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iap

the global network of science academies

ANNUAL REPORT 2014

Vision and Mission

IAP is a global network of over 100 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.

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ANNUAL REPORT 2014

IAP Annual Report 2014

Peter McGrath: Writer/editor

Muthoni Kareithi: Administrative assistance

We would like to thank colleagues from member academies and regional networks who supplied reports on their 2014 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,

Last year we reported on the initial steps that IAP – the global network of science academies – was taking to integrate our activities within a single umbrella organization with the InterAcademy Medical Panel (IAMP) and the InterAcademy Council (IAC).

The goal is to increase the visibility and impact of our activities, especially with regard to providing evidence-based advice and perspectives on global issues that require scientific input. We believe that having the three organizations speak with 'one voice' to governments, international organizations and other stakeholders will not only ensure that our messages are clearer, but also that they will carry more weight.

Throughout the year, the six co-chairs of our three organizations have met both in-person and via conference calls, making every effort to ensure that our member academies have been kept up-to-date with developments. In summary, we can confirm that the IAP and IAMP executive committees and the IAC board have approved the formation of the 'InterAcademy Partnership' (thus we will retain the IAP acronym as we integrate the three organizations), and that agreements have also been struck concerning the administrative structure of this new agency. Basically there will be a Steering Committee made up of the six co-chairs of the participating organizations, two of whom are selected to act as Presidents (initially IAP's Mohamed Hassan and IAC's Robbert Dijkgraaf). These are joined on the governing Board by one representative from each of IAP's four affiliated regional networks: AASSA, EASAC, IANAS and NASAC.

Here we must give our sincere thanks to the *Accademia Nazionale dei Lincei* for hosting the first joint session of the IAP and IAMP executive committees and the IAC board in Rome, Italy, in May 2014. In October, the first full meeting of the InterAcademy Partnership Board was hosted by the *Académie des Sciences* in Paris, France, and so we also extend our thanks to them for their support of our activities.

Although the restructuring exercise took a great deal of time and effort during the year, we are pleased to announce that our regular activities carried on as usual. Full details of these programmes and projects are reported in the pages that follow and certainly attest to the outreach and impact that IAP and its network of academies can have.

In addition, we would like to acknowledge the efforts of the IAP Secretariat in Trieste, where Peter McGrath, Joanna Lacey and Muthoni Kareithi have been central to all our activities this year. We certainly appreciate their ongoing enthusiasm and professionalism.

Finally, it would be very remiss of us if we didn't also acknowledge all those academies (listed in the appendix, page 53) whose financial contributions and in-kind support give our work greater impact and relevance across the globe.

Mohamed Hassan
IAP Co-chair

Volker ter Meulen
IAP Co-chair

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OVERVIEW

Looking Back: 2014

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.

During 2014, IAP's activities spanned the usual range of engaging with international scientific and science-policy issues, supporting the work of its four affiliated regional networks, continuing its activities in the promotion of science education and science literacy, and supporting the work of member academies through a range of small projects. IAP also provided support for the InterAcademy Medical Panel (IAMP) and continued its collaboration with the InterAcademy Council (IAC).

New partnership

A major activity in 2014 was the development of plans for a new inter-academy umbrella organization, that will include the current IAP, IAMP and the IAC. It will be called the InterAcademy Partnership, thereby keeping the widely-known and trusted IAP acronym. The first joint executive committee/board session of the three organizations was hosted by the *Accademia Nazionale dei Lincei*, on 16 May in Rome, Italy. At the meeting, there was broad agreement on the establishment of the umbrella organization and a timeline for its implementation was elaborated.

Participants at the joint IAP and IAMP executive committee and IAC board meeting, 16 May 2014, at the *Accademia Nazionale dei Lincei*, Rome, Italy.

Following this timeline, the six co-chairs of the three organizations met in Berlin on 7 July to draw up a memorandum of understanding that, among other things, set out the broad administrative structure for the InterAcademy Partnership. Basically, the six co-chairs will serve as the Steering Committee to guide activities, and they, together with a representative from each of the four IAP regional networks, will constitute the umbrella organization's Board, which will meet at least once a year. The Steering Committee will have two presidents, and Mohamed Hassan and Robbert Dijkgraaf, currently co-chairs of IAP and IAC, respectively, were appointed during the meeting in Berlin. As well as representing the InterAcademy Partnership, the two presidents will spearhead a fundraising campaign, seeking funds to implement a broader range of projects than is possible based on current core funding. Secretariat support will continue to be provided by staff based at The World Academy of Sciences (TWAS, a programme unit of UNESCO) in Trieste, Italy, and at the US National Academy of Sciences (US NAS) in Washington, DC.

Indeed, a horizon scanning exercise was started in late 2013 and finalized in 2014 to identify and prioritize the subject areas in which member academies believe the InterAcademy Partnership should engage. These include capacity building in the area of policy advice, especially for younger or weaker academies, extreme weather and disaster risk reduction, and 'big data'. These will be in addition to continuing efforts in the areas of science education and science literacy, support for young scientists, and women in science.

The first meeting of the new InterAcademy Partnership Board took place in Paris, France, on 7 November, hosted by the *Academie des Sciences*. This meeting was significant as IAP co-chair Volker ter Meulen announced that the German Academy of Sciences Leopoldina has received funding from the German Federal Ministry of Education and Research for a study, to start in 2015, on 'Security of Food Supply and Sustainable Agriculture'. Initially, regional reports will be prepared by the Association of Academies and Societies of Sciences in Asia (AASSA), the European Academies Science Advisory Council (EASAC), the InterAmerican Network of Academies of Science (IANAS) and the Network of African Science Academies (NASAC), and these will then be used to prepare a global summary. Arnaud Leroy, vice president for policy with GLOBE International, an international organization comprising national parliamentarians from over 80 countries committed to developing and overseeing the implementation of laws in pursuit of sustainable development, also attended the meeting to investigate how to develop closer ties between IAP, its member academies and national decision-makers.

Shortly after the meeting in Paris, in efforts to be inclusive and comprehensive, the Steering Committee of the InterAcademy Partnership reached out to the Council of Academies of Engineering and Technological Sciences (CAETS), in particular through a face-to-face meeting of representatives of IAP and IAMP with CAETS representatives in Berlin, Germany, on 21 November.

The proposed InterAcademy Partnership was also presented to the general assembly of the International Council for Science (ICSU) on 1 September in New

Zealand. It was also the subject of a special session, led by IAMP co-chair Lai Meng Looi and Eduardo Krieger, IAMP executive committee member from Brazil, at the World Health Summit held in Berlin, on 19-22 October. Volker ter Meulen introduced the proposed structure and activities of the new organization, while invited respondents from the global health arena, private industry and academia discussed the implications of the new partnership for global health.

Regular activities

Against this background of the evolving inter-academy network collaboration, IAP's regular activities continued unchecked.

At the joint IAP, IAMP and IAC meeting in Rome during May, the IAP executive committee agreed to accept the World Academy of Art and Science (WAAS) as a new member which, pending confirmation by the IAP General Assembly (to be held in 2016), would bring IAP's total membership to 107.

In addition, nine projects were supported via grants to individual member academies. The areas covered by these projects include science education and science literacy, global biosecurity issues, capacity building of African scientists in cell biology/regenerative medicine, women in science and young scientists.

In the case of science education and science literacy, IAP supported the first 'International AEMASE (African European Mediterranean Academies for Science Education) Conference on Science Education', hosted by the *Accademia Nazionale dei Lincei* in Rome immediately after the joint IAP/IAMP/IAC meeting in May. The event attracted 75 representatives from 32 countries.

In the biosecurity dossier, IAP was represented by Ryszard Slomski of the Polish Academy of Sciences, the lead academy for IAP's Biosecurity Working Group, at a 'Meeting of the Experts of the Biological Weapons Convention' (BWC) in Geneva, Switzerland, on 4-8 August.

In addition, IAP supported the Brazilian Academy of Sciences to host an international conference 'Science for Poverty Eradication and Sustainable Development: a call for action', held in Manaus on 3-5 December and featuring experts nominated by IAP member academies and regional networks.

Full details of these projects can be found later in this Annual Report (see pages 22-47).

IAP's four affiliated regional networks, AASSA, EASAC, IANAS and NASAC, are increasingly active and now leverage significant additional financial support to augment their IAP-related activities, thus helping to raise their own profile and that of IAP in their regions. Details of the networks' 2014 activities are on pages 12-21.

IAP's work in the arena of policy advice continued with the release of two major statements.

The first, endorsed by IAP member academies, was the 'IAP Statement on Realizing Global Potential in Synthetic Biology: Scientific opportunities and good governance'. It was released on 7 May 2014 to coincide with international meetings of the Convention on Biological Diversity (CBD). At the same time, a parallel 'World View' commentary

The 'IAP Statement on Realizing Global Potential in Synthetic Biology; Scientific opportunities and good governance' was released on 7 May 2014.

on synthetic biology, written by IAP co-chair Volker ter Meulen, was published in *Nature*, thereby ensuring the statement was brought to the attention of a broad international audience.

The second was the IAP Science Education Programme's (SEP) 'Beijing Declaration on Science Education and Science Literacy'. The declaration was prepared by the IAP SEP's Global Council at its meeting in Beijing, China, on the sides of the IAP SEP Biennial Conference, held on 28-30 October, and subsequently endorsed by the IAP executive committee at its meeting in Paris in November. The document called on the world's science academies, private companies, national governments and UNESCO to promote inquiry-based science education (IBSE) methods, a long-time component of IAP's science education programme, in more countries around the world.

Disaster risk reduction

Members of the ICSU-led Science and Technology Major Group at the preparatory committee meeting (PrepCom1) of the 3rd UN World Conference on Disaster Risk Reduction (DRR), Geneva, Switzerland, 14-15 July 2014.

During 2014, under the auspices of the United Nations, a number of regional and international meetings were held to discuss and develop an updated agreement that would replace the Hyogo Framework for Action, 2005-2015.

IAP executive committee member, Antonio Sgamellotti, represented IAP at the 'Mechanism for International Science Advice for Disaster Risk Management' meeting hosted by the Wellcome Trust, in London, UK, on 27-28 March, where participants agreed that any future international agreement on disaster risk reduction needed to have a significant science and technology component. In July, these ideas were formally presented to the UN in

Geneva, Switzerland, at the preparatory committee for the Third UN World Conference on Disaster Risk Reduction (DRR), when IAP coordinator, Peter McGrath, joined the Science and Technology Major Group, led by ICSU, the International Council for Science. Emerging from this meeting was a zero-draft of the proposed agreement to be signed at the Third UN World Conference on Disaster Risk Reduction in Sendai, Japan, in March 2015. IAP shared this draft with its member academies and reported their comments and suggestions back to the Science and Technology Major Group and the UN office responsible for developing the agreement.

One-off activities

Representatives of global science organizations, including IAP, IAMP, TWAS, OWSD, ICSU and UNESCO, meeting in Trieste, Italy, on 18 February 2014.

Among the other activities undertaken by IAP and its secretariat in 2014 were several meetings and events. For example, on 18 February, the IAP co-chairs met with the leaders of other global scientific organizations, particularly TWAS, ICSU and UNESCO, in Trieste to discuss ways for collaborating on issues of common interest.

In March, Antonio Sgamellotti represented IAP at an international conference, 'Transition to a New Society', in Podgorica, Montenegro. This was hosted and co-organized by the Montenegrin Academy of Sciences and Arts, together with the World Academy of Art and Science (WAAS), the European Academy of Sciences and Arts (EASA) and the European Federation of National Academies of Sciences and Humanities (ALLEA).

Then, on 27 May, representatives of IAP and TWAS met with the ambassadors of many African countries during a special 'Africa Day' celebration in Rome, organized by TWAS in collaboration with the Italian Ministry of Foreign Affairs.

IAP co-chair Volker ter Meulen gave a talk on 'Evidence-based policy advice and the global network of science academies' during the Chinese Academy of Sciences (CAS) 'Symposium on National Academies and Think-Tank', held on 8-10 June in Beijing, while, Krishnan Lal, president of AASSA, represented IAP at the SCIDATA conference in New Delhi, India, on November 2-5.

There were several visitors to the IAP secretariat in Trieste during 2014. These included Surendra raj Kafle, vice-chancellor of the Nepal Academy of Science and Technology (NAST), who discussed how NAST may get more involved in IAP activities, and Ulla Engelmann, head of international and institutional relations at the European Commission's Joint Research Council (JRC), who discussed how IAP and the JRC might collaborate.

In September, Peter McGrath, met with colleagues at the Mexican Academy of Sciences (MAS) in Mexico City to discuss issues relating to MAS and IANAS. He also travelled to New Delhi, India, in December to hold discussions with Krishnan Lal, chair of the IAP Programme Monitoring and Evaluation Committee and, with input from other committee members, reviewed a number of IAP-funded projects that had been undertaken in 2013.

Also at the IAP secretariat, an intern, Lorenzo Mattarolo, assisted in improving the IAP website, especially creating and populating a new 'Publications' section that now collates all IAP and IAP-supported publications in one easy-to-browse resource. Anna-Maria Gramatté from the German National Academy of Sciences Leopoldina, also continued to provide off-site support to the IAP secretariat.

Then, in October, UNESCO requested feedback on a 1974 UNESCO document 'Recommendation on the Status of Scientists'. IAP shared the request with its member academies and editorial comments received from a number of academies were collated by the IAP secretariat and sent to UNESCO for inclusion in the new, updated version of the document.

Young scientists

Throughout 2014, IAP continued to support young scientists, in particular through its close interactions with the Global Young Academy (GYA). For example, IAP provided the GYA with funding that allowed its members from developing countries to attend the GYA conference and general assembly held in Santiago, Chile, on 21-25 May. Juan Asenjo, co-chair of IANAS, represented IAP at the event.

IAP provided support to the Global Young Academy's conference and general assembly, held in Santiago, Chile, on 21-25 May 2014.

Volker ter Meulen and Peter McGrath also attended a joint GYA/JRC brainstorming session on the future of science held in Brussels, Belgium, on 11 July.

Finally, through an agreement brokered with UNESCO and the Hungarian Academy of Sciences, IAP will continue to support the participation of young scientists at major international science fora. In this case, IAP will invite a number of young scientists to attend the next World Science Forum, scheduled for November 2015 in Budapest, Hungary.

Fundraising

IAP started a fundraising campaign in 2014, requesting both voluntary membership contributions, designed to support programmes and projects, as well as financial support to develop a large-scale fundraising campaign. Many academies pledged financial and/or in-kind support to host workshops or other meetings (see page 53) that will help strengthen IAP and its mission to help academies of science to work together, which would not be possible without the generous contribution from the Government of Italy for IAP's core activities.

The IAP co-chairs

Mohamed H.A. Hassan

Mohamed H.A. Hassan is co-chair of IAP, and chairman of the council of the United Nations University (UNU). Born in Sudan, Hassan holds a PhD in plasma physics from the University of Oxford, UK (1974). Back in Sudan, he became professor and dean of the school of mathematical sciences at the University of Khartoum.

From 1983-2011, Hassan was the founding executive director of The World Academy of Sciences (TWAS), and he now serves as the academy's treasurer. He is past president of the African Academy of Sciences, and serves on the board of trustees of the Bibliotheca Alexandrina in Egypt; the Council of the Science and Technology in Society Forum in Japan; and the board of the International Science Programme in Sweden.

He is also a member of several merit-based academies of science that include TWAS, the African Academy of Sciences, the Islamic World Academy of Sciences, and the *Academia Colombiana de Ciencias Exactas*.

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 was called as political advisor on scientific issues to state and federal ministries of science in Germany.

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)

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 2014, AASSA organized and financially supported three regional workshops, one international symposium and two expert meetings.

Key meetings

A regional workshop on the 'Sustainable Development Goal of Water and Sanitation after the MDGs (Millennium Development Goals)' was jointly organized by AASSA and the Korean Academy of Science and Technology (KAST), with support from IAP, Scientists and Engineers Without Borders (SEWB) and the Sharing Community of Science and Technology (SCOST). The workshop, held in Phnom Penh, Cambodia, on 12 February 2014, included 12 presentations and was attended by 25 delegates from five countries.

A regional workshop, 'Women in Science and Technology', jointly organized by the Turkish Academy of Sciences (TÜBA) and AASSA with the support IAP, was held in Izmir, Turkey, on 29-30 May. Nineteen papers were presented and 50 scientists from ten countries participated.

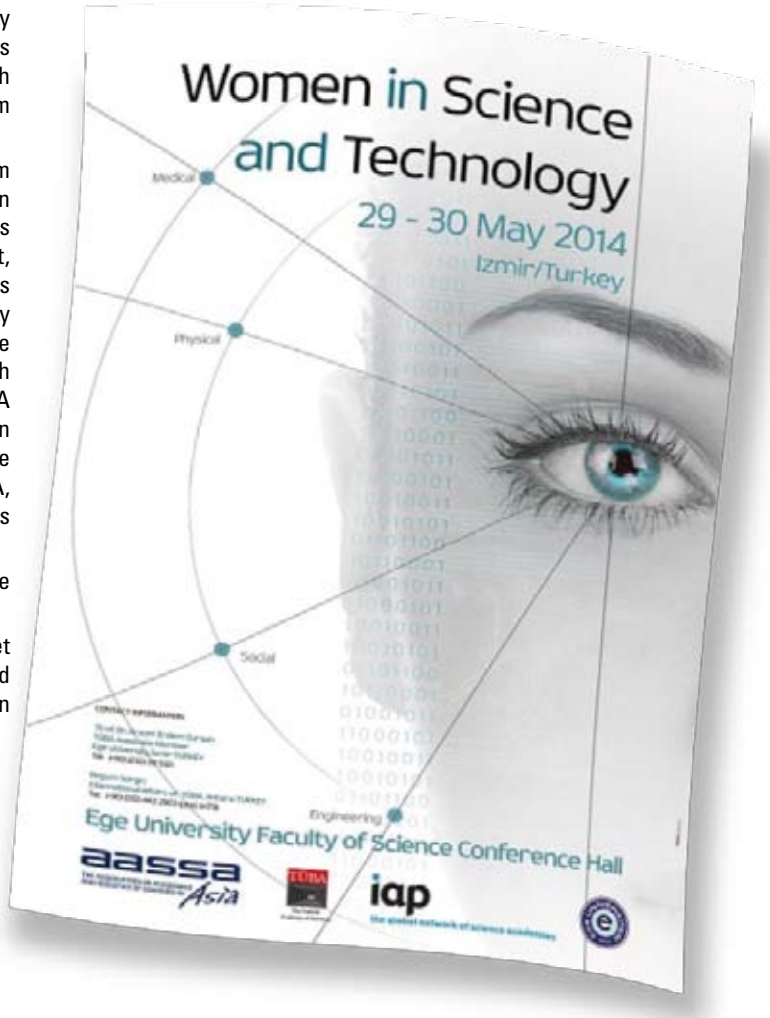
A regional workshop on 'Sustainable Management of Water Resources and Conservation of Mountain Lake Ecosystems of Asian Countries' was held at Yerevan, Armenia, on 26-28 June, organized by AASSA and the National Academy of Sciences of Republic of Armenia (NAS RA). This was supported by IAP, the Green Technology Centre, South Korea (GTC) and the local hosts. Thirty participants from seven countries took part and 17 talks were delivered.

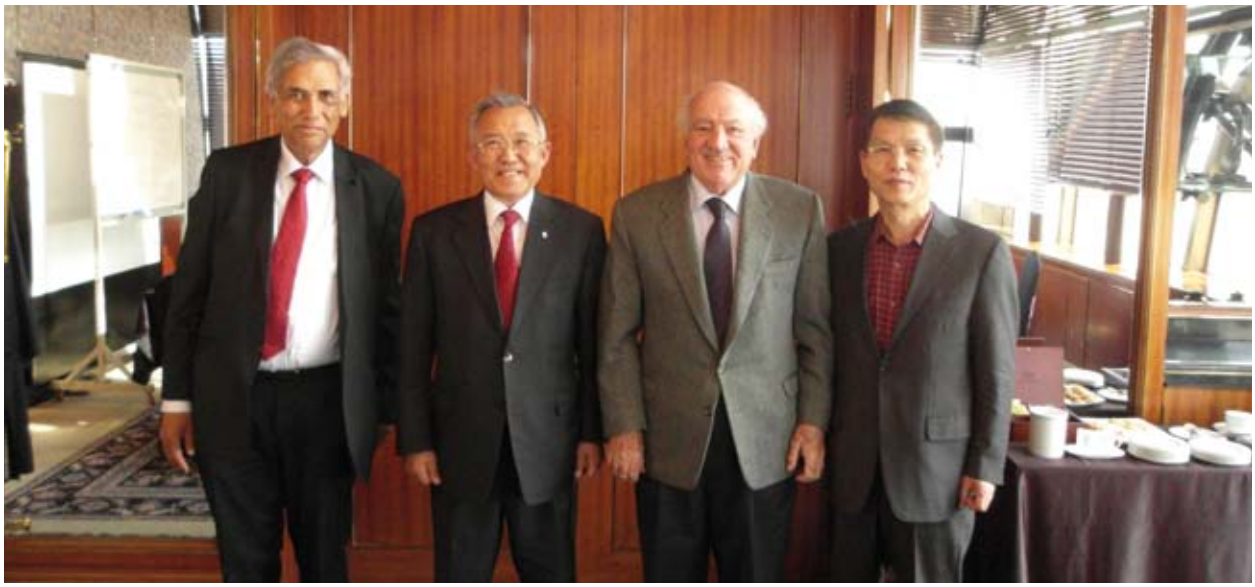
The 'KAST-ASM-INSA-IAP International Symposium Science, Health, Environment, Risk (SHER) Communication in Asia, with a Special Focus on Science Festivals', was held on 15-16 October in New Delhi, India. This event, jointly organized by KAST, the Academy of Sciences Malaysia (ASM), the Indian National Science Academy (INSA) and AASSA, was held in conjunction with the AASSA general assembly and the Third Summit of South Asian Science Academies. In addition, AASSA and INSA co-hosted a meeting of the expert committee on Women in Science and Engineering (WISE) on 16 October 2014. At the general assembly, Krishnan Lal, former president of INSA, was elected to succeed Won-hoon Park of South Korea as president of AASSA.

Together, these various meetings were attended by some 230 participants from 27 countries.

At the conclusion of each event, participants drafted a set of resolutions that often included recommendations aimed at coordinating AASSA's future activities on the theme in question.

The KAST-ASM-INSA-IAP international symposium on SHER communication took place on 15-16 October 2014 in New Delhi, India.





Incoming AASSA president, Krishnan Lal (left), with outgoing president Won-hoon Park (second left) at the inaugural meeting of experts on sustainable development, 21 March 2014, Seoul, South Korea.

SHER communication

A 'KAST-ASM-IAP International Workshop on Science Literacy: Science communication and science outreach' was held in Seoul, South Korea, on 12-13 June (see pages 34-35).

This and the KAST-ASM-INSA-IAP SHER Communication workshop held in October in New Delhi, were a continuation of the workshops held in Colombo, Sri Lanka, and Bangkok, Thailand, in 2012 and 2013, respectively.

As a result of the discussions arising from these meetings, the organizing committee of the SHER Communication event convinced AASSA to adopt the resolution that Asia must enhance science literacy as a way to help solve pressing problems such as continuing population growth, public health issues, shortage of or lack of access to energy and climate change, as well as natural and human-induced disasters. Increasing the public's knowledge and awareness of science can be enhanced by focusing on both science education and science communication.

It was therefore agreed that:

- international collaboration for promoting science communication is greatly needed in Asia;
- each Asian country's science academy, government, and related civic organizations need to be involved in promoting science communication; and
- to achieve these objectives, a science communication network should be established in Asia.

AASSA recognizes that communicating about science, health, environment and risk – the SHER issues – to the public is extremely important and following the recommendation has constituted a Special Committee on SHER Communication.

Sustainable development in Asia

AASSA has also decided to publish official reports entitled 'Sustainable Development of Asia (SDA)', which will be based on the outcomes of its workshops and collaborative research. As these publications will replace the SDA volumes produced by AASSA's predecessor, the Association of Academies of Sciences in Asia (AASA), this new series will be known as 'SDA II'. Member academies have agreed to nominate their leading scientists as the editors of these reports and to provide the editors with detailed research results.

AASSA and KAST co-hosted the 'Inaugural Expert Meeting of Phase Two of the Sustainable Development in Asia (SDA) Project' in Seoul, South Korea, on 21 March 2014, where it was agreed that the first SDA II report, 'Women Scientists in Asia', will be released in August 2015, at the 11th AASSA regional workshop on 'Gender Issues in Science Research and Education', in Seoul.

Delegates at the meeting in Seoul also decided that future reports will focus on: water and sanitation; women in science and engineering; science literacy; health, food, and population growth; green technology; and climate change. Experts were assigned to oversee each topic and the goal is to publish one or two volumes per year, using an agreed standardized format.

Outreach

In addition to maintaining the AASSA website as an up-to-date source of information, AASSA has published a 15-page brochure containing a brief summary of its objectives, a map detailing the network's 34 member academies and societies from 30 countries in Asia and Australasia, as well as an introduction to the current executive board. The brochure also includes a list of the 14 regional meetings supported by AASSA from 2012 to 2014, and a list of AASSA's projects and a summary of their goals.

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

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 their collaborations, they are able to provide a collective voice of European science and provide independent advice to European policy-makers.

Policy advice

In 2014, the European Academies' Science Advisory Council (EASAC) produced five science-based reports and statements on topics selected for their importance at the science-policy interface:

- Risks to Plant Health: EU Priorities for Tackling Emerging Plant Pests and Diseases;
- Antimicrobial Drug Discovery: Greater Steps Ahead;
- Management of Spent Nuclear Fuel and Its Waste;
- European Space Exploration: Strategic Considerations of Human Versus Robotic Exploration;
- Shale Gas Extraction: Issues of Particular Relevance to the European Union.

Each report, including an analysis and recommendations, was written by a working group of experts nominated by EASAC member academies, and published following peer review and approval by EASAC member academies. Typically, the reports also included a separate lay summary, outlining the key points in non-technical language.

In order to attract both political and media interest, a number of launch events were organized in Brussels, Belgium, seat of the European Parliament, and elsewhere.

Working with Africa

EASAC, in collaboration with the Network of African Science Academies (NASAC, see pages 20-21), held a workshop on 25-26 February 2014 in Addis Ababa, Ethiopia. The event was attended by senior African and European scientists and policy-makers to discuss the recommendations of the 'Risks to Plant Health' report (as well as those of a 2013 EASAC report on genetically modified crops: 'Planting the Future: Opportunities and challenges for using crop genetic improvement technologies for sustainable agriculture'). The chief scientific adviser to the President of the European Commission, Anne Glover, the IAP co-chairs Mohamed Hassan and Volker ter Meulen, as well as senior representatives of the African Union Commission (AUC) and UN-Economic Commission for Africa (UNECA) also attended.

The delegates from Africa and Europe agreed that agricultural biotechnology could contribute to sustainable agriculture and to addressing the pressing problems of food and nutrition insecurity across the African continent.

As a result of the workshop, further meetings took place between NASAC, the AUC and UNECA, with a view to extending and expanding collaborative efforts.

Policy summits

On 21 March 2014, EASAC organized its first regional 'Science-Into-Policy-Summit' in Budapest, Hungary, that brought together south-eastern European representatives from science and politics to discuss the contribution of independent science to policy development. In addition to Hungarian scientists and politicians, a number of senior representatives of the national science academies from neighbouring countries, as well as media and society stakeholder groups, also attended the meeting.

A senior representative of the United Kingdom Ministry for the Environment reflected on the usefulness of independent science advice for policy formulation from a policy-maker's perspective. Using recommendations from their 2013 reports 'Trends in Extreme Weather Events in Europe: Implications for national and European Union adaptation strategies', 'Direct-to-Consumer Genetic Testing for Health-related Purposes in the European Union: the view from EASAC and FEAM' and 'Planting the Future', EASAC provided the scientific perspective of science-based advice for policy.

In addition, on 13 May 2014, EASAC was invited to present its policy work to the UN Commission on Science and Technology for Development (UN-CSTD) at a high-level meeting in Geneva, Switzerland.

Young scientists

On 11 July 2014, EASAC organized an event together with the European Commission's in-house science service, the Joint Research Centre (JRC), and the Global Young Academy (GYA). Young scientists from the European Union and beyond were invited to Brussels to participate in a brain-storming exercise to provide input into the JRC's long-term science policy development. This event has led to further project collaborations between the JRC and EASAC, as well as between the JRC and GYA.

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

On 11 July 2014, in Brussels, Belgium, EASAC joined with the Europe's Joint Research Centre and the Global Young Academy to organize a brainstorming workshop.

EASAC council meeting, hosted by the Latvian Academy of Sciences in Riga, Latvia.

EASAC president, Jos van der Meer (centre) with EASAC vice presidents.

InterAmerican Network of Academies of Sciences (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. The year 2014 was marked by 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.

Capacity building

The US National Academy of Sciences, the Mexican Academy of Sciences and the Royal Society of Canada jointly sponsored, with support from the Richard Lounsbery Foundation, a symposium for young to mid-career scientists held in Mexico City in June 2014. The 2.5-day symposium featured sessions on astrophysics, green chemistry, oceanography and marine biology, hazards and disasters, and biotechnology. The main goal was to build collaborative relationships among the next generation of science leaders in the three countries of North America. Pending funding, this initiative will be replicated in other regions of the Americas, as a way to promote regional scientific collaboration.

Within the context of building the capacity of some of the academies in the region to provide science advice to governments, a workshop jointly supported by IANAS, IAP and the Regional Office for Latin America and the Caribbean of the International Council for Science (ICSU-ROLAC) took place in Managua in November 2014. Fifteen distinguished scientists from Europe and North and South America joined Nicaraguan scientists to identify major scientific and technical questions that should be investigated in the context of the proposed construction of a transoceanic canal through Nicaragua. The assembled experts raised a number of concerns regarding the lack of public information on any environmental impact assessments carried out along the planned route of the proposed canal. The conclusions of the workshop have been made available on the IANAS and IAP websites, and an article on the findings of the workshop has been published in *Environmental Science & Technology*, as has an editorial on the controversy in *Science*.

Founded in 2013, the Academy of Sciences of Ecuador is IANAS' youngest member. In 2014, following a request from the Academy of Sciences in Ecuador, IANAS co-chairs appointed an international committee to evaluate the first slate of nominees for membership. The new members were inducted in a ceremony on 19 February 2015 in Quito, Ecuador

Executive committee

The new executive committee, elected at the IANAS General Assembly held in the Dominican Republic in 2013, met in Washington DC in March, 2014 hosted by the US National Academy of Sciences. The meeting was used as an opportunity to visit potential funders of IANAS programmes.

Human resources

In 2014, IANAS organized focal point meetings to promote and reinforce collaboration in its ongoing programmes relating to Women for Science, Science Education, Water and Energy.

The Women for Science Focal Points Meeting was hosted by the Royal Society of Canada on 20-22 September 2014 in Ottawa. This major IANAS activity has focused on the full inclusion and empowerment of women in science and technology from the top decision-making levels down to the grass roots. An important output from the programme is the 'Survey of Women Scientists in the Academies' report, which examines the status of women in science academies based on information provided by individual member academies. The report has since been completed and will be launched along with a global IAP report (see pages 46-47).

In addition, after receiving nearly 400,000 downloads of its

IANAS executive committee meeting at the US National Academy of Sciences, Washington DC, USA, March 2014.

2013 publication, 'Women Scientists in the Americas', the Women for Science programme is now preparing an electronic book of biographies of young to mid-career women scientists and a magazine aimed at attracting young girls into science.

The Science Education Focal Points Meeting was held in conjunction with the celebration of the 75th anniversary of the National Academy of Sciences of Peru in Lima in October 2014.

A major objective of the IANAS Science Education Programme is to improve science literacy in the Americas. To this end, IANAS co-sponsored an Ibero-American Symposium with RELAB (*Red Latinoamericana de Ciencias Bilogicas*) entitled 'Inquiry Based STEM Education' held in Buenos Aires, Argentina, in November 2014.

In addition, following extensive testing with teachers and an external evaluation, the IANAS Science Education Programme is modifying the Indagala website, designed to help Latin-American teachers to produce and share new teaching resources (*www.indagala.org*). The upgraded website is expected to be in full operation by June 2015.

Water resources

In October 2014, the Science Association of Panama (APANAC) hosted a meeting of the IANAS Water Focal Points. Among the topics discussed were future priorities for the IANAS Water Programme and the finalization of the publication plans for a book on 'Urban Water Challenges in the Americas'. This substantial volume, the production of which received financial support from IAP and the UNESCO International Hydrological Programme, includes contributions from some 120 authors from different scientific and technical disciplines associated with the management of water in the Americas. (The book was subsequently published in March 2015). A previous book published by the IANAS Water Programme, 'Water Diagnosis in the Americas', has received 900,000 downloads from the IANAS website since its release in 2012.

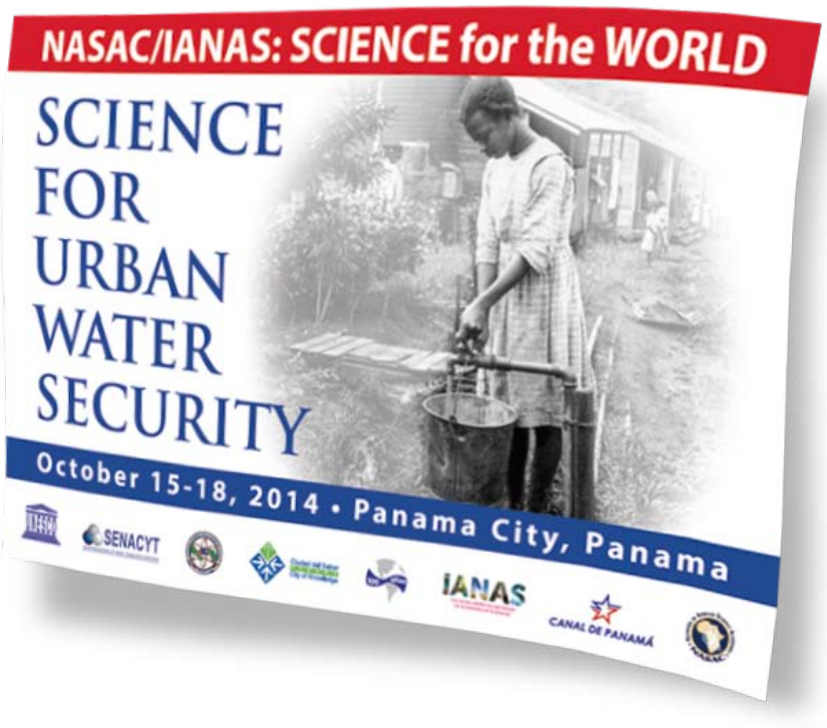
The above Focal Point meeting was held in conjunction with a joint IANAS-Network of African Science Academies (NASAC) meeting, 'Bridging Science and Policy to Enhance Water Security in Africa and the Americas', designed to build collaboration on water issues across these two IAP affiliated regional networks. The four-day workshop was held at the City of Knowledge, Panama City, and involved scientists, water managers and technicians from the Americas as well as from Cameroon, Kenya, Mauritius, Nigeria and Senegal. Representatives from UNESCO offices in the Americas and Africa also attended, while IAP's financial support was augmented by contributions from the Rosenberg International Forum on Water Policy of the University of California, USA. Links with policy-makers were ensured when Panama's Minister of Science, Jorge Motta, participated in the workshop and the President of Panama, Juan Carlos Varela, spoke at an evening event associated with the workshop. Among other outcomes of the workshop were a set of conclusions (available from the IANAS website) and a series of next steps for the IANAS Water Programme.

Participants of the IANAS-NASAC water focal points workshop on a field trip to the Panama Canal.

Energy resources

The IANAS Energy Programme is advancing the policy advice contained in the 2007 InterAcademy Council's report 'Lighting the Way: Toward a sustainable energy future'. The programme identified the report's highest priorities for the Americas, shared information on these priorities with academies, scientific organizations and other experts through a series of workshops, and has drafted and begun to implement action plans in these priority areas. A book, 'Sustainable Energy Futures in the Americas' is in the final stages of preparation and is expected to be released at the end of 2015.

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 Academies of Sciences (NASAC) now includes 21 member academies. Among the key thematic areas it deals with are climate change, water issues, science education and women in science.

Young scientists

Members of the NASAC board at their meeting in Rabat, Morocco, in October 2014.

The Network of African Academies of Sciences (NASAC) collaborated with the Global Young Academy (GYA) to host the first Africa Young Academies Regional Conference on the theme 'Accelerating Science for Development in Africa by Increasing the Momentum and Impact of National Young Academies' in Nairobi, Kenya, on 3-5 February 2014.

The event brought together members of NASAC's senior academies with Africa-based GYA members and other young scientists from Africa's growing list of national young academies. During the meeting, the Kenya National Young Academy of Sciences was officially launched and its founding members inducted.

The main objective of the conference was to engage and empower young African researchers to exchange ideas and experiences in addressing the challenges that impede scientific development towards a sustainable future. Additionally, the presence of senior academy members offered the young scientists a support network for their future operations and activities.

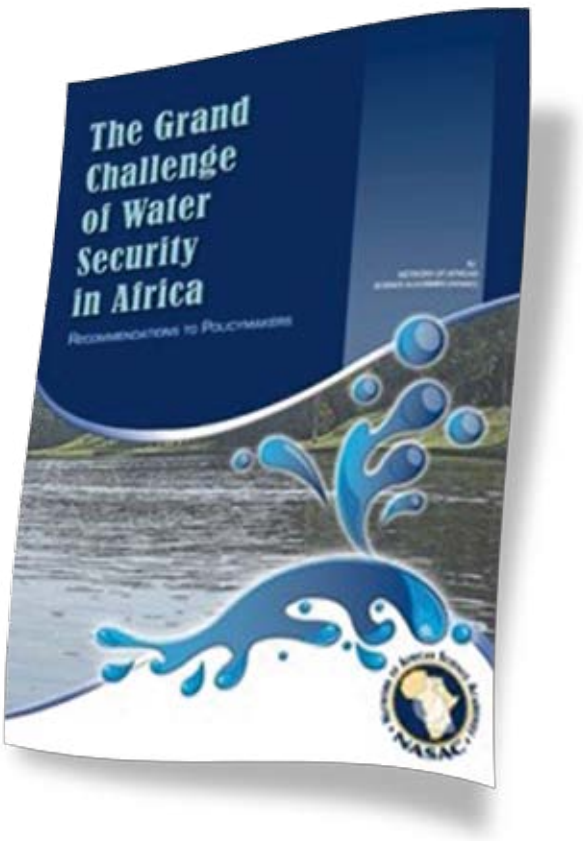
Water in Africa

In 2014, NASAC produced a report on the status and future of Africa's water resources entitled 'The Grand Challenge of Water Security in Africa: Recommendations to policymakers'. An initial meeting of the nine-member editorial committee, led by Daniel Olago, Institute for Climate Change and Adaptation, University of Nairobi, was held in Nairobi on 11-12 February, was convened to determine the contents of the planned publication and the nine critical messages that it would convey. The key themes included access to safe water and sanitation, managing trans-boundary systems, global change and risk management, as well as economic perspectives.

The final product was officially launched on 15 October at a special event during the 2nd Ministerial Forum on Science, Technology and Innovation (STI) in Africa, a conference hosted in Rabat, Morocco, by the Government of Morocco, and organized by the African Development Bank (AfDB).

The launch, held in collaboration with the AfDB's water facility, highlighted the fact that this was NASAC's first policy publication. Copies of the book were officially presented to attending policy-makers such as the African Union Commissioner H.E. Martial De-Paul Ikounga and Bruno Itoua, Minister for Science and Technology, Republic of Congo, as well as to all participants.

On 15 October 2014, on the fringes of the 2nd Ministerial Forum on STI in Africa, Rabat, Morocco, NASAC launched its policy booklet 'The Grand Challenge of Water Security in Africa: Recommendations to policymakers'.



Meeting of African science academies

The 10th Annual Meeting of African Science Academies (AMASA-10) was hosted by the Uganda National Academy of Sciences in Kampala, Uganda, on 10-12 November 2014 and attended by representatives from 19 African science academies. The agenda focused on country ownership of Africa's development in the post-2015 era.

At the meeting a consensus study, 'Mindset Shifts for Ownership of Our Continent's Development Agenda', describing how five drivers of development, i.e. communities, institutions, education, health, and capital, each have a role to play in fuelling wider societal ownership of the development agenda, was launched. The overarching conclusion is that there is a need for African leaders to provide the necessary leadership to achieve the desired ownership that will lead to the implementation and achievement of Africa's development agenda.

The meeting also marked the conclusion of the 10-year African Science Academy Development Initiative (ASADI), a collaboration between the United States National Academy of Sciences (US NAS) and several African academies of science that was funded by the Bill and Melinda Gates Foundation. ASADI was aimed at strengthening the capacity of the African academies to inform policy-makers through evidence-based advice. The InterAcademy Council (IAC) evaluation report on 'Enhancing the Capacity of African Science Academies: The final evaluation of ASADI', which concluded that the undertaking was successful as the capacity of African science academies to provide of evidence-based advice had improved considerably, was also highlighted at the meeting.

Future reports

A series of other editorial meetings took place during 2014 as NASAC begins to expand its activities into the policy advice arena.

Led by Caussy Deoraj, a virologist and epidemiologist from Mauritius, a seven-member panel of health experts met in Pretoria, South Africa, on 11-12 September 2014. The resulting publication, 'Changing Disease Patterns in Africa: Recommendations to policy-makers', will have six key messages and is currently undergoing peer-review.

Lisa Ramsay from the University of KwaZulu-Natal, South Africa, led an 18-member expert group meeting in Pretoria, South Africa, on 1-2 October 2014. The group focused on climate change adaptation within the African context and agreed that the proposed publication will focus on five broad areas:

- An introduction to discuss the context of climate change in Africa, define the risks and vulnerabilities, and the adaptation and resilience aspects of it;
- Regional impacts based on geographical locations, including the small island states;
- Sectoral impacts and adaptation options, focusing on water, agriculture, health, fisheries, coastal zones and urban areas;
- The implication of climate change adaption for Africa in view of sustainable development, looking at policy, research and development, technology and economic diversification; and
- A conclusion reiterating the need for a participatory approach for all stakeholders – public and private, local and international.

The NASAC panel of 12 experts on biotechnology, led by Douglas Miano, Department of Plant Science and Crop Protection, University of Nairobi, and Roy Mugiira, senior assistant director of research at the Kenyan State Department of Science and Technology, met in Addis Ababa, Ethiopia, on 27-28 October. They considered the findings of the February 2014 biotechnology workshop also held in Addis, in collaboration with the European Academies' Science Advisory Council (EASAC, see pages 16-17). A publication, 'Harnessing Modern Agricultural Biotechnology for Africa's Socio-Economic Development' is currently undergoing peer-review, and will emphasize the critical role of government in setting policies that foster a conducive environment for agricultural biotechnology research beyond field trials.

Capacity building

NASAC also continued its remit of building the capacity of African science academies by offering a fundraising training course in Nairobi on 7-8 August. A regionally-based training provider with a worldwide presence, MDF Eastern and Southern Africa, coached 26 officials and staff of NASAC member academies, who acquired a better understanding of the skills required for developing an effective fundraising strategy, proposal writing skills, and a greater understunding of the link between resource mobilization and the project cycle.

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

Affiliated Thematic/Functional Network reports

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 2014. Reports on the activities of these two networks follow.

ACTIVITIES

InterAcademy Medical Panel

the interacademy medical panel

Hosted by TWAS – The World Academy of Sciences for the advancement of science in developing countries – at its headquarters in Trieste, the InterAcademy Medical Panel (IAMP) is a network of 73 of the world's medical academies and medical sections of academies of science and engineering. IAMP is committed to improving health world-wide, with a special focus on low and middle-income countries.

Members of the IAMP executive committee at its meeting on 17 October 2014 in Berlin, Germany.

Among its activities in 2014, IAMP held two meetings of its executive committee. The first, held in May, was linked with the IAP, IAMP and InterAcademy Council (IAC) joint executive committee/board meeting hosted by the *Accademia Nazionale dei Lincei* in Rome (see page 8). Discussions naturally focused on the proposed umbrella organization, the InterAcademy Partnership, and the role of IAMP within this expanded network.

The second took place in Berlin on 17 October, in conjunction with the IAMP Young Physician Leaders training workshop (YPL, see below), held on 18-19 October, and the World Health Summit (WHS), which took place from 19-22 October. During the meeting, applications for membership from the Hassan II Academy of Science and Technology, Morocco, and the Georgian Academy of Medical Sciences were approved, bringing the total IAMP membership to 72 academies, of which 20 are national academies of medicine.

In addition to setting out an ambitious workplan for 2015, a decision was made to focus the next IAMP Statement on the issue of hearing loss.

Among the other events of 2014 at which IAMP had a presence was the Spring Conference of the Federation of European Academies of Medicine (FEAM), held on 12-13 May in Bucharest, Romania, and hosted by the Romanian Academy of Medical Sciences. IAMP was represented by co-chair Lai-Meng Looi who gave a presentation on 'Emergence of the Nipah virus: a lesson on One Health'. A major outcome of the meeting was the 'Bucharest Declaration on the "One Health" Concept' which was endorsed by FEAM member academies and IAMP. Marking its increasing engagement in the One Health idea, IAMP also linked to the One Health Initiative, a network of like-minded organizations promoting the concept.

Looi was also invited to attend the IAP Conference on Science for Poverty Eradication and Sustainable Development, held in Manaus, Brazil, in December (see pages 42-43), where she spoke on 'Ensuring universal health coverage'.

World Health Summit

The WHS is organized annually by the M8 Alliance of Academic Health Centres, Universities and National Academies, of which IAMP is a founding member. The October 2014 edition welcomed some 1,300 participants from 80 countries to Berlin.

The opening ceremony of the summit took place at the

Lakmali Amarasiri from Sri Lanka represented the IAMP Young Physician Leaders during the opening ceremony of the 2014 World Health Summit in Berlin, Germany.

German Federal Foreign Office and included presentations from Frank-Walter Steinmeier, the German Federal Foreign Minister, Hermann Gröhe, the German Federal Minister of Health, Annick Girardin, the French Minister of State for Development, and Nobel Prize Laureate (Physiology or Medicine, 2005) Barry J. Marshall. Lakmali Amarasiri, an alumna of the IAMP YPL programme from Sri Lanka, also spoke on behalf of the YPL during the opening ceremony, addressing the question of the 'brain drain' of trained health professionals from developing countries.

During the WHS itself, under the 'Education and Leadership' theme, IAMP organized a symposium on the InterAcademy Partnership that was chaired by Lai Meng Looi and Eduardo Krieger, IAMP executive committee member from Brazil. The goal of the symposium was to provide information about the new inter-academy umbrella organization and to discuss the implications for global health. IAP co-chair Volker ter Meulen provided an overview of the new partnership and other speakers were Gary Aslanyan of the World Health Organization (WHO), Jochen Maas of Sanofi, Germany, who provided the view of the private sector, Philippe Meyer of the *Academie des Sciences*, France, and Melissa Simon, an alumna of the IAMP Young Physician Leaders programme.

Young Physician Leaders

IAMP co-chair Lai Meng Looi and Executive Committee members Jo Boufford and Liu Depei with participants of the 2014 YPL workshop, Berlin.

Since October 2011, in conjunction with the WHS, IAMP has organized the annual Young Physician Leaders (YPL) programme which aims at "fostering a new generation of leaders in global health for the 21st Century". The programme offers participants both dedicated and personalized leadership training, as well as the opportunity to attend the WHS.

The 2014 YPL workshop took place on 18-19 October with 20 participants from 16 countries selected following a competitive nomination process. Four alumni from previous YPL training workshops were also invited to act as mentors. As noted by Jo Boufford, president of the New York Academy of Medicine, IAMP executive committee member, and coordinator of the workshop: "The participants are already practicing physicians with research skills and who have taken on positions of responsibility. This workshop, however, is designed to introduce them to some more theoretical concepts of leadership and to broaden their repertoire of leadership skills."

At the end of the workshop, participants were challenged to develop a personal leadership plan and to consider how improving their skill-set in a particular area would make them a more effective leader

The day before the workshop, the participants visited the laboratories of Bayer Healthcare and the Max Delbrück Centre for Molecular Medicine in Berlin. This visit was arranged by the Bayer Foundation, a major sponsor, along with the US-based Tides Foundation, of the IAMP YPL programme.

In addition to their leadership training, the YPLs also organized their own WHS event to discuss the major leadership challenges they face in their careers and how current health and medical sector leaders could be more helpful to the next generation of leaders. Among the challenges discussed were how to balance work and family life, how to make research attractive to young physicians, and how to get YPLs involved in building research capacity.

IAMP is now working on creating an alumnus network for the 88 young physicians who have already benefited from the YPL programme. This network will not only increase members' personal visibility, but also allow IAMP to work with them to develop plans for seeking additional funding to implement the best initiatives arising from the discussion sessions.

Social determinants

Health is not just the absence of disease. In the broadest sense, health and well-being include eliminating social inequalities and ensuring that everyone has access to medical care, enough food, clean water, decent living conditions, basic education and gainful employment. These and other factors are classified as the so-called 'social determinants' of health. Snap-shots of these and other specific indicators can be used to determine the conditions of peoples' lives and then guide governments towards introducing policies that are more equitable.

Participants at IAMP workshop 'Promoting action on the social determinants of health', Trieste, Italy, 3-4 July 2014.

Sir Michael Marmot and IAMP executive committee member Jo Boufford at the IAMP workshop on 'Promoting Action on the Social Determinants of Health' held in Trieste, Italy, on 3-4 July 2014.

A discussion of the social determinants of health, including differences between high and low/middle income countries, was the focus of an IAMP workshop entitled 'Promoting Action on the Social Determinants of Health', held in Trieste, Italy, on 3-4 July 2014.

Over 35 participants from 25 countries attended, including Sir Michael Marmot, director of the University College London Institute of Health Equity (UCL IHE), as well as IAMP executive committee members Jo Boufford (USA), Fola Esan (Nigeria) and Carmencita Padilla (the Philippines).

High-income countries show an increase in non-communicable diseases (NCDs) such as cancer, obesity and diseases associated with smoking, alcohol consumption and lack of exercise, highlighted Marmot. In low and middle income countries, he continued, even if NCDs are also on the rise, the economic burden of healthcare is mainly due to infections and diseases related to poor hygiene, poor food and poor water quality as well as poor access to primary education.

The aim of the workshop was to encourage scientists, who collect the data, and government representatives who draft and carry out policies for social change, to work combine their skills to ensure that concrete actions are taken to improve health.

IAMP is hopes to build on the success of this workshop by organizing regional workshops so that a wider audience of scientists, healthcare practitioners and policy-makers are made aware of the importance of social determinants of health.

Urban health

December 2014 inauguration of the ICSU-IAMP-UNU initiative on Urban Health, at the Institute of Urban Environment, Xiamen, China.

Since 2013, IAMP has partnered with the International Council for Science (ICSU) on an initiative to coordinate research into urban health with the ultimate goal of improving health in cities – which are now the dominant human habitat and where, for the foreseeable future, there will be the highest rates of population growth. Thus, it is essential to generate policy-relevant knowledge that will improve health status, reduce health inequalities and enhance the wellbeing of populations living in urban environments.

A workshop to establish a workplan for the ICSU-IAMP-United Nations University (UNU) initiative was held in Xiamen, southern China, on 8-10 December 2014. The meeting was hosted by the newly appointed executive director of the initiative, Franz Gattweiler, based at the Institute of Urban Environment in Xiamen.

Health education

A health education programme is currently being trialled as part of the primary school curriculum in the Rome/Lazio region of Italy. After some preliminary methodological tests funded by a donation from the *Fondazione Roma - Terzo Settore* to the *Accademia Medica di Roma*, the five-year pilot project, which matches the duration of primary education in Italy, is now supported by IAMP and IAP. Led by the *Accademia Nazionale dei Lincei*, teaching of the new syllabus – which is based on inquiry-based health education – kicked off in October 2013, with the second year of teaching starting in October 2014 (see pages 36-37).

For additional information about IAMP, visit: www.iamp-onlline.org

InterAcademy Council (IAC)

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.

For these policy-relevant activities, IAC collaborates closely with IAP, the InterAcademy Medical Panel (IAMP), the International Council of Academies of Engineering and Technological Sciences (CAETS), and the International Council for Science (ICSU). The IAC secretariat is hosted by the Royal Netherlands Academy of Arts and Sciences (KNAW) in Amsterdam, with support from the US National Academy of Sciences (US NAS).

Building African capacity

In late 2013, IAC embarked on a review of the African Science Academy Development Initiative (ASADI). This was an 11-year, US$20 million capacity-building initiative, sponsored by the Bill and Melinda Gates Foundation and undertaken by the US NAS and the Institute of Medicine.

The evaluation committee was made up of Turner T. Isoun, former Minister of Science and Technology of the Federal Republic of Nigeria (chair); Mostapha Bousmina, chancellor of the Hassan II Academy of Science and Technology in Morocco; Heide Hackmann, executive director of ICSU; Anne Mills, vice-director of the London School of Hygiene and Tropical Medicine; and Mu Rongping, director-general of the Institute of Policy and Management of the Chinese Academy of Sciences. Ruth Cooper of the Royal Society, UK, acted as the study director for the project, while the study coordinator was Dorothy Ngila of the Academy of Science of South Africa.

The evaluation process involved several committee meetings and site visits to the primary ASADI partner academies in Cameroon, Ethiopia, Nigeria, South Africa and Uganda, as well as the analysis of data provided by the ASADI programme and by the African academies.

The committee's report, 'Enhancing the Capacity of African Science Academies: The final evaluation of ASADI', was released in prepublication form in November 2014 at the 10th Annual Meeting of African Science Academies (AMASA-10) in Kampala, Uganda. The review concluded that ASADI has been a significant success – both in terms of meeting its stated objectives and in its wider positive impacts on the trajectory of the African science academies that it supported. The report also makes recommendations on how the African science academies can build on the success of ASADI, and lays out a strategic vision for future academy development in Africa.

Research integrity

Work continued on the 'Scientific Responsibility and Research Integrity' project. The project has been undertaken in two phases.

Phase 1 was jointly sponsored with IAP and produced 'Responsible Conduct in the Global Research Enterprise: A policy report', released in 2012. The work during Phase 2 has focused on developing a guide to responsible conduct in the global research enterprise, which will be released in 2015. While the main target audiences for this guide are students and young investigators, other audiences, including teachers, are also expected to benefit from this report. Given the growing global recognition of the essential nature of education concerning the responsible conduct of research, demand for the guide is expected to be strong.

For additional information about IAC, visit: www.interacademycouncil.net

IAC executive director Tom Arrison, ASADI review panel chair Turner Isoun, study director Ruth Cooper and study coordinator Dorothy Ngila.

Turner Isoun, chair of the IAC ASADI rewiew panel, presents the evaluation report to Enriqueta Bond, chair of the ASADI board, 10 November 2014, Kampala, Uganda.

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 2014 follow.

ACTIVITIES

Science Education; Science Literacy

Lead academy: Academy of Sciences Malaysia

The IAP Science Education Programme (SEP) is one of the flagship activities of the global network of science academies. Since its establishment in 2003, it has encouraged member academies to promote inquiry-based science education (IBSE) in their nation and regions. The programme is coordinated by a Global Council chaired by Dato Lee Yee Cheong, Malaysia. At the 2013 IAP General Assembly meeting in Rio de Janeiro, Brazil, it was agreed that the promotion of science literacy should be added to the IAP SEP mandate.

During 2014, a number of events promoting science education and science literacy were organized by IAP's regional affiliated networks, other networks, and member academies.

Science Education

The African European Mediterranean Academies for Science Education (AEMASE) Conference on Science Education, hosted by the *Accademia Nazionale dei Lincei*, took place in Rome, Italy, on 19-20 May 2014 (see pages 32-33). Although the focus was on Europe and Africa, science education experts from countries including Argentina, Australia, Malaysia, Mexico and the United States also attended and presented reports on the status of science education, particularly on IBSE pilot programmes and uptake, in their countries/regions.

A number of inquiry-based science education (IBSE) initiatives were presented, including *La Main á la Pâte* (LAMAP), which was established some 20 years ago by the *Acadèmie des Sciences*, France, and is now being replicated in such countries as Haiti and Senegal – both of which were represented at the meeting.

At the conference, H.E. Souad Abdelrazzak, Minister of Education for Sudan, noted that: "Education is the foundation on which our scientific progress is built – and science solves problems and creates opportunities for the future." She also mentioned that her ministry is working with UNESCO on a pilot project teacher-training that she hopes will be rolled out to cover 20,000 primary and 3,000 secondary schools in Sudan.

As a result of the conference, AEMASE is seeking funding from the European Union to twin academies in Africa (through NASAC) with European counterparts. In addition, IAP is also supporting AEMASE II with the organization of a conference scheduled to be held in Senegal in October 2015.

The other major event of the year was the IAP SEP Biennial Conference, hosted by the Chinese Association of Science and Technology (CAST), in Beijing, on 28-30 September 2014.

The conference focused on 'Challenges and Opportunities of Inquiry Based Science Education (IBSE) / Science, Technology, Engineering and Mathematics (STEM) Education' and brought together 136 participants, including 28 from 19 countries outside China. The conference was opened by Cheng Donghong, vice president of CAST, who noted that IBSE had been implemented in China for more than 10 years with great success.

In his keynote address, Dato Lee Yee Cheong, chair of the IAP SEP Global Council, noted that the IAP programme promoting IBSE had been taken up by many developed countries but less so in developing countries where teaching resources are not always available. This is partly, he said, because academies of science tend to have stronger links with their respective ministries of science.

"We need to connect with the ministries of education," he said, "so we can directly relate to the schools. The success we have heard about in China is because of the collaboration between CAST and the Chinese Ministry of Education. This is vital to promote IBSE."

The meeting ended with the IAP SEP Global Council drafting the 'Beijing Declaration', which was subsequently endorsed by the IAP Executive Committee. The Declaration, which was released to the public and presented to high-level personnel at UNESCO and elsewhere on 1 November 2014, calls on IAP member academies, governments, the private sector and UNESCO to strengthen science education around the world – with a focus on the proven methods of inquiry-based science education (IBSE).

Indeed, one characteristic of the IAP SEP is the effort made to engage regularly with UNESCO, including Director-General Irina Bokova, as well as the Assistant Director-General for Natural Sciences and the ADG for Education.

With regard to regional activities, a number of events were organized by the Network of African Science Academies (NASAC) and the Inter-American Network of Academies of Science (IANAS). In particular, it was confirmed that the IAP SEP Global Council representative for Africa, Elly Sabiiti, Uganda, was also appointed chair of the African Academy of Sciences (AAS) commission on science education, so forging strong links between various science education initiatives on the continent.

Science literacy

Among IAP's member academies and regional networks, science literacy, and in particular science communication, has been taken up most enthusiastically by the Association of Academies and Societies of Sciences in Asia (AASSA). In particular, AASSA organized two workshops, the first in Seoul, South Korea, on 12-13 June 2014, the second in New Delhi, India, in October. Both meetings were attended by IAP co-chair Volker ter Meulen.

The Soul meeting, 'Science Literacy: Science communication and science outreach', was organized by the Korean Academy of Science and Technology (KAST)

and the Academy of Sciences Malaysia (ASM), supported by AASSA, IAP and the International Science, Technology and Innovation Centre for South-South Cooperation (ISTIC), Malaysia. More than 20 speakers presented their successful experiences from countries across Asia as diverse as China, India, Indonesia, Malaysia, Mongolia, the Philippines, South Korea, Thailand and Vietnam, and the proceedings have been made available on the IAP website.

Linked to the AASSA Executive Board Meeting and 2014 General Assembly Meeting, the 'International Symposium on SHER (Science, Health, Environment, Risk) Communication in Asia with a Special Focus on Science Festivals' was held on 15-16 October 2014 in New Delhi, India. It was organized by KAST, ASM and the Indian National Science Academy (INSA) again with support from IAP and ISTIC.

Again participants came from across Asia. Among the keynote speakers was ASM Fellow Noor Asmaliza Binti Romlee, who spoke on 'When Science Hits the Headlines: Managing public reaction during scientific controversies'. As well as plenary presentations, participants were challenged with questions such as: How can we evaluate science festivals?; How will we know if a festival is successful?; and How can we make a science festival successful? In response, checklists were developed that will help festival organizers plan and evaluate their events. Another discussion debated how to implement SHER communication in Asia in the future.

Following these two workshops, AASSA has established a standing committee on SHER communication with KAST as the lead academy. Working with the IAP SEP, the initiative will be supported by the Korean academy and the *Akademi Sains Malaysia*.

Participants at the IAP Science Education Programme's biennial conference, held on 28-30 October 2014 in Beijing, China.

Panel session at the IAP Science Education Programme's biennial conference, held on 28-30 October 2014 in Beijing, China.

Participants at the IAP Science Education Programme's biennial conference, held on 28-30 October 2014 in Beijing, China.

Members of the IAP Science Education Programme Global Council following their meeting on 30 October 2014 in Beijing, China.

African-European Network for Science Education (AEMASE)

Lead academy: *Accademia Nazionale dei Lincei* (Italy)

The first African European Mediterranean Academies for Science Education (AEMASE) Conference was held at the *Accademia Nazionale dei Lincei* in Rome, Italy, on 19-20 May 2014. The primary goal of the conference, organized by the academies of France, Italy, Morocco and Senegal, together with Egypt's *Bibliotheca Alexandrina*, was to encourage academies, mainly from European and African countries, to cooperate in the field of science education.

This first AEMASE conference brought together key players with a strong interest in promoting science education, specifically its renewal based on the inquiry-based science education (IBSE) approach that is also promoted by the IAP Science Education Programme (see pages 30-31). Another objective was to inform political and educational authorities of the importance of improving science teaching and learning in both developed and developing countries, as a driver of sustainable development.

The conference was opened by the president of the *Accademia Nazionale dei Lincei*, Lamberto Maffei, who welcomed the 75 representatives from 32 countries. Among the participants were those from the Italian Ministry of Education, the United Nations Education, Scientific and Cultural Organization (UNESCO), the European Commission, the French Embassy in Rome, the IAP Executive Committee, and the *Compagnia di San Paolo* foundation. The conference was also attended by the presidents of the Network of African Science Academies (NASAC), one of IAP's affiliated regional networks, the federation of All European Academies (ALLEA), and the Euro-Mediterranean Academic Network (EMAN), as well as the IAP Science Education Programme (SEP) chair, Dato Lee Yee Cheong of Malaysia, and the IAP SEP representative for the Inter-American Network of Academies of Science (IANAS). Sudan's Minister of Education, H.E. Souad Abdelrazzak, also attended, and noted that Sudan is working with UNESCO on a pilot teacher-training project that hopefully will eventually involve 20,000 primary and 3,000 secondary schools.

Participants obtained first-hand experience with the process of inquiry-based learning in a laboratory session run by trainers from *La Main à la Pâte* (LAMAP), a spin-off from the French *Académie des Sciences* that has been a driver of IBSE in schools worldwide for the past 20 years. LAMAP, for example, is working in such countries as Haiti and Senegal, both of which were represented at the conference.

An idea of establishing a long-term cooperation in science education between Europe and Africa, capitalizing on the experience gained in pilot projects on both sides of the Mediterranean, with funding being sought from the European and African Unions, was discussed.

The organizers and delegates highlighted the importance of promoting science education, especially IBSE, and agreed it was necessary:

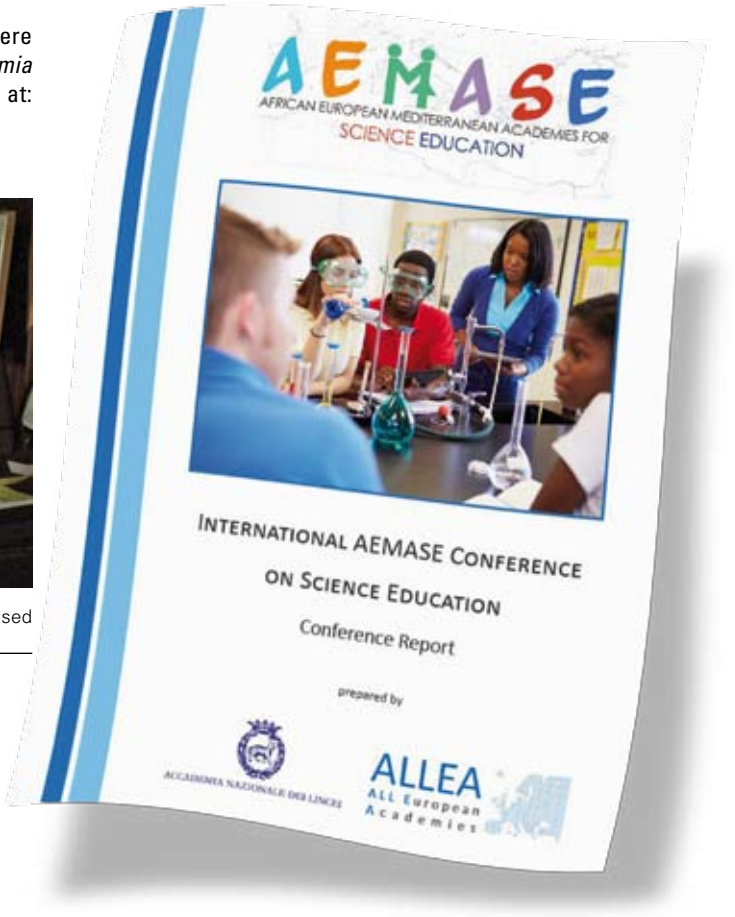
- to enhance cooperation and exchanges among academies and institutions within the Africa-European-Mediterranean region, as well as with other regions of the world, in the area of science education;
- to improve formal and informal science education through the implementation of IBSE in schools and the promotion of the professional development of teachers in the region; and
- to promote concrete actions aimed at attracting funding from regional and international organizations for the development of science education and science literacy.

Discussion session featuring Her Excellency Souad Abdelrazzak, Minister of Education for Sudan (third from right), at the AEMASE conference in Rome, May 2014.

Furthermore, the conference's organizing group agreed to promote and organize periodic AEMASE conferences to be held annually or biennially with the venue alternating between African and European countries.

Finally, the full proceedings of the conference were prepared by ALLEA and published by the *Accademia Nazionale dei Lincei*. They are available online at: *www.interacademies.net/Publications/26310.aspx*.

AEMASE conference participants learning about inquiry-based science education (IBSE) by undertaking a practical exercise.



Participants at the AEMASE conference on science education at the *Accademia Nazionale dei Lincei*, Rome, Italy, May 2014.

Examining Science Literacy Challenges

Lead academy: Korean Academy of Science and Technology (KAST)

Under the auspices of IAP and the Association of Academies and Societies of Sciences in Asia (AASSA), the Korean Academy of Science and Technology (KAST) organized two international workshops on science literacy.

The first, in collaboration with the Academy of Sciences Malaysia (ASM) was the 'KAST-ASM-IAP International Workshop on Science Literacy: Science communication and science outreach' held in Seoul, Republic of Korea, on 12-13 June 2014.

The second event, the 'KAST-ASM-INSA-IAP International Symposium', took place in New Delhi, India, on 15-16 October. Co-organized by KAST, ASM and the Indian National Science Academy (INSA), the meeting examined 'SHER (Science, Health, Environment and Risk) Communication in Asia with a Special Focus on Science Festivals', and was held in conjunction with the 2nd General Assembly of AASSA and the South Asian Science Academies' Seminar.

In total, the two events included 180 participants from 27 countries and had 39 presenters from 23 countries. At both events, the organizers specifically included participants from as many countries as possible, especially providing opportunities to those from countries where there are fewer science literacy activities.

Future direction

It was apparent following these two events that the IAP goal of improving scientific literacy, whether via formal science education or more informal science communication, is not a simple task that can be resolved by the simple diffusion of scientific knowledge to the public. Rather, the goal of scientific literacy must be considered within the context of other challenges prominent in Asia and elsewhere such as continuing population growth, epidemic diseases and shortage of energy and other resources and thus requires concerted efforts by all stakeholders, from policy-makers to the public. Indeed, as a society, there is a desperate need for a new paradigm for science education and science communication.

However, there is cause for optimism, especially in the Asia region. As noted by Hak-Soo Kim, chair of the organizing committees for the two events, the ingenuity and enthusiasm of Asian scientists, educators and others can be used to help develop such a new paradigm that can then be disseminated to other regions of the world.

AASSA is also committed to improving the effectiveness of science education and science communication in Asia. At its executive board meeting in New Delhi, for example, a Special Committee on SHER Communication was formed so that the Asian community of science academies, in tandem with IAP, will continue to put a special focus on the issue.

Participants at the 'KAST-ASM-IAP International Workshop on Science Literacy: Science communication and science outreach', held in Seoul, South Korea, on 12-13 June 2014.

Participants at the KAST-ASM-INSA-IAP International Symposium' on SHER communication, held in New Delhi, India, 15-16 October 2014.

Health Science Education

Lead academy: *Accademia Nazionale dei Lincei*, Italy

Healthy behaviours are of considerable importance for the prevention of primary diseases and, if learned at an early age, they encourage the awareness of skills needed to lead healthy lifestyles. The *Accademia Nazionale dei Lincei* is raising such awareness by trialling a health science education programme in a primary school.

The project, 'Assessment of Feasibility for a Health Science Education Programme in Compulsory Primary Schools', began at the start of the school year in September 2013 and continued through to June 2014 with four first-grade classes of the *Istituto Comprensivo Settembrini* primary school in Rome participating. It then continued in September 2014 with the same group of students as they started the second grade. The programme will continue for the next three years with the same students until they have completed their five-year primary school curriculum.

Based on the principles of inquiry-based science education (IBSE), widely promoted by IAP (see pages 30-31), participating children are introduced to various concepts. For example, in the first semester (September to December 2013), the concept of 'environment' was introduced to inform the children of its importance in promoting health and to highlight the continual exchange that exists between the individual and his/her surrounding social and physical environments. The teaching method adopted is based on the elaboration of the children's personal experiences and on their active participation in simple experimental activities.

Modules

During 2014, the last two teaching modules of the first grade and the first module of year two focused on the 'functional morphology' of some apparatuses of the human body (for example, locomotor, respiratory, digestive and cardiovascular apparatuses), as these can be understood in elementary terms through simple experimentation by young children in the pre-reading/writing phase.

The second module of the first year focuses on 'the human body and movement'. The major aims of this module are: to understand the general structure of the human body and to be able to distinguish the basic parts (head, neck, trunk, etc.); and to understand the general function of the bones, the joints, the skeleton and the muscles.

The final module of the first year focuses on 'the relations and exchanges between individuals and the environment' (in other words, 'what goes in and what comes out'). This module is divided into two sections that deal with 'the journey of the air' (investigating the respiratory tract) and 'the journey of food and beverages' (the digestive tract), respectively. The module aims at developing the pupils' awareness of the exchanges that occur continuously between human beings and the environment, and their relevance to the survival of an individual.

Also presented in 214 was the first module of the second year, which focuses on the physiology and function of the cardiovascular apparatus, the heart and the blood vessels.

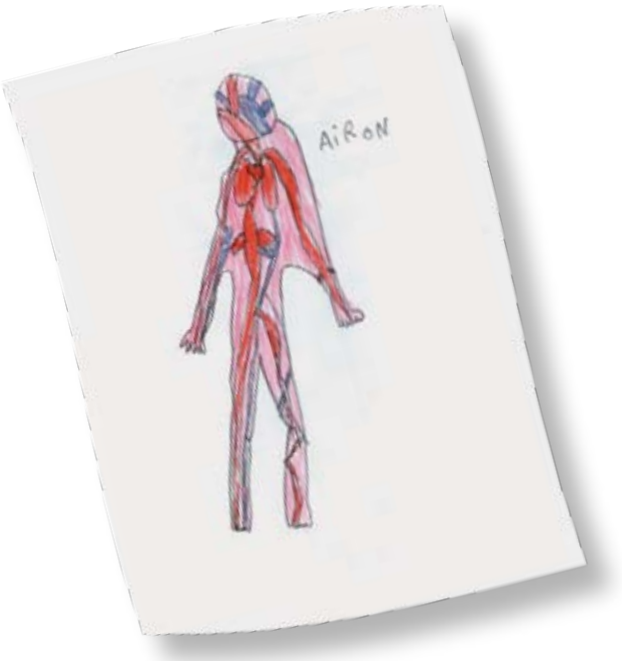
Teacher training

The project also focuses on building the skills of the teachers to guide the pupils in their 'discoveries'. The eight teachers involved participated in a preliminary two-day training programme aimed at improving their practice of evidence-based teaching. In addition, monthly meetings were focused on the evaluation of the work done, any required revisions of the designed teaching units, as well as operational aspects of the inductive method.

Evaluation

Evaluation of the results is based on the teachers' observations recorded in a 'day-to-day diary', and on 'evaluation sheets' prepared for each teaching module. Class activities aimed at evaluating the children's ability to ask questions, to argue, and to provide evidence for their arguments, have been performed.

Coordinated by *Accademia Nazionale dei Lincei* member Mario Stefanini, the ultimate aim of the project is to encourage lifelong healthy behaviours in schoolchildren and adolescents by providing them with the basic scientific knowledge needed to understand educational messages.



Drawings by the children involved in the project 'Heath Science Education in Compulsory Primary Schools'.

Mentoring African Medical Scientists

Lead academies: African Academy of Sciences (AAS) and Kenya National Academy of Sciences (KNAS)

The project, 'Capacity Building through Mentoring of African Scientists by Indian, Brazilian and Chinese Scientists in Cell Biology/Regenerative Medicine' is being implemented by the African Academy of Sciences (AAS), the Kenya National Academy of Sciences (KNAS) and the Indian National Science Academy (INSA).

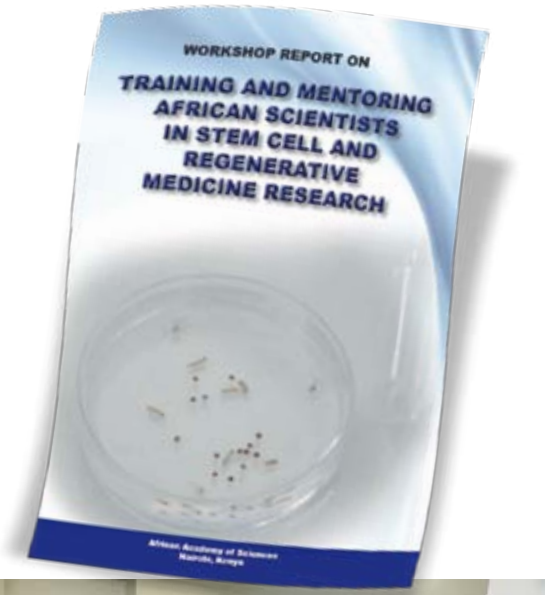
The goal of the project is to build capacity in Africa in cell biology and/or regenerative medicine by establishing mentee/mentor relationships between African scientists, below the age of 45, with distinguished scientists from India, Brazil and China.

The programme was initiated at a 2013 workshop in Nairobi, Kenya, on the theme 'Capacity Building in Cell Biology and Regenerative Medicine'. A second workshop, 'Training and Mentoring African Scientists in Stem Cell and Regenerative Medicine Research', funded by IAP, was held from 4-6 August 2014, again in Nairobi. This workshop consisted two days' of lectures and a day devoted to demonstrations and hands-on practical work. There were 33 attendees, including 15 young scientists who were able to interact with accomplished experts in the field These included Dorairajan Balasubramanian from the L.V. Prasad Eye Institute, India; José Garcia Abreu and Fabio Almeida Mendes from the Institute of Biomedical Sciences, Federal University of Rio de Janeiro, Brazil; Anjali Shiras from the National Centre for Cell Sciences, India; Omu Anzala, KAVI Institute of Clinical Research at the University of Nairobi, Kenya; Susan H. Kidson, University of Cape Town, South Africa; Venant Tchokonte-Nana, Stellenbosch University, South Africa; and Hiba BadrEldin Khalil Ahmed from Al Neelain University, Sudan.

A key outcome of the workshop was the identification of early career scholars to take part in the mentorship training phase of the programme during 2015. The selection of the mentees and placement in specialized laboratories was based on their areas of research interest and mentor-mentee interactions during the workshop.

Two mentees will go to India, one at the National Centre for Cell Sciences (NCCS), Pune, and the other at the L.V. Prasad Eye Institute in Hyderabad, while three others will receive training at the Institute of Biomedical Sciences of the Federal University of Rio de Janeiro, Brazil. In addition one candidate will spend time at the Institute for Cellular and Molecular Medicine, University of Pretoria, South Africa; and another will be trained in anatomy and histology at the Islet Research Laboratory, Stellenbosch University.

AAS is now exploring the possibility of holding a third workshop, in collaboration with the Stellenbosch Institute for Advanced Study (STIAS), and intends to build on its initial successes of this mentorship programme.



Young African scientists receiving practical training thanks to the 'Capacity Building in Stem Cell and Regenerative Biology' project led by the Kenya National Academy of Science and the African Academy of Sciences.

Working Group on Biosecurity

Lead academy: Polish Academy of Sciences.

Dual-use research or dual-use technology is defined, in both politics and diplomacy, as that which can be used for either peaceful or military purposes. Consequently, there is a great deal of international interest in monitoring which countries and/or laboratories are involved in dual-use research and its implications for non-peaceful purposes. In 2011, the Polish Academy of Sciences (PAS) was awarded a grant from IAP on 'Education in Biosecurity: Raising Awareness on Dual-use Issues' and has since been taking the lead in these activities within the inter-academy network.

The process of educating and raising awareness among academic and scientific communities on the dual-use dilemma is gaining in importance, especially at the current time when the threat of terrorism is a real danger facing society.

Led by the Polish Academy of Sciences, the IAP Biosecurity Working Group also includes academy representatives from Australia, China, Cuba, Egypt, India, Nigeria, Pakistan, Russia, the United Kingdom and the United States. In 2014, PAS continued working on biosecurity and dual-use issues and, through the Biosecurity Working Group, provides IAP with important visibility in the international policy-making arena.

Conference

A conference, 'Dual use of Innovative Technologies', was held in Poznan, Poland, on 16 May 2014. The meeting, attended by 85 participants, including 50 life-science students, was organized under the patronage of Poland's Ministry of Foreign Affairs, and co-organized by the Polish Academy of Sciences, Poznan University of Economics, the Office of Agricultural Affairs of the American Embassy in Warsaw, the IAP Working Group on Biosecurity, the PAS Committee for Biotechnology and the Institute of Bioorganic Chemistry of the PAS.

Łukasz Różycki, Ministry of Foreign Affairs, Poland, speaking at the conference on 'Dual-use of Innovative Technologies', organized by the Polish Academy of Sciences and partners in Poznan, Poland, on 16 May 2014.

Andrzej Górski , Polish Academy of Sciences and chair of the IAP Biosecurity Working Group, at the 'Dual-use of Innovative Technologies' conference in Poznan, Poland, 16 May 2014.

Detailed discussions revolved around international legislation procedures related to the potential dual-use of innovative technologies, taking into account such international agreements as the 1925 Geneva Protocol, the Biological and Toxin Weapons Convention, the Chemical Weapons Convention, and the United Nations (UN) Security Council Resolution 1540. Subjects discussed included the challenges connected with the use and misuse of new technologies and potential risks to national and international security, as well as the lack of awareness among scientists and the lack of coordination of actions aimed at including 'dual-use education' as a standard part of the training life scientists receive. Indeed, as proposed by Jo Husbands of the US National Academy of Sciences and a member of the IAP Biosecurity Working Group, a key recommendation from the conference was that: "An introduction to dual-use issues should be a part of the education of every life scientist."

In Geneva

Many of the UN meetings relating to international conventions take place in Geneva, Switzerland. In an effort to raise awareness of dual-use issues among the participants of such meetings, the IAP Biosecurity Working Group participated in a number of events held in the city.

A 'Workshop on Advances in Understanding Pathogenicity' held on 3 August 2014, immediately prior to the Meeting of Experts (MXP) of the Biological Weapons Convention (BWC), was organized with the aim of directly engaging technical experts involved in the BWC discussions and providing up-to-date scientific information relevant to the ensuing MXP. The workshop, attended by over 30 experts in the field, was dedicated to opportunities and challenges of two complementary issues: (i) strategies for targeting pathogen virulence factors and examples of the modification of the immune response to a pathogen; and (ii) the implications of this research for the Biosecurity Working Group and biosecurity in general.

The MXP of the BWC took place on 4-8 August 2014 and Ryszard Słomski, coordinator of the IAP Biosecurity Working Group, highlighted its activities in the area of awareness-raising of biosecurity issues during the time set aside for statements by non-governmental organizations.

Finally, Jo Husbands attended the Meeting of States Parties in Geneva, 1-5 December 2014. As a representative of the IAP Biosecurity Working Group, she took the opportunity to present the position of IAP. Both statements are available on the website of the UN Office at Geneva (*www.unog.ch/bwc*).

Some 85 participants, including 50 life-science students, attended the 'Dual-use of Innovative Technologies' conference in Poznan, Poland, on 16 May 2014.

Dual-use Education in Pakistan

Lead academy: Pakistan Academy of Sciences

The Pakistan Academy of Sciences, in collaboration with the Department of Biotechnology at Quaid-i-Azam University, Islamabad, has engaged in raising awareness and promoting education on concepts relating to the dual-use of research in the life sciences, especially in emerging disciplines like biotechnology.

Events

Five workshops were organized to involve and train young researchers and students with respect to dual-use research of concern. Overall the main objectives of these workshops were:

- to assess awareness levels in young researchers (via a questionnaire evaluation);
- to provide education on dual-use research of concern (via lectures delivered by various experts); and
- to develop a sense of self-evaluation in scientists so that they recognize their ethical responsibilities (through poster presentations and student group activities).

Participants at the 'Strengthening the Culture of Responsibility: Dual-use research and biosecurity' workshop, 23-24 May 2014, Chitral, Pakistan.

High-level panel at the 'Policy-makers' and Practitioners' Awareness Workshop on Dual-use Education' , 29-30 March 2014, Islamabad, Pakistan.

The first event, the 'International Workshop on Raising Awareness on Dual-use Concerns in Biotechnology' was held on 25 March 2014 at Quaid-i-Azam University. This was followed by 'Strengthening the Culture of Responsibility: Dual-use Research and Biosecurity' on 23-24 May 2014 in Chitral, a remote area of Pakistan that borders Afghanistan. This workshop was a first of its kind in such a remote area, where information about dual-use research concerns was negligible. The third event, the 'Workshop on Responsible Conduct of Research', was held on 29 August 2014 at Shringal (Dir Upper) in the Khyber Pakhtunkhwa (North-west Frontier) province of Pakistan, again providing an excellent opportunity for students in a remote area to develop their skills in learning through mutual cooperation and active participation.

To bring the project to an effective conclusion, the project was extended and on 1 January 2015, a meeting was held at the Pakistan Academy of Sciences (PAS), Islamabad, to promote the responsible conduct of science. It was attended by 70 eminent scientists (including fellows of PAS) along with young scientists and researchers from various universities. The meeting emphasized that imparting dual-use education can be accomplished through scientific think-tanks, as well as via young scientists. In addition, questions concerning the strategies that should be adopted for the dissemination of information on dual-use research, as well as the role of PAS in this endeavour were discussed.

The final event was a two-day international workshop entitled 'Policy-makers' and Practitioners' Awareness Workshop on Dual-use Education', held on 29-30 March 2015 at the Pakistan Academy of Sciences. The workshop brought together policy-makers, stakeholders and practicing scientists, including young researchers, to discuss the importance of policies pertaining to dual-use research issues in the life sciences. It emphasized that the voice of scientists should be heard when new dual-use education-related policies and regulatory measures are being developed at the government level. Ara Thamassian, an invited expert from Harvard University, USA, pointed out that relevant risk-based research regulation mechanisms must be developed for each field of science.

Outcomes

All the workshops increased the understanding of issues such as research misconduct and compliance, threats to humans and the environment from potentially deadly pathogens created through emerging technologies such as genetic engineering and synthetic biology, as well as the need for codes of conduct to avoid both unintentional/accidental and intentional misconduct of research.

Furthermore, interactive sessions and students' poster presentations encouraged participants to share their ideas on dual-use research and to understand their responsibilities as scientists. According to the results of post-seminar questionnaires, while 50% of students participating in the first workshop had prior information about the topics discussed and were able to understand them easily, 30% appreciated receiving additional information. At the Chitral workshop, fewer than 35% of the participants indicated they had prior information about dual-use/misuse/biosecurity issues presented and the majority believed the workshop increased their understanding of the subject.

Overall, these awareness-raising activities have educated more than 250 life scientists per year about dual-research concerns. Moreover, the Pakistan Academy of Sciences has increased its credibility and reputation within the country by involving policy-makers and stakeholders in discussions on the dual-use dilemma.

Group activity – poster making – at the 'Strengthening the Culture of Responsibility: Dual-use research and biosecurity' workshop, 23-24 May 2014, Chitral, Pakistan.

HE Hiroshi Inomata, Japanese ambassador to Pakistan, at the 'International Workshop on Raising Awareness on Dual-use Concerns in Biotechnology, 25 March 2014, Islamabad, Pakistan.

Participants at the 'Strengthening the Culture of Responsibility: Dual-use research and biosecurity', organized by the Pakistan Academy of Sciences at Chitral, Pakistan, on 23-24 May 2014.

Participants at the 'Policy-makers' and Practitioners' Awareness Workshop on Dual-use Education', held in Islamabad, Pakistan, on 29-30 March 2014.

Science for Poverty Eradication

Lead academy: Brazilian Academy of Sciences

The IAP Conference 'Science for Poverty Eradication and Sustainable Development: a Call for Action', took place in Manaus, Brazil, on 3-5 December 2014. Coordinated by the Brazilian Academy of Sciences and organized by the IAP Science for Poverty Eradication Committee (SPEC, see page 55), the conference brought together 30 experts from 23 different countries to discuss critical issues that severely impact the poor.

Throughout the event, the mobilization of the international scientific community in the efforts to help eradicate poverty and contribute to the design of the post-2015 development agenda, and subsequent implementation of the Sustainable Development Goals (SDGs), was seen as a paramount challenge. Engaging the world's science academies in this process is an important step in this direction, and is part of the core mission of the IAP SPEC.

Partners engaged in the organization of the conference were the UN Food and Agriculture Organization (FAO), the International Hydrological Programme of UNESCO (IHP-UNESCO), the World Health Organization (WHO), and the International Social Science Council (ISSC). The meeting itself included sessions on 'Science for Food Security: Tackling the challenge of feeding the world', 'Science for Water Security: Enhancing global access to water', 'Science for Health: Ensuring universal access to health', and 'Building Equity through Social and Economic Policies'.

Another highlight of the conference was the final session on 'Science for Poverty Eradication and Sustainable Development', organized with the support of the Sustainable Development Solutions Network (SDSN-UN). Senior UN advisor Jeffrey Sachs attended as a keynote speaker alongside representatives from eight science academies from Africa, the Americas, Asia and Europe. The session thus provided the opportunity to exchange views and experiences, and reaffirm the commitment of engaging academies in the global effort aimed at the design and subsequent implementation of the SDGs. This commitment was clearly embraced by all participants, and welcomed by Jeffrey Sachs, who congratulated the IAP SPEC for organizing the conference and highlighted the importance of IAP's support in future UN meetings where the SDGs will be discussed.

The IAP SPEC is currently synthesizing the discussions that took place during the workshop with the aim of developing a workplan for future activities on this critical issue.

Keynote speaker, Jeffrey Sachs, a world-leading expert on economic development and the fight against poverty, speaking at the IAP conference 'Science for Poverty Eradication and Sustainable Development: A call for action', held in Manaus, Brazil on 3-5 December 2014.

Opening session of the IAP conference 'Science for Poverty Eradication and Sustainable Development: A call for action', held in Manaus, Brazil on 3-5 December 2014.

Jacob Palis, president of the Brazilian Academy of Sciences, at the IAP conference 'Science for Poverty Eradication and Sustainable Development: A call for action', held in Manaus, Brazil on 3-5 December 2014.

Session on 'Science for Water Security: Enhancing global access to water' at the IAP conference 'Science for Poverty Eradication and Sustainable Development: A call for action'.

Session on 'Science for Health: Ensuring universal access to health' at the IAP conference 'Science for Poverty Eradication and Sustainable Development: A call for action'.

Session on 'Building Equity through Social and Economic Policies' at the IAP conference 'Science for Poverty Eradication and Sustainable Development: A call for action'.

Global Young Academy

Lead academy: Global Young Academy (GYA)

The Global Young Academy (GYA) was officially founded in February 2010 with the support of IAP. 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.

With support from IAP, GYA was able to build its global presence in 2014 through a number of national and international meetings.

International conference

The GYA 4th International Conference was held on 21-25 May 2014 in Santiago de Chile, Chile. The meeting marked the first time the GYA convened in South America and helped to increase interest in the GYA on the continent. Entitled 'Natural Resources in a Finite World', the conference focused on the management of natural resources and improving the use of intellectual and cultural resources for sustainable development. In total, 105 scholars attended, bringing 78 GYA members from around the world together with Chilean young scientists and scientific leaders. The conference featured distinguished speakers including Jorge Sequeira (UNESCO representative in Chile), Angélica Bucio (communications officer, ICSU Regional Office for Latin America and Caribbean), Juan Asenjo (president, Chilean Academy of Sciences), Howard Alper (chair, Government of Canada's Science, Technology and Innovation Council), and Jorge Allende (Chilean Academy of Sciences), who proposed a threefold strategy to communicate science to society more effectively.

A panel of distinguished guests and GYA members stressed the importance of indigenous knowledge in the stewardship of natural resources. A plenary panel on the GYA as a science advisor argued that, for the GYA to have a significant impact, its strategic approach should be based on informing choices and supplying options to the global community. A meeting of representatives of national young academies preceding the GYA conference paved the way for a second worldwide meeting of young academies in 2015.

The GYA also took the opportunity to hold its general assembly in Chile, inaugurating 45 new young scientists to its membership.

National young academies

In 2014, six national young academies were established with the support of the GYA: in Canada, Egypt, Ghana, India, Kenya and Vietnam. As an example, after several years of effort by Egyptian GYA members, including a GYA mission to Egypt in 2012, the Egyptian Young Academy of Science was launched on 18 September in Cairo. At the launch, Heidi Wedel, GYA managing director, presented the GYA, the international young academy movement, and the support that the GYA can offer for the development and networking of national young academies.

In addition, in January, two GYA representatives and IAP co-chair Volker ter Meulen met with representatives from the Royal Academy of Exact, Physical and Natural Sciences of Spain and the Spanish Ministry of Science and Technology to encourage the formation of a Spanish young academy. Prior to the meeting, the idea had been conveyed to a general Spanish audience via a letter published in the leading Spanish newspaper, *El Pais*.

Meeting in Trieste

In February, GYA co-chair Sameh Soror and Heidi Wedel presented the GYA's activities at a meeting of the world's major scientific organizations and networks in Trieste, Italy. The interactions reinforced the already strong cooperation with the IAP and contributed to developing relationships with UNESCO, the International Council for Science (ICSU), TWAS and the Organization for Women in Science for the Developing World (OWSD). As a result, for example, a researcher associated with the GYA 'Global State of Young Scientists' report (GloSYS) was invited to the ICSU/International Social Science Council (ISSC) young scientists' conference to present the GYA and the preliminary results of the GloSYS study.

EuroScience Open Forum

At the EuroScience Open Forum in Copenhagen, Denmark, on 21 June 2014, GYA members Catherine Beaudry, Canada, and Martin Dominik, UK, organized a well attended session on 'What environment is required to fulfil the role of a scientist'. Young scientists face a multitude of challenges in their research environments with increasing pressure to perform and conform, so in some cases diversifying beyond traditional niches is the only way forward. The session drew on two GYA studies: GloSYS, on the challenges and opportunities of young scholars and 'Perceptions of Research Excellence in Thailand and Japan', that assessed the research environment, the promotion of opportunities, and the structures that ensue from assessment criteria in those countries.

Disaster risk reduction

Jauad El-Kharraz, France/Morocco, represented the GYA in the delegation to the UN Preparatory Committee Meeting for the Third UN World Conference on Disaster Risk Reduction, which took place in Geneva, Switzerland, on 14-15 July 2014. As a member of the Science & Technology Major Group he contributed actively to a joint plenary statement as well as other facets of the meeting.

New Champions

Five GYA members were invited to the World Economic Forum Annual Meeting of New Champions, which took place in Tianjin, China, on 10-12 September 2014. Selected from among the five, Ivana Gadjanski, Serbia, participated

Participants at the GYA 4th international conference, held on 21-25 May 2014 in Santiago, Chile.

as a panelist in the 'Gender in STEM' discussion and represented young scientists in the 'New Champions Plenary', sharing what grand challenges and global issues are driving her work to shape a better future. The GYA are continuing discussions with WEF with regards to future cooperation.

STS Forum

Each year, the Science and Technology in Society (STS) Forum convenes in Kyoto, Japan, bringing together scholars and researchers with policy-makers, business leaders and media leaders from all over the world to meet and discuss science and technology issues in the 21st century. This year's meeting, held on 5-7 October, had a special session for young leaders. This provided a valuable forum for discussions with leading academics and decision-makers on topics of importance for the GYA, such as research integrity, multidisciplinarity, open access to scientific information, and the importance of education.

GYA in Africa and the Middle East

In order to reinforce cooperation with the Network of African Science Academies (NASAC) and its member national academies, as well as on the GYA GloSYS Africa project, GYA member Fridah Kanana, Kenya, attended the 10th Annual Meeting of African Academies (AMASA-10) on 10-12 November in Uganda. She highlighted the concerns of young researchers, including the lack of mentorship from senior researchers and the need to support the establishment of more young academies, a call that was supported by IAP co-chair Mohamed Hassan.

In 2013, GYA members made significant contributions to the elaboration the Global Research Council's (GRC) 'Shaping the Future' policy statement, which was formally adopted in 2014. Subsequently, GYA representatives were invited to GRC regional meetings in 2014. Sameh Soror attended the GRC regional meeting for the Middle East and North Africa region, presenting the GloSYS study and highlighting recommendations from the GYA grant mechanisms statement, such as optimizing the use of expensive facilities in the region. At the GRC Africa regional meeting, Fridah Kanana discussed the follow-up to the GloSYS study with a particular focus on Africa.

Interactive session at the GYA 4th international conference held in Santiago, Chile.

GYA member James Tickner, Australia, speaking at the GYA 4th international conference held in Santiago, Chile.

GYA co-chairs Eva Alisic (front left), Sameh Soror (front centre) with GYA managing director Heidi Wedel (front right) with other GYA executive committee members at the GYA 4th international conference held in Santiago, Chile.

Women and Academies of Science

Lead academy: Academy of Science of South Africa (ASSAf)

The Academy of Science of South Africa (ASSAf) is investigating the role of women in IAP member academies.

Through the project 'Women for Science: Inclusion and participation in IAP member science academies', ASSAf conducted a survey of academies, asking for details about:

- the number of women in the academy and their participation in the academy's governance structures;
- the number and proportion by discipline (biology, chemistry, mathematics, medicine, physics, etc.) of female Fellows among the academy's membership;
- the involvement of women in policy advice and other academy activities; and
- the involvement of women in IAP activities.

The survey also asked for details on the policies and institutional structures in place within the different science academies to ensure the full inclusion of women.

Dorothy Ngila and Roseanne Diab (ASSAf), Adriana De La Cruz and Lilliam Alvarez (Inter-American Network of Academies of Science, IANAS), Jackie Olang (Network of African Science Academies, NASAC), Peter McGrath (IAP) and Tonya Blowers (Organization for Women in Science for the Developing World, OWSD) made up the steering committee that worked electronically to develop the survey and a plan of action. Nelius Boshoff, Stellenbosch University, South Africa, was appointed to the project and charged with analysing the responses to the questionnaires and preparing the final report. A similar questionnaire was circulated to IANAS member academies and ASSAf will include the results of this survey in its report.

Data collection was carried out using online surveys and electronic communication and, by April 2014, a sufficient number of IAP member academies had responded. A draft report was then prepared that has been circulated for comment by participating academies. The final draft report will be submitted for external peer review by the end of May 2015. Contact has been made with UNESCO (for its Global Science Report), as well as the journals Nature and *Science*, regarding dissemination of the report's findings. The results of the survey and resulting recommendations will be presented at the next IAP General Assembly, to be held in February/March 2016 at Hermanus, South Africa.

The results of the survey on the status of women in science academies around the world will help the academies and their networks to align their activities with the recommendations of the InterAcademy Council's (IAC) 2006 'Women for Science' report. It is also essential that data on the status of women in science is evaluated on a regular basis, not only by academy networks but also by individual IAP member academies.

A meeting of the AASSA special committee on Women in Science and Engineering (WISE).

Participants at the 8th AASSA regional workshop, 'Women in Science and Technology' held in Izmir, Turkey, on 29-30 May 2014 (see pages 14-15).

IANAS Women for Science focal points at a meeting in Ottawa, Canada (see pages 18-19).

Participants at the 8th AASSA regional workshop, 'Women in Science and Technology' held in Izmir, Turkey, on 29-30 May 2014 (see pages 14-15).

APPENDICES

Membership

IAP currently has a membership of 107 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 the IAP meetings and activities as observers

Observers

The 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) • InterAcademy Medical Panel (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) • InterAmerican Network of Academies of Sciences (IANAS) • InterAcademy Council (IAC) • Network of Academies of Science in Countries of the Organisation of Islamic Conference (NASIC)

Financial Summary

The total amount of funds received for activities in 2014 was USD1,741,644. The main contribution was from the Italian Ministry of Foreign Affairs (USD1,021,078), while additional contributions were received from the Royal Society, UK, the Israel Academy of Sciences and Humanities, the Council of Finnish Academies, the *Académie National des Sciences et Techniques du Senegal*, the *Academia Nacional de Ciencias del Uruguay*, the Korean Academy of Science and Technology (KAST) and the Union of German Academies of Sciences and Humanities as voluntary membership contributions to support IAP activities in 2014.

In addition, it is estimated that member academies and regional affiliated networks contributed some USD300,000 in in-kind support through the organization of conferences and workshops, the publication of reports, as well as the provision of staff time. In 2104, special mention should be made the *Accademia Nazionale dei Lincei* for their generous support towards the Joint IAP/IAC meeting in May and to the *Académie des Sciences*, for their support of the IAP executive committee meeting in Paris, France, from 6-7 November 2014.

Contributions were also made to the InterAcademy Medical Panel (IAMP) to support its secretariat and core activities, as well as towards the Reserve Fund, approved by members of the UNESCO/TWAS Steering Committee in February 2013. 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 2014 and 2015 (in USD)

INCOME[1]	2014	2015 (Expected)
Balance	746,394	507,723
1) Ministry of Foreign Affairs, Italy	1,021,078	884,000
2) Royal Society, UK	50,000	
3) Israel Academy of Sciences and Humanities	5,000	
4) Council of Finnish Academies	3,000	
5) *Académie National des Sciences et Techniques du Senegal*	2,103	
6) *Academia Nacional de Ciencias del Uruguay*	2,000	
7) Korean Academy of Science and Technology (KAST)	2,000	
8) Union of German Academies of Sciences and Humanities	1,000	
9) Interest	4,069	5,000
10) Transfer to IAMP	-95,000	-95,000
	1,741,644	**1,301,723**

[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	2014		2015
	Budget	Spent	Proposed Budget
1) Scientific Projects			
1.1) New Projects	406,000	387,473	124,000
1.2) Regional Network Programmes	620,500	492,000	380,000
1.3) Policy collaboration with IAC	70,000	-2,766	70,000
1.4) Fundraising for new activities			63,000
Sub-Total for (1)	1,096,500	876,707	637,000
2) Meetings and Conferences			
2.1) Conference for Young Scientists	10,000		25,000
2.2) Executive Committee Meetings/GA Conference/Travels	60,000	20,392	80,000
2.3) Development Advisory Committee/Meetings	30,000	5,774	
Sub-Total for (2)	100,000	26,166	105,000
3) Publications (Website/Brochure)			
3.1) Website	40,000	26,622	50,000
3.2) Other publications	10,000	10,731	20,000
Sub-Total for (3)	50,000	37,353	70,000
4) Operational Expenses			
4.1) Staff and Consultant Costs	400,000	311,442	400,000
4.2) Communications	5,000	2,559	15,000
4.3) Office and Other Supplies	10,000	17,742	20,000
4.4) ICTP services	40,000	40,000	40,000
Sub-Total for (4)	455,000	371,743	475,000
Total Expenditure	1,701,500	1,311,969	1,287,000
Savings on prior years' obligations		78,048	
Excess (Shortfall) of income over expenditure		**507,723**	**14,723**
Reserve Fund[1]			
Amount available at the beginning of period		**200,000**	**200,000**
Transfer from IAP account			
Reserve Fund balance end of period		**200,000**	**200,000**
Reserve and Regular Fund balances, end of period		**707,723**	**214,723**

[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
- German National Academy of Sciences 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)

- 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
- The 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*
- 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)
- Royal Netherlands Academy of Arts and Sciences (KNAW)
- 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 Committee**

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 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**
  Akademi Sains Malaysia
- **Ajaga Nji**
  Cameroon Academy of Sciences
- **Tara Dasgupta**
  Caribbean Academy of Sciences

Science Education Programme Committee (SEP Global Council)

- **Dato Lee Yee Cheong** *(Chair)*
  Malaysia
- **Derek Bell**
  UK
- **Hubert Dyasi**
  United States
- **Guillermo Fernandez de la Garza**
  Mexico
- **He Zhu**
  China
- **Petra Skiebe-Corrette**
  Germany
- **Mustafa El Tayeb**
  Sudan
- **Calestous Juma**
  Kenya
- **Mansoor Soomro**
  Pakistan
- **Park Won-Hoon**
  South Korea
- **John Boright**
  USA

Regional Activities supported by IAP in 2014

January

- Munich, Germany, EASAC working group meeting on 'Space Exploration', 28 January 2014

February

- Nairobi, Kenya, African Young Academies Regional Conference 'Accelerating Science for Development in Africa by Increasing the Momentum and Impact of National Young Academies', organized by NASAC and GYA, 3-5 February 2014
- Phnom Penh, Cambodia, 'AASSA Regional Workshop on Sustainable Development Goals of Water and Sanitation after MDGs', 12-13 February 2014
- Trieste, Italy, IAP, TWAS, ICSU and UNESCO high-level meeting, 18 February 2014
- Addis Ababa, Ethiopia, NASAC-EASAC workshop 'Promoting Agricultural Biotechnology for Sustainable Development in Africa', 25-26 February 2014

March

- Brussels, Belgium, launch event of EASAC Report 'Risks to Plant Health', 10 March 2014
- Brussels, Belgium, innovation convention with EASAC participation on 'Planting the Future-Crop Improvement Technologies', 10 March-11 March 2014
- Budapest, Hungary, EASAC 'Science-Into-Policy-Summit', 20 March 2014
- Podgorica, Montenegro, international conference 'Transition to a New Society', 20-22 March 2014
- Seoul, South Korea, inaugural expert meeting of Phase Two of the Sustainable Development in Asia (SDA) Project, 21 March 2015
- Islamabad, Pakistan, 'International Workshop on Raising Awareness on Dual Use Concerns in Biotechnology', 25 March 2014

May

Poznan, Poland, 'Dual use of Innovative Technologies', 16 May 2014

Rome, Italy, 'International Conference African European Academies for Science Education (AEMASE)', 19-20 May 2014

Santiago de Chile, Chile, '4th International Conference of Young Scientists & Annual General Meeting 2014 of the Global Young Academy', 21-25 May 2014

Chitral, Pakistan, 'Strengthening the Culture of Responsibility: Dual use Research and Bio-security', 23-24 May 2014

Izmir, Turkey, '8th AASSA Regional Workshop on Women in Science and Technology', 28-31 May 2014

June

- Seoul, Korea, KAST-ASM-IAP International Workshop on 'Science Literacy: Science Communication and Science Outreach', 12 -13 June 2014
- Mexico City, Mexico, IANAS symposium 'New Horizons in Science Meeting for Young to Mid Career Scientists', 22-23 June 2014
- Yerevan, Armenia, 9th AASSA Regional Workshop on 'Sustainable Management of Water Resources and Conservation of Mountain Lake Ecosystems of Asian Countries', 25-29 June 2014

July

- Seoul, South Korea, 'Asian Science Editors' Conference and Workshop', 2-4 July, 2014
- Brussels, Belgium, EASAC Brainstorming Workshop of GYA and JRC (Joint Research Centre), 11 July 2014

August

- Geneva, Switzerland, IAP Biosecurity Working Group 'Workshop on Advances in Understanding Pathogenicity', 3 August 2014
- Geneva, Switzerland, 'Developments in S&T Relevant to the Biological Weapons Convention (BWC)', 6 August, 2014
- Nairobi, Kenya, second workshop on 'Capacity Building in Cell Biology and Regenerative Medicine', 4-6 August 2014
- Shringal, Pakistan, workshop on 'Responsible Conduct of Research', 29 August 2014

September

- Pretoria, South Africa, NASAC working group meeting on 'Changing Disease Patterns in Africa: Recommendations to policy-makers', 11-12 September 2014
- Ottawa, Canada, IANAS 'Women for Science' focal points meeting, 20-22 September 2014
- Brussels, Belgium, launch event of EASAC-JRC Joint Policy Report 'Nuclear Fuel Cycle', 30 September 2014

October

- Pretoria, South Africa, NASAC working group meeting on 'Cimate change adaption in the African context', 1-2 October 2014
- Panama City, Panama, IANAS workshop 'Bridging Science and Policy to Enhance Water Security in Africa and the Americas', 14-19 October 2014
- New Delhi, India, 2nd AASSA General Assembly, in conjunction with the KAST-ASM-INSA-IAP international symposium on 'SHER Communication in Asia with a Special Focus on Science Festivals', 14-16 October 2014
- New Delhi, India, meeting of the AASSA Special Committee on Women in Science and Engineering (WISE), 16 October 2014
- Rabat, Morocco, launch event of the NASAC report 'The Grand Challenge of Water Security in Africa: Recommendations to policymakers', 15 October 2014
- Berlin, Germany, IAMP Young Physician Leaders workshop, 18-19 October
- Berlin, Germany, 'World Health Summit', 19-22 October
- Addis Ababa, Ethiopia, NASAC working group meeting on 'Harnessing Modern Agricultural Biotechnology for Africa's Socio-Economic Development', 27-28 October 2014
- Beijing, China, IAP Science Education Programme Biennial Conference and meeting of the IAP SEP Global Council, 28-30 October 2014

November

- Kampala, Uganda, 10th Annual Meeting of African Science, 10-12 November, 2014
- Managua, Nicaragua, IANAS workshop 'Identify Major Scientific and Technical Questions that should be Investigated in Association with the Construction of a Transoceanic Canal through Nicaragua', 10-12 November 2014
- Buenos Aires, Argentina IANAS-supported Ibero-American Symposium on 'Inquiry Based STEM Education (IBSTEME)', 6 November 2014

December

- Manaus, Brazil, IAP Conference 'Science for Poverty Eradication and Sustainable Development: a Call for Action', 3-5 December 2014
- Xiamen, China, ICSU-IAMP-UNU Urban Health workshop, 9-10 December

Publications supported by IAP in 2014

- **IAP Annual Report 2013**
  Published by: IAP, the global network of science academies
  URL: http://www.interacademies.net/Publications/25840.aspx

- **IAP Statement on 'Realising Global Potential in Synthetic Biology: Scientific Opportunities and Good Governance'**
  Published by: IAP, the global network of science academies
  URL: http://www.interacademies.net/10878/Scientific_Opportunities_and_Good_Governance.aspx

- **World View: Time to settle the synthetic controversy, by IAP co-chair V. ter Meulen**
  Published by: Nature
  URL: http://www.nature.com/news/time-to-settle-the-synthetic-controversy-1.15169

- **Building a Better World through Science: Case for support**
  Published by: IAP, the global network of science academies, the InterAcademy Medical Panel, and the InterAcademy Council
  URL: http://interacademies.net/File.aspx?id=26336&preview=true

- **Beijing Declaration: Challenges and Opportunities of Inquiry based Science Education (IBSE)/Science, Technology, Engineering and Mathematics (STEM) Education**
  Published by: IAP Science Education Programme
  URL: http://www.interacademies.net/Publications/25913.aspx

- **Changing Patterns of Non-communicable Diseases (NCDs), proceedings InterAcademy Medical Panel (IAMP) conference**
  Published by: Academy of Science of South Africa (ASSAf)
  URL: http://www.assaf.co.za/wp-content/uploads/2015/05/Non-Communicable-Diseases.pdf

- **Sustainable Development Goal of Water and Sanitation after MDGs**
  Published by: Association of Academies and Societies of Sciences in Asia (AASSA) and Korean Academy of Science and Technology (KAST)
  URL: http://www.interacademies.net/Publications/25136.aspx

- **Report of the TÜBA-AASSA Regional Workshop on 'Women in Science & Technology'**
  Published by: Turkish Academy of Sciences (TÜBA) and Association of Academies and Societies of Sciences in Asia (AASSA)
  URL: http://www.interacademies.net/Publications/24900.aspx

- **AASSA brochure 2015-2016**
  Published by: AASSA, Association of Academies and Societies of Sciences in Asia
  URL: http://aassa.asia/common/download/2015_AASSA_Brocure_final_v2.pdf

- **Promoting Agricultural Biotechnology for Sustainable Development in Africa**
  Published by: EASAC, European Academies Science Advisory Council
  URL: http://www.interacademies.net/Publications/24796.aspx

- **Risks to Plant Health: European Union priorities for tackling emerging plant pests and diseases**
  Published by: EASAC, European Academies Science Advisory Council
  URL: http://www.easac.eu/fileadmin/PDF_s/reports_statements/EASAC_24_RisksPlantHealth_FullReport.pdf

- **Shale Gas Extraction: Issues of particular relevance to the European Union**
  Published by: EASAC, European Academies Science Advisory Council
  URL: http://www.easac.eu/home/reports-and-statements/detail-view/article/shale-gas-ex.html

- **Antimicrobial Drug Discovery: Greater steps ahead**
  Published by: EASAC, European Academies Science Advisory Council
  URL: http://www.interacademies.net/Publications/25619.aspx

- **European Space Exploration: Strategic considerations of human versus robotic exploration**
  Published by: EASAC, European Academies Science Advisory Council
  URL: http://www.interacademies.net/Publications/25590.aspx

- **Diagnosis of Water in the Americas (English and Spanish versions)**
  Published by: IANAS, InterAmerican Network of the Academies of Science
  URL: http://www.interacademies.net/Publications/24955.aspx

- **The Grand Challenge of Water Security in Africa: Recommendations to policymakers**
  Published by: NASAC, Network of African Science Academies
  URL: http://www.interacademies.net/Publications/25140.aspx

- **Preventing a Tobacco Epidemic in Africa: A call for effective action to support health, social and economic development**
  Published by: ASSAf Academy of Sciences of South Africa, and NASAC, Network of African Science Academies
  URL: http://www.assaf.co.za/wp-content/uploads/2011/10/Africa-Tobacco-Control-FINAL-24-Jan-opti1.pdf

- **AEMASE International Conference Report on Science Education**
  Published by: Accademia Nazionale dei Lincei, Italy, and ALLEA, All European Academies
  URL: http://www.interacademies.net/Publications/26310.aspx

- **KAST-ASM-IAP International Workshop on Science Literacy: Science communication & science outreach, proceedings, June 2014, Seoul, Korea**
  Published by: Korean Academy of Science and Technology (KAST)
  URL: http://www.interacademies.net/File.aspx?id=25419

- **Training and Mentoring African Scientists in Stem Cell and Regenerative Medicine Research, workshop report**
  Published by: African Academy of Sciences
  URL: http://www.interacademies.net/Publications/26484.aspx

- **The Global State of Young Scientists, Project Report and Recommendations**
  Published by: GYA, Global Young Academy
  URL: http://www.interacademies.net/Publications/24897.aspx

- **GYA Response to the UN's High-Level Panel of Eminent Persons on the Post-2015 Development Agenda**
  Published by: GYA, Global Young Academy
  URL: http://globalyoungacademy.net/gya-publications/gya-response-science-in-post-2015-development-agenda

- **Report of the 1st Africa Young Academies Regional Conference, 3-5 February 2014, Nairobi, Kenya**
  Published by: GYA - Global Young Academy
  URL: http://globalyoungacademy.net/gya-publications/MeetingReport_1stAfricaRegionalMeeting2014_final.pdf

- **GYA Input to EU Commission's Consultation on 'Science 2.0'**
  Published by: GYA, Global Young Academy
  URL: http://globalyoungacademy.net/gya-publications/Science2.0_EUConsultation_GYAInput.pdf

- **Global Young Academy 2014: 12 stories**
  Published by: GYA, Global Young Academy
  URL: http://globalyoungacademy.net/gya-publications/GYA_2014_YearReview.pdf

Secretariat

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IAP Coordinator
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IAP Senior Project Assistant
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Muthoni Kareithi

Off site support provided by Anna-Maria Gramatté (Leopoldina)

IAP also runs an annual internship programme. Every year 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 it offers the opportunity to gain international experience in a multicultural environment. In 2014, Francesco Cecon, Italy, assisted the secretariat.

The IAP secretariat is hosted by The World Academy of Sciences (TWAS) – for the advancement of science in developing countries – on the campus of the Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste, Italy, and is supported financially by the Government of Italy. Additional administrative support is therefore provided by TWAS, especially Antonino Coppola, Marco Beltramini, Patricia Presiren and Ezio Vuck.

TWAS is a 'programme unit' of the United Nations Educational, Scientific and Cultural Organization (UNESCO), headquartered in Paris, France.

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