely reflect those of IAP. They are:

- Provide evidence-based advice and perspectives on global issues;
- Build a scientifically literate global citizenry;
- Strengthen the global scientific enterprise; and
- Strengthen the global network of academies, including establishing new academies in countries where they do not currently exist.

In addition, member academies agreed to rename and re-brand their respective academy networks. Thus, IAP - the global network of science academies becomes 'IAP for Science'; IAC becomes 'IAP for Research'; and IAMP becomes 'IAP for Health'.

The potential of these three academy networks to secure funding is evidenced by three major projects that are already under way: 'Food nutrition and security and agriculture', led by the German National Academy of Sciences Leopoldina with funding from the German Federal Ministry of Education and Research and involving the four IAP regional networks; and two projects led by IAP for Research with support from the Carnegie Corporation of New York on 'Harnessing SEM to address Africa's challenges' and 'Improving scientific input to global policymaking'.

New members

The academies of science from Benin, Burkina Faso, Ecuador and Honduras, as well as the World Academy of Art and Science (WAAS) were ratified as new members during the IAP General Assembly in Hermanus and are already engaging with their relevant IAP affiliated regional networks. There are now 111 members of IAP. Including the dedicated academies of medicine, membership of the InterAcademy Partnership exceeds 130 academies.

Science advice

Immediately prior to the General Assembly in Hermanus, IAP convened its triennial conference on the theme of 'Science Advice', the first of the new InterAcademy Partnership's strategic priorities. The conference was hosted by the Academy of Science of South Africa (ASSAf), which was celebrating its 20th anniversary, with the support of South Africa's Department of Science and Technology and National Research Foundation. Representatives of nearly 80 academies attended the event, making it the largest meeting of academies so far.

It was officially opened by South Africa's Minister of Science and Technology, Naledi Pandor, and featured other notable speakers, including Flavia Schlegel, UNESCO's Assistant Director General for Science, and Sir Peter Gluckman, science adviser to the Prime Minister of New Zealand.

A full report of the conference is available on pages 14-15.

Regular activities

IAP obtains global visibility and local context through the activities of four affiliated regional networks:

- AASSA – the Association of Academies and Societies of Science in Asia
- EASAC – the European Academies Science Advisory Committee
- IANAS – the Inter-American Network of Academies of Science
- NASAC – the Network of African Science Academies.

These four networks are increasingly active and leverage significant additional financial support to augment their IAP-related activities. Details of the networks' activities are on pages 26-33.

Of particular note, IAP has been supporting collaboration



R. Gadagkar, President, Indian National Science Academy (INSA) and M. Hassan, Co-chair IAP and President of the InterAcademy Partnership, at the Joint Meeting in New Delhi, India.

between IANAS and NASAC on the issue of water management and policy advice. Owing to the major earthquake that hit Nepal in April 2015, a workshop 'Economic prosperity through research and development in natural products', due to be implemented by AASSA and the Nepal Academy of Science and Technology, had to be postponed. It has been rescheduled for 2016.

IAP also supports the secretariat and activities of the InterAcademy Medical Panel (IAMP – since re-named 'IAP for Health'), the activities of which are reported on pages

18-21, and the InterAcademy Council (IAC, since re-named 'IAP for Research'), the activities of which are reported on pages 22-23.

The Science Education Programme (SEP), led by the Academy of Sciences Malaysia, continues to be very active. In May 2015, it hosted an International Science, Technology and Engineering (STEM) High Level Policy Forum on 'Evidence Based Science Education in Developing Countries', with a parallel meeting of the IAP SEP Global Council in Kuala Lumpur, Malaysia. At the symposium Irina Bokova, the Director-General of UNESCO, was presented with a copy of 'Working with Big Ideas of Science Education', a book published by IAP. Thanks to the efforts of IAP member academies and other partners, the book is now available in Chinese, English, Farsi, Italian, Serbian and Spanish.

The IAP SEP was also closely involved in the second AEMASE (African-European-Mediterranean Academies for Science Education) conference that took place in Dakar, Senegal, on 12-13 October 2015, hosted by the *Académie Nationale des Sciences et Techniques du Sénégal* (ANSTS) (see pages 38-39). A book, 'A Health Science Education Programme in Primary School' was published (in English and Italian) by the *Accademia Nazionale dei Lincei* (Italy) following an IAP-supported pilot project. Other meetings took place in Astana, Kazakhstan, in June 2015, and in Indonesia in May and December 2015. Dato Lee Yee Cheong, chair of the IAP SEP Global Council also attended a workshop of the Pontifical Academy of Science in November 2015 on 'Children and Sustainable Development: A Challenge for Education'. Full details of IAP SEP activities are on pages 36-37.

IAP is also providing a grant to the Sudanese National Academy of Science which is collaborating with the Ethiopian Academy of Sciences on a project 'Improving science education in Sudan and Ethiopia through a model-based approach' (see page 43).

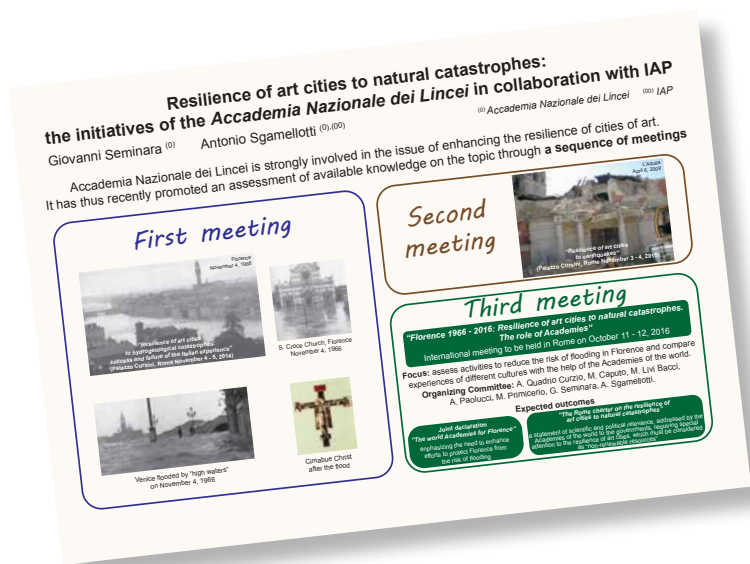
International engagement

In August 2015, the IAP Biosecurity Working Group (BWG), led by the Polish Academy of Sciences and supported by the US National Academy of Sciences, presented two statements at the meeting of experts of the International Biological and Toxin Weapons Convention (BWC) in Geneva, Switzerland. IAP coordinator, Peter McGrath, also gave a plenary presentation on behalf of IAP and the TWAS science diplomacy and capacity building programmes. Subsequently, the IAP BWG published a review of scientific and technological developments that have implications for the BWC following a workshop in Poland in September, hosted by the Polish Academy of Sciences in partnership with the Royal Society (UK) and the US National Academy of Sciences.

At the Third UN World Conference on Disaster Risk Reduction, held in Japan on 14-18 March 2015, the Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted by UN Member States. Experts from the Science Council of Japan represented IAP at this event. Various academies and IAP experts contributed to the draft document and were instrumental in establishing the use of science and technology as a key mechanism for reducing the impacts of disasters. Academies were also instrumental in inserting clauses into the agreement that called for

the protection of cultural heritage. R.B. Singh (Fellow of INSA) has since been appointed by IAP to work with the UNISDR process of building science and technology into the implementation processes of the Sendai Framework.

Further exchanges with the Sendai process were developed when Singh joined Antonio Sgamellotti of the *Accademia Nazionale dei Lincei*, Italy, and P. McGrath, IAP coordinator, at the UNISDR Science and Technology Conference on the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 in Geneva on 27-29 January 2016.



Poster presentation on 'Resilience of Art Cities to Natural Catastrophes' presented at the UNISDR Science and Technology Conference, Geneva, Switzerland, January 2016.

IAP also supported two young scientists to attend the event (see below). A month later, at the IAP conference on 'Science Advice', Virginia Murray, vice-chair of the UNISDR Science and Technology Advisory Group (STAG), participated in the session on 'Science Advice in Times of Disasters/Emergencies'.

In 2016, IAP is also supporting the *Accademia Nazionale dei Lincei* to host an international symposium, 'Resilience of Art Cities to Natural Catastrophes: the role of academies', which will take place in Rome in October 2016.

IAP has also assisted the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES) by disseminating information on its activities and calls for nominations of experts to its various panels.

Other activities

In April 2015, co-chair Mohamed Hassan represented IAP at the World Academy of Art and Science conference, 'Framework for a New Paradigm on Human Development', in Baku, Azerbaijan. Likewise, IAP coordinator, P. McGrath attended the following meetings: 'Harnessing Women's Talents in Science, Technology and Innovation', and the International Science, Technology and Engineering (STEM) High Level Policy Forum on 'Evidence Based Science Education in Developing Countries', both of which took place in Kuala Lumpur, Malaysia, in May; 'The Future of Scholarly Scientific Communication', hosted by the Royal Society in London, UK, in May; as well as the 'International

Conference Celebrating Einstein', hosted by the Albanian Academy of Sciences in Tirana, Albania, in November.

Women in academies

In 2014, IAP commissioned a report from the Academy of Science of South Africa (ASSAf) to carry out surveys on the membership, governance and involvement of women in science academies. Over 60% of IAP member academies responded to the survey, the results of which were released on 29 February 2016 during the IAP conference in Hermanus, South Africa.

Although considerably more women are enrolling in undergraduate courses, especially in the biological and chemical sciences, the report confirms that significant challenges remain if we wish to ensure that the best women scientists are able to have fulfilling careers with increasing levels of responsibility, eventually taking up leadership and decision-making positions. Indeed, the average number of women members in the 69 national science academies responding was just 12%, and in 30 of these academies it was 10% or less. The academies with the highest percentage of women members are the Cuban Academy of Sciences (at 27%) and the Caribbean Academy of Sciences (26%).

One of the key recommendations of the 2006 IAC 'Women for Science' report was that each academy should have a gender-balance committee, or an individual, to address gender/diversity issues. Seventeen out of 51 responding academies (33%) confirmed that they have an established infrastructure or dedicated committee, while an additional three academies (6%) rely on the input and guidance of individuals. A major recommendation of the new survey report, therefore, is that IAP member academies establish permanent organizational structures to provide strategic direction on gender/diversity activities.

Young scientists

IAP continued to foster the engagement of young scientists, in particular through ongoing support to and cooperation with the Global Young Academy (GYA).

For example, IAP provided financial support for the GYA's 5th 'International Conference for Young Scientists' and annual general meeting, held in Montebello, Quebec, Canada, from 25-29 May 2015. More than 100 participants from 30 countries attended the meeting on the theme 'Innovation for Sustainable Globalization'. IAP funds were used largely to support the travel of GYA members from developing countries.

In addition, IAP provided funds to the GYA for a project on 'Solid Waste Management and the Green Economy', which also gained support from the German National Academy of Sciences Leopoldina. A workshop was held in Halle, Germany, in October 2015. A report of the discussions and conclusions will be published in 2016.

Following the recommendation of UNESCO, IAP also partnered with the World Association of Young Scientists (WAYS), the International Consortium of Research Staff Associations (ICoRSA) and the GYA to host a young scientists' side event at the 2015 World Science Forum in Budapest. In total, 48 young scientists from 30 countries attended, 23 of whom were nominated by IAP member academies. Following the side event, young scientists were also successfully integrated into many of the main

WSF sessions. Among them, GYA member Ivana Gadjanski from Serbia spoke at the closing session that took place in the Hungarian parliament buildings.

As a direct consequence of this engagement the WFS, IAP also supported two young scientists, Abdeslam Badre from Morocco and Romana Siddiqi from Bangladesh, to attend the UNISDR Science and Technology Conference on the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030, in Geneva, Switzerland, on 27-29 January 2016. Both young scientists presented posters.

Working through the GYA, IAP included young scientists on the committee that designed the agenda of the IAP conference on 'Science Advice', helping to ensure that each session featured a young scientist among the speakers.

In 2016, IAP will support the Bangladesh Academy of Sciences to host a young scientists congress and a women scientists mentor-mentees programme.

working group chaired by Geoffrey Boulton, president of ICSU's Committee on Data for Science and Technology (CODATA), and that included Jianhui Li, nominated the Chinese Academy of Sciences, Maria Musoke, nominated by the Ugandan National Academy of Sciences, and Paul Uhlir, nominated by IAC. Members of the InterAcademy Partnership Steering Committee then joined the leadership of the other Science International partner organizations to finalise the report that was released in December 2015 at the inaugural Science Forum South Africa held in Pretoria, South Africa.

A campaign to generate interest in and support for the accord is now under way. Nearly 100 scientific organizations from around the globe, including scientific unions, research councils, university networks and more than 30 academies have already signed up.

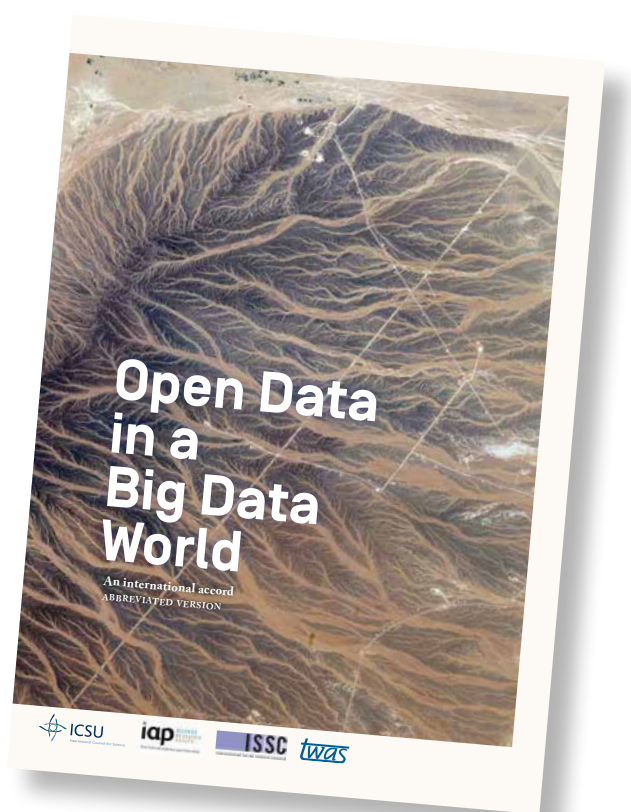
In parallel, CODATA is spearheading a capacity-building initiative, especially targeted to the African science community.

Fundraising

IAP continued its annual request for voluntary contributions to support programmatic activities and in total seven academies provided some USD13,000. In addition, the Royal Society provided a second contribution of USD50,000 to a fundraising campaign for the InterAcademy Partnership, while the US National Academies and the German National Science Academy Leopoldina both earmarked significant funds for fundraising activities. A proportion of these funds will be used to support a US-based fundraising consultant.

In-kind support

In 2015, IAP also benefitted from a wide-range of in-kind contributions by member academies. For example, in May, the Academy of Sciences Malaysia hosted the Global Council of IAP Science Education Programme in parallel with the International Science, Technology and Engineering (STEM) High Level Policy Forum on 'Evidence Based Science Education in Developing Countries'; in September, the Indian National Science Academy (INSA) hosted a joint meeting of the IAP and IAMP Executive Committees, together with the Board of the IAC with more than 50 participants (see above); and in November the Hungarian Academy of Sciences hosted IAP staff and 23 young scientists nominated by IAP member academies at the World Science Forum. In addition, each IAP Affiliated Regional Network successfully leveraged up four times the 'seed funding' provided by IAP to support regional activities. It is estimated that the grand total of such leveraged funds comes close to one million USD.



The Science International accord: 'Open Data in a Big Data World'.

Science International

Also in 2015, IAP and other members of the InterAcademy Partnership joined forces with the International Council for Science (ICSU), the International Social Sciences Council (ISSC) and The World Academy of Sciences (TWAS) to develop and support a series of annual meetings under the name of 'Science International'. Together, the four global science organizations aim to develop projects on cross-cutting issues at the interface of science-for-policy or policy-for-science.

The first Science International initiative was an accord, 'Open Data in a Big Data World', developed by an expert

IAP Executive Committee

At the IAP General Assembly in Hermanus, South Africa, on 2 March 2016, member academies elected a new Executive Committee (2016-2018).

Co-chairs:

- Krishan Lal (India)
- Volker ter Meulen (Germany)

Member (and academy representative)

- African Academy of Sciences (Aderemi Kuku, president)
- Australian Academy of Science (Cheryl Praeger, foreign secretary)
- Brazilian Academy of Sciences (Jacob Palis, president)
- Royal Society of Canada (Jeremy McNeil, foreign secretary)
- *Academia Chilena de Ciencias* (Juan Asenjo, president)
- Cuban Academy of Sciences (Sergio Pastrana, executive director)
- Academy of the Islamic Republic of Iran (Reza Shams Ardekani, secretary)
- Science Council of Japan (Takashi Onishi, president)
- Korean Academy of Science and Technology (Myung Chul Lee, president-elect)
- Academy of Science of South Africa (Daya Reddy, president)
- Royal Society, UK (Julie Maxton, executive director)

Observer: The World Academy of Sciences (TWAS) – for the advancement of science in developing countries



Newly elected members of the IAP Executive Committee, Hermanus, South Africa, 2 March 2016.

The IAP co-chairs

Krishan Lal



Krishan Lal is a physicist specializing in solid state physics, materials characterization, crystal growth and lattice imperfections, and high resolution X-ray diffraction. Among other positions, he served as the director of India's National Physical Laboratory (NPL) from 2000-2005. His research has led to deeper understanding of the nature of real materials and their interaction with radiation and external fields.

A Fellow of the Indian National Science Academy (INSA), he acted as president of CODATA (the Committee on Data for Science and Technology of the International Council for Science (ICSU)) between 2006 and 2010, and as president of INSA (2011-2013). Lal is also a foreign member of Russian Academy of Sciences and, since 2015, acts as president of the IAP regional network, the Association of Academies and Societies of Sciences in Asia (AASSA).

Lal, who has more than 100 research papers in refereed journals and seven patents to his credit, was elected IAP-co-chair at the IAP General Assembly in Hermanus, South Africa, on 2 March 2016.

Volker ter Meulen



Volker ter Meulen is a virologist who has held top academic and science policy posts in Germany and Europe. In 1966, he specialized in paediatrics and, in 1975, became a full professor and chairman of the institute of virology and immunobiology at the University of Würzburg. From 1998-2002, he was dean of the Faculty of Medicine at the University of Würzburg.

From 2003-2010, ter Meulen was president of the German Academy of Sciences Leopoldina, and from 2007-2010, he served as president of the European Academies of Science Advisory Council (EASAC). In recognition of his scientific achievements, ter Meulen has been requested to act as political advisor on scientific issues to state and federal ministries of science in Germany.

Initially elected IAP co-chair in February 2013, ter Meulen was re-elected for a second term at the IAP General Assembly in Hermanus, South Africa, on 2 March 2016.

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Participants at the Joint IAP Executive Committee, IAMP Executive Committee and IAC Board Meeting, at the India National Science Academy (INSA), New Delhi, India, 28-30 September 2015.

Academies discuss 'Science Advice'

From 28 February to 1 March, representatives of more than 70 academies of science and medicine convened in Hermanus near Cape Town, South Africa, to discuss the issue of 'Science Advice'. The academies present were members of IAP - the global network of science academies, or its affiliated organization, the InterAcademy Medical Panel (IAMP).

With participants ranging from the German Academy of Sciences Leopoldina, the UK's Royal Society and the French *Académie des Sciences*, all of which have histories dating back 350 years or more, to recently-established academies such as those from Benin and Botswana, discussions covered over-arching themes on how best to present advice to governments, as well as the differing landscapes for such advice in different countries.

Opening the meeting, the South African Minister of Science



Naledi Pandor, Minister of Science and Technology of South Africa, is welcomed to the IAP conference on Science Advice by D. Reddy, President, Academy of Science of South Africa (ASSAf) and V. ter Meulen, Co-chair, IAP.

and Technology, Naledi Pandor, informed the assembled academies that, following the apartheid era, there was little trust on the side of the newly-established government in the advice systems of the previous regime. For these reasons, the Academy of Science of South Africa (ASSAf), was created. ASSAf was hosting the meeting to celebrate its 20th anniversary and, as Pandor confirmed, ASSAf has become a significant component of the South Africa science advice ecosystem.

Sir Peter Gluckman, science adviser to the Prime Minister of New Zealand and chair of the International Network on Government Science Advice (INGSA), set the scene for much of the remainder of the conference. He made the point that science and policy are fundamentally different cultures, adding that modern science is becoming increasingly non-normal, with non-linear relationships leading to uncertainties and disputed values. He noted that the aim of scientists should be to build trust with governments and their agencies, and to inform policy by

Highlights from the IAP conference on 'Science Advice' hosted by the Academy of Science of South Africa (ASSAf) in Hermanus, South Africa, 28 February to 1 March 2016.

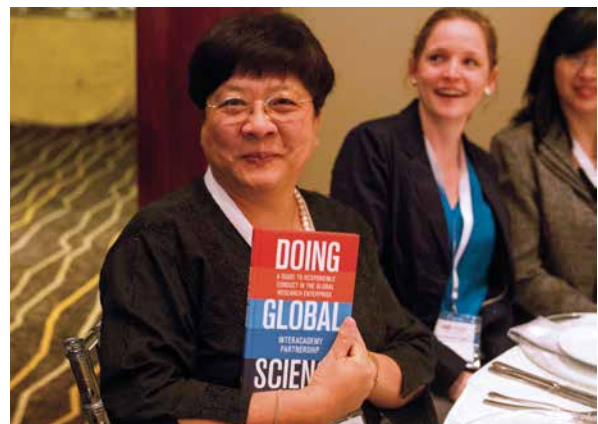


M. Hassan, Co-chair, IAP, presenting at the IAP conference on Science Advice, Hermanus, South Africa.

translating scientific results into understandable language and concepts. There should also be less expectancy among the scientific community that its advice will be taken on board because policymaking is a 'messy' process, with diverse inputs and viewpoints, and policymakers must weigh many factors besides science. But it is clear that better policies are put in place when science helps inform the process.

Among the high-level panellists in the session on the 'Science Advice Ecosystem' that followed Gluckman's presentation was Flavia Schlegel, Assistant Director-General for Science at UNESCO.

The end of the first full day of the conference was marked by the launch of a report on 'Women for Science: Inclusion and Participation in Academies of Science', marking the culmination of studies into the numbers of women in academies of science around the globe as well as how active they are within those academies. The global average for women's membership in science academies is rather poor, confirms the report, at around 12%, and even the Cuban Academy of Sciences, which leads the way in



L. Looi, Co-chair, IAMP, at the IAP conference on Science Advice, Hermanus, South Africa.



Naledi Pandor, Minister of Science and Technology of South Africa, giving her welcome address at the IAP conference on Science Advice, Hermanus, South Africa.

gender equality with 27% of its members being women, is still some way off parity – a challenge laid down by Minister Pandor in her opening address.

In the session on 'Country Readiness for Science Advice', it was noted that the US National Academies was created by President Abraham Lincoln in 1863 specifically to provide advice to the US government, which is also the case for other well-established academies in Europe and elsewhere. However, as pointed out by Norbert Hounkonnou of Benin, the impact of science advice depends on the level of scientific development in a country, and in many African countries the critical mass of scientists living and working in the country is low, so the advice framework is minimal. Academies are typically well-equipped to take on the role of science advice, but there is a need to develop relations with the government, including its agencies and possibly finding a direct route to the relevant minister or head of state. However, building such links can be difficult for weak or recently-established academies.

In another keynote lecture, Jacqueline McGlade, Chief Scientist, United Nations Environment Programme, highlighted that UNEP continues to produce in-depth reports on a variety of environmental issues – from water availability and drought, to the degree of pollution by plastics in the marine environment – using some 1,200 expert scientists to source information from research published in all UN languages, synthesizing it for policy-makers and others. Indeed, she noted that small countries often rely on UNEP and other UN agencies as their 'civil service'. McGlade also called on IAP, its member

academies, and leading scientists around the world to engage more with the UNEP process and broaden the base of expertise that is feeding into its reports.

Academies were provided with another opportunity to engage with international decision-making processes during the session on 'Science Advice in Times of Disasters/Emergencies'. Virginia Murray, vice-chair, United Nations Office for Disaster Reduction (UNISDR) Scientific and Technical Advisory Group (STAG), encouraged academies to get involved in communication to the public and to policy-makers by joining the Scientific and Technology Partnership for the Implementation of the Sendai Framework on Disaster Risk Reduction 2015-2030, the agreement signed by world leaders when they met in Sendai, Japan, in March 2015.

The final session of the conference, presented by Daya Reddy of ASSAf and Jörg Hacker of the German National Academy of Sciences Leopoldina, reviewed the overarching themes that had emerged over the previous two days.

These included:

- Avoid the hubris of thinking science has all the answers. Be an honest broker. Build trust.
- Be inclusive and solicit diverse inputs, especially from women, social scientists and young scientists.
- Include training in communicating to the public and to policy-makers in university curricula. Ways of rewarding scientists for communicating in such ways should be developed – this is in contrast to many current systems, whereby career development is based on the publication of papers in high-impact-factor journals.
- Finally, there were many discussions on how we can help academies and other scientists to understand society better so that scientific messages can be tailored in the most appropriate ways.

In brief, a key concept that emerged from the IAP Conference on Science Advice was "Communication, communication, communication!"

Additional information about the IAP Conference is available at:

<http://www.interacademies.net/ProjectsAndActivities/10880/IAPConf2016.aspx>



D. Reddy, President, Academy of Science of South Africa (ASSAf), presenting at the IAP conference on Science Advice, Hermanus, South Africa.

Affiliated Thematic/Functional Network reports

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The InterAcademy Medical Panel (IAMP) – IAP’s thematic network for health issues – and the InterAcademy Council – IAP’s functional network for policy studies – were also supported in 2015. Reports on the activities of these two networks follow.

ACTIVITIES

InterAcademy Medical Panel



the interacademy medical panel

The InterAcademy Medical Panel (IAMP) is a network of 78 of the world's medical academies and medical sections of academies of science and engineering. IAMP is committed to improving health worldwide, with a special focus on low and middle-income countries. IAMP is hosted by TWAS, The World Academy of Sciences - for the advancement of science in developing countries, at its headquarters in Trieste.



Participants at the IAMP Executive Committee meeting, hosted by the UK Academy of Medical Sciences, London, UK, 29-30 April 2015.

In 2015, the IAMP Executive Committee met in London, UK, on 29-30 April, and in New Delhi, India, on 28 September. They were hosted by the UK Academy of Medical Sciences and the Indian National Science Academy (INSA), respectively. At the meeting in London, three new members were accepted – the *Academia de Ciencias de la Republica Dominicana*, the Academy of Medical Sciences, Romania, and the Sudanese National Academy of Sciences – bringing IAMP's total membership to 78.

Hearing loss statement

One of IAMP's priority activities is to provide evidence-based advice to governments on critical health issues. Often this is done via the release of a statement on a particular issue that is proposed by a member academy and accepted by the Executive Committee. An expert working group, selected from nominees put forward by member academies, prepares the statement, and if the statement is endorsed by more than half of the member academies, it is released as an official IAMP Statement.

In 2014, the IAMP Executive Committee accepted a proposal from the German National Academy of Sciences, Leopoldina, to develop a statement on hearing loss. This statement, 'A Call for Action to Strengthen Healthcare for Hearing Loss', endorsed by more than 40 IAMP member academies, was released on 3 March 2015, International Ear Care Day. Coincident with the release, a parallel letter was published in *The Lancet*. The Statement has also been recognized by the World Health Organization (WHO) and, to aid wider dissemination and uptake of the Statement's recommendations, has been translated into Chinese, French, German, Italian and Spanish.

Exploring traditional medicine

In 2015, IAMP, together with the Chinese Academy of Engineering (CAE) and the China Academy of Chinese Medical Sciences (CACMS), held a symposium on 'Exploring

Traditional Medicine' in Beijing on 22-24 September. It was attended by experts from 15 different countries plus nine from China.

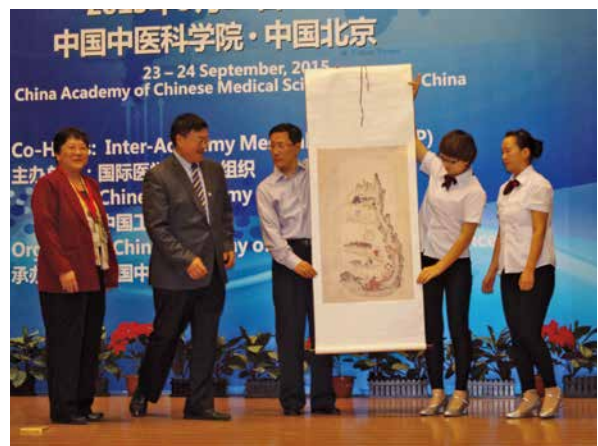
The symposium was designed to share experiences on how traditional knowledge and practices are being explored, implemented and integrated with allopathic or 'Western medicine' in the participating countries.



International participants attending the symposium on 'Exploring Traditional Medicine', hosted by the China Academy of Chinese Medical Sciences (CACMS), Beijing, China, 22-24 September 2015.

In his welcome address, Bernhard Schwartländer, WHO's representative in China, summed up the underlying reason for the symposium by stating: "Traditional medicine attracts both uncritical enthusiasm and uninformed criticism, but it is arrogant to ignore thousands of years of wisdom. We need to explore it and exploit it. After all, 40% of the population of China and 80% of the population of Africa are using traditional medicines."

The case studies presented in Beijing are currently being edited for publication.



Award ceremony at symposium on 'Exploring Traditional Medicine', Beijing, China, September 2015.

World Health Summit

About 1,500 participants from approximately 90 countries attended the seventh World Health Summit (WHS) on 11-13 October 2015 at the Federal Foreign Office in Berlin, Germany. Keynote speakers included the Federal Minister



The World Health Summit (WHS) takes place each year in Berlin, Germany.

of Health Hermann Gröhe, and Margaret Chan, Director-General of the WHO.

At the closing ceremony, an M8 Alliance Statement was released that calls on global leaders to take bold action on five topics central to global health:

- The health of refugees and other forcibly displaced persons;
- Global health security, sustainability and solidarity;
- Universal health coverage;
- Climate change and health; and
- Digital health.

The M8 Alliance of Academic Health Centres, Universities and National Academies was founded in 2009 at the inaugural WHS and has provided the academic foundation to every WHS event since. IAMP is a key member of the M8



D. Ganten, Co-chair, IAMP and President, World Health Summit.

Alliance, an internationally unique network of academic institutions known for their educational and research excellence.

IAMP was especially involved in organizing two workshop

sessions at the 2015 WHS, one through its Young Physician Leaders programme, and the other on 'One Health'.

Young Physician Leaders

Since 2011, annual sessions of the IAMP Young Physician Leaders (YPL) programme have been held in Berlin, Germany, in association with the World Health Summit. The October 2015 edition was no exception.

The 2015 cohort included 19 YPL from 17 countries, who were selected from nominations submitted by IAMP member academies. Although the 19 young physicians



Young Physician Leaders (YPL) with J. Boufford and T. Zeltner, Berlin, Germany, 9-13 October 2015.

have varied fields of expertise, from intensive care and anaesthesiology, to cardiac surgery to psychiatry, they all have one thing in common: they are grappling with the issues of increasing management and leadership responsibilities despite having had no formal training to deal with such matters. The IAMP YPL programme aims to address this shortcoming by providing an intensive two-day leadership training experience and then coaching the YPL to develop a specific session on leadership to be presented during the main sessions of the World Health Summit that immediately follows the leadership training workshop.

There are now more than 100 YPL alumni and, in 2015, IAMP launched a directory of alumni on its website that is designed to facilitate networking between the YPL and enhance their global networking opportunities.

To provide additional opportunities for YPL in the network, IAMP is convening a group of 25 YPL alumni at the May 2016 World Health Assembly in Geneva, Switzerland. The Swiss Academy of Medical Sciences generously agreed to



Young Physician Leaders (YPL) breakout working group, Berlin, Germany, October 2015.



Young Physician Leaders (YPL) breakout working group, Berlin, Germany, October 2015.

contribute to the event, which sees efforts to link the YPL with their national WHO delegations.

The YPL programme is supported financially by IAMP, the Tides Foundation and the Bayer Science and Education Foundation, as well as member academies.

One Health

The concept of 'One Health' has been defined as "the collaborative effort of multiple disciplines – working locally, nationally and globally – to attain optimal health for people, animals and the environment."

Given IAMP's overarching goal to improve health worldwide, the organization has embraced the One Health concept and is increasing its activities in this area.

In March 2015, IAMP Coordinator Peter McGrath attended the 3rd International One Health Congress in Amsterdam, the Netherlands, where the One Health Platform

Foundation was launched. Peter McGrath, Rajae El Aouad from the Hassan II Academy of Science and Technology, Morocco, and Loinda Baldrias, from National Academy of Science and Technology of the Philippines have since been nominated as members of the International One Health Coalition, the collaborative partnership between the One Health Platform and existing international governmental and non-governmental organizations and institutions.

IAMP co-hosted a symposium 'One World - One Health' in collaboration with the Robert Koch Institute (RKI) and World Wide Fund for Nature (WWF Deutschland) at the World Health Summit (11-13 October 2015) in Berlin, Germany. The founding president of the One Health Platform Foundation, Ab Osterhaus, was among the invited speakers. The objective was to ensure that the largely medical/human health audience would understand the importance of seeing global health through the One Health lens.

Urban health

IAMP is collaborating with the International Council for Science (ICSU) and the United Nations University (UNU) on a project, 'Health and Wellbeing in the Changing Urban Environment: a Systems Analysis Approach'.

Former IAMP co-chair, Jo Boufford, represents IAMP in this initiative and, in this capacity, she attended a workshop in Xiamen, China, in November 2015 to finalize the project workplan. During 2015, IAMP also surveyed its member academies to identify focal point experts on urban health to support Boufford and develop wider interest in this initiative among IAMP members.

The aim is also to develop links with other urban health initiatives, e.g. UN HABITAT and to participate in various international urban health congresses. Jo Boufford, for example, was a key organizer of the 12th International



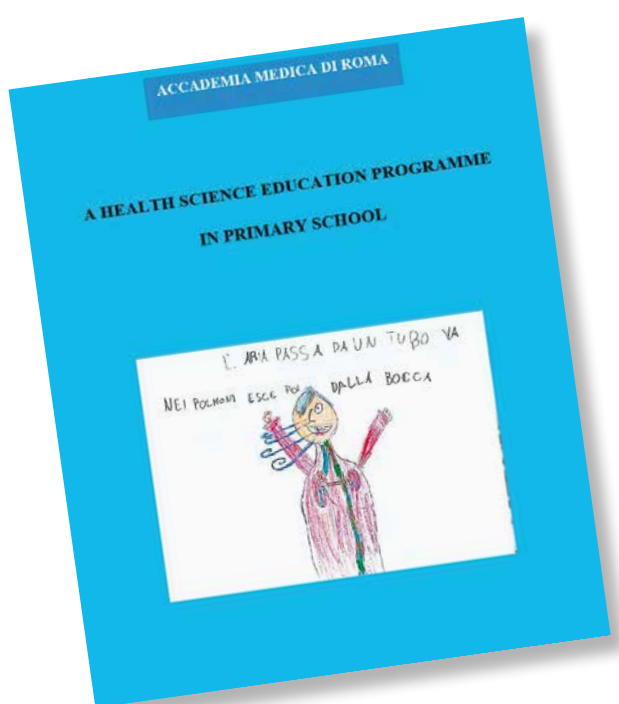
Ab Osterhaus, founding president of the One Health Platform Foundation, addressing IAMP symposium 'One World - One Health' in collaboration with the Robert Koch Institute (RKI) and World Wide Fund for Nature (WWF Germany) at the World Health Summit, Berlin, Germany.

Conference on Urban Health held in Dhaka, Bangladesh, in May 2015, and the 13th International Conference on Urban Health: Place and Health, in San Francisco, USA, in April 2016.

In addition, in January 2016, IAMP co-chair Lai Meng Looi represented IAMP at the 'Urban Thinkers Campus on Health and Wellbeing in the City', in Kuching, Malaysia.

Health science education

A workshop on 'Health Science Education in Compulsory Primary Schools' was held by the *Accademia Nazionale dei Lincei* and the *Accademia Medica di Roma*, on 15 May 2015 in Rome, Italy. A publication of the results obtained from an IAMP-funded pilot trial in an Italian primary school, 'A Health Science Education Programme in Primary School', was released, and is available in both English and Italian.



Cover of 'A Health Science Education Programme in Primary School' published by the *Accademia Medica di Roma* in English and Italian.

Scientific writing programme

For several years, IAMP has been supporting workshops to help young researchers improve their scientific writing and the current goal is to establish focal points at universities and institutes in non-English-speaking countries, especially francophone Africa.

To this end, IAMP supported a series of three workshops through 2013 and 2014, with the final event taking place in Dakar, Senegal, hosted by the Senegal National of Science and Technology (ANSTS) on 22-26 June 2015.



Jean-Yves Tano, a Young Physician Leader (YPL) from the Max Delbrück Centre for Molecular Medicine, Berlin, Germany.

New projects

Following a call for proposals from member academies and a competitive review process, the IAMP Executive Committee approved funding for four projects to be carried out during 2016:

- Tackling Waterborne Diseases in the Americas: Potential strategies, actors and the role of the academies, led by the Brazilian Academy of Sciences and the National Academy of Medicine, Brazil;
- Human Genome Editing: Opportunities and challenges for Europe, led by the Federation of European Academies of Medicine (FEAM);
- Addressing Inequities in Health: Fostering action on social determinants, led by the National Academy of Science and Technology, Philippines (NAST); and
- A workshop on Social Determinants of Health, led by the Academy of Science of South Africa.

Partnerships

During the IAP General Assembly in Hermanus, South Africa (see page 8), the representatives of IAMP member academies present agreed to join forces with IAP and IAC to establish the InterAcademy Partnership and to change the name of IAMP from the InterAcademy Medical Panel to IAP for Health.

In addition, IAMP, through its co-chairs and Executive Committee, has been fully engaged with the Science International process, including the development and subsequent release of the Science International accord on 'Open Data in a Big Data World' (see page 11).

InterAcademy Council (IAC)

InterAcademy Council

The InterAcademy Council (IAC) was established in 2000 with the mandate to produce reports on scientific, technological and health issues related to the global challenges of our time, providing knowledge and advice to national governments and international organizations.

The IAC Secretariat is hosted by the Royal Netherlands Academy of Arts and Sciences (KNAW) and the US National Academy of Sciences. The current co-chairs are Robbert Dijkgraaf (the Netherlands) and Daya Reddy (South Africa). The voting members of the IAC Board are the Australian Academy of Science, the Brazilian Academy of Sciences, the Chinese Academy of Sciences, the *Académie des Sciences*, France, the German National Academy of Sciences Leopoldina, the Indian National Science Academy, the Science Council of Japan, the National Academy of Sciences-Republic of Korea, the Mexican Academy of Sciences, the Hassan II Academy of Science and Technology, Morocco, the Nigerian Academy of Science, the Pakistan Academy of Sciences, The World Academy of Sciences (TWAS), the Royal Society of London, the National Academy of Sciences, USA, together with three ex officio members: IAP - the global network of science academies, the InterAcademy Medical Panel (IAMP), and the International Council of Academies of Engineering and Technological Sciences (CAETS). KNAW and the International Council for Science (ICSU) are official observers on the IAC Board.

2012 report 'Responsible Conduct in the Global Research Enterprise: A Policy Report'.

'Doing Global Science' is a concise introductory guide that explains the values that should inform the responsible conduct of scientific research in today's global setting. In order to ensure maximum readership and impact, the guide was published by Princeton University Press. While copies of the book can be purchased from Princeton University Press, under the publishing agreement, the pdf version can be downloaded for free from the IAC website.

IAP has also supported the dissemination of the book at a roll-out symposium on 'Fostering Integrity in Science' held on 14 February 2016 during the annual meeting of the American Association for the Advancement of Science in Washington DC, USA. Panel co-chair Indira Nath and panel member Pieter Drenth (the Netherlands) participated in the symposium, which was well attended and sparked a lively conversation. IAP support also allowed IAC to purchase several thousand printed copies of the guide and to send them out, in particular to IAP member academies and regional networks, as well as to other experts and stakeholders.

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Responsibility and integrity

The second phase of the IAC-IAP project on Scientific Responsibility and Research Integrity was completed in February 2016 with the release of 'Doing Global Science: A Guide to Responsible Conduct in the Global Research Enterprise'. The project was undertaken by a panel co-chaired by Indira Nath (India) and Ernst-Ludwig Winnacker (Germany), who were also integral to the publication of the

ASADI

An IAC panel chaired by former Nigerian Minister of Science and Technology Turner T. Isoun undertook the final evaluation of the US NAS African Science Academy Development Initiative (ASADI). The report, 'Enhancing the Capacity of African Science Academies: The final evaluation of ASADI', was released in pre-publication form in November 2014, with the final version printed in August 2015. In addition to assessing the impacts of the ASADI programme on the development of academies in Africa, the report contains recommendations for African academies as they develop their future strategies and plans.

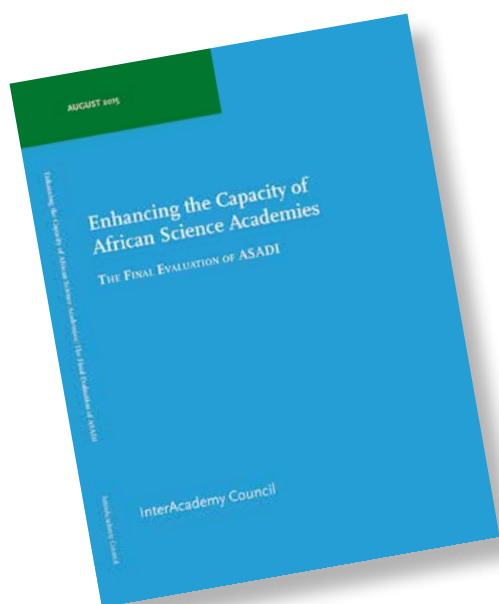
Sustainable energy

With support from the Kavli Foundation, IAC organized a workshop on 'Realizing a Sustainable Energy Future: Roles and Tasks for the World's Academies', which was held 26 June 2015 in Amsterdam, the Netherlands.

The workshop discussion was led by former US Secretary of Energy Steven Chu and IAC co-chair Robert Dijkgraaf. Participants included eminent representatives of academies and other experts from around the world, in addition to an outstanding group of experts from the Netherlands. The discussion explored changes in the global sustainable energy landscape since the 2007 IAC report, 'Lighting the Way: Toward a Sustainable Energy Future' and the role that academies can and should play in the future. During 2016, IAC will work to develop specific project ideas informed by the workshop discussions.



'Doing Global Science: A guide to responsible conduct in the global research enterprise', released in February 2016.



'Enhancing the capacity of African Science Academies: The final evaluation of ASADI', released in August 2015.

New projects

IAC has taken the lead in developing two new projects on behalf of the InterAcademy Partnership.

With funding from the Carnegie Corporation of New York, both projects will kick off in early 2016 and run for three years.

'Harnessing SEM to Address Africa's Challenges' is aimed at mobilizing African leaders in science, engineering and medicine, along with partners and stakeholders from around the world, in developing and implementing new approaches to addressing a range of challenges facing

individual countries, regions, and the continent as a whole. As well as supporting high-level forum events, seed grants will be made available to African academies to strengthen their capacity.

'Improving Scientific Input to Global Policymaking: Strategies for Achieving the Sustainable Development Goals' is aimed at strengthening the ability of scientific organizations around the world to contribute high quality, evidence-based input and advice to policy makers in areas relevant to the Sustainable Development Goals (SDGs) of the United Nations.

Website

IAC has provided support for IAP's online presence. Activities include the development and maintenance of both the IAP and IAC websites, as well as development of a new InterAcademy Partnership website. Specific tasks included work related to the IAP Conference and General Assembly that took place in Hermanus, South Africa, during February-March 2016.

Partnerships

During the IAP General Assembly in Hermanus, South Africa (see page 8), IAC member academies who were present agreed to join forces with IAP and IAMP to establish the InterAcademy Partnership and to change the name of IAC from the InterAcademy Council to IAP for Research.

IAC, though its co-chairs and Board, was also fully engaged with the Science International process, including the development and subsequent release of the Science International accord on 'Open Data in a Big Data World' (see page 11).



R. Dijkgraaf, S. Chu, E. Brézin and K. Elahee at the workshop on 'Realizing a Sustainable Energy Future', Amsterdam, the Netherlands, June 2015.

Affiliated Regional Networks

To ensure greater regional visibility, relevance and impact, a major portion of IAP's programmatic work is carried out through appointed Affiliated Regional Networks in Africa, Asia and the Pacific, the Americas, and Europe. Reports on the activities of these four networks follow.

ACTIVITIES

Association of Academies and Societies of Science in Asia (AASSA)



aasssa
THE ASSOCIATION OF ACADEMIES
AND SOCIETIES OF SCIENCES IN *Asia*

The Association of Academies and Societies of Science in Asia (AASSA), with the support and leadership of IAP, has been actively working to enhance collaboration and cooperation among academies, societies and scientists in Asia and Australasia.

In 2015, AASSA and its members in Asia and Australasia focused on such issues as food security, gender and education, science communication and health. As a standard practice, AASSA convened meetings of experts, many of them from member academies, organizing three regional workshops and an international symposium. Outputs of these events included follow-up recommendations for academies, national science systems and policymakers.

Food security

A regional workshop on 'Sustainable Management of Food Security' was held in Istanbul, Turkey, on 9-10 April 2015. This was hosted by the Turkish Academy of Sciences (TÜBA) and co-sponsored and supported by AASSA and IAP.

The coordinator of the TÜBA Food and Nutrition Study Group, Kazım Şahin, noted that the workshop would review food system operations like the processing, distribution and consumption of food; producing food from crops, livestock, trees, freshwater and marine sources; the existence, access, use and reliability dimensions of food security; plus issues relating to the economy, environment and health, social goals, as well as the synergy and balances between these issues.

At the conclusion of the workshop – as is standard practice for AASSA – the participants drafted a set of resolutions that included recommendations aimed at greater coordination among the countries belonging to AASSA.

Gender and education

AASSA's second workshop of the year, on 'Gender Issues in Science, Research and Education', was organized by AASSA and the Korean Academy of Science and Technology (KAST) in Seoul, South Korea, on 26-29 August 2015, with financial support from IAP.

To gain broad participation and wider exposure, the workshop was held in conjunction with the Gender Summit 6 - Asia Pacific 2015, and was very successful in drawing the attention of many high-ranking decision-makers both in government and in non-governmental organizations. Among them were the Minister of Science, ICT and Future Planning, the Minister of Gender Equality and Family, and the president of the National Research Foundation of South Korea.

AASSA had previously held three regional workshops on 'Women in Science and Engineering', in Baku, Azerbaijan, in 2012, in New Delhi, India, in 2013, and in Izmir, Turkey, in 2014. The outcomes of these workshops include the establishment of a 'Special Committee for Women in



Cover of 'Women in Science and Technology in Asia' report.

Science and Engineering (WISE)' in AASSA and the publication of a report, 'Women in Science and Technology in Asia'. This report, published on 26 August 2015, was distributed to participants of the 'Gender Issues in Science Research and Education' workshop, and of the 'Gender Summit 6 - Asia Pacific 2015'. It received wide acclaim as a timely and valuable source of information on the present status of women scientists and engineers in Asia and has since been distributed to all AASSA member academies and societies, as well as to other IAP member academies and relevant organizations.

Science communication

The regional workshop on 'SHER (Science, Health, Environment and Risk) Communication: Role of S&T Communication in Disaster Management and Community Preparedness', took place on 8-9 December 2015 at the Agency for the Assessment and Application of Technology (BPPT) in Jakarta, Indonesia. It was jointly organized by AASSA, the Indonesian Academy of Sciences (AIPI), KAST and BPPT, with financial support from IAP. The participation of high-ranking officials from the Government of Indonesia, as well as directors of government agencies and/or research institutes, ensured that the discussions reached the senior levels of decision-making in the country.

Members of the IAP Science Education Programme's Global Council (see pages 36-37) were also present at the event, demonstrating how activities of regional networks can feed in to IAP's broader global objectives.

Global health

The AASSA International Symposium on 'Global Health Issues in Asia' was jointly organized by AASSA and KAST, with support from IAP, in Daejeon, South Korea, on 19-21 October 2015. The symposium was held in conjunction with the AASSA Executive Board meeting and formally associated with the concurrent Organization for Economic Cooperation and Development (OECD) Science Ministers Summit. This provided symposium participants an excellent opportunity to attend sessions of the OECD summit and acquaint themselves with their national ministers and/or country representatives.

The premise of the symposium was that Asian countries, regardless of their level of income, share important health problems, including infectious diseases such as SARS and MERS, as well as non-communicable diseases of increasing prevalence such as diabetes, cardiovascular disease and cancer. Furthermore, environmental threats, sedentary lifestyles, poor nutrition, water quality, tobacco consumption, and ageing populations are also affecting health across the continent.

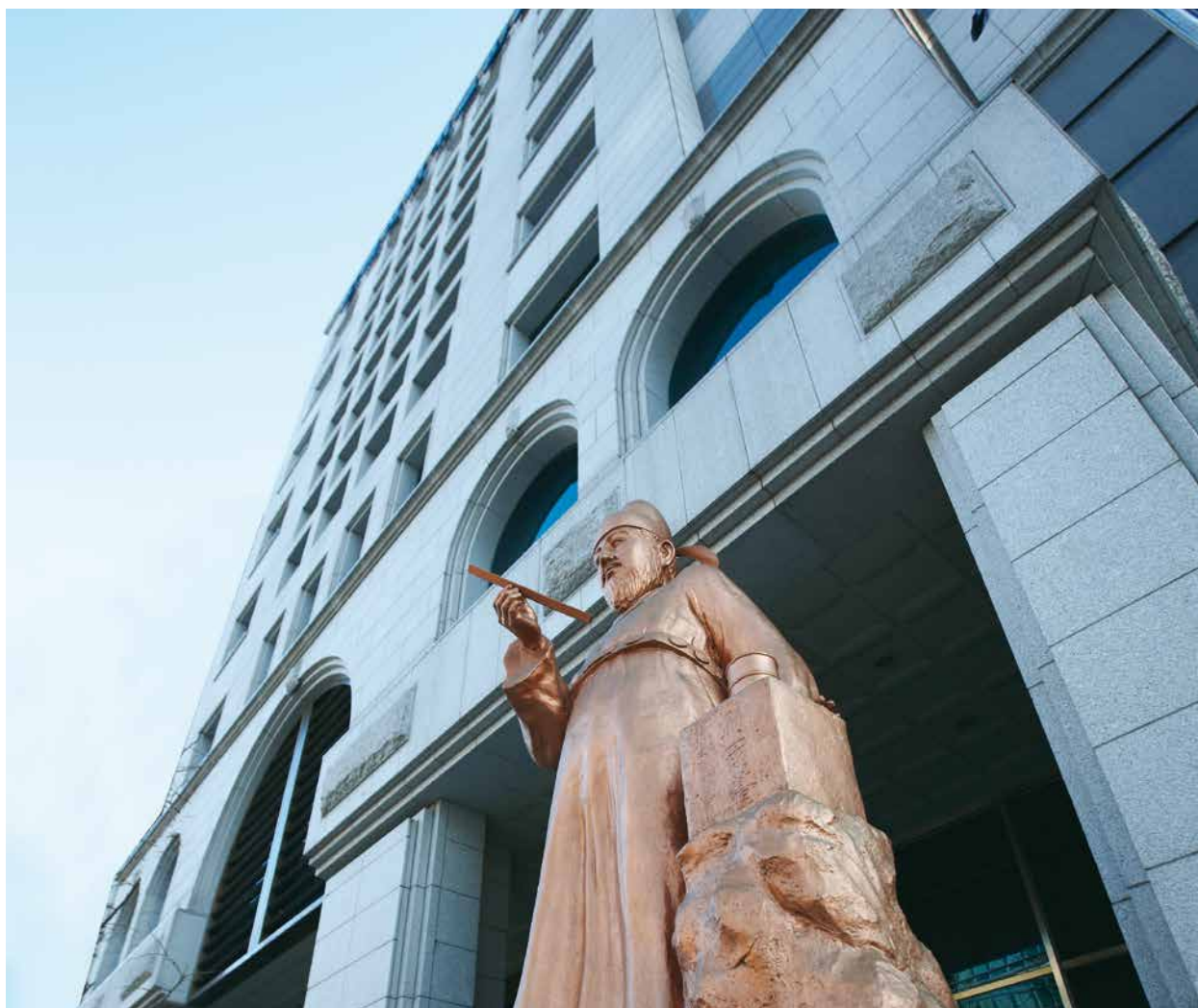
Participants discussed these and other concerns, analysing the effectiveness of current healthcare systems and public education, with the goal of developing a road map towards a safer, healthier Asia.

External review

Finally, during the course of 2015, AASSA established an External Review Panel of renowned international experts to review the network's achievements to date and recommend strategic paths that could lead to a greater impact in the future.

AASSA and KAST co-hosted the meeting of the External Review Panel in Seoul on 15-16 July 2015. After soliciting comments from member academies and societies and, following further consultations among its members, the panel submitted their report to the AASSA president and it was discussed at Executive Board meeting in Ankara, Turkey, in October. AASSA is currently acting on the panel's recommendations.

*For additional information about AASSA, visit:
www.aassa.asia*



The AASSA secretariat is hosted by the Korean Academy of Science and Technology (KAST) in Seoul, South Korea.

European Academies' Science Advisory Council (EASAC)



The European Academies' Science Advisory Council (EASAC), founded in 2001, currently includes one representative national science academy from each of the 25 EU member states, the Academia Europaea, ALLEA (the federation of All European Academies, which provides a complementary Europe-wide perspective), as well as representatives of the Norwegian and Swiss national academies of sciences. Its secretariat is hosted by the German National Academy of Sciences, Leopoldina. Through collaboration, EASAC is able to provide a collective voice of European science and provide independent advice to European policy-makers.

In 2015, EASAC produced six science-based reports and statements for European policy-makers and the public:

- Ecosystem Services, Agriculture and Neonicotinoids;
- Marine Sustainability in an Age of Changing Oceans and Seas;
- New Breeding Techniques;
- Gain of Function: Experimental applications relating to potentially pandemic pathogens;
- Circular Economy: A commentary from the perspectives of the natural and social sciences;
- Facing Critical Decisions on Climate Change in 2015 (released in October in advance of the international COP21 climate change negotiations in Paris, France).

To present and disseminate the joint analysis and recommendations of its member academies on these topics, EASAC held a number of specifically organized launch events in Brussels.



Cover of the EASAC report, 'Ecosystem Services, Agriculture and Neonicotinoids'.

In March 2015, for example, the Royal Society (UK) and EASAC held a breakfast discussion at the European Parliament on 'Reducing the impact of extreme weather' where observations on future adaptation strategies for Europe, as well as the wider world, were brought together.

This was followed in April with a public discussion event to present the report on 'Ecosystem Services, Agriculture and Neonicotinoids', which contributed to an ongoing Europe-wide debate on the vulnerability of pollinators and other non-target insects to the use of neonicotinoid insecticides. As a direct result of EASAC's report, several

European Member States announced reviews of their national policies and the recommendations of the report were adopted following a three-year, EU-wide moratorium on the insecticides that ended later in 2015.

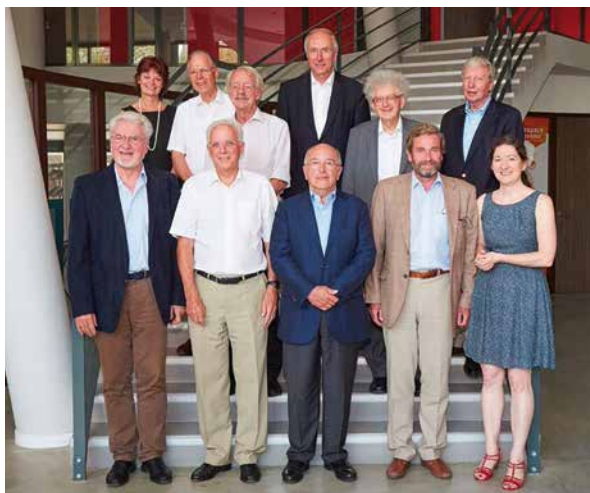
Similarly, EASAC's recommendations in the 'Gain of Function' report, presented in October 2015, were welcomed by the relevant representatives of the European Commission. The Director for Health of the EU's DG for Research and Innovation praised EASAC's work and committed to the implementation of its recommendations. This was later echoed at a conference in Washington DC, USA, on 'Gain of Function Experiments', organized by the US National Academies, where EASAC's report was discussed in some detail and said to be "groundbreaking".

Since its establishment in 2001, EASAC has forged links with the Joint Research Centre (JRC), the in-house science service of the European Commission. In 2015, for example, a joint JRC-EASAC report on 'Marine Sustainability in an Age of Changing Oceans and Seas' was published. In June, a summary of the report was presented on World Oceans Day as part of the programme of the European Commission's Pavilion at Expo 2015 in Milan, Italy.

Also in 2015, some of EASAC's working group meetings were organized as partly open, in efforts to engage relevant stakeholders in new studies, especially for the early scoping phases. The largest of these meetings was a one-day open forum held in collaboration with University College London in April on 'Valuing dedicated storage on electrical power systems'. In May, a workshop at the University of Helsinki focused on the ongoing EASAC study relating to the sustainable management of European forests: given the growing pressures resulting from climate change and the loss of biodiversity, the study is reviewing the changing demands on Europe's forests from the points of view of the energy sector (with regard to bioenergy), of industry and of civil society.

Other activities

In March 2015, EASAC signed a Memorandum of Understanding with four other European academy organizations: the Academia Europaea, All European Academies (ALLEA), the European Council of Academies of Applied Sciences, Technologies and Engineering (Euro-CASE) and the Federation of European Academies of Medicine (FEAM). The five organizations expressed their willingness to work together on science-for-policy projects if a suitable agreement on the processes for project collaboration could be reached and if sufficient additional funds were made available. Through this MoU the academy



EASAC Senior Advisory Group meeting, Strasbourg, France, August 2015.

organizations positioned themselves to be able to respond by providing scientific input to European policy debates when required or requested by the European Commission and other EU institutions. From summer 2015, regular meetings were held between the five European academy organizations to draft a joint project application for a call that was issued by the European Commission in May 2015.

In April, a collection of essays, 'Future Directions of Scientific Advice in Europe', was published. In this collection, the editors assembled perspectives from a wide range of senior contributors and agents working in the European science-policy interface. EASAC contributed its own take on the challenges and opportunities of the

engagement between the science and policy communities, positioning the academies as an important source of independent advice in Europe.

In June, the joint EASAC-JRC 2014 report on 'The Management of Spent Nuclear Fuel and its Waste' was presented at workshops organized by national science academies in a number of major European cities, including Bratislava (Slovakia), Vilnius (Lithuania) and Budapest (Hungary), prior to the submission deadline for EU Member States' national strategies for the management of spent nuclear fuel.

In 2015, EASAC also established a Senior Advisory Group, composed of Anne Glover, the former Chief Scientific Advisor to the EU Commission's President; Jules Hoffmann, Nobel Laureate and former EASAC Council member; Joaquín Almunia, former Vice-President of the European Commission; and Wilhelm Krull, the General Secretary of the Volkswagen Foundation. The group will provide an outside perspective on EASAC's activities and provide guidance for the network for reaching out to different kinds of communities. Their first meeting with the EASAC Bureau was held in Strasbourg at the end of August 2015.

Last but not least, the year 2015 brought the renewal of the commitment by the German National Academy of Sciences Leopoldina to host the EASAC Secretariat for at least another 5 years.

For additional information about EASAC, visit:
www.easac.eu



EASAC Council at their meeting in Smolenice, Slovakia, November 2015.

Inter-American Network of Academies of Science (IANAS)



The mission of the Inter-American Network of Academies of Sciences (IANAS) is to strengthen science communities and to provide an independent source of policy advice to governments on key scientific, technological and health challenges throughout the Americas. As in recent years, 2015 saw the implementation of a number of activities that focused on the key areas of building the capacity of some academies, as well as on human and natural resource challenges.

IANAS concentrates on five key programmatic areas: science education, water resources, energy, women for science and building the capacity of member academies.

Academies and scientific organizations of the network include representatives from Argentina, Brazil, Bolivia, Canada, Colombia, Costa Rica, Cuba, Chile, the Dominican Republic, Ecuador, Guatemala, Honduras, Panama, Peru, Mexico, Nicaragua, USA, Uruguay and Venezuela, as well as the Caribbean Academy of Sciences. Observers from four countries that do not have academies are invited to attend the general assemblies of IANAS.

Capacity building

Established in 2013 with six founding members, the Academy of Sciences of Ecuador inducted its first class of elected members in 2015. IANAS has worked with and advised the founding members over the past several years, so it was fitting that IANAS co-chair Michael Clegg represented IANAS and IAP at the induction ceremony, which took place in Quito in February 2015.

IANAS is currently working with scientists in El Salvador on the possibility of establishing an academy of sciences there.

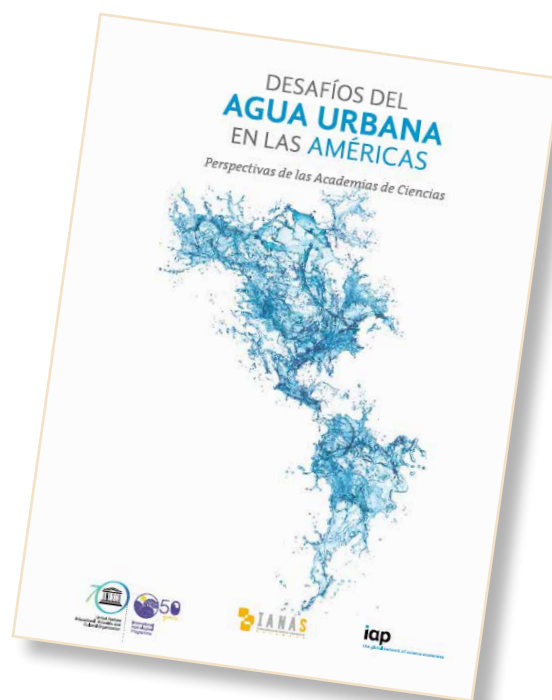
Food, nutrition and agriculture

Along with the other IAP regional networks (AASSA, EASAC and NASAC), IANAS participated in a planning meeting for the InterAcademy Partnership project on Food and Nutrition Security and Agriculture at the headquarters of the German National Academy of Sciences, Leopoldina, in Halle, Germany, on 1-2 June 2015. At the meeting, IANAS proposed building a country-by-country expert assessment of the current status and future projections of food and nutrition challenges in the Americas. The project is ongoing, and IANAS will hold a major workshop on the project in September 2016.

Water

The IANAS Water Programme is chaired by Blanca Jimenez (Mexico) and Katherine Vammen (Nicaragua), with Jose Tundisi (Brazil) acting as honorary co-chair.

This year saw the launch of a major new IANAS book, 'Urban Water Challenges in the Americas: A view from the academies of sciences', published with financial support from IAP and the UNESCO International Hydrological Programme (IHP). This 600-page volume includes contributions from expert authors from different scientific and technical disciplines associated with the management of water in the Americas and comprises 20 country chapters that provide detailed country assessments.



Cover of the Spanish version of the IANAS report 'Urban Water Challenges in the Americas: A view from the academies of sciences'.

The launch of the book, in both English and Spanish, was timed to coincide with World Water Day (8 March), when it was posted on the websites of all the IANAS member academies.

A joint IANAS-UNESCO-NAS workshop on 'Water Quality' was hosted by the US National Academy of Sciences with the support of UNESCO-IHP in Irvine, USA, on 3-5 September 2015. The aim of the workshop, which convened scientists and water experts from 20 countries of the Americas, was to initiate work on another major book dealing with water quality in the Americas.

Finally, following the success of the joint workshop held in Panama in 2014 with African representatives from NASAC, IANAS representatives participated in the reciprocal meeting hosted by the Kenyan National Academy of Sciences in Nairobi in October 2015 (see pages 32-33).

A major achievement of the IANAS Water programme is that its books have been adopted by various organizations, including the Mexican Institute of Water Technology (IMTA), a decentralized government organization focused on national and regional challenges associated with water management and technological research, as well as with the protection of water resources.

Energy

In 2015, the IANAS Energy Programme, chaired by Claudio Estrada (Mexico) and John Millhone (USA), completed the book 'Guide Towards a Sustainable Energy Future



Participants at IANAS-UNESCO-NAS workshop on 'Water Quality' hosted by the US National Academy of Sciences, Irvine, USA, on 3-5 September 2015.

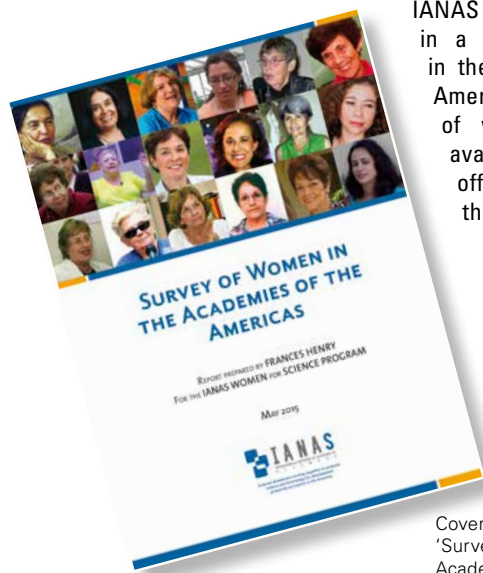
for the Americas'. Each chapter was written by experts identified by IANAS member academies. The publication was released at the IANAS General Assembly in May 2016 at Rio de Janeiro, Brazil.

Women for Science

The IANAS Women for Science Programme (WfS), chaired by Monica Moraes (Bolivia) and Lilliam Alvarez (Cuba), focused on two main activities during 2015.

A magazine-like publication, 'Young Women Scientists: A bright future for the Americas', was prepared during 2015 and published on the International Woman's Day, 8 March 2016. The book, aimed at attracting young girls to science, is rich in photographs and cartoons and provides short biographies of young to mid-career women scientists that were written by scientific journalists and IANAS focal points. It is available for free download in both English and Spanish from the IANAS website.

IANAS also took the lead in a 'Survey of Women in the Academies of the Americas', the results of which were made available in 2015 and officially published in the IAP report 'Women



Cover of the IANAS report 'Survey of Women in the Academies of the Americas'.



IANAS Women for Science focal point meeting in Santa Cruz, Bolivia, hosted by the Bolivian Academy of Sciences and the *Universidad Privada de Santa Cruz (UPSA)*, 14-15 September 2015.

for Science: Inclusion and participation in academies of sciences', which was launched at the IAP conference in Hermanus, South Africa (see page 10). Compared with other regions of the world, the Americas showed some positive results regarding the engagement of women in academy activities. However, the academies still have a great deal of work to do in order to increase the number of women elected and enhance the status of their women members.

Science education

The IANAS Science Education Programme is chaired by Carlos Bosch (Mexico) and Claudio Bifano (Venezuela).

In June 2015, academy focal point members met in Mexico City where they developed and endorsed a plan of action that includes a book designed to share best practices and experiences of each member academy for advancing science education; a focus on the utility of the Indagala web portal that provides teaching resources; and collaboration with other IANAS programmes on the production of educational materials. Following IAP's global Science Education Programme (see pages 36-37), the main focus of the IANAS programme is on inquiry-based science education (IBSE) and STEM (science, technology, engineering and mathematics) education.

Donors

IANAS is grateful for the support of its member academies who host various workshops and meetings, as well as those that provide in-kind support for its activities. In particular, financial support for various activities has been received from IAP, the Mexican Academy of Sciences, the US National Academy of Sciences, the Colombian Academy of Exact, Physical and Natural Sciences, and UNESCO-IHP.

The IANAS Executive Committee meeting, for example, was hosted by the Colombian Academy of Exact, Physical and Natural Sciences on May 27-29 in Bogota, Colombia. As well as reviewing the progress of IANAS programmes and deciding on activities for the remainder of the 2015 calendar year, a particular focus was given to the plans for the IANAS General Assembly that will be hosted by the Brazilian Academy of Sciences in Rio de Janeiro in May 2016. The event will be held in conjunction with the centennial anniversary of the Brazilian Academy of Sciences.

For additional information about IANAS, visit: www.ianas.org

Network of African Science Academies (NASAC)



Founded in 2001 with an initial membership of nine academies, the Network of African Science Academies (NASAC) now has 21 member academies. The key thematic areas of the network are climate change, water issues, science education and women in science.

African academies together

The 11th Annual Meeting of African Science Academies (AMASA-11), held in Nairobi in June 2015, received direct financial support from IAP that covered the travel costs of international participants. Costs of local hospitality and meeting costs were covered in part by IAP with additional funding obtained from the Ministry of Science, Education and Technology of the Government of Kenya by the Kenyan National Academy of Sciences. This was the first AMASA meeting since the completion of the African Science Academies Development Initiative (ASADI) that was financed by the Bill and Melinda Gates Foundation through the US National Academies of Sciences (see pages 22-23). The conference, itself focused on 'Non-communicable Diseases: Post-2015 development agenda' and brought together more than 145 participants, mostly from public and private enterprises in the African health sector.

The objectives of the meeting were to share multi-sectoral experiences in dealing with non-communicable diseases (NCDs), identify policy issues on NCDs in Africa, propose possible interventions, and identify best practices, if any, for bench-marking.

The 2015 NASAC General Assembly, organized back-to-back with AMASA-11, was hosted by the Kenya National Academy of Sciences. Seventeen of the 21 NASAC members were present and participants endorsed revisions to the NASAC constitution, reviewed the by-laws, approved the audited financial accounts and established a strategic planning committee.

Advising policymakers

As with IAP and its member academies, the regional networks are charged with making recommendations in critical areas of science to policymakers. To this end, NASAC publishes booklets on different topics that are prepared by suitable expert committees.

The report 'Changing Disease Patterns in Africa: Recommendations to Policymakers', sponsored by the German National Academy of Sciences, Leopoldina, and the German Ministry of Education and Research, was launched during AMASA-11. The NASAC panel of experts and peer reviewers, as well as officials of the Global Young Academy, attended the launch where the lead researcher presented the report's key messages.

Water

Another booklet, 'The Grand Challenge of Water Security in Africa: Recommendations to Policymakers', published in 2013, was also made possible with financial support from the German National Academy of Sciences, Leopoldina and the German Ministry of Education and Research. At its initial launch in October 2014 in Rabat, Morocco, during the Ministerial Forum on STI hosted by Hassan II Academy and the African Development Bank, additional funding was leveraged from USAID to support the participation of African delegates and therefore funding provided by IAP was carried over to facilitate a second launch event in 2015. This event took place in Nairobi during the NASAC- IANAS workshop on 'Improving the Management of Water



NASAC general assembly, hosted by the Kenya National Science Academy, Nairobi, Kenya, December 2015.



Deoraj Caussy, editor of 'Changing Disease Patterns in Africa: Recommendations to Policymakers', at the booklet launch event.

Resources for Sustainable Development in Africa and the Americas'.

This workshop, held in Nairobi, Kenya, on 12-15 October 2015, brought together more than 50 water experts from Africa and the Americas, policymakers in the water sector and stakeholders from both academia and industry. It was a follow-up to a workshop held in Panama in 2014 and is a clear example of academies across regions working together.

Key thematic areas tackled during the workshop were: waste water treatment in rural and urban areas; climate change and possible measures of adaptation; eutrophication in surface waters; and water and energy. Participants also had the opportunity to visit the Nairobi City Water and Sewerage Company's Ndakaini dam and Ngethu treatment plant.

Climate

In December 2015, Paris, France, hosted the COP21 international discussions on a global climate change agreement. During these events, on 10 December, NASAC and the Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO) organized a 90-minute side-event in the Africa Pavilion at the main venue: 'Realizing African Renaissance through Science-Policy Dialogue on Climate Change Adaptation and Resilience: the critical needs for Africa to invest in home grown science and appropriate blue and green technologies towards poverty alleviation and sustainable development'.

In addition to IAP funding, supplemental support (financial and in-kind) was received from IOC-UNESCO, UNDP, the Africa Department of UNESCO, the *Organisation Internationale de la Francophonie*, UNEP and the ICSU Regional Office for Africa, demonstrating NASAC's increasing capacity to leverage funds. The event brought together African and overseas partners, including representatives from academies, universities, the private sector including oil and gas industries, policymakers including diplomats and ambassadors, civil society, environmental professionals, students and young scientists. Besides the side-event, a one-day seminar was hosted in collaboration with IOC-UNESCO at their headquarters in Paris on 9 December 2015. Another NASAC booklet, 'Climate Change Adaptation and Resilience in Africa: Recommendations for Policymakers', was launched at the two events.

Gender in education

A workshop on 'Gender Mainstreaming in Science Education' took place on 27-28 May 2015, in Pretoria, South Africa. The 26 participants from 13 countries in Africa discussed how mainstreaming gender in science education can be achieved in the African context. Funded by IAP and the Academy of Science of South Africa (ASSAf) through its GenderInSITE project, the workshop brought together the academy focal points of the NASAC Science Education Programme and Women for Science Working Group. Members of various science academies in Africa and the Organization for Women in Science for the Developing World (OWSD) also attended.

Capacity building

Each year, NASAC uses some of the funds provided by IAP to give capacity-building grants to its youngest members. In 2014, the academies of Benin, Mozambique and Togo submitted proposals mainly for purchasing ICT equipment, official academy stationery and publicity material, build websites, and to host meetings for strategic planning and governance purposes etc. Implemented during 2015, the USD5,000 grants significantly enhanced the operational capabilities, facilities and processes of the young academies at the secretariat level.

For additional information about NASAC, visit: www.nasaonline.org



Field visit during NASAC-IANAS workshop on 'Improving the Management of Water Resources for Sustainable Development in Africa and the Americas', October 2015.

Project reports

With the approval of the IAP Finance Committee and Executive Committee, IAP provides funds to lead academies to carry out projects in their countries, regions or globally on issues of importance to IAP. Priority is given to projects that envisage small networks of academies working together, especially if a component of the project assists with building the capacity of small or new member academies or those from low-income countries. Reports on the activities of the projects supported in 2015 follow.

ACTIVITIES

Science Education; Science Literacy

Lead academy: Academy of Sciences Malaysia

The Science Education Programme (SEP) is a flagship activity of IAP and since its establishment in 2003 has encouraged member academies to promote inquiry-based science education (IBSE) in their nations and regions. The programme is coordinated by a Global Council chaired by Lee Yee Cheong, Malaysia. At the 2013 IAP General Assembly in Rio de Janeiro, Brazil, it was decided that the IAP SEP should also focus on promoting science literacy.

During 2015 and early 2016, a number of events promoting science education and science literacy were organized by IAP's regional affiliated networks, other networks, and member academies.

Governance

The rules of governance of the IAP SEP were modified, stating that members of the Global Council should be experts in inquiry-based science education (IBSE) or science literacy/science outreach. They should preferably be nominated or endorsed by an IAP member academy, as this will ensure that member academies are more closely linked to SEP activities. In addition, 26 academies have nominated a focal point who will be kept informed of IAP SEP activities and a grant from IAP will assist in training and supporting them to get IBSE activities up and running in their academies and countries. It should be noted that the current Global Council has gender, generation and geographical balance.



Dato Lee Yee Cheong, Chair of the Global Council, IAP Science Education Programme.

An International Advisory Board has also been established to solicit the expertise and experience of eminent science education experts and maintain links with outgoing Global Council members.

Activities in 2015

IAP joined with the Malaysia-based UNESCO International Centre for Science, Technology and Innovation for South-South Cooperation (ISTIC), the Academy of Sciences Malaysia, and Malaysian government agencies to organize the International Science, Technology, Engineering and Mathematics (STEM) High Level Policy Forum on 'Evidence-Based Science Education in Developing Countries'.

The forum, which took place on 26-27 May in Kuala Lumpur,



Speaker at the International Science, Technology and Engineering (STEM) High Level Policy Forum on 'Evidence Based Science Education in Developing Countries', Kuala Lumpur, Malaysia, 26-27 May 2015.

was attended by some 160 people from 19 countries, including IAP co-chair, Mohamed Hassan, who gave the opening address.

Hassan challenged delegates to tackle two questions: in science education – how to get proper STEM education, especially inquiry-based science education (IBSE), into the core curriculum of madrasas and other religious schools; and in science literacy – how to improve people's access to science centres and museums, especially in the many African countries where they currently do not exist.

The IAP Science Education Programme (SEP) Global Council also met on 26 May, and several SEP members were invited to give presentations at the forum or to act as session chairs. In addition, Wynne Harlen, a member of the IAP SEP International Advisory Board, presented a new IAP publication 'Working with Big Ideas of Science Education'. During the meeting, the chair of the IAP SEP, Dato Lee Yee Cheong, arranged for Harlen to present the book to UNESCO Secretary General Irina Bokova, who was in Kuala Lumpur at the time. The book is available for free download from the IAP website in various languages, and follows on from the 2010 publication, 'Principles and Big Ideas of Science Education'.

During the forum, break-out sessions were used to develop a series of recommendations, among which were: to start small pilot IBSE programmes wherever possible; to reduce the curriculum to focus more on connected core ideas ('Big Ideas'); to provide IBSE teacher training both pre-and in-service; and to bring student assessment in line with IBSE learning methods.

These recommendations – along with others deriving from other meetings held during the week – were presented to Dato Seri Idris Jusoh, Malaysia's Minister of Education II,

during a final plenary session. Minister Jusoh confirmed that he would ask the Malaysian delegation to UNESCO to formally present the various recommendations to UNESCO.

At the end of the week, the Malaysian Academy of Sciences arranged a visit to a local primary school that had run a pilot project on IBSE. At the school, several IAP SEP Global Council members witnessed students, aged 7-8



Pupils in a primary school demonstrating the skills they learned during a pilot project on inquiry-based science education (IBSE), Kuala Lumpur, Malaysia.

and 10-11, carrying out practical science lessons in well-equipped, dedicated laboratory space, and toured a herb garden used for both nature and art studies.

In June, the chair of the IAP SEP Global Council attended the 20th Anniversary Conference of *La Main a la Pate* (LAMAP), a French foundation that also supports IBSE, held in Paris, France. In August, he represented the IAP SEP at the 11th AASSA Regional Workshop on 'Gender Issues in Science and Education', held in Seoul, South Korea. He then spoke at the Pontifical Academy of Sciences International Workshop on 'Children and Sustainable Development: A Challenge to Education' in the Vatican City in November, and represented the IAP SEP at a joint regional workshop, also with AASSA, on 'SHER (Science, Health, Environment and Risk) Communication: Role of S&T Communication in

Disaster Management and Community Preparedness', in Jakarta, Indonesia, in December (see pages 26-27).

Among the other events in which the IAP SEP was closely involved was the second AEMASE (African-European-Mediterranean Academies for Science Education) International Conference, hosted by the *Académie Nationale des Sciences et Techniques du Sénégal* (ANSTS) in Dakar, Senegal, in October. The meeting received financial support from IAP (see pages 38-39). IAP SEP members from Mexico were also involved in the organization of the United States-Mexico Foundation for Science (FUMEC)/ Innovation in Science Education (INNOVEC) Biannual IBSE Conference on IBSE Assessment, held in Mexico City in November.

2016

Among the IAP SEP activities planned for 2016 is a meeting of the Global Council in Santiago, Chile, in April, in parallel with an International Conference on 'Improving the Learning of Biology and Related Sciences at the pre-University Level'.

In addition, also in April, ISTIC and LAMAP are presenting the issue of hands-on science education to UNESCO at their headquarters in Paris. IAP, in collaboration with ISTIC, LAMAP and the Economic Cooperation Organization Science Foundation (ECOSF), has provided funding for a series of capacity building workshops in Azerbaijan, Iran, Kazakhstan and Pakistan.

Dato Lee Yee Cheong, chair of the IAP SEP Global Council noted "My focus is to get IBSE/STEM buy-in by intergovernmental, regional and national ministries and organisations like UNESCO, the Trans-Pacific Partnership (TPP), central Asian ECOSF member countries, the South-East Asia Ministers of Education Organisations (SEAMEO), China and its 'One Belt One Road' partner countries, and Malaysia. To help in this work, appreciation must go to my own academy, the Academy of Sciences Malaysia, for shouldering the responsibility as the lead academy of the IAP SEP."



Pupils in a primary school demonstrating the skills they learned during a pilot project on inquiry-based science education (IBSE), Kuala Lumpur, Malaysia.

Second AEMASE conference

Lead academy: Senegal National Academy of Science and Techniques (ANSTS)

The African-European-Mediterranean Academies for Science Education (AEMASE) network was established at the suggestion of the national science academies of France, Italy, Morocco and Senegal, together with the Library of Alexandria in Egypt, to improve the formal and informal teaching of science across the regions.



Cover of the AEMASE II conference report.

and member of the *Accademia Nazionale dei Lincei*, Italy. Moustapha Bousmina, president of the *Hassan II Academie des Sciences et Technologie*, Morocco, and of NASAC, represented IAP at the meeting.

The opening session was chaired by Mamadou Sanghare, General Director of Higher Education, who represented the Minister of Higher Education and Research of Senegal. A series of keynote lectures and thematic sessions followed. These sessions focused discussions on:

- The role of science education in development and a global view on science education programmes;
- National and international projects and programmes in science education;
- Methods, materials and resources for teacher training and school science education experiments;
- Research in science education and assessment methods; and
- E-learning and science education / Web connection between schools.

Academies and other organizations participating in the AEMASE network recognize that a sound education in science is critical to prepare the scientific and technical staff needed by both developed and developing countries for their economic growth, sustainable development and the welfare of populations. In addition, they believe the most effective way to teach science is through inquiry-based science education (IBSE).

The first AEMASE conference was held in May 2014 in Rome, Italy, hosted by the *Accademia Nazionale dei Lincei* with financial support from IAP. Some 75 leaders in science education from 32 countries in the Africa-Mediterranean-Europe area, as well as others from around the globe, attended (see IAP Annual Report 2014).

Following a recommendation made at this first AEMASE conference, the second conference was hosted by the Senegal National Academy of Science and Techniques (ANSTS) in Dakar on 12-13 October 2015.

The meeting, held under the aegis of the Ministry of Higher Education and Research (MESR) and funded by IAP, was attended by 67 participants. These included ministry of education representatives, academicians, policy-makers, teachers and experts on science education and professional development from nine African and six European countries, as well as from Argentina and Sri Lanka. The conference was co-chaired by Ahmadou Lamine Ndiaye, president of ANSTS, and Giancarlo Vecchio, chair of the All European Academies (ALLEA) Working Group on Science Education



Odile Macchi, member of the International Scientific Committee, AEMASE, being interviewed by the press at the AEMASE II conference in Dakar, Senegal, October 2015.

The overall aim of the conference was to share new experiences and information on the resources available in the participating countries. Over-arching themes included IBSE, STEM (science technology, engineering and mathematics) education, and science-based citizenship (SBC).

The closing session, also chaired by Mamadou Sanghare, included a discussion on the future directions of the AEMASE concept. Recommendations included:

- to continue to reflect on the future of AEMASE, taking into account the missions and activities of existing organizations; and
- to maintain meetings on the development of science education in the Africa-Mediterranean-Europe zone.

The conference ended with the unanimous approval of the 'Dakar Declaration' which calls on all countries in the Africa-Mediterranean-Europe region to urgently implement and consolidate IBSE/STEM/SBC education programmes, and on academies and the ministries of education to rethink science education programmes to include new ways of teaching and learning.



Ahmadou Lamine Ndiaye, President, *Académie Nationale des Sciences et Techniques du Sénégal* (ANSTS), being interviewed by the press at the AEMASE II conference in Dakar, Senegal, October 2015.



Chairs of the AEMASE II conference in Dakar, Senegal, October 2015.



Participants at the AEMASE II conference in Dakar, Senegal, October 2015.

Global Young Academy

Lead academy: Global Young Academy (GYA)

The Global Young Academy (GYA) was officially launched in 2010 with the support of IAP and has since grown to its maximum capacity of 200 members. As “a voice of young scientists around the world”, the GYA aims to empower and mobilize young scientists to address issues of particular importance to early career scientists. Current working groups focus on improving early scientific careers, science-society dialogue, science education, and interdisciplinary research.



Cover of 'GYA: The first five years'.

Every year, the GYA holds its Annual General Meeting (AGM) in conjunction with an international conference. In 2015, the 5th International Conference of Young Scientists and GYA AGM took place on 25-29 May at Montebello, Canada. The theme of the conference was 'Innovation for Sustainable Globalization', highlighting the GYA's commitment to being part of the solution to this challenge.

The conference itself was a dynamic, highly interactive meeting with current and new members of the GYA interacting with high-level guests. Delegates came from 30 countries. The conference helped to strengthen continuing effective cross-disciplinary collaborations, spurred the creation of new initiatives and fostered connections and increased understanding between young scientists and policy-makers. For example, at a side event, the 'Science Fair Hack', held in Ottawa, GYA members interacted with a new breed of 'do-it-yourself' scientists. These young 'Makers' displayed remarkable diversity across age, gender, ethnicities and educational background. The concept of DIY science stimulated later talks and discussion on the changing face of innovation.

The Ottawa excursion also introduced members to leading Canadian policy-makers and politicians, including the Governor General David Johnston and member of parliament Kirsty Duncan, now Minister for Science in Canada's new government. These guests shared their thoughts on the role of science in society and government with GYA members.

New Champions

The World Economic Forum (WEF) Annual Meeting of the New Champions (AMNC) took place from 8-11 September 2015 in Dalian, China. Every year, the WEF selects up to 40 extraordinary young scientists under the age of 40 to participate alongside more than 1,500 business, government and civil society leaders from over 90 countries in the AMNC. In 2015, the AMNC was attended by four GYA members, namely Ivana Gadjanski (Serbia), Vidushi Neergheen-Bhujun (Mauritius), Michael Bronstein (Switzerland) and Noble Banadda (Uganda). In particular, Bronstein was invited to give a lecture on his vision of the role of image perception and 3D sensing technologies that he has been working on at Intel, while Banadda, Bronstein and Gadjanski contributed to the WEF's 'Agenda in Focus: Inside Science' blog series. Gadjanski also participated at the 'Briefing Session: Unexpected Discoveries – Young Scientists at AMNC'. The four GYA members present also introduced the GYA to the other young scientists at the WEF.

Senior links

Moving towards the new umbrella organization, the InterAcademy Partnership, the leadership of the global academy networks of met in India on 28-29 September, hosted by the Indian National Science Academy (see page 8). Co-chair Eva Alisic and managing director Heidi Wedel represented the GYA, which has an observer status at the IAP. Throughout the meeting the GYA was mentioned as a welcome partner and a bridge to young scientists. The meeting also offered useful opportunities to strengthen the GYA networks with the senior academies and discuss numerous ideas for future cooperation.



Global Young Academy (GYA) member Borys Wrobel (Poland) interacting with a student exhibiting his DIY project at the Science Fair Hack in Ottawa, Canada, during the 5th International Conference of Young Scientists and GYA Annual General Meeting 2015.

Young academies

Three years after the First Worldwide Meeting of Young Academies in Amsterdam, the Netherlands, the GYA organized a second global meeting together with the Young Academy of Sweden (YAS), in Stockholm, Sweden, in November 2015.

The 2nd Worldwide Meeting of Young Academies and Joint Conference welcomed delegates from the GYA, 25 (of the currently 30) national young academies (NYAs) and six similar initiatives and organizations from a total of 32 countries across four continents.



Global Young Academy (GYA) Co-chair, Eva Alisic (left) in a panel discussion during the 2nd Worldwide Meeting of Young Academies and conference on 'Scientific Support for Policy Making in Sustainable Development: Joining Forces', Stockholm, Sweden, November 2015.

The one-day conference on 'Scientific Support for Policy Making in Sustainable Development: Joining Forces', was organized by the GYA and YAS in conjunction with the European Commission's Joint Research Centre. The event featured several renowned scientists and opinion leaders who spoke with NYA representatives about the role of scientists and the place of research in global actions to address the UN Sustainable Development Goals (SDGs). In breakout sessions on topics such as outreach and dialogue, influencing research policies, internationalization and networking, and the initiation of NYAs, groups of

participants exchanged their experiences. Issues of regional concern and plans for regional cooperation were discussed in parallel sessions for the three major regions where NYAs are currently located: Africa, Asia and Europe. Speakers also celebrated the success and achievements of the young academy movement, highlighting several key contributions to policy development. In the concluding session the young academies identified areas of joint interest in research policies, engagement with politicians, and science education, as well as many potential areas for future cooperation. While the GYA expects to co-organize a 3rd Worldwide Meeting in two years' time, plans for regional meetings of NYAs were also discussed.

In many of the countries where the GYA has assisted the development of a national young academy, GYA members worked with the senior science academies, helped to draft proposals for the creation of an NYA, worked on steering committees, played a key role in writing the constitutions of emerging NYAs and/or served on committees to select inaugural members. GYA leaders have also facilitated introductions between young scientists and senior academies, especially thanks to the excellent relationships the GYA has with many senior scientists and academy presidents through our observer status with IAP. The GYA is committed to helping establish NYAs around the globe. With the addition of six new NYAs established in 2015, the number of NYAs now totals 30 across four continents.

GYA member Noble Banadda, for example, was instrumental in the development of Uganda's new National Young Academy of Science (UNYAS). At its launch in September 2015, Elizabeth Gabona, director for Higher, Technical and Vocational Education and Training (HTVET) in Uganda reminded the assembled delegates that young researchers must not be left behind nor taken for granted.

As well as facilitating cooperation between NYAs, the GYA also includes them in calls for relevant global or regional meetings and projects. For example, the GYA is bringing the voice of young scientists and young academies into the 'Strengthening African Science Academies' project in cooperation with NASAC and the German National Academy of Sciences, Leopoldina.



Participants of the 5th International Conference of Young Scientists and GYA Annual General Meeting 2015 in Ottawa, Canada, 25-29 May 2015.

Global engagement

Since its inauguration, the GYA has been invited as an observer to the meetings of the UN Secretary-General's Scientific Advisory Board (UNSAB). In December 2015, co-chair Eva Alisic represented the GYA at the fourth UNSAB meeting in St. Petersburg, Russia. There she made the case that all scientific disciplines and generations of researchers have an important role to play in sustainable development.



Global Young Academy (GYA) members at the IAP conference on Science Advice, Hermanus, South Africa.

The GYA also joined forces with IAP, ICoRSA and WAYS to organize a side event for young scientists at the World Science Forum (WSF) in Budapest, Hungary, in November (see pages 10-11). This resulted in young scientists being included in many of the main WSF sessions. In addition, GYA member Ivana Gadjanski (Serbia) gave a special presentation on behalf of the young scientists during the closing session held in the Hungarian parliament building.

The GYA was again invited to participate in regional meetings of the Global Research Council (GRC). The main topics of discussion this year were 'Interdisciplinarity' and 'Equality and the Status of Women in Science'. The GYA was represented by its executive committee members Moritz Riede (UK) at the Europe meeting in Rome, Italy, Anna Coussens (South Africa) at the Africa meeting in Windhoek, Namibia, and Ghada Bassioni (Egypt) at the Middle East-North Africa (MENA) meeting in Muscat, Oman. All three GYA representatives contributed views from young scientists and GYA working groups to the debates. In particular, Coussens was invited to speak on



Global Young Academy (GYA) member Tolu Oni addressing side event for young scientists at the World Science Forum, November 2015.

the panel on interdisciplinarity, while Bassioni gave a presentation on the status of women in research and the GYA at the MENA meeting. The Africa meeting also offered opportunities to liaise with new partners for the GYA's 'Global State of Young Scientists (GloSYS) Africa' project.

Waste management

The GYA project to produce a policy report on 'Solid Waste Management and Green Economy' was largely funded by IAP. Following a joint IAP/GYA call to their respective membership for experts in the fields of solid waste management, environmental science, green economy and sustainable development, the GYA received case studies from countries representing different levels of development from all continents.

A project team under the leadership of GYA member Sherien Elagroudy (Egypt) prepared a preliminary report. Then, 15 experts from 14 senior academies and the GYA gathered at a dedicated workshop hosted by the German National Academy of Sciences, Leopoldina in Halle, Germany, on 22-23 October 2015. Participants discussed the draft version of the report and the presented case studies and came up with key messages and recommendations for decision-makers worldwide. Reflecting the diversity of countries present, workshop participants agreed that there is no one-size-fits-all solution when it comes to greening the



Global Young Academy (GYA) member Ivana Gadjanski, from Serbia, addresses delegates of the World Science Forum at the closing session held in the Hungarian Parliament building, Budapest, Hungary, November 2015.

municipal solid waste sector, but there are commonalities. For example, greening the waste sector includes, in the first instance, the minimization or prevention of waste followed by the 'three Rs': reuse, recycle and recover.

While the policy report aimed at improving the environmental and socioeconomic conditions around the globe will be published in 2016, project results have already been presented by project leader Elagroudy at an interdisciplinary forum on 'Green Economy: A Road Map for Sustainable Development and Poverty Reduction in the Arab Region', held on the occasion of the TWAS-Arab Regional Office (ARO) annual meeting in Alexandria, Egypt, in December 2015, and at the Next Einstein Forum in Dakar, Senegal, in March 2016.

Science education in Sudan and Ethiopia

Lead academy: Sudanese National Academy of Science

With funding from IAP, the Sudanese National Academy of Science (SNAS) has teamed up with the Ethiopian Academy of Sciences (EAS) to implement a project to help establish inquiry-based science education (IBSE) in the two countries.

The aim of the project is to produce a booklet and guidelines for teachers and parents on IBSE. To this end, the two partner academies organized a workshop, held in Khartoum, Sudan, on 24-25 February 2016, designed to build on earlier outputs from a successful international symposium organized in Khartoum, Sudan, by the Future University of Sudan in collaboration with SNAS in 2013.

Although science is an international endeavour and humans occupy the entire globe, it serves little immediate purpose, and could be deemed counter intuitive, to educate a child living in desert or semi-desert areas of Sudan and Ethiopia on how to face the challenges faced by others living in the rainforest or in big cities in developed countries.

Therefore, the goal of the workshop was to design a local IBSE product relevant to local experiences and situations, and that would help schoolchildren associate learning with their own environment. The two-day event was attended by senior university science professors, educators, graphic designers and artists from both Sudan and Ethiopia. They discussed the content and philosophy of a booklet for science education aimed at both school and pre-school levels, as well as consulting resources such as the 'UNESCO Source Book in Science Teaching'. The meeting gave rise to interesting discussions and opened avenues for further studies on the theory of education in local settings. Several recommendations were made, some being adopted for the design and writing of the booklet and guidelines for teachers.

Among the concepts that the book will introduce are those concerning the pursuit of science and research, including making and recording observations, analysing data, and using existing information to explain what has been found.

Experience has shown that teaching students in their mother tongue is more effective, but as evidenced from the discussions, challenges remain, especially in mathematics, when it comes to translating curricula into different languages, especially in a region where a pronounced linguistic diversity exists.

The interface between science and society was also debated within the context of every-day realities in Sudan. For example, exactly what to teach, predicted clashes with current pedagogical approaches in schools and pre-school, and whether such a project could actually change the curriculum. The last issue is beyond the mandate of the project and but it was concluded that such an outcome certainly would not occur in the near future. Thus it was decided that the booklet could be introduced as an extra-curriculum activity, for example through science clubs.

The issue of education and indigenous knowledge was also discussed. Between 1940 and 1970, schools were encouraged to use materials found in the local environment. Continuing this practice is judged crucial for making local communities aware of their environment and their role in addressing more global challenges such as climate change. Consequently, the booklet/guide will contain a number of experiments extracted from various international sources but designed to be carried out using locally-available materials.

Another issue that participants discussed was how to introduce such complex paradigms to young, but capable, minds in an appealing and enjoyable manner. Consequently, in addition to visual materials and suggested experiments, the book will include games, quizzes and puzzles, possibly also including animations and 3D objects.

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Workshop participants also discussed the evolving role of the teacher at a time of rapidly-growing access to information, the differences between teachers and facilitators, as well as the retraining of teachers to effectively integrate IBSE.

A prototype of the book is expected to be available in May 2016, that will be further evaluated by teachers and educators in selected schools, including the schools in Gedaref State where the initial phase of the project was carried out (see IAP Annual Report 2013).

Workshop on inquiry-based science education (IBSE), Khartoum, Sudan, 24-25 February 2016.

APPENDICES

Membership

IAP currently has a membership of 108 scientific academies from around the world; these include both national academies/institutes as well as regional/global groupings of scientists. A number of other scientific organizations participate in IAP meetings and activities as observers.

Academy of Sciences of Afghanistan (ASA)	Estonian Academy of Sciences	Lebanese Academy of Sciences	Singapore National Academy of Science (SNAS)
Albanian Academy of Sciences	Ethiopian Academy of Sciences (EAS)	Lithuanian Academy of Sciences	Slovak Academy of Sciences
National Academy of Exact, Physical and Natural Sciences (ANCEFN)	Council of Finnish Academies	Macedonian Academy of Sciences and Arts	Slovenian Academy of Sciences and Arts (SASA)
National Academy of Sciences of Armenia	Académie des sciences, Institut de France	Madagascar's National Academy of Arts, Letters and Sciences (AcNALS)	Academy of Science of South Africa (ASSA)
Australian Academy of Science	Georgian National Academy of Sciences (GNAS)	Academy of Sciences of Malaysia	Royal Academy of Exact, Physical and Natural Sciences of Spain
Austrian Academy of Sciences	German National Academy of Sciences, Leopoldina	Mauritius Academy of Science and Technology (MAST)	National Academy of Sciences of Sri Lanka
Bangladesh Academy of Sciences (BAS)	Union of German Academies of Sciences and Humanities	Academia Mexicana de Ciencias	Sudanese National Academy of Science (SNAS)
National Academy of Sciences of Belarus (NASB)	Ghana Academy of Arts and Sciences	Mongolian Academy of Sciences (MAS)	Royal Swedish Academy of Sciences (RSAS)
Royal Academies for Science and the Arts of Belgium (RASAB)	Academy of Athens, Greece	Montenegrin Academy of Sciences and Arts	Swiss Academies of Arts and Sciences
Benin National Academy of Sciences	Academia de Ciencias Medicas, Fisicas y Naturales de Guatemala	Hassan II Academy of Science and Technology, Morocco	Academy of Sciences of the Republic of Tajikistan
Academia Nacional de Ciencias de Bolivia	Pontificia Academia Scientiarvm	Academy of Science of Mozambique	Tanzania Academy of Sciences (TAAS)
Academy of Sciences and Arts of Bosnia and Herzegovina (ANUBiH)	Hungarian Academy of Sciences	Nepal Academy of Science and Technology (NAST)	Thai Academy of Science and Technology (TAST)
Brazilian Academy of Sciences	Indian National Science Academy (INSA)	Royal Netherlands Academy of Arts and Sciences (KNAW)	Turkish Academy of Sciences (TÜBA)
Bulgarian Academy of Sciences	Indonesian Academy of Sciences	Royal Society of New Zealand	Uganda National Academy of Sciences (UNAS)
National Academy of Sciences of Burkina Faso	Academy of Sciences of the Islamic Republic of Iran	Nicaraguan Academy of Sciences	National Academy of Sciences of Ukraine
Cameroon Academy of Sciences	Royal Irish Academy	Nigerian Academy of Science	The Royal Society, UK
Royal Society of Canada	Israel Academy of Sciences and Humanities	The Norwegian Academy of Science and Letters	National Academy of Sciences, USA
Caribbean Academy of Sciences (CAS)	Accademia Nazionale dei Lincei, Italy	Pakistan Academy of Sciences (PAS)	Academia Nacional de Ciencias del Uruguay
Academia Chilena de Ciencias	Science Council of Japan (SCJ)	Autonomous Territories Palestine Academy for Science and Technology (PALAST)	Uzbekistan Academy of Sciences (UzAS)
Academia Sinica, Taiwan, China	Royal Scientific Society of Jordan (RSS)	Academia Nacional de Ciencias (ANC) - Peru	Latin American Academy of Sciences (ACAL)
Chinese Academy of Sciences	National Academy of Sciences of the Republic of Kazakhstan	National Academy of Science and Technology (NAST)	Academia de Ciencias Fisicas, Matemáticas y Naturales de Venezuela
Colombian Academy of Exact, Physical and Natural Sciences	African Academy of Sciences (AAS)	Polish Academy of Sciences	Zimbabwe Academy of Sciences (ZAS)
Croatian Academy of Sciences and Arts	Kenya National Academy of Sciences (KNAS)	Academy of Sciences of Lisbon	The World Academy of Sciences (TWAS)
Academy of Sciences of Cuba	Republic of Korean Academy of Science and Technology (KAST)	Romanian Academy	Islamic World Academy of Sciences (IAS)
Czech Academy of Sciences	Republic of The National Academy of Sciences (KNAS)	Russian Academy of Sciences	World Academy of Art and Science (WAAS)
Royal Danish Academy of Sciences and Letters	Kosovo Academy of Sciences and Arts	Académie des Sciences et Techniques du Sénégal (ANSTTS)	
Academia de Ciencias de la República Dominicana	Republic National Academy of Sciences of the Kyrgyz Republic (NAS KR)	Serbian Academy of Sciences and Arts	
Academy of Scientific Research and Technology (ASRT), Egypt	Latvian Academy of Sciences (LAS)		

Observers

Caribbean Scientific Union (CCC) • International Council for Science (ICSU) • European Academies' Science Advisory Council (EASAC) • ALLEA - All European Academies • Global Young Academy (GYA) • Euro-Mediterranean Academic Network (EMAN) • IAP for Health (formerly IAMP) • Organization for Women in Science for the Developing World (OWSD) • Network of African Science Academies (NASAC) • Association of Academies and Societies of Sciences in Asia (AASSA) • Inter-American Network of Academies of Sciences (IANAS) • IAP for Research (formerly IAC) • Network of Academies of Science in Countries of the Organisation of Islamic Conference (NASIC)

Financial Summary, 2015

The total amount of funds received for activities in 2015 was USD1,282,938. The main contribution was from the Italian Ministry of Foreign Affairs (USD801,988), a reduction on previous years' contributions because of a slight cut in the contribution from the Government of Italy, but also because of exchange rate fluctuations. Additional contributions were received from the Australian Academy of Science, the Bangladesh Academy of Sciences, the Georgian National Academy of Sciences, the Israel Academy of Sciences and Humanities, the Korean Academy of Science and Technology (KAST), the Turkish Academy of Sciences (TÜBA), the Royal Society, UK, and the Uganda National Academy of Sciences as voluntary contributions to support IAP activities in 2015.

In addition, it is estimated that member academies and regional affiliated networks contributed more than USD1,000,000 by leveraging funds for activities from other donors and through in-kind support for the organization of conferences and workshops, the publication of reports, as well as the provision of staff time.

Special mention should be made of the Indian National Science Academy (INSA) for its generous support of the Joint IAP/IAMP/IAC meeting in September 2015, and to the Academy of Science of South Africa and its sponsors for supporting the IAP Conference and General Assembly in Hermanus, South Africa, in February-March 2016.

IAP also contributed to the InterAcademy Medical Panel (IAMP) to support its secretariat and core activities. In turn, IAMP was able to leverage significant funding for its activities from the UK Academy of Medical Sciences, the Chinese Academy of Engineering, the World Health Summit Foundation GmbH and the Bayer Science and Education Foundation.

A contribution of USD1,836 was also made to the IAP Reserve Fund. The Reserve Fund is designed to absorb the impact of year-to-year variations in income/expenditure as well as to cover the end of service entitlements of IAP and IAMP staff.

IAP Financial Report for 2015 (in USD)

INCOME ¹	2015
Balance brought forward 1.1.2015	507,723
1) Ministry of Foreign Affairs, Italy	801,988
2) The Royal Society, UK	50,000
3) Israel Academy of Sciences and Humanities	5,000
4) Turkish Academy of Sciences (TÜBA)	3,000
5) Korean Academy of Science and Technology (KAST)	1,982
6) Bangladesh Academy of Sciences	1,000
7) Georgian National Academy of Sciences	1,000
8) Australian Academy of Science	975
9) Ugandan National Academy of Sciences	100
10) Interest	5,170
11) Transfer to IAMP	-95,000
	1,282,938

¹ All contributions are expressed in US dollars and have been converted using the UN official rate of exchange in effect at the time the contributions were received.

Expenditure	2015	
	Budget	Spent
1) Scientific Projects		
1.1) New Projects	124,000	163,127
1.2) Regional Network Programmes	380,000	380,000
1.3) Policy collaboration with IAC	70,000	70,000
1.4) Fundraising for new activities	63,000	
<i>Sub-Total for (1)</i>	637,000	613,127
2) Meetings and Conferences		
2.1) Conference for Young Scientists	25,000	12,000
2.2) Executive Committee Meetings/GA Conference/Travels	80,000	109,009
<i>Sub-Total for (2)</i>	105,000	121,009
3) Publications (Website/Brochure)		
3.1) Website	50,000	
3.2) Other publications	20,000	8,747
<i>Sub-Total for (3)</i>	70,000	8,747
4) Operational Expenses		
4.1) Staff and Consultant Costs	400,000	284,433
4.2) Communications	15,000	1,324
4.3) Office and Other Supplies	20,000	17,647
4.4) ICTP services	40,000	40,000
<i>Sub-Total for (4)</i>	475,000	343,404
<i>Total Expenditure</i>	1,287,000	1,086,287
Savings on prior years' obligations		41,235
Excess (Shortfall) of income over expenditure		237,806
Reserve Fund¹		
Amount available at the beginning of period		200,000
Other income		1,839
Reserve Fund balance end of period		201,839
Reserve and Regular Fund balances, end of period		439,725

¹ The purpose of the Reserve Fund is to cover the end of service entitlements of IAP/IAMP staff.

Member contributions (direct financial contributions and in-kind support)

Pledges to the IAP fundraising campaign initiated in 2013

- Council of Finnish Academies
- Union of German Academies of Sciences and Humanities
- *Deutsche Akademie der Naturforscher Leopoldina*
- Academy of Athens, Greece
- Hassan II Academy of Science and Technology, Morocco
- Royal Society, UK
- US National Academy of Sciences (NAS)
- *Academia Nacional de Ciencias del Uruguay*

Voluntary Membership Contributions (annual)

- Australian Academy of Science
- Bangladesh Academy of Sciences
- Georgian National Academy of Sciences (GAS)
- Israel Academy of Sciences and Humanities
- Korean Academy of Science and Technology (KAST)
- *Académie National des Sciences et Techniques du Senegal*
- Turkish Academy of Sciences (TÜBA)
- Uganda National Academy of Sciences (UNAS))

In-kind support

- Australian Academy of Science
- Austrian Academy of Sciences
- Royal Academies for Science and the Arts of Belgium
- Brazilian Academy of Sciences
- Chinese Academy of Sciences (CAS)
- Bulgarian Academy of Sciences
- Colombian Academy of Exact, Physical and Natural Sciences
- *Academia de Ciencias de la República Dominicana*
- *Académie des Sciences, Institut de France*
- German National Academy of Sciences, Leopoldina
- Hungarian Academy of Sciences
- Indian National Science Academy (INSA)
- *Accademia Nazionale dei Lincei, Italy*
- Science Council of Japan (SCJ)
- Latvian Academy of Sciences (LAS)
- Academy of Sciences Malaysia (ASM)
- Mauritius Academy of Science and Technology (MAST)
- Mexican Academy of Sciences
- Royal Netherlands Academy of Arts and Sciences (KNAW)
- Academy of Science of South Africa (ASSAf)
- Royal Swedish Academy of Sciences (RSAS)
- Swiss Academies of Arts and Sciences
- Turkish Academy of Sciences, TÜBA
- Royal Society, UK
- Uganda National Academy of Sciences (UNAS)
- US National Academy of Sciences (NAS)

Standing Committees

The IAP Executive Committee (EC) has adopted the following rules on membership and election of IAP Standing Committees (Committee).

- A Committee shall have six to eight members and it shall be chaired by a member of the IAP EC. Membership of a Committee shall be in a personal capacity.
- The Chair and the other members of a Committee shall be elected by the EC from among both EC members and other members of IAP, ensuring a reasonable geographical balance and good cross-representation from industrialized and developing countries.
- Membership of a Committee shall run until the first EC meeting following each IAP General Assembly.
- At that meeting, the EC shall (re-)elect the Chair and the other members of a Committee.
- In these elections the EC shall consider any interest expressed by an IAP member in serving on a Committee.
- Normally, the Chair and a member shall not serve more than two consecutive terms on a committee.
- If the Chair of the Committee should wish to stand down during the term of office, the EC shall elect a new Chair from among the members of the Committee.
- If any other member of the Committee should wish to stand down during the term of office or is elected Chair, the EC shall elect another IAP member to the Committee.

- **Membership Committee**
- **Programmes and Strategic Planning Committee**
- **Publications and Communication Committee**
- **Monitoring and Evaluation Committee**
- **Finance Committee**
- **Science for Poverty Eradication Committee**
- **Science Education Programme (SEP) Global Council**

Membership Committee

- **Sergio Pastrana** (*Chair*)
Cuban Academy of Sciences
- **Taner Demirer**
Turkish Academy of Sciences (TUBA)
- **Andrew Holmes**
Australian Academy of Science
- **Frederick Ian Bantubano Kayanja**
Uganda National Science Academy
- **Michael Peter Kennedy**
Royal Irish Academy

Programmes and Strategic Planning Committee

- **Daya Reddy** (*Chair*)
Academy of Science of South Africa (ASSAf)
- **David Rios**
Royal Spanish Academy of Science
- **Jose Franco**
Mexican Academy of Sciences
- **Alfred Puhler**
Union der deutschen Akademien der Wissenschaften
- **Dinakar M Salunke**
Indian National Science Academy (INSA)
- **Martyn Poliakoff**
Royal Society, UK
- **Shaw Chen Liu**
Academia Sinica, Taiwan, China
- **Gabriel Ogunmola**
Nigerian Academy of Science

Publications and Communication Committee

- **Jeremy McNeil** (*Chair*)
Royal Society of Canada
- **Diery Seck**
Académie Nationale des S&T du Sénégal (ANSTS)
- **Juan Asenjo**
Chilean Academy of Sciences
- **Doe Sun Na**
Korean Academy of Science and Technology (KAST)
- **Moneef R. Zou'bi**
Islamic World Academy of Sciences (IAS)

Monitoring and Evaluation Committee

- **Krishan Lal** (*Chair*)
Indian National Science Academy (INSA)
- **Don Koo Lee**
Korean Academy of Science and Technology (KAST)
- **Daniel Ricquier**
Académie de Sciences, France
- **Michael Ugrumov**
Russian Academy of Sciences
- **Bernhard Fleckenstein**
German National Academy of Sciences, Leopoldina

Finance Committee

- **Antonio Sgamellotti** (*Chair*)
Accademia Nazionale dei Lincei, Italy
- **Mike Clegg**
US National Academy of Sciences
- **Jinghai Li**
Chinese Academy of Sciences

Science for Poverty Eradication Committee

- **Jacob Palis** (*Chair*)
Brazilian Academy of Sciences
- **Takashi Onishi**
Science Council of Japan
- **M. Ramon Llamas**
Royal Spanish Academy of Science
- **Anwar Nasim**
Pakistan Academy of Sciences
- **Hassan Zohoor**
Academy of Sciences of IR Iran
- **Asma Ismail**
Academy of Sciences Malaysia
- **Ajaga Nji**
Cameroon Academy of Sciences
- **Tara Dasgupta**
Caribbean Academy of Sciences

Science Education Programme (SEP) Global Council

- **Dato Lee Yee Cheong** (*Chair*)
Malaysia
- **Norma Nudelman**
Argentina
- **He Zhu**
China
- **Petra Skiebe-Corrette**
Germany
- **R. Indarjani**
Indonesia
- **Park Won-Hoon**
South Korea
- **Hazami Habib**
Malaysia
- **Guillermo Fernandez de la Garza**
Mexico
- **Mansoor H. Soomro**
Pakistan
- **Mustafa El Tayeb**
Sudan
- **Aphiya Hathayatham**
Thailand
- **Carol O'Donnell**
USA

Meetings supported by IAP in 2015 and early 2016

January

- Muscat, Oman, Global Young Academy (GYA) participation in Global Research Council MENA Regional Meeting, 10-11 January 2015
- Kuching, Malaysia, IAMP representation at United Nations University International Institute for Global Health (UNU-IIGH) 'Urban Thinkers Campus on Health and Wellbeing in the City' forum, 24-27 January 2015

February

- Quito, Ecuador, the Academy of Science of Ecuador: Induction of the first class of elected members of the new academy, 15 February 2015

March

- Brussels, Belgium, EASAC and Royal Society breakfast discussion on 'Reducing the Impact of Extreme Weather', 3 March 2015
- Sendai, Japan, IAP representation at the Third UN World Conference on Disaster Risk Reduction, 14-18 March 2015
- Amsterdam, the Netherlands, IAMP representation at the 3rd International One Health Congress, 15-18 March 2015

May

- London, UK, IAP representation at the Royal Society's 'The Future of Scholarly Scientific Communication', 5-6 May 2015
- Rome, Italy, Workshop on 'Health Science Education in Compulsory Primary Schools' organized by the *Accademia Nazionale dei Lincei* and the *Accademia Medica di Roma*, 15 May 2015
- Dhaka, Bangladesh, IAMP representation at the 12th International Conference on Urban Health, 24-27 May 2015
- Montebello, Canada, 5th International Conference of Young Scientists and 2015 Annual General Meeting of the GYA: 'Innovation for Sustainable Globalization', 25-29 May 2015
- Kuala Lumpur, Malaysia, International Science, Technology and Engineering (STEM) High Level Policy Forum on 'Evidence Based Science Education in Developing Countries', and IAP Science Education Programme Global Council meeting, 26-27 May 2015
- Bogota, Colombia, IANAS Executive Committee meeting, 27-29 May 2015

- Pretoria, South Africa, Workshop on 'Mainstreaming Gender in Science Education', 27-28 May 2015

June

- Halle, Germany, Kick-off workshop for IAP project on 'Food and Nutrition Security and Agriculture', 1-2 June 2015
- Amsterdam, the Netherlands, IAC workshop on 'Realizing a Sustainable Energy Future: Roles and Tasks for the World's Academies', 26 June 2015
- Mexico City, Mexico, IANAS Science Education focal points meeting, June 2015

July

- Seoul, South Korea, Meeting of the External Review Panel of AASSA, 15-16 July 2015

August

- Geneva, Switzerland, 'Advances in Design and Use of Microbial Production Systems: A Workshop for the BWC Community', 9 August 2015
- Geneva, Switzerland, IAP Biosecurity Working Group (BWG) representation at the Meeting of Experts of the International Biological and Toxin Weapons Convention (BWC), 10-14 August 2015
- Seoul, South Korea, Workshop on 'Gender Issues in Science Research and Education' in conjunction with 'Gender Summit 6', 26-29 August 2015

September

- Dalian, China, Global Young Academy (GYA) participation in WEF Annual Meeting of New Champions, 9-11 September 2015
- Warsaw, Poland, Biological and Toxin Weapons Trends Symposium, 13-15 September 2015
- Beijing, China, IAMP symposium on 'Exploring Traditional Medicine', 22-24 September 2015
- New Delhi, India, Joint Session of the IAP and IAMP Executive Committees and the IAC Board, 28-29 September 2015
- Kampala, Uganda, launch of the Uganda National Young Academy of Science, 29 September 2015

October

- Dakar, Senegal, 2nd African-European-Mediterranean Academies for Science Education Conference (AEMASE- II), 12-13 October 2015
- Nairobi, Kenya, NASAC-IANAS Workshop on 'Improving the Management of Water Resources for Sustainable Development in Africa and the Americas', plus launch of booklet, 'The Grand Challenge of Water Security in Africa: Recommendations to Policymakers', 12-15 October 2015
- Daejeon, South Korea, AASSA International Symposium on 'Global Health Issues in Asia', in conjunction with the AASSA Executive Board meeting, 19-21 October 2015
- Halle, Germany, Global Young Academy (GYA) international expert workshop on 'Solid Waste Management and Green Economy', 22-23 October 2015
- Berlin, Germany, IAMP Young Physician Leaders (YPL) leadership training workshop, 9-11 October 2015
- Berlin, Germany, World Health Summit, 11-13 October 2015

November

- Budapest, Hungary, 'Scoping the Future: Views and ideas of young scientists to tackle global challenges', side event to World Science Forum, 4 November 2015
- Budapest, Hungary, World Science Forum, 4-7 November 2015
- Rome, Italy, Global Young Academy (GYA) participation in Global Research Council (GRC) Europe Regional Meeting, 5-6 November 2015
- Xiamen, China, Meeting of ICSU-IAMP-UNU 'Urban Health and Wellbeing' working group, 11-13 November 2015
- Windhoek, Namibia, Global Young Academy (GYA) participation in Global Research Council (GRC) Africa Regional Meeting, 15-17 November 2015
- Stockholm, Sweden, Second World-Wide Meeting of Young Academies and Joint Conference on 'Scientific Support for Policy Making in Sustainable Development: Joining Forces', 16-18 November 2015
- Tirana, Albania, IAP representation at the Albanian Academy of Sciences' 'International Conference Celebrating Einstein', 27 November 2015
- Nairobi, Kenya, 11th Annual Meeting of African Science Academies (AMASA-11), 29 November - 1 December 2015
- Nairobi, Kenya, Launch of 'Changing Disease Patterns in Africa: Recommendations to Policymakers', 29 November 2015

December

- Jakarta, Indonesia 'SHER (Science, Health, Environment & Risk) Communication: Role of S&T Communication in Disaster Management and Community Preparedness', 8-9 December 2015
- Nairobi, Kenya, NASAC General Assembly, 2 December 2015
- Paris, France, NASAC seminar organized in collaboration with Intergovernmental Oceanographic Commission (IOC)-UNESCO, 9 December 2015
- Le Bourget, Paris, France, COP21 side event on 'Realizing African Renaissance through Science-Policy Dialogue on Climate Change Adaptation and Resilience: the Critical needs for Africa to invest in home grown science and appropriate blue and green technologies towards poverty alleviation and sustainable development', 10 December 2015
- St. Petersburg, Russia, Global Young Academy (GYA) participation in 4th meeting of the UN Secretary General's Scientific Advisory Board (SAB), 14-15 December 2015

January 2016

- Geneva, Switzerland, IAP representation at the UNISDR Science and Technology Conference on the 'Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030', 27-29 January 2016

February 2016

- Dakar, Senegal, NASAC African Forum on Science and Technology for Development (Fast-Dev), 22-24 February 2016
- Khartoum, Sudan, Workshop on 'Design of Inquiry-based Science Education Booklet and Teachers/Parents Guidelines', 24-25 February 2016
- Hermanus, South Africa, IAP Conference on 'Science Advice', 28 February - 1 March 2016

March 2016

- Hermanus, South Africa, IAP General Assembly, 2 March 2016

Publications supported by IAP: January 2015 to March 2016

- **IAP Annual Report 2014**
Published by: IAP, the global network of science academies
URL: <http://www.interacademies.net/File.aspx?id=27802>

- **Working with Big Ideas of Science Education**
Published by: IAP, the global network of science academies
URL, English version: <http://interacademies.net/Publications/26703.aspx>
URL, Chinese version: <http://www.interacademies.net/File.aspx?id=30363>
URL, Farsi version: <http://www.interacademies.net/File.aspx?id=29902>
URL, French version: <http://www.interacademies.net/File.aspx?id=28121>
URL, Italian version: <http://www.interacademies.net/File.aspx?id=27923>
URL, Serbian version: <http://www.interacademies.net/File.aspx?id=27442>
URL, Spanish version: <http://www.interacademies.net/File.aspx?id=28260>

- **Doing Global Science: A Guide to Responsible Conduct in the Global Research Enterprise**
Published by: InterAcademy Partnership (IAP)
URL: <http://www.interacademycouncil.net/24026/29429.aspx>

- **Science International Accord: 'Open Data in a Big Data World'**
Published by: InterAcademy Partnership (IAP), International Council for Science (ICSU), International Social Sciences Council (ISSC) and The World Academy of Sciences (TWAS)
URL: <http://www.icsu.org/science-international/accord>

- **The Biological and Toxin Weapons Convention: Implications of Advances in Science and Technology (Conference report)**
Published by: IAP, the global network of science academies, the Royal Society
URL: <http://www.interacademies.net/File.aspx?id=30343>

- **Academies of Science as Key Instruments of Science Diplomacy (Hassan, M.H.A., ter Meulen, V., McGrath, P.F. and Fears, R.)**
Published by: AAAS Science & Diplomacy
URL: <http://www.sciencediplomacy.org/perspective/2015/academies-science-key-instruments-science-diplomacy>

- **IAMP Statement: A Call for Action to Strengthen Healthcare for Hearing Loss**
Published by: InterAcademy Medical Panel (IAMP)
URL: <http://www.iamp-online.org/sites/iamp-online.org/files/HEALTHCARE%20FOR%20HEARING%20LOSS%20-%20ENGLISH.pdf>

- **Hearing Loss: A Global Health Issue (Looi, L.M., Ganten, D., McGrath, P.F., Gross, M., Griffin, G.E.)**
Published by: The Lancet
URL: [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(15\)60208-2/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)60208-2/fulltext)

- **Report of the Survey on Non-Communicable Disease Activity in IAMP Member Academies**
Published by: InterAcademy Medical Panel (IAMP)
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IAP also runs an annual internship programme. The IAP secretariat selects talented young individuals to contribute to the workings of the global network of science academies. The programme is open to students and other young people of any country, fluent in English, aged between 18 and 25, and offers the opportunity to gain international experience in a multicultural environment.

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