



the interacademy partnership

InterAcademy Partnership
ANNUAL REPORT
2017

Vision, Mission and Structure

The InterAcademy Partnership (IAP) is a global network of more than 130 academies of science, medicine and engineering that brings together the world's best scientific minds.

Individually and collectively, our member 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.

Thus, IAP has four main strategic priorities:

- Provide evidence-based policy-relevant science, health, engineering and technology advice and perspectives on global issues.
- Position the InterAcademy Partnership as a recognised provider of independent, high quality, evidence-based global science advice.
- Strengthen the global scientific enterprise.
- Champion science and health education and work towards a global citizenry with high levels of health and science literacy.

In addition, IAP aims to:

- Develop and strengthen the global network of science, medical and engineering/technology academies, IAP's regional networks of academies, and the InterAcademy Partnership's member academies.
- Develop and strengthen partnerships with other organizations.
- Strengthen IAP operations and its fundraising strategy.
- Develop and implement an innovative and effective communications strategy.

IAP has three components: IAP for Science and IAP for Health based in Trieste, Italy; and IAP for Research based at the US National Academies of Sciences, Engineering and Medicine in Washington, DC, USA.

Helping to make IAP's work relevant around the world, its individual member academies are grouped into four regional networks: the Association of Academies and Societies of Sciences in Asia (AASSA), the European Academies Science Advisory Council (EASAC), the Inter-American Network of Academies of Science (IANAS) and the Network of African Science Academies (NASAC).

By bringing its member academies together into regional and global networks, IAP aims to increase the visibility and impact of the activities of academies as they work together, speaking with 'one voice' to governments, international organizations and other stakeholders.



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InterAcademy Partnership Annual Report 2017

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We would like to thank colleagues from member academies, IAP regional networks, and other IAP programmes who supplied reports on their 2017 activities.

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

Graphic Design:

Mario Tiberio, Walter Gregoric,
Associazione Progettisti Grafici, Trieste, Italy

Cover artwork courtesy of:

Caracolla/Shutterstock.com

Printing:

La Tipografica Srl - Udine - Italia

The InterAcademy Partnership is hosted by:

The World Academy of Sciences (TWAS)

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Message from IAP Presidents

If 2016 was a year of reform and developing new strategies for the InterAcademy Partnership, then 2017 has seen our organization consolidate its place in the global science-policy arena with a number of strong projects and highly visible events.

Among our global projects, those supported by the German Federal Ministry of Education and Research (BMBF) and the two funded by the Carnegie Corporation of New York have been particularly active in 2017.

Respectively, these are the projects on 'Food and Nutrition Security and Agriculture' (FNSA), 'Improving Scientific Input to Global Policymaking: Strategies for Attaining the Sustainable Development Goals' and 'Harnessing Science, Engineering, and Medicine to Address Africa's Challenges'. Full reports of these activities – which we expect to be even more visible in 2018 as they move towards conclusion – are on pages 24-26.

In addition, we released two major statements in 2017– on 'Science and Technology for Disaster Risk Reduction' led by the Science Council of Japan, and on 'Climate Change and Education' led by the *Académie des sciences*, France. Both statements were released towards the end of the year at high-profile events and we expect their impact to be measurable as 2018 proceeds.

For the first time, IAP was also invited to participate in the Steering Committee of the World Science Forum – perhaps the world's foremost science-policy gathering. This biannual event, which switches venue between Budapest, Hungary, and a developing country host, is led by the Hungarian Academy of Sciences, the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the International Council for Science (ICSU). As part of the Steering Committee, IAP was able to contribute to the agenda for the meeting held at the Dead Sea, Jordan, and organize sessions that provided great visibility to the work that is being carried out by academies via the FNSA and other projects.

IAP's commitment to its other strategic priorities – including science education and supporting young scientists – also continued during 2017. The IAP Science Education Programme held its biannual conference in Khartoum, Sudan, in February, where it kick-started a new project to develop curriculum modules that will highlight the scientific contributions of different civilizations, especially those along the historic Silk Road (see pages 18-23). With regard to supporting the careers of young scientists, the annual training workshop for Young Physician Leaders (YPL) took place at the World Health Summit in Berlin, Germany, in October. This flagship IAP for Health project now counts more than 150 YPL among its alumni. This was followed in November by IAP working with other organizations, including the Global Young Academy, to bring some 50 young scientists together for soft-skills training and immersion in the science-policy arena at the World Science Forum in Jordan (see pages 27-29).

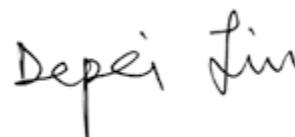
These are still early days in the development of the InterAcademy Partnership, but we believe that we can already see the signs of improved coordination among activities, broader involvement of our member academies, and greater impact of our efforts from national to regional and global scales.

We are also just a couple of years into the implementation phase of the UN's 2030 Development Agenda, and especially towards the realization of the Sustainable Development Goals (SDGs). With additional efforts from all our members, we believe that academies can – and will – help society achieve the SDGs and, through informed policies, help make the world a better, more equitable place for all.

Again, we look forward to working with you in the years ahead on our InterAcademy Partnership journey towards these noble ideals.



Volker ter Meulen



Depei Liu

IAP Presidents

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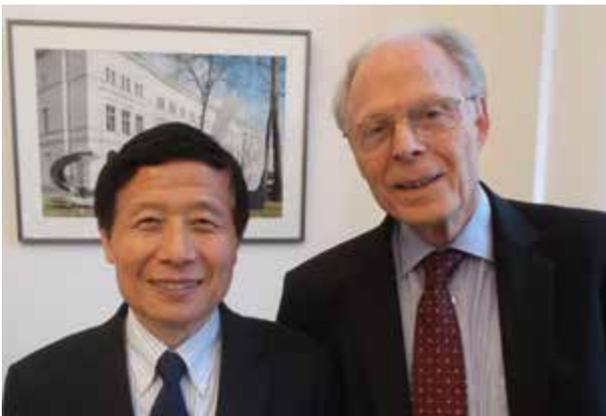
Looking Back: 2017

The InterAcademy Partnership (IAP) was officially founded in March 2016. The year 2017, therefore, saw the first full calendar year of IAP activity towards achieving its goals. As set out in the IAP Strategic Plan, the organization's four main priorities are:

- Promote a scientifically literate global society;
- Provide evidence-based advice and perspectives on global issues;
- Strengthen the global scientific enterprise; and
- Strengthen the global network, including supporting the work of IAP's regional networks, and the creation of new academies in countries where they are not yet present.

Much of the work towards achieving these goals is presented in the following chapters – see pages 18-23, for example, for the activities of the IAP Science Education Programme and its efforts to tackle the first priority, promoting a scientifically literate global society.

Governance



IAP Presidents, Depei Liu (co-chair, IAP for Health, China) and Volker ter Meulen (co-chair, IAP for Science, Germany)

Any organization is only as strong as its leadership and, over the years, IAP has been fortunate to have elected dynamic co-chairs to its three sections – IAP for Science, IAP for Health and IAP for Research.

In October 2017, a new board was elected for IAP for Research, with Daya Reddy (South Africa) re-elected as co-chair for the developing world, while Robbert Dijkgraaf (the Netherlands) stepped down having completed his two terms in office. The new co-chair representing developed countries for IAP for Research is Richard Catlow (UK). The complete list of board members is available on page 50.

As a result of these changes, Dijkgraaf's term as President of the InterAcademy Partnership was completed. Following IAP's rules of rotation, this meant that Volker ter Meulen (co-chair of IAP for Science) joined Depei Liu (co-chair of IAP for Health) as the two IAP Presidents.

IAP is also grateful to the US National Academies of Sciences, Engineering and Medicine (NASEM) for the renewal of its commitment to support the secretariat of IAP for Research. In a memorandum of understanding signed by

IAP and NASEM in September 2017, the IAP for Research secretariat will be hosted at the headquarters of the US NASEM in Washington DC for up to five years.

At the same time, it was confirmed that IAP for Research executive director, Tom Arrison, would step aside, being replaced by Teresa Stoepler.

The secretariat for IAP for Science and IAP for Health remains in Trieste, Italy, where it is hosted by The World Academy of Sciences (TWAS), and supported financially by the Italian Government via the administration of the United National Educational, Scientific and Cultural Organization (UNESCO).

Science for policy



The second of IAP's main strategic priorities is to provide evidence-based advice and perspectives on global issues. This is frequently done through the preparation of 'IAP Statements' on topical issues which are released once the final text has been endorsed by the majority of IAP member academies.

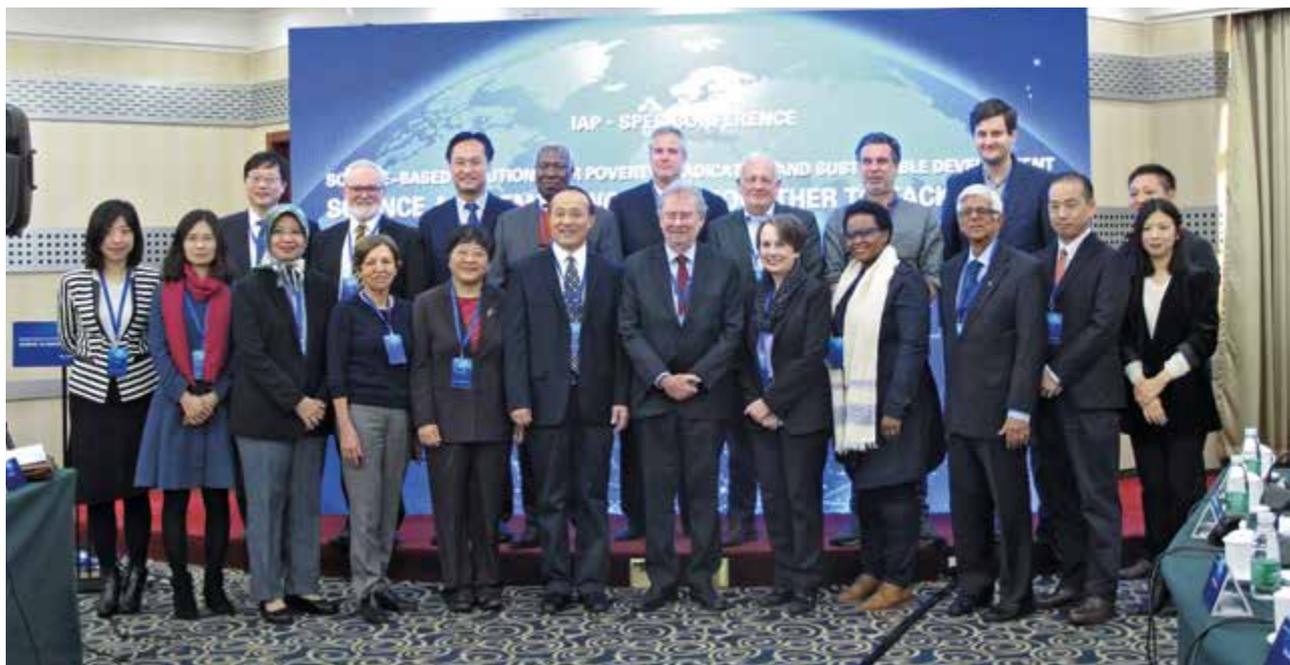
Two such Statements were released in 2017.

The Science Council of Japan led the preparation of the IAP Statement on 'Science and Technology for Disaster Risk Reduction', which was released on 25 November at the 'International Conference on Science and Technology for Sustainability 2017 - Global Forum on Science and Technology for Disaster Resilience 2017', held in Japan.

Shortly thereafter, on 11 December, the IAP Statement on



In anticipation of Italy hosting the G7 Summit in May 2017, Sergio Mattarella, President of Italy, addresses academy leaders after being presented with three G7 academy statements by Alberto Quadrio Curzio, president of the *Accademia Nazionale dei Lincei*.



Participants at the IAP Science for Poverty Eradication Committee (SPEC) workshop, Beijing, hosted by the Chinese Academy of Sciences. (Credit: Jianlan Song, BCAS).

'Climate Change and Education', led by the *Academie des Sciences*, France, was released in Paris, to coincide with the One Planet Summit held under the auspices of the President of France, Emmanuel Macron (see page 22).

Various IAP members were also involved in the drafting of three statements that were presented to the President of Italy, Sergio Mattarella, and other State leaders on the occasion of Italy hosting the G7 Summit in May. These statements covered the looming crisis of ageing and neurodegenerative diseases, the protection of cultural heritage from natural disasters, and research funding. Of particular note, the G7 academies' statement on the protection of cultural heritage from natural disasters owed its origins to the 'Charter of Rome on the Resilience of Art Cities to Natural Catastrophes', signed by IAP and the *Accademia Nazionale dei Lincei* in 2016.

IAP also contributed to a meeting of the IAP Science for Poverty Eradication Committee (IAP SPEC) held in Beijing



Wang Yi, vice president of Institutes of Science and Development (ISD), Chinese Academy of Sciences (CAS), addresses participants at the IAP Science for Poverty Eradication Committee (SPEC) workshop, Beijing, hosted by CAS. (Credit: ISD, CAS).



On the occasion of the presentation of three G7 academy statements in Rome, IAP for Science co-chair, Krishan Lal, signs the guest book of the *Accademia Nazionale dei Lincei*, watched over by president of the *Lincei*, Alberto Quadrio Curzio.

on 9-10 December. The IAP SPEC was established as a recommendation of the IAP 2013 General Assembly held in Rio de Janeiro, Brazil, and is led by the Brazilian Academy of Sciences (ABC). It has as its core mission the development of a strategy to engage science academies in the global effort to eradicate poverty and transform economies through sustainable development. Its first meeting was held in Manaus, Brazil, in December 2014. This second meeting, hosted by the Chinese Academy of Sciences (CAS), received support from ABC, CAS and IAP, including through funds for the project 'Improving Scientific Input to Global Policymaking: Strategies for Attaining the Sustainable Development Goals' (see pages 24-25). A report of the meeting will be published in 2018.

The IAP Food and Nutrition Security and Agriculture (FNSA) programme, which began in 2015 with support from the German Federal Ministry of Education and Research, also produced its first policy reports in 2017 (see page 26). Each regional report addresses a set of 10 key questions from

a regional perspective. The report from the network of European academies (EASAC) was published in December 2017, while the Inter-American Network of Academies of Science (IANAS) published a country-by-country overview of the food and nutrition security situations in some countries in the region.

Two other projects, funded by the Carnegie Corporation of New York, also aim to bridge the divide between science and policy. 'Improving Scientific Input to Global Policymaking: Strategies for Attaining the Sustainable Development Goals' and 'Harnessing Science, Engineering, and Medicine to Address Africa's Challenges' both continued in 2017 with a series of regional and global activities (see pages 24-25).

Policy for science

The Science International initiative brings together four global science networks: IAP, TWAS, the International Council for Science (ICSU) and the International Social Sciences Council (ISSC) (these two latter entities will merge in 2018 to become the International Science Council).

In December 2015, under the Science International banner, these four organizations released a joint Accord on 'Open Data in a Big Data World' that proposes 12 principles to guide open access to publicly funded big data.

Following the release of the Accord, a campaign was launched to generate endorsements from the scientific community. By April 2017, the Accord had received more than 120 endorsements. The list of endorsers includes a broad range of scientific institutions from around the world, from regional and national academies and councils, to international scientific organizations, universities and research institutions, libraries, museums and civil society groups. The list includes, for example, regional and national science academies representing Bangladesh, Benin, Brazil, the Caribbean, Colombia, Ethiopia, Hungary, Malaysia, the Netherlands, Nigeria, Republic of Korea, South Africa and Switzerland. In addition, international scientific unions also endorsed the accord, including the unions on mathematics, pure and applied chemistry, soil sciences and toxicology.

Also in 2017, the four Science International partners confirmed their commitment to work together on other 'policy for science' issues by signing a memorandum of understanding. This was followed by an agreement to develop activities on 'refugee and displaced scientists' during 2018, a direct follow-on of a workshop hosted by TWAS in March 2017 in Trieste.

Strengthening the global scientific enterprise

IAP's efforts towards this strategic priority focus on four key areas:

- Supporting the IAP regional networks: Association of Academies and Societies of Sciences in Asia (AASSA), the European Academies Science Advisory Council (EASAC), the Inter-American Network of Academies of Science (IANAS), and the Network of African Science Academies (NASAC). This is done especially through the provision of financial resources that allow the regional networks to leverage additional funds to expand their activities (see pages 34-41);

- Supporting the careers of young scientists (see pages 27-29);
- Supporting the role of women in science (see page 30); and
- Promoting responsible research practices, for instance through organizing awareness-raising workshops for young scientists on issues such as dual-use research, or by engaging with international organizations such as the Biological and Toxin Weapons Convention and highlighting issues relating to biosafety and biosecurity (see page 31).

In addition to IAP's four priority goals, the organization's Strategic Plan includes three additional priorities:

- Develop partnerships with other organisations, including with agencies of the United Nations system;
- Strengthen InterAcademy Partnership operations, including fundraising abilities; and
- Implement an effective communications strategy.

Partnerships

For the first time, IAP was invited as a partner in the Steering Committee for the World Science Forum (WSF), held in Jordan in November 2017. This resulted in excellent visibility for IAP, with involvement in sessions covering science education, food security, the SDGs, science diplomacy and other issues. IAP also supported the participation of 50 young scientists, including co-organizing a separate side event on 'Avoiding the Weaponisation of Research' in collaboration with the Global Young Academy (GYA), the World Association of Young Scientists (WAYS), the International Consortium of Research Staff Associations (ICoRSA) and UNESCO.

IAP has been accepted as a partner to the Belmont Forum, an international partnership that mobilizes funding of environmental change research and accelerates its delivery to remove critical barriers to sustainability.

IAP also provided a grant to Trinidad & Tobago-based CARISCIENCE. Established in 1999 under the auspices of UNESCO, CARISCIENCE is sub-regional network dedicated to enhancing the academic excellence of graduate, postgraduate and research programmes in the Caribbean. IAP's contribution helped support the organization of a conference on 'Science, Technology and Innovation in the Caribbean: Strengthening Cooperation', held in May 2017.



IAP for Research co-chair, Daya Reddy, speaking in a session on 'Science diplomacy to strengthen governance and build enduring relationships' at the World Science Forum in Jordan.



Participants at the IAP-supported CARISCIENCE conference on 'Science, Technology and Innovation in the Caribbean: Strengthening cooperation', Trinidad & Tobago.



To finalize the agenda for the Jordan World Science Forum meeting, members of the steering and organizing committees met at ICSU headquarters, Paris.



Joachim von Braun, chair of the IAP Food and Nutrition Security and Agriculture project, runs a question and answer session after preliminary results of the project are presented in a session at the World Science Forum, Jordan.

Outreach

The various sessions in which IAP was involved at the WSF (see above) provided great visibility to IAP activities at a major science policy conference.

This was evident from the increase in the number of 'followers' to the IAP Twitter account - @IAPPartnership – during the period of the event. Through the whole year, IAP increased its number of followers from 313 to 537 (i.e. 224 new ones). Following IAP on Twitter continues to be an effective way of staying up to date with IAP activities as all news items and new publications, etc. are 'tweeted'.

The first InterAcademy Partnership Annual Report (for 2016) was published in December 2017.

In addition, to close out the year, IAP launched its new website – www.interacademies.org – that now provides information on IAP for Science, IAP for Research and IAP for Health in a single, comprehensive resource instead of the four separate sites that IAP previously operated.

IAP continues to operate with a small secretariat, but is effective thanks to its ability to leverage the expertise and intellectual input available within its member academies as well as the willingness of its member academies to host events and engage in activities beyond their national borders.

Global activities >



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Promoting global health

IAP for Health is a network of 78 of the world's medical academies and academies of science and engineering with strong medical sections. This component of the InterAcademy Partnership is committed to improving health worldwide, with a special focus on low- and middle-income countries.

Clinical research capacity

In 2004, the World Health Organization (WHO) highlighted that "well planned health research is fundamental to the improvement of health in all countries", but the reality is that the vast majority of clinical research is designed by and conducted on a small minority of the world's population living in high-income countries. The results of such research are not necessarily transferable or adaptable to the situation in low and middle-income countries (LMICs).

Improving health in LMICs requires input from a broad range of skilled individuals working locally, including those with expertise in health economics, epidemiology, anthropology and health policies, as well as statistical, analytical and managerial skills.

What are the gaps and impediments for the development of clinical research and the translation of this knowledge into effective healthcare strategies in LMICs?

To address this question, the UK Academy of Medical Sciences teamed up with IAP for Health to organize a joint meeting on 'Strengthening Clinical Research Capacity in Low and Middle Income Countries', held in London on 3-4 July 2017.

Workshop participants, many nominated by member academies of IAP for Health, brought together expertise on the current 'state of play' with respect to the capacity of clinical researchers in LMICs in Africa, Asia and Latin America, as well as the UK. They also considered how countries are responding to clinical research capacity gaps, discussed key challenges and barriers to having an adequate supply of clinical researchers, attempted to identify solutions that can be taken forward at country and regional levels,



and considered lessons learned that can be applied in other countries and regions.

Participants identified several key themes that could contribute to progress in this field and these have been published in the report: 'Strengthening Clinical Research Capacity in Low and Middle Income Countries'. It is expected that the information and recommendations in the report will help national healthcare providers and research agencies develop policies and interventions to strengthen clinical research capacities in their countries.

This was the second time that the UK Academy of Medical Sciences collaborated with IAP for Health to host a joint



Participants of the 11th steering committee meeting of the ICSU-IAP-UNU Urban Health and Wellbeing programme, Xiamen, China.

workshop. In November 2016 a meeting of experts in the field of rapid diagnostic tests was also held in London. The results of those discussions were published in the report, 'Improving the development and deployment of rapid diagnostic tests in Low and Middle Income Countries', in April 2017.

Urban health

In Africa, while infectious diseases are still prevalent, non-communicable diseases such as diabetes and obesity are also increasingly common. At the same time, expanding populations and rapid urbanization are having a significant impact on the health and wellbeing of millions of people.

To begin to tackle these interrelated issues, in February 2017 the Academy of Science of South Africa (ASSAf) hosted an 'Urban Health in Africa Dialogue' in Cape Town. Financial support for the event from IAP augmented a major contribution from the Novartis Foundation, as well as support from the International Society for Urban Health (ISUH), the International Council for Science (ICSU) and the University of Basle.

The two-day meeting focused on emerging urban health challenges and opportunities in Africa, and explored frameworks required to promote research, education and policy actions in urban health. There was broad agreement that collaboration between health professionals and urbanists, as well as other sectors and disciplines, will be needed to address the underlying determinants of health in African cities.

Taking a more global view of urban health, IAP entered into partnership with ICSU and the United Nations University to establish the 'Urban Health and Wellbeing' programme in 2014. The programme is hosted at the Institute of Urban Environment, Chinese Academy of Sciences, in Xiamen, China, where the 11th Scientific Committee meeting of the programme took place on 30 November to 1 December 2017. Former IAP for Health co-chair, Jo Boufford, who is the IAP representative for the programme, attended.

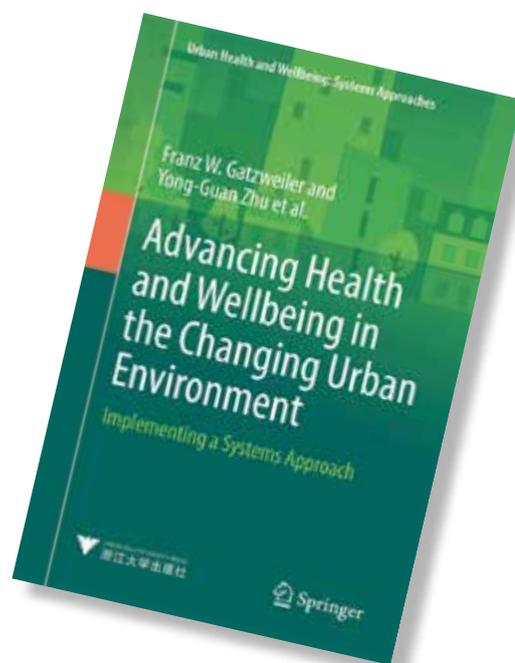
Also in 2017, partners in this programme produced a book, 'Advancing Health and Wellbeing in the Changing Urban Environment' that promotes a 'systems approach' to urban health and wellbeing and that provides a range of potential solutions for urban decision-makers.



Jo Boufford, former co-chair of IAP for Health and leader of IAP's urban health programme, addressing the audience at the 'Urban Health in Africa Dialogue', Cape Town, South Africa.

Young Physician Leaders

The seventh edition of the IAP Young Physician Leaders (YPL) leadership training workshop took place concurrently with the 2017 World Health Summit (WHS) in Berlin, Germany. A new cohort of 22 YPL from 17 countries participated and joined the alumni network that now includes more than 150 young physicians.



Under the guidance of Jo Boufford (IAP) and Nora Grasselli (European School of Management Technology, ESMT), the opening session encouraged participants to express their expectations of the workshop. These included advice on navigating new leadership roles, facing the challenges of leading senior staff, analysing the cultural aspects of leadership, and best practices for improving leadership skills.

The workshop continued by identifying the skill sets of effective leaders as well as those skills that each YPL would like to have to fulfill their professional goals.

The second day of the workshop was dedicated to visits to the Charité University Hospital, Berlin, followed by a meeting organized by one of the YPL programme co-sponsors, the Bayer Science and Education Foundation, at the headquarters of Bayer HealthCare Pharmaceuticals. There, the YPL met with young peers from the Bayer team and discussed challenges, innovations and partnership opportunities in public health.

The workshop continued with sessions on leadership decision-making, group work and peer consulting, and culminated in the preparation of the annual YPL presentation at the WHS proper.

This session drew an audience of over 100 conference participants. Divided into three groups, the YPL presented their take on 'Leadership Versatility', 'Challenges of Diversity in Young Leadership', and 'Innovation and Sustainability of Health Systems: Modelling the Leaders we Need to

Face Challenges'. Members of the audience ranged from a teenage US high-school class attending the WHS to a group of senior health administrators from the Swedish Karolinska Institute.

Critical care medicine

An invitation from the Georgian Academy of Medical Sciences (GAMS) and a visit to Tbilisi, Georgia, in 2016 resulted in an agreement to have the international medical community more involved in a regular Georgian event on critical care medicine.

As a result, in September 2017, 12 international participants, nominated by member academies of IAP for Health, joined members of GAMS and other local experts for the First International Workshop and Ninth International Symposium on 'New Steps in Critical Care Medicine' in Tbilisi. Zurab Kheladze of GAMS and the Georgian Critical Care Medicine Institute was the host-country co-chair of the steering committee for the event, while Maria Cristina Orlandi, *Academia Nacional de Medicina de Buenos Aires*, Argentina, was nominated by IAP as the other co-chair.

Speaking at the opening session, Kheladze outlined some of the research being carried out at the Georgian Critical Care Medicine Institute. In her presentation, Orlandi discussed the results from a survey of some 257 hospitals in Latin America regarding their critical care facilities. In general, intensive care units (ICUs) were present in most areas and while the doctor patient ratio (, in the range of 1:4 to 1:7), was considered mostly adequate, the nurse to patient ratio of 1:8 was not.

"This is despite the demonstrated relationship between the number of nurses and patient outcomes," said Orlandi. Li Gang, the participant from China, confirmed that the ratio in his hospital, for example, was two nurses for every critical care patient.

From the interventions of other participants, including Mpoki Uliubisya from Tanzania, it is clear that critical care capacity is present even in some of the world's poorest countries, but it is often limited to a few beds in a central hospital. In many sub-Saharan African countries, patients living outside the capital city, perhaps in distant rural areas, face great difficulties being transferred to a suitable hospital that may be many hours' drive away on poor roads.

One of the aims of the workshop was to determine if there is interest from the participating academies to engage more in a global network of critical care medicine experts. The Government of Georgia, which provided financial support for the workshop, stands ready to support the venture.

Exploring traditional medicine

Despite the third Sustainable Development Goal (SDG #3) calling to "ensure healthy lives and promoting well-being for all at all ages", millions of people worldwide – especially in developing countries – do not have access to or cannot afford 'Western' or 'allopathic' medicine and typically rely on traditional medicines. A significant challenge, however, is the lack of scientific data and evidence that would help the wider integration of traditional medical practices into 'mainstream' medical care.

To address this gap, in 2016, IAP for Health published a

volume of 24 case studies from around the world, 'Exploring Traditional Medicine: Report of a Workshop'.

The book was officially launched at ICTAM IX, the 9th International Congress on Traditional Asian Medicines, held in Kiel, Germany, in August 2017.

"This project explores the contribution of traditional medicines and medical practices to human healthcare, as well as the methodologies used to assess the science, safety, quality and efficacy of the products and processes," said IAP for Health co-chair, Depei Liu. "As some of the case studies demonstrate, there is a lot that can be learned from traditional Chinese medicine, the Indian Ayurveda system, and other traditional medical practices that may be developed into effective and potentially more economical health solutions globally."

Academy projects

In 2017, IAP for Health supported the organization of a capacity building workshop for young biomedical scientists in Nepal via a contribution to the Nepal Academy of Science and Technology (see pages 27-29).

Two Italian academies, the *Accademia Medica di Roma* and the *Accademia Nazionale dei Lincei*, are collaborating in the implementation of the project, 'Health Science Education in Compulsory Primary Schools'. The project, which is being piloted in two contrasting primary schools in the Rome area, completed its third year during the 2015-2016 school year, with the results published (in English and Italian) in 2017. The fourth year of the project, following the same cohorts of children, ran through the 2016-2017 school year.

Finally, based on a workshop organized by the French Academy of Medicine that took place in Paris in 2016 and which received financial support from IAP, the Federation of European Academies of Medicine (FEAM) published a report on 'Human Genome Editing' in 2017.



IAP for Health co-chair, Detlev Ganten, presents the IAP for Health book 'Exploring Traditional Medicine: Report of a workshop' at the 9th International Congress on Traditional Asian Medicine in Kiel, Germany.



IAP president Depei Liu with participants and organizers of a workshop in Chitwan, the third in a series of capacity building workshops organized in different regions of Nepal by the Nepal Academy of Science & Technology (NAST) for young biomedical scientists.



Participants at the workshop hosted by the Georgian Academy of Medical Sciences and the Georgian Critical Care Medicine Institute, 'New Steps in Critical Care Medicine', Tbilisi, Georgia.

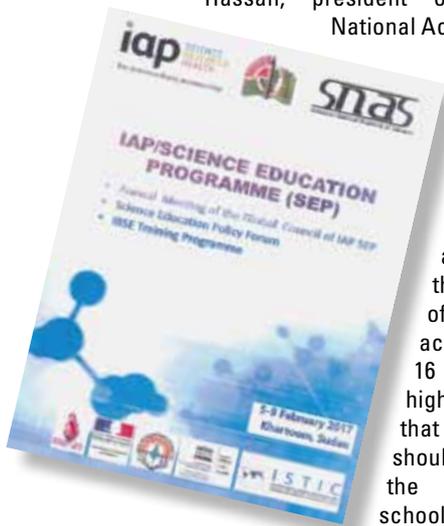
Science Education and Science Literacy

A major strategic priority of IAP is to build a scientifically literate global society. To achieve this goal, the IAP Science Education Programme (SEP) was launched in 2003. It is guided by a Global Council of 13 members, currently chaired by Dato Lee Yee Cheong of the Academy of Sciences Malaysia. A major thrust of the SEP is to promote inquiry-based science education (IBSE).

The IAP Science Education Programme (SEP) kicked off its 2017 activities by organizing a policy forum in Khartoum, Sudan, on two main themes: 'Science Education and the Fusion of Civilisations', and 'Global Climate Change, Health and Regional Perspective'. The year was closed out with the release of a statement, endorsed by IAP for Science member academies, on 'Climate Change and Education'.

Policy forum - I

In the opening session of the Khartoum event over 80 participating delegates, including international members of the IAP SEP Global Council, academicians from Sudan, teacher trainers from Malaysia, and science teachers from Sudan and Egypt, were first welcomed by Mohamed Hassan, president of the Sudanese



National Academy of Sciences (SNAS). He noted that quality education was not only a stand-alone Sustainable Development Goal (SDG #4), but it also underpins the chances of successfully achieving the other 16 SDGs. He also highlighted the fact that science education should not finish with the end of formal schooling, and called for the establishment



Panelists at the IAP Science Education Programme (SEP) policy forum on 'Science Education and the Fusion of Civilisations', Khartoum, Sudan.

of Sudan's first science museum as a way of engaging the wider public on scientific issues.

Pavel Kroupkine, head of the UNESCO office in Khartoum, then presented a welcome message from the UNESCO Director-General, Irina Bokova, noting there is a need for science education to be more hands-on and more inclusive. Completing the welcome session, Suad Abdel-Raziq, Sudan's Federal Minister of General Education, highlighted that Sudan had an integrated strategy for education, jointly developed with the Ministry of Higher Education. "Science education is a priority," she said, "including building the capacity of science teachers, for example by providing science kits to schools across the country," and she confirmed that inquiry-based science education (IBSE) is an approach that her Ministry is looking at seriously to help improve results.

Dato Lee Yee Cheong opened the forum on 'Science Education and the Fusion of Civilisations' by highlighting that it was about showing how knowledge and technologies arose in and spread between different cultures, and that all cultures have contributed to lifting up the human condition. "At a



Opening session of the IAP Science Education Programme (SEP) policy forum in Khartoum, Sudan. (Left to right): Mohamed Hassan, president Sudanese National Academy of Sciences; Pavel Kroupkine, head of the UNESCO office in Khartoum; Suad Abdel-Raziq, Sudan's Federal Minister of General Education; Dato Lee Yee Cheong, chair of the IAP SEP Global Council; and Depei Liu, IAP president.

time of polarization between supporters of some religions and other divisive beliefs, there is a need for dialogue and tolerance,” he said. “Building on the Chinese One Belt-One Road initiative, for example, we can use science education to bring people closer together.”

The session continued with speakers from countries along the ancient Silk Road: China, India and Jordan. In the regular annual meeting of the IAP SEP Global Council meeting that followed the forum it was agreed that a working group would convene before the end of the year to define a concrete plan on how the scientific advances made by different cultures can be developed into IBSE curricula.



Science teachers from Sudan participate in a training workshop, learning how to teach using the inquiry-based science education (IBSE) methodology, Khartoum, Sudan.

Fusion of civilisations

Since then, working group members have attended a series of workshops to develop curricula on the ‘Fusion of Civilisations’ theme.

The International Forum on Science Education, held in Beijing, China, on 2-5 July 2017, focused on the theme ‘The history of science education along the Belt and Road’ and gave an opportunity for invited experts to begin deliberations on the curricula. Participants included members of the IAP SEP, representatives from the ECO Science Foundation (ECOSF), Children’s Science Instructors (CACSI), the Children and Youth Science Centre of CAST (CYSCC), and the Chinese Society for the History of Science and Technology (CSHST). Working group members then met in Kuala Lumpur, Malaysia, on 11-15 December 2017 and developed the curricula framework focusing on the themes of ‘Water’ and ‘Land’.

The IAP SEP was also involved in the first ‘The Belt and Road Teenager Maker Camp and Teacher Workshop’, held on 17-22 December 2017, also in Beijing, China. Some 120 young people from 16 countries across four continents attended.

Policy forum – II

The second policy forum session in Khartoum, on ‘Global Climate Change, Health and Regional Perspectives’, featured a representative of IAP for Health, Mario Stefanini. He introduced the SCIESA project: an experimental project of health science (*SCIEnze della SALute*) education in primary school, that is being led by Italy’s *Accademia Nazionale*

dei Lincei and the *Accademia Nazionale di Medicina*. The project, which has been running for several years, follows a cohort of children in different primary schools in the Rome region as they learn – in interactive ways – about their body, how it works, and how to keep it healthy. The ultimate aim of the project is to make children aware that developing good eating habits and exercising at an early age can develop into long-term benefits as they grow and age.

Also presenting in the session in Khartoum was IAP coordinator, Peter McGrath, who introduced a new project – an IBSE curriculum design project on ‘Zika and other Mosquito-borne Diseases’. This project aims to develop modules for primary and middle-school children so that they develop an awareness of the dangers of mosquitoes and the diseases they transmit, and how they can reduce the risks of becoming infected (see below).

The forum concluded with Pierre Léna (*Académie des sciences*, France, and *La main à la pâte*, LAMAP) who highlighted the urgency of educating children about climate change. Reports from Ali El Tahir (Sudan) and Youssry Fouad Saweris, Counsellor of Science, Ministry of Education, Egypt, followed, discussing how IBSE was being taken up and rolled-out in these two countries linked by the River Nile.

Teacher training

Either side of the Khartoum policy forum, some 30 Sudanese science teachers, together with three from Egypt, received training on IBSE practices.

The workshop, which unfolded over four days, was supported by the Malaysia-based International Science, Technology and Innovation Centre for South-South Cooperation (ISTIC) and the Regional Centre for Education in Science and Mathematics (RECSAM), Khartoum-based Future University and LAMAP. Through practical experiments and learning how to guide pupils’ questions relating to the scientific principles involved, the teachers gained first-hand experience in using IBSE, as well



Science teachers from Sudan participate in a training workshop, learning how to teach using the inquiry-based science education (IBSE) methodology, Khartoum, Sudan.



Opening ceremony of the 3rd African-European-Mediterranean Academies for Science Education (AEMASE III) conference at the headquarters of the French *Académie des sciences*, Paris.

as the theoretical knowledge required to implement it in their own classrooms.

IBSE and mosquitoes

The ongoing IBSE curriculum design project on 'Zika and other Mosquito-borne Diseases' is being led by the Smithsonian Science Education Center (SSEC), whose director, Carol O'Donnell, sits on the IAP SEP.

With funding from the Moore Foundation, SSEC experts have developed modules that bring in aspects of the social sciences to address the challenges and mitigation of mosquito-borne diseases.

During the final quarter of 2017, these draft modules were tested by teachers and classes in Australia, Indonesia and the USA. Feedback from these trials is being used to refine the modules that will then be translated into Spanish for release in 2017 and made freely available for download. Versions in other languages will follow thanks to the efforts of IAP members.

AEMASE – III

In 2017, IAP also provided support to the *Académie des sciences*, France, to host the third Africa-European-Mediterranean Academies for Science Education (AEMASE-III) conference in Paris in October. Some 100 participants attended, representing 30 countries in Europe and Africa.

The event was chaired by Catherine Brechignac, member and CEO of the *Académie des sciences*, who invited opening remarks from special guests Jean-Michel Blanquer, Minister of National Education, France, and Giandomenico Magliano,

the Italian Ambassador in Paris. In addition, Norbert Hounkonnou, president of the Benin National Academy of Sciences, Arts and Letters, relayed a message from the general director of the Sème City Agency, under the President of the Republic of Benin, Patrice Talon.

The presentations provided evidence that IBSE better equips children for the expected jobs of the future that will be built on teamwork and reasoning. As Pierre Léna put it: "As well as reading, writing and counting, we need to add on reasoning to guide future education." To highlight this, the conference focused on the application of IBSE in different disciplines, including mathematics, health, biodiversity, agriculture and climate change.

The main goal of the AEMASE-III conference, however, was to garner support for the establishment of CESAME (Centres for Education in Science for Africa, the Mediterranean and Europe). Such centres would allow educators of science teachers from the AME region to be in close contact with colleagues from other countries and local researchers with experience with IBSE pedagogy in science. Seven countries, Benin, Cameroon, Egypt, Italy, Morocco, South Africa and Tunisia, responded positively to a request from the IAP for Science co-chairs asking for expressions of intent to establish a CESAME in their country.

IBSE in the Americas

A publication from the IANAS Science Education Programme reviews IBSE activities carried out over the past decade in the Americas. Through a series of national case studies, both successes and failures were examined, with a view to learning from collective experiences for the improvement of



Participants at the 3rd African-European-Mediterranean Academies for Science Education (AEMASE III) conference at the headquarters of the French *Académie des sciences*, Paris.



Norbert Hounkonnou (president, Benin National Academy of Sciences and Arts - left) and Pierre Léna (*Académie des sciences*, France, and chair of working group for IAP Statement on Climate Change and Education – right) presenting at the AEMASE III conference in Paris.



Participants of the International Forum on Science Education, held in Beijing, China, July 2017.

all aspects of future (IBSE) and STEM (science, technology, engineering and mathematics) teaching.

Climate change and education

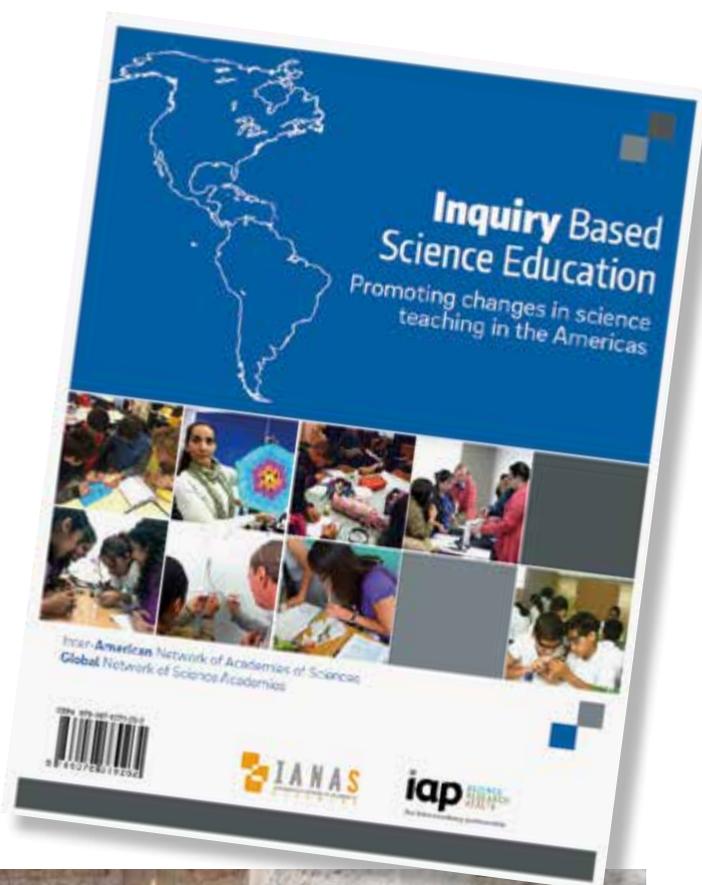
Article 12 of the 2015 Paris Agreement on climate change states that: “Parties shall cooperate in taking measures, as appropriate, to enhance climate change education, training, public awareness, public participation and public access to information, recognizing the importance of these steps with respect to enhancing actions under this Agreement.”

“Decisions on how to tackle the effects of climate change need to be based on sound science and rational judgement,” says Krishan Lal, co-chair of IAP for Science. “They will also need to be made through the coming years – so it is the younger generation, currently in schools and learning about science, who will need to make those decisions.”

Unfortunately, in many countries, science education does not help develop rational thinking or provide the inter-disciplinary background required to learn about climate change.

To bring attention to this issue, on 12 December, IAP for Science released a ‘Statement on Climate Change and Education’, the preparation of which was led by the *Académie des sciences*, France.

The statement recognizes that even the best science education tends to be taught in traditional silos – biology, chemistry, physics, etc. – whereas climate change education requires a more inter-disciplinary approach. The statement also lays out a series of recommendations on how effective climate change education can be promoted



Participants at the ‘International School on Science Education’ – 1st course ‘Climate Change, a challenge for science education’, hosted by *La Main à la Pâte* (LAMAP) in Erice, Italy, including members of the IAP Science Education Programme’s Global Council.

in schools around the world. For example, teachers should be provided with adequate training and resources; and the periodic Intergovernmental Panel on Climate Change (IPCC) 'Assessment Reports' and accompanying 'Summaries for Policy Makers' can be used as the basis for producing resources and tools for teachers.

The IAP for Science 'Statement on Climate Change and Education' was released on 12 December in Paris, during the One Planet Summit, held under the auspices of the President of France, Emmanuel Macron.



Panel session on 'Fusion of Civilisations' at the International Forum on Science Education, held in Beijing, China, July 2017.



(Left and right) Sessions at the 'International School on Science Education' – 1st course 'Climate Change, a challenge for science education', hosted by *La Main à la Pâte* (LAMAP) in Erice, Italy.



Keynote speakers at the International Forum on Science Education, held in Beijing, China, July 2017. (Left to right): Sun Xiaochun, University of the Chinese Academy of Sciences; Depei Liu, IAP president; Dato Lee Yee Cheong, chair of the Global Council of IAP's Science Education Programme.

Science for policy

2017 saw progress on two IAP for Research projects funded by the Carnegie Corporation of New York:

- 'Improving Scientific Input to Global Policymaking' is designed to engage IAP member academies and the growing number of young academies globally on the Sustainable Development Goals (SDGs) agenda.
- 'Harnessing Science, Engineering, and Medicine to Address Africa's Challenges' is designed to engage African senior and young academies on regional policymaking in Africa, with a focus on the Science, Technology and Innovation Strategy for Africa 2014 (STISA-2024), adopted by the African Union (AU) in 2014.

Both of these projects are exploring some of the barriers to influencing global and regional policymaking and contextualising IAP member academies within wider national, regional and global systems. Their common goal is to raise awareness of global and regional policy frameworks amongst the academies; mobilise and build the capacity of academies to support these frameworks; and develop strategic partnerships. Each project is led by an international Working Group drawn from nominations from IAP academies, the Global Young Academy (GYA) and the International Council for Science (ICSU).

Informed by the 2016-2017 IAP survey of senior and young academies, the second year of both projects has focused on practical actions, exploring and experimenting with different ways of engaging the policymaking community.

Improving Scientific Input to Global Policymaking

The objectives of the project, which was launched in August 2016, are to raise awareness of the SDGs, especially among IAP member academies; explore opportunities to support the SDGs more effectively, with a focus on how academies can play their part systemically; and encourage collaboration and adoption of best practices among organizations that generate scientific advice and support.

Chaired by Li Jinghai (China) and Eva Alisic (former GYA co-chair), the Working Group met twice in 2017: in Paris in February and in Beijing in November. In both instances, the Working Group considered written evidence and heard insights from invited experts on the key challenges that academicians, scientists and science advisors face in influencing global policy. Among the experts were Flavia Schlegel and John Crowley, UNESCO; Sir Peter Gluckman, International Network for Government Science Advice (INGSA); Heide Hackmann, ICSU; Moritz Riede, GYA; as well as senior representatives of the Chinese Government and research communities, and representatives from the IAP Regional Networks.

This year, efforts focused on the completion and dissemination of a survey of IAP members and national young academies on the SDGs; the production of '*Supporting the SDGs: A guide for merit-based academies*' (published in September) and its dissemination to IAP members and regional networks; and the development of an online repository of SDG-relevant academy reports. The project was represented at a number of international science meetings including the UN STI



Members of the working group of the IAP project, 'Harnessing Science, Engineering and Medicine to Address Africa's Challenges'.

Multistakeholder Forum (in June), the Worldwide Meeting of National Young Academies (in July) and the World Science Forum (held in Jordan in November).

This project complements related initiatives of ICSU, INGSA and others.

For additional information, visit:

www.interacademies.org/36061.aspx

Harnessing Science, Engineering and Medicine to Address Africa's Challenges

The objectives of this project, which was launched in September 2016, are to: mobilize African leaders in science, engineering and medicine through new approaches to addressing shared challenges; strengthen merit-based academies in Africa; and build stronger, sustained linkages and partnerships between African/global expertise in STI and the policymakers and donor organizations working to address Africa's challenges.

Chaired by Robin Crewe (South Africa) and Oyewale Tomori (Nigeria), the Working Group met twice in 2017, in Addis Ababa in February and in Abuja in November, to consider written evidence and hear insights from invited experts on the key challenges that academicians, scientists and science advisors face in influencing policy in African countries. Among these experts were Mahama Ouedraogo, Ahmed Hamdy and Almamy Konte of the African Union Commission; Chux Daniels, University of Sussex; Bernard Slippers, University of Pretoria, South Africa; and Evelyn Namubiru-Mwaura, African Academy of Sciences.

This year's efforts focused on developing relations with different parts of the AU and the UN system, including participating in a STISA Monitoring and Evaluation Committee meeting (in Malabo, Equatorial Guinea in August); developing a new programme for academies to engage with members of the African diaspora; and scoping new work on science leadership, in consultation with already established programmes.

In addition, the project launched a grants programme for regional consortia of academies working on shared policy challenges. Four grants were funded:

- 'Improvement of research, development and innovation linkage to create wealth in the African context', led by the Hassan-II Academy of Science and Technology, Morocco;
- 'Multi-disciplinary consensus study to address the double burden of health affecting cities in East Africa', led by the Uganda National Academy of Sciences;
- 'Policy Direction: Eradication of hunger and achievement of food security', led by the South African Young Academy of Science; and
- 'Capacity building workshop for young (early-career) women academicians in West Africa', led by the Nigerian Young Academy.

The project was represented at a number of international science meetings including the Meeting of African Young Academies (in Johannesburg in July), Annual Meeting of African Science Academies (AMASA – in Abuja in November), and Science Forum South Africa (in Pretoria in December). Discussions during all these events have helped inform and refine the project.



Participants of the second Working Group Meeting of the IAP project, 'Improving Scientific Input Global Policymaking: Strategies for attaining the Sustainable Development Goals', held in Paris in February 2017.

Both projects are supported by a secretariat led by project director, Tracey Elliott, together with Tom Arrison (to November 2017) and Teresa Stoepler (from November 2017) (past and present executive directors of IAP for Research, hosted by the US National Academies of Sciences, Engineering and Medicine), Nina Ward (research associate, US NASEM) and Arlen Hastings (director of external projects, Institute for Advanced Study, Princeton, USA).

For additional information, visit:

www.interacademies.org/Activities/Projects/36052.aspx



Food and Nutrition Security and Agriculture

The IAP Food and Nutrition Security and Agriculture (FNSA) global programme is unfolding with the preparation of reports from each of the four IAP regional networks of academies. It is largely funded by the German Federal Ministry of Education and Research (BMBF).

Population growth and climate change, together with social and economic inequity and instability are affecting food production and distribution systems worldwide. Against this background, there is a continuing need to avoid further loss in biodiversity and ecosystem services, and to reduce pressures on critical resources such as water and energy.

It is clear that agriculture has a central role to play in tackling food and nutrition security. However, viewed more broadly, food and nutrition security also relies on physical, biological, socio-political and economic environments. The IAP Food and Nutrition Security and Agriculture (FNSA) project aims to address these inter-connected issues and develop a series of recommendations for policy-makers based on the best available scientific evidence and future projections. It also provides a new model for IAP projects that aim to engage as many member academies as possible.

The project kicked off with a workshop held at the German National Academy of Sciences, Leopoldina, in Halle, Germany, in June 2015. At that meeting, experts nominated by IAP member academies for their expertise in different areas of the food-nutrition-agriculture nexus identified a series of 10 key questions to be answered from a regional perspective by each of IAP's four regional networks.

Ten questions

1. What are key elements to cover in describing national/regional characteristics for FNSA?
2. What are major challenges/opportunities for FNSA and future projections for the region?
3. What are strengths and weaknesses of science and technology at national/regional level?
4. What are the prospects for innovation to improve agriculture (e.g. next 25 years) at the farm scale?
5. What are the prospects for increasing efficiency of food systems?
6. What are the public health and nutrition issues, particularly with regard to impact of dietary change on food demand and health?
7. What is the competition for arable land use?
8. What are other major environmental issues associated with FNSA at the landscape scale?
9. What may be the impact of national/regional regulatory frameworks and other sectoral/inter-sectoral public policies on FNSA?
10. What are some of the implications for inter-regional/global levels?

Working groups established by each of the IAP regional networks (AASSA, EASAC, IANAS and NASAC) deliberated over the course of a series of regional meetings, addressing these questions and developing a series of recommendations. A global review meeting was then held in Halle, Germany, on

3-5 April 2017 to coordinate the four regional reports and, in November, previews of the regional reports were presented at the World Science Forum in Jordan.

First report

The first of the four regional reports was published by EASAC in December 2017: 'Opportunities and Challenges for Research on Food and Nutrition Security and Agriculture in Europe'. The other three reports are scheduled for publication in early 2018.

Following the release of these regional reports, the project will develop an over-arching document that will review similarities and differences between the regions, providing advice and recommendations for implementation at global, regional and national levels. The global report will be published in 2018 and disseminated among policy-makers and stakeholders worldwide.



Participants at the second global review of the IAP 'Food and Nutrition Security and Agriculture' project, hosted by the German National Academy of Sciences, Leopoldina, in Halle, Germany.



Joachim von Braun, chair of the IAP Food and Nutrition Security and Agriculture project, introduces speakers at a session dedicated to presenting preliminary results from the project at the World Science Forum, Jordan.

Supporting Young Scientists and Young Physicians

IAP's third strategic priority focuses on strengthening the global scientific enterprise. A key component of this is supporting the careers of young scientists and assisting them to engage with policy-makers. Likewise, IAP for Health provides leadership training for Young Physician Leaders (YPL) as part of its efforts to strengthen healthcare systems around the globe..



Members of the Global Young Academy at their annual conference and general assembly in Aviemore, UK.

In 2017 IAP support for young scientists and young physicians centred around two long-running activities, two other activities that began in 2015 and 2016, as well as support for two projects that were completed within the year.

Global Young Academy

IAP has been providing support to the Global Young Academy (GYA) since its establishment in 2010, especially for its annual conference and general assembly. These GYA events took place in Aviemore, Scotland, in May 2017, where the theme



Co-chairs of the Global Young Academy elected during their general assembly in Aviemore, UK: Tolu Oni and Moritz Riede.

was 'Social Justice in a Rapidly Changing World'. Some 90 young scientists and 25 high-level guests from more than 40 countries attended. The conference allowed GYA members to explore the relevance of social justice with respect to access to clean water access, biodiversity conservation as a public health issue, behavioural economics approaches to poverty alleviation, language rights, big data and open science, and private sector innovation to advance the UN Sustainable Development Goals.

IAP's support ensured that 35 GYA members from developing countries (from a total membership of 200) were able to travel to Aviemore to meet face to face, attend working group meetings, engage with the organization's leadership, and propose new directions and initiatives.

IAP also works with the GYA to ensure young scientists have representation on its various committees and working groups. These include the Global Council of the IAP Science Education Programme (pages 18-23), the committee that developed the agenda for the workshop on 'Assessing the Security Implications of Genome Editing Technologies' held in Herrenhausen, Germany (page 31), and the two projects dealing with global policymaking and the Sustainable Development Goals (pages 24-25).

Young Physician Leaders

IAP for Health convened the seventh edition of its Young Physician Leaders (YPL) leadership training workshop. As in previous years, it was held as a side event to the World Health Summit (WHS) in Berlin, Germany, in October. Twenty-two new YPL from 17 countries were selected to attend

the workshop where, immediately prior to the WHS, they undertook two days of leadership training guided by former IAP for Health co-chair, Jo Boufford, and partners from the Berlin-based European School of Management Technology (ESMT).

As in previous years, the new YPL cohort was tasked with preparing a session for the main WHS programme. The YPL chose to present their take on three themes: 'Leadership Versatility', 'Challenges of Diversity in Young Leadership', and 'Innovation and Sustainability of Health Systems: Modelling the leaders we need to face challenges'. At the close of the training, the 22 new YPL were inducted into the YPL alumni network that now numbers over 150.

The IAP YPL programme is supported by the Tides Foundation, the Bayer Science and Education Foundation and the WHS Foundation, as well as the academies that nominate selected candidates.

Responsible conduct of research

Two activities for young scientists had their second editions in 2017. In line with IAP's third Strategic Priority (see inside front cover), they focused on promoting responsible research practices.

In September, IAP partnered with the Organization for the Prohibition of Chemical Weapons (OPCW) and TWAS to host a 'Workshop on Policy and Diplomacy for Scientists: Introduction to responsible research practices in chemical and biochemical sciences'. Some 20 young scientists from countries such as the DR Congo, Costa Rica and Sri Lanka attended. Among the speakers were experts from the OPCW and the US National Academy of Sciences.

The event, which was funded by OPCW and held in Trieste, Italy, followed a similar format to the 2016 meeting held in Pretoria, South Africa, hosted by the Academy of Science of South Africa.

In November, IAP took the lead in convening a young scientists' side event immediately prior to the 2017 World Science Forum (WSF) hosted by Jordan. This was the second



IAP president Depei Liu congratulates Suraj Bhattarai, organizer of a series of three capacity building workshops for young medical scientists in Nepal.

time IAP had convened a young scientists' session prior to a WHS, the first being in Budapest, Hungary, in 2015. Partners included the GYA, the World Association of Young Scientists (WAYS), the International Consortium of Research Staff Associations (ICoRSA) and UNESCO.

More than 50 young scientists attended the event entitled 'Avoiding the Weaponisation of Research', chosen to align with the main WSF theme of 'Science for Peace'.

Travel costs for 20 young scientists nominated by IAP member academies were covered either by IAP (for those from developing countries), or by their member academies (for those from developed countries), while the WSF hosts covered in-country costs.

Led by facilitators from KnowInnovation, the young scientists participated in a series of exercises designed to improve their soft skills in areas such as communication and leadership, while addressing the theme of 'Avoiding the Weaponisation of Research'. Breakout groups brainstormed ideas for tackling the potential dual-use of research, eventually developing two-minute presentations that were pitched to a panel of high-level judges from the science-policy community.

The winning pitch – on regulating crypto-currencies – won



Young scientists attending the workshop on 'Avoiding the Weaponisation of Research' held immediately prior to the World Health Summit in Jordan, organized by IAP in collaboration with the Global Young Academy, the World Association of Young Scientists, the International Consortium of Research Staff Organizations, and UNESCO.



Participants at one of the three capacity building workshops for young medical scientists organized by the Nepal Academy of Science and Technology in different regions of the country.

the opportunity to be presented during a special session of the WSF. This session, 'Young Researchers Identify Skills of the Future to Advance Science Diplomacy and Society', marked the first time that a WSF plenary session was designed and delivered by young scientists.

Capacity building

IAP provided financial support for three capacity-building workshops for young biomedical scientists in different regions of Nepal organized by the Nepal Academy of Science and Technology (NAST).

Suraj Bhattarai, a YPL alumnus from Nepal, led the organizing committee for the events, held in Kathmandu, Pokhara and Chitwan, each of which was attended by about 50 scientists under the age of 35, with over half the participants female.

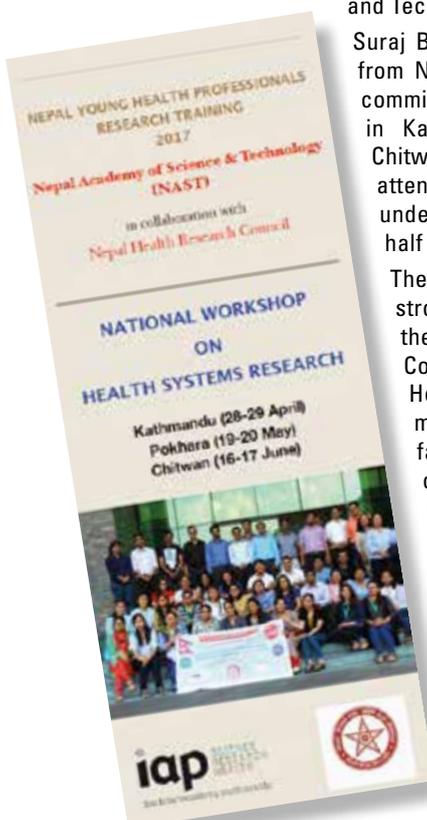
The events benefited from strong partnerships with the Nepal Health Research Council and Ministry of Health, as well as national medical universities and facilities. IAP for Health co-chair, Depei Liu from China, attended the workshop in Chitwan, providing his advice to the participants on the key ingredients of a good research proposal.

At the end of the three workshops, nine early career researchers

were awarded research grants of up to NRS 30,000 each (about US\$275) based on proposals developed during the workshops.

IAP support

Through its annual call for proposal from member academies, IAP also provided funds to support the 8th Annual Young Scientists Conference and the 3rd Worldwide Meeting of National Young Academies of Science, hosted by the Academy of Science of South Africa (ASSAf) and the South African Young Academy of Science (SAYAS) in July.



Supporting Women in Science

Academies of science, medicine and engineering have a dual mandate: to honour scientific excellence, and to provide evidence-based scientific advice in support of policy development to their governments and stakeholders. In order to fulfill this mandate, it is essential that women scientists are recognized through academy membership and participation in academies' science advisory activities.

It is often argued that one reason for the low number of female students taking up scientific careers is the lack of female role models. Consequently in 2017, IAP's regional networks continued to actively promote women in science.

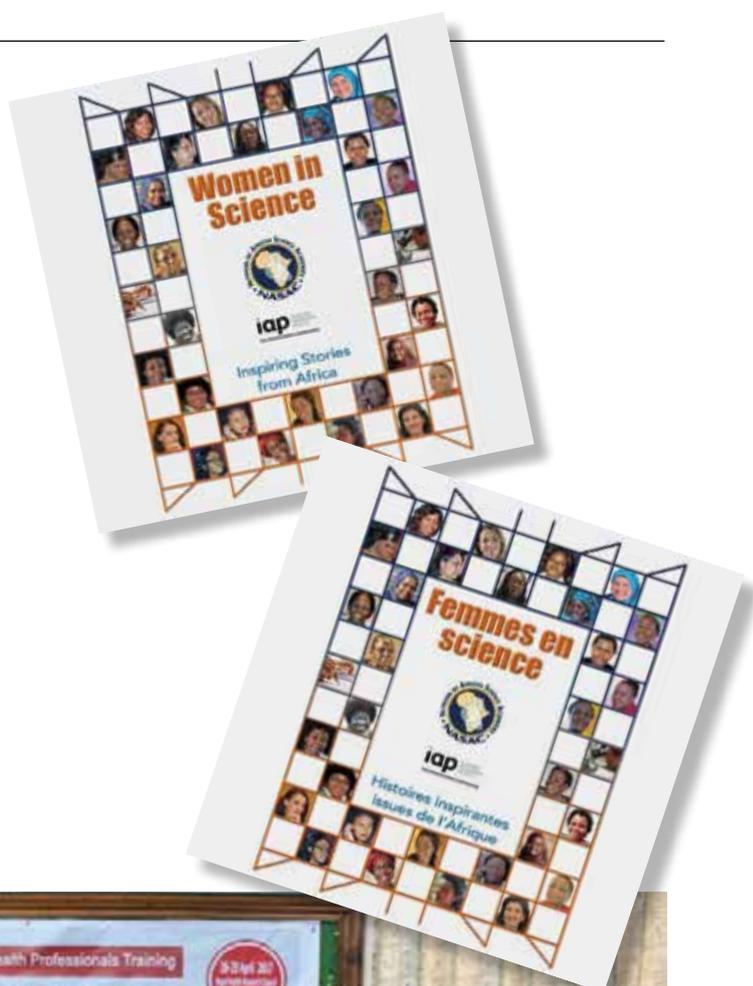
NASAC, for example, published a book, 'Women in Science: Inspiring Stories from Africa', featuring short biographies of 30 women scientists from some 20 countries across the continent – from Tunisia in the north to South Africa in the South, and from Senegal in the west to Ethiopia in the east.

A French version of the book was also been published so that girls in the francophone countries of the continent have access to these women scientists' personal narratives.

Jackie – can you tell us anything about the launch of the book / where it has been presented (in 2017) / how it has been received?

Meanwhile, members of the IANAS 'Women for Science' focus group have been working with other IANAS focus groups, including those dealing with water and energy, in order to ensure gender issues are being mainstreamed into IANAS' flagship projects.

Also of note for 2017 was IAP's support to the Nepal Academy of Science and Technology to run three capacity-building workshops for young biomedical scientists in different regions of the country (see page 29). More than 50% of the 149 participants were women.



More than 50% of the participants of the three capacity building workshops for young medical scientists, organized by the Nepal Academy of Science and Technology in different regions of the country, were women.

Biosecurity and Responsible Research

IAP has a long track record of promoting responsible research practices, dating back to the establishment in 2004 of a Biosecurity Working Group, with members from 11 academies, in 2004. In 2017, IAP organized a two-day international workshop on the implications of genome editing technologies and presented the work of academies on biosecurity issues to the member states of the United Nations' Biological and Toxin Weapons Convention.

Genome editing

In recent years there has been rapid development and widespread use of genome editing tools, such as the CRISPR-Cas9 system, globally. While there are evident benefits of such technologies, there is always the potential for their intentional misuse. In addition, there are different, sometimes divergent, research regulations and governance policies in the countries using genome editing technologies.

Against this background, and to proactively encourage international dialogue about genome editing and biosecurity, IAP joined with the European Academies Science Advisory Council (EASAC), the US National Academies of Sciences, Engineering, and Medicine (NASEM) and the German National Academy of Sciences, Leopoldina, to convene an international workshop.

More than 100 invited experts in genetic engineering, security studies and public policy met in Herrenhausen, near Hanover, Germany, to consider the latest advances in genome editing by analysing current and potential applications in organisms as diverse as microbes, plants, domestic animals and humans.

A report 'Assessing the Security Implications of Genome Editing Technologies', was published with the goal of promoting an open and inclusive dialogue about genome editing with all stakeholders and a research culture that builds trust through responsibility and integrity.

Financial support for the workshop was provided by the Volkswagen Foundation, the Gordon and Betty Moore Foundation, the US Intelligence Advanced Research Projects Activity, and the US Defense Advanced Research Projects Agency.

International convention

A summary of the report was subsequently presented at the Meeting of States Parties of the Biological and Toxin Weapons Convention (BWC) that took place in Geneva, Switzerland, in December.



Discussion session at the international workshop on 'Assessing the Security Implications of Genome Editing Technologies', held at Herrenhausen near Hanover, Germany.

Also at this meeting, IAP hosted a side event, 'Implementation in Action: IAP's experience in engaging scientists in biosecurity', funded by the Open Philanthropy Project. This featured presentations from the national academies of Jordan, Pakistan, South Africa and Switzerland. The speakers informed BWC member states how academies are helping implement the articles of the BWC in their countries through public outreach and awareness-raising activities; by producing reports and policy advice and providing feedback to government; and by bringing the scientific community together, as exemplified by Jordan and Pakistan. IAP also co-presented a joint statement from 19 organizations and endorsed by another 40 individuals, with suggestions on how the BWC processes, including tracking the unprecedented advances in science and technology, might be improved, and offering support to the secretariat of the BWC to assist with the implementation of the convention.

IAP and US NASEM are also partnering with the secretariat of the BWC to organize a series of information workshops for scientists, the first of which was held in Ukraine in September 2017.

Responsible research

In September, IAP partnered with The World Academy of Sciences (TWAS) and the Organization for the Prohibition of Chemical Weapons (OPCW) to host a 'Workshop on Policy and Diplomacy for Scientists: Introduction to responsible research practices in chemical and biochemical sciences' in Trieste, Italy. This followed on from a similar meeting in 2016 held in South Africa. Some 20 young scientists attended, including early-career PhD chemists, biochemists and medical chemists who teach and conduct scientific research in countries such as the DR Congo, Costa Rica and Sri Lanka. They explored the link between science, diplomacy and policy and highlighted the fundamental role of education in mitigating chemical threats and the misuse of science, as well as through the building of trust and cooperation.

In an additional effort to highlight responsible research practices to young scientists, IAP took the lead in convening a workshop, 'Avoiding the Weaponisation of Research', at the 2017 World Science Forum (WSF) in Jordan in November. Other partners were the Global Young Academy (GYA), the World Association of Young Scientists (WAYS), the International Consortium of Research Staff organizations (ICoRSA) and UNESCO. More than 50 young scientists attended the event, which complemented the main WSF theme of 'Science for Peace'. The event ended with groups of young scientists giving two-minute presentations, developed during the day, to a high-level panel, providing them a valuable opportunity to interact with leading science-policy experts. The team judged to have the best presentation – on crypto-currencies – was included in a special plenary session during the WSF itself.

Regional activities >



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- Inter-American Network of Academies of Science (IANAS) 38
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Association of Academies and Societies of Sciences in Asia (AASSA)



The Association of Academies and Societies of Sciences 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. It is hosted by the Korean Academy of Science and Technology.



Participants at the AASSA international symposium on 'Realizing the Full Cycle of Research and Development: From bench to the community' was held in Tagaytay City, the Philippines, and jointly organized by AASSA and National Academy of Science and Technology, Philippines (NAST PHL).

The Association of Academies and Societies of Sciences in Asia (AASSA) serves as a forum for scientists and technologists to discuss and provide advice on issues related to science and technology, research and development, and the application of technology for socio-economic development in the Asia-Pacific region.

During 2017, in collaboration with its members – 34 academies and societies of sciences from 30 countries – AASSA organized an international symposium and four workshops covering a range of topics pertinent to the region.

International Symposium

The concept of translational medicine considers applying ideas and discoveries in biomedical research 'from bench to bedside' while the emerging concept of 'translational research' proposes the use of research results from the wider scientific enterprise into a form that is understandable and usable to address the needs of society: 'from bench to community'.

The AASSA international symposium, 'Realizing the Full Cycle of Research and Development: From bench to the community', was held in Tagaytay City, the Philippines, on 21-23 September. It was jointly organized by AASSA and the National Academy of Science and Technology, Philippines (NAST PHL) with support from IAP, the Department of Science and Technology (DOST), Philippines, the Philippine Council for Industry, Energy, and Emerging Technology Research and Development (PCIEERD) and the Philippine Council for Health Research and Development (PCHRD). Some 150 participants attended.

Experts from ten countries presented 19 lectures that compared translational research efforts between different scientific disciplines and discussed best practices. On the final day, participants presented a list of appropriate interventions relevant to harnessing the modern tools of science for development and sustainability in sectors such as science academies, higher education institutions, the private sector and research funding agencies. These resolutions urge national governments to provide an enabling and conducive environment to realize the full cycle of research and development in the context of United Nations' Sustainable Development Goals (SDGs).

Four workshops



Ceremony at the close of the AASSA international symposium, 'Realizing the Full Cycle of Research and Development: From bench to the community', Tagaytay City, the Philippines, with academy leaders signing the resolutions document.

The emphasis of the 17 SDGs on inclusiveness presents significant challenges for the Asia-Pacific region as it is made up of very diverse countries and societies. Such challenges range from poverty and the urban-rural divide, environmental pollution and the lack of women's involvement in social and political engagement. Consequently, the Science Council of Japan (SCJ), with support from ASSA and IAP, hosted a workshop on the 'Role of Science for Inclusive Society' in Tokyo, Japan, on 1-3 March 2017 to discuss the interconnectedness of social systems (i.e., laws, regulations, and economic and cultural systems) and issues



Participants at the workshop on 'Science, State Structures and the Public: Joint efforts to reduce the risks and consequences of earthquakes', Bishkek, Kyrgyzstan.

more direct connected to science and technology, such as food production, water management, energy supply and disaster risk reduction.

There were 42 lectures by experts from 13 countries.

In his keynote presentation, 'Migration and Refugees: Trans-boundary emerging diseases and cultural aspects', Khairul Anuar Abdullah (Academy of Sciences Malaysia) discussed the case of the acceptance of refugees and migrants under Malaysia's current policies. Following, Cheryl Praeger (Australian Academy of Science and chair of the AASSA Committee on Women in Science and Engineering) discussed Australian programmes aimed at supporting greater participation of girls and women in science, technology, engineering and mathematics (STEM) that emphasize the importance of working collectively and collaboratively.

At the conclusion of the workshop, participants released a declaration that encourages scientists to consider diversity



Hak Soo Ki, speaker at the workshop on 'Sustainable Development Goals: Communication strategies', New Delhi, India.

when they undertake scientific research and to conduct their research with a long-term vision of its societal impacts.

Like much of Central Asia, the Kyrgyz Republic lies in an earthquake zone, so people live constantly with the possibility of seismic hazards. As reducing the risks of such natural disasters requires a coordinated approach from all parts of society, AASSA, organized a workshop, 'Science, State Structures and the Public: Joint efforts to reduce the risks and consequences of earthquakes', with the National Academy of Sciences, Kyrgyzstan (NAS KR) on 11-13 October 2017 in Bishkek, Kyrgyzstan. Participants came from ten countries, including others in Central Asia such as Azerbaijan, Iran, Nepal and Tajikistan, as well as those with a long history of tackling seismic hazards such as Indonesia and Japan.

The aims of the workshop were to spur scientific discussions on important issues linked to seismic hazards; to share scientific understanding of the seismic activity in Central Asia; to communicate this understanding to the public in the region; to share existing technologies and policies to mitigate seismic hazards; and to discuss how governments, seismic scientists, safety specialists, medical experts, the media, and citizens could cooperate in order to protect the public.

Amod Mani Dixit from the National Society for Earthquake Technology (NSET) in Nepal noted "What works is earthquake preparedness and risk reduction and not earthquake prediction." Finarya Legoh from the Agency for Assessment and Application of Technology and the University of Pelita Harapan, Indonesia, emphasized the importance of communication. Using Indonesia's Tsunami Early Warning System as a model, she showed how her team integrates villagers' local knowledge to develop science-based communication messages to expedite the evacuation process. The workshop also included consideration of the cultural heritage monuments in Kyrgyzstan in relation to potential impacts of seismic hazards on their safety, and identified actions necessary to preserve these monuments for future generations.

One of AASSA's main challenges is to involve those member academies with limited finances in the network's activities. By supporting NAS KR to host this workshop, AASSA and IAP helped build the capacity and visibility of the Kyrgyz academy as a source of science advice to its national government.

In addition to science and technology, effective science communication to the public and policymakers, are essential if we are to achieve the 169 targets of the 17 SDGs.

This was the concept behind AASSA's third workshop of the year, 'Sustainable Development Goals: Communication strategies'. The event was held on 16-18 November in New Delhi, India, organized jointly by the Indian National Academy of Sciences (INSA), India's Council of Scientific and Industrial Research (CSIR) and the National Institute of Science Communication and Information Resources (NISCAIR).

Scientists, communicators and policymakers from Afghanistan, Georgia, India, Iran, Indonesia, Japan and Korea presented lectures, including talks focusing on innovative initiatives such as communication strategies for



Young scientists at the workshop on 'Integrated Risk Assessment Methods Using Spatial and Social Vulnerability Data for Disaster Risk Reduction', Beijing, China.

reducing the impacts of natural disasters in remote areas and among marginalized sectors of society.

In his opening remarks, Ajay Sood, president of INSA, highlighted that communication strategies were integral to achieving the SDGs, but challenges such as a lack of scientific literacy among the public needed to be addressed. Hak-Soo Kim, former president of AASSA, echoed this sentiment, also noting that while there was no lack of information providers, media channels or messages, more public engagement is required. Workshop participants discussed ways to enhance public scientific literacy and engagement in the digital era. During the workshop, Ricky Kej, a Grammy Award winner and conservationist, gave a practical and creative demonstration of one way to achieve this by sharing his perspective on the hazards associated with climate change through film and live music.

AASSA closed the year by collaborating with the Chinese Academy of Sciences (CAS) to organize a workshop, 'Integrated Risk Assessment Methods Using Spatial and Social Vulnerability Data for Disaster Risk Reduction', on the Sanya Campus of the CAS Institute of Remote Sensing and Digital Earth. This was supported by IAP, China's Digital Belt and Road Programme (DBAR), the CAS-TWAS Centre of Excellence on Space Technology for Disaster Mitigation, the Integrated Research on Disaster Risk China National Committee, the International Society of Digital Earth and the CAS Institute of Remote Sensing and Digital Earth.

The first four days (11-14 December) were dedicated to a workshop, AASSA's first ever dedicated to training young

scientists. Twenty-two young scientists from 15 developing countries in Asia and Africa were given a scientific and practical guide on disaster risk reduction by experts from Bangladesh, China, Japan, Korea, Nepal, Pakistan, Sri Lanka and the United Kingdom. Among the topics covered were big data for applications in disaster risk reduction; challenges and bottlenecks in using and implementing various data sources; and enhancing cooperation between the big data community and other disaster risk reduction stakeholders.

The final day (15 December) was dedicated to a meeting of experts at an AASSA-CAS joint workshop on 'Big Earth Data for Disaster Risk Reduction in Asia'. Participants identified the many sources of data useful for disaster risk reduction, including Earth observation networks (for example, satellites and aircraft) and multi-purpose sensor networks (for example, extracting information from social media such as Twitter via smartphones) that have demonstrated their usefulness in disasters in Asia. They also noted the serious challenges posed by the quality and reliability of the information, as well its availability in real-time. Consequently they recommended that a common application/processing platform and appropriate data integration and sharing policies are required in order to more effectively use big data for disaster risk reduction in Asia. DBAR and AASSA are now cooperating to explore these possibilities.

For additional information on AASSA, please 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, the European Federation of Academies of Sciences and Humanities (ALLEA, which provides a complementary Europe-wide perspective), as well as representatives of the Norwegian and Swiss national academies of sciences. Its secretariat is hosted by the German National Academy of Sciences, Leopoldina. Through collaboration, EASAC is able to provide a collective voice of European science and provide independent advice to European policy-makers.



Representatives of European academies of science with the EASAC leadership and secretariat at the Bulgarian Academy of Sciences, Sofia, Bulgaria.

EASAC published four major reports and one substantial statement in 2017. In addition, its academy experts and staff published three articles in high-impact science journals (*eLife*, *The Journal of Internal Medicine*, and *The Lancet Planetary Health*) that further communicated the key findings of EASAC's reports and statements.

The spring and early summer saw the publication and launch events of the reports 'Genome Editing: Scientific opportunities, public interests, and policy options in the EU' (in March and May, respectively), 'Multi-functionality and Sustainability in the European Union's Forests' (May 2), and 'Valuing Dedicated Storage in Electricity Grids' (in May and June, respectively).

Through these publications, their associated launch events in Brussels and other communication activities, EASAC achieved outstanding visibility in European policy debates as evidenced by various articles appeared that in *EurActiv*, the key online news portal reporting about EU policies. The reports were also discussed at a national level, especially the one on sustainable forests, which received much attention as the result of in-depth articles in most of Scandinavia's major news outlets. The chair of the working group on 'Sustainable Forests' was also invited to represent EASAC at a Parliamentary Hearing by a Committee of the European

Parliament, where he answered questions concerning the evaluation of the EU's policies on forestry.

In September, EASAC launched a statement on 'Homeopathic Products and Practices: Assessing the evidence and ensuring consistency in regulating medical claims in the EU', which was discussed widely in the mainstream press and major news websites in a number of EU Member States, in particular in the Czech Republic, Hungary and the Netherlands. A number of national policy changes resulted from this publication, such as the closing of a homeopathy course at the biggest medical university in Hungary.

In November 2017, EASAC launched the report 'Opportunities and Challenges for Research on Food and Nutrition Security and Agriculture in Europe', developed as part of the global IAP project of the same name (see page 26).

In cooperation with various national science academies, EASAC also organized a series of regional events in 2017 aimed at further disseminating its reports. These included events on the issue of 'The Nuclear Fuel Cycle' in Sofia, Bulgaria, and Piran, Slovenia; on 'Storage in Electricity Grids' in Dublin, Ireland; on 'Homeopathy' in Stockholm, Sweden; and on 'Sustainable Forests' in Helsinki, Finland, and Stockholm, Sweden.

In October, EASAC joined with IAP, the US National Academy of Sciences, and the German National Academy of Sciences, Leopoldina to host a major international workshop on 'The Security Aspects of Genome Editing', which was attended by approximately 150 international experts from science, civil society and policy (see page 31).

For additional information on EASAC, please visit: www.easac.eu



Inter-American Network of Academies of Science (IANAS)



IANAS is a network of 21 academies of science and three scientific organizations. Its mission is to strengthen science communities in the Americas through capacity building and to provide an independent source of science policy advice to governments and the public on key challenges for the future of the region. IANAS is hosted by the Mexican Academy of Sciences.



Members of the Executive Committee of IANAS meeting in Costa Rica, hosted by the National Academy of Sciences of Costa Rica on the occasion of its 25th anniversary.

During 2017, IANAS continued to focus on its four core themes: science education, water resources, energy and women for science.

Science education

Towards the end of 2017, IANAS published a major report: 'Inquiry Based Science Education: Promoting Changes in Science Teaching in the Americas'. The book is a compilation of 13 years' experience gained by IANAS' member academies in their efforts to promote and give relevance to science education in their various countries. It highlights the efforts to promote inquiry-based science education (IBSE) in 17 countries throughout the Americas and is available as a free download in both Spanish and English.

In November, members of the IANAS science education programme also participated in the training of nearly 500

primary and secondary school science teachers in Cordoba, Argentina. Teachers learned about techniques for teaching science, technology, engineering and mathematics (STEM) subjects to children. The meeting, which received additional support from the Ministries of Education and of Science and Technology of Argentina, was hosted by the National Academy of Sciences of Argentina (Cordoba) and the National Academy of Exact, Physical and Natural Sciences of Argentina.

Water

In 2017, the IANAS Water Programme focused on various planning activities for future outputs.

For example, in August, focal point members of the Water Programme participated in a symposium organized for the official launch of the Carleton Global Water Institute in

Ottawa, Canada, that was hosted by the Royal Society of Canada and Carleton University. Discussions focused on potential ways to collaborate on water research.

The water programme focal points also finalized a summary of the publication on 'Urban Water', and continued preparations for a forthcoming publication on 'Water Quality'.

In September they held a planning meeting in Nassau, the Bahamas, for another book, 'Water Challenges for the Caribbean', that will specifically address the regional water situation. Chapter coordinators from 12 different countries were selected, with additional country coordinators to be added during 2018. This meeting received support from IAP as well as the Caribbean Academies of Sciences and the International Hydrological Programme (IHP) at the UNESCO Regional Office for Sciences in Latin America and the Caribbean.

Energy

In April, IANAS Energy Programme focal points met at Biosphere2, hosted by the University of Arizona, USA. It was agreed to update the 'Guide Towards a Sustainable Energy Future for the Americas', first published in 2016. The revised version will include country-by-country assessments. The Energy team will also provide a chapter for the planned 'Water Quality' publication (see above).

A collaboration with the Smart Villages (www.e4sv.org) organization, which has links to EASAC, is also ongoing. Smart Villages is concerned with improving energy access for communities in remote rural areas.

Women for Science

The focal point meeting of the IANAS Women for Science working group (WfS-WG) was held in Irvine, California, hosted by the US National Academy of Sciences.

Discussions centred on the development of a portal aimed at mentoring young women scientists in the Americas,

collating addition profiles of excellent women scientists as role models in the Americas (to add to those published in the 2013 book, 'Women Scientists in the Americas: Their inspiring stories'), especially from Ecuador, Honduras and Uruguay. Efforts are also ongoing to highlight the careers of women entrepreneurs in the region, as well as developing a 'Women for Science' Facebook page accessible from the IANAS website.

The WfS-WG also took the first steps towards working jointly with the IANAS science education programme, with plans to jointly address this issue of science education and gender in the Americas.

Food and nutrition security

The country chapter coordinators of the IAP global 'Food and Nutrition Security and Agriculture' (FNSA) project (see page 26) met in March in Lima, Peru, hosted by the National Academy of Sciences of Peru. IANAS representatives also attended the FNSA project planning meeting at the German Academy of Sciences, Leopoldina, held in Halle, Germany, in April.

Following these two meetings, work focused on the finalisation of the two planned publications, 'Challenges and Opportunities for Food and Nutrition Security in the Americas: The view of the academies of sciences', which was published in November. An overview, 'Opportunities and Challenges for Research on Food and Nutrition Security and Agriculture in the Americas: Regional analysis prepared from country assessments by IANAS', is scheduled for release in early 2018.

For additional information on IANAS, please visit: www.ianas.org



Members of the IANAS Women for Science working group (WfS-WG) at the focal point meeting held in Irvine, California, hosted by the US National Academy of Sciences.

Network of African Science Academies (NASAC)



The Network of African Science Academies (NASAC) is a consortium of 24 merit-based science academies in Africa and aspires to make the voice of science heard by policy and decision makers in the continent and worldwide. NASAC is dedicated to enhancing the capacity of existing national science academies and facilitating the creation of new academies in countries where none exist.



'TD': Participants spell out the keynote theme during a NASAC workshop on 'TransDisciplinary Training: Advancing the implementation of SDG 11 in Africa', held at Makerere University, Kampala, Uganda, 28 August - 1 September 2017.

During 2017, NASAC continued its efforts to strengthen both the capacity and the role of science academies to provide credible, science-informed advice to governments in Africa. The long-term aim is to convince governments of African nations to value academies as sources of science advice on issues of national importance. To achieve this, many activities focused on sharing experiences and the exchange of best practices, as well as fostering inter-academy networking initiatives.

Operational capacity

In 2017, NASAC awarded capacity-building grants to the Burundi Academy of Science and Technology (BAST), the *Académie des Sciences, des Arts, des Cultures d'Afrique et des Diasporas Africaines* (ASCAD) in Cote d'Ivoire and the Academy of Science of South Africa (ASSAf).

BAST used its contribution to host a conference in Bujumbura, Burundi, on 'The Role of BAST in Achieving the SDGs in Burundi'. The conference drew on the expertise of the academy's membership and the good practices of science academies and other scientific organizations in Africa to develop strategic frameworks for growth and poverty reduction as outlined in the Sustainable Development Goals (SDGs).

ASCAD used its contribution to host a side-event on the 'Abidjan Call' during the African Union-European Union Summit held in Abidjan in November 2017. The objective was to persuade African decision-makers, policymakers and institutional funders to establish an African Research Council (ARC). The proposed organization would be as a long-term support mechanism to finance individual and collaborative research based on scientific excellence, thereby promoting science and scientific mobility in Africa. The Abidjan Call was endorsed by the majority of NASAC members.

ASSAf used its contribution, together with additional support from the Southern Africa Development Community (SADC) Science, Technology and Innovation Desk and the Government of Swaziland, to host a 'Workshop on the Role of Science Academies in the National System of Innovation' that took place in June in Ezulwini, Swaziland. Swaziland, as chair of SADC, hosted the event. A major point on the agenda was the creation of an academy of science in Swaziland, thereby directly addressing IAP's fourth strategic aim – to promote the establishment of academies in countries where they do not yet exist. There were 91 participants, including SADC senior officials, representatives from the academies of Botswana, Mozambique, South Africa, Tanzania, Zambia and Zimbabwe, as well as other stakeholders from Swaziland.

Following the workshop there was a firm commitment from the

Royal Swaziland Government to support the establishment of a Swazi Academy of Sciences.

The following month, NASAC hosted a capacity enhancement workshop on 'Academies' Communications, Outreach and Distribution of Science-based Advice to Policymakers and the Public' in Nairobi, Kenya. This event, supported by IAP and the German Ministry of Education and Research (BMBF) via the German National Academy of Sciences, Leopoldina, was attended by 32 academy staff and officials from 20 countries. The workshop included sessions on effective communication to policymakers and the media, where participants shared their experiences on hosting events to promote NASAC's policymakers' booklets. There was also a dedicated session for representatives of new NASAC academies (Algeria, Benin, Botswana and Burundi) where they could learn how more established academies had tackled the issue of demonstrating the value of science academies to national policy makers.

Adding value

The 'Thirteenth Annual Meeting of African Science Academies' (AMASA-13), held in November 2017 in Abuja, Nigeria, was hosted by the Nigerian Academy of Sciences (NAS). There were discussions considering solutions to science education and human capital development issues in Africa; how science education and human capital development can accelerate Africa's growth to meet globally acceptable standards; and how to initiate a long-term engagement plan for African science academies to work together with their respective governments and policy makers to develop a more sustainable and self-reliant Africa. Among the keynote speakers were Ahmed Hamdy, executive director of the African Union Scientific Technical Research Commission, and Ife Falegan, of Nigeria's Office of the Special Advisor to the President on the Sustainable Development Goals.

As a side event to AMASA-13, the International Network for Government Science Advice (INGSA) hosted a 'Learning Collaborative Workshop on Science Advice'. More than 120 participants attended the events, with NAS covering much of the accommodation and other local costs.

Women for Science

The NASAC Women for Science Working Group (WfS-WG) met in September 2017 in Nairobi, Kenya. During the meeting,



Members of the NASAC Women for Science working group at their meeting in Nairobi, Kenya.

members reviewed the forthcoming publication, 'Women for Science: Inspiring Stories of Women Scientists in Africa'. They also committed to develop an in-country communication and dissemination plan specific to their academies to ensure that avenues for inspiring young women and girls to pursue scientific careers are being explored. In addition, members identified activities, collaborations and joint initiatives that they would engage in, as well as accepting to serve as the Steering Group for the planned international forum on 'Women and Sustainable Development in Africa' scheduled for March 2018 in Dar es Salaam, Tanzania.

Science education

In October, NASC representatives participated in the third African European and Mediterranean Academies for Science Education (AEMASE) conference held in Paris, France. The theme of this event, hosted by the French Academy of Sciences, was 'A Way Towards International Centres for Science Teachers' and brought together more than 100 participants.

The objective of the conference was to launch a project to establish Centres for Science Education in Africa, Mediterranean and Europe (CESAME), where teachers and their trainers will interact with scientists for a few weeks and train on investigation, taking advantage of rich international exchanges. Six African countries officially declared their willingness to launch a CESAME: Benin, Cameroon, Egypt, Morocco, South Africa and Tunisia (see pages 18-23).

For additional information, see:
www.nasaconline.org



Representatives of African science academies at the 13th Annual Meeting of African Science Academies (AMASA-13) in Abuja, Nigeria.

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Members of the InterAcademy Partnership

(as of December 2017)

1.	Afghanistan Academy of Sciences
2.	Albanian Academy of Sciences
3.	<i>Academia Nacional de Ciencias Exactas, Fisicas y Naturales de la Republica Argentina</i>
4.	<i>Academia Nacional de Medicina de Buenos Aires</i>
5.	National Academy of Sciences of Armenia
6.	Academy of Medical Sciences of Armenia
7.	Australian Academy of Science
8.	Austrian Academy of Sciences
9.	Bangladesh Academy of Sciences
10.	National Academy of Sciences of Belarus
11.	Royal Academies for Science and the Arts of Belgium
12.	Belgian Royal Academy of Medicine
13.	Benin National Academy of Sciences and Arts
14.	<i>Academia Nacional de Ciencias de Bolivia</i>
15.	<i>Academia Boliviana de Medicina</i>
16.	Academy of Sciences and Arts of Bosnia and Herzegovina
17.	Brazilian Academy of Sciences
18.	<i>Academia Nacional de Medicina, Brazil</i>
19.	Bulgarian Academy of Sciences
20.	National Academy of Sciences Burkina Faso
21.	Cameroon Academy of Sciences
22.	Royal Society of Canada
23.	Canadian Academy of Health Sciences
24.	<i>Academia Chilena de Ciencias</i>
25.	<i>Academia Chilena de Medicina</i>
26.	Chinese Academy of Sciences
27.	Chinese Academy of Engineering
28.	<i>Academia Sinica, Taiwan, China</i>
29.	Colombian Academy of Exact, Physical & Natural Sciences
30.	<i>Academia Nacional de Medicina de Colombia</i>
31.	Croatian Academy of Arts and Sciences
32.	Croatian Academy of Medical Sciences
33.	Cuban Academy of Sciences
34.	Czech Academy of Sciences
35.	Royal Danish Academy of Sciences and Letters

36.	<i>Academia de Ciencias de la Republica Dominicana</i>
37.	Academy of Sciences of Ecuador
38.	Academy of Scientific Research and Technology, Egypt
39.	Estonian Academy of Sciences
40.	Ethiopian Academy of Sciences
41.	Council of Finnish Academies
42.	<i>Académie des Sciences, Institut de France</i>
43.	<i>Académie Nationale de Médecine, France</i>
44.	<i>Académie des Technologies, France</i>
45.	Georgian National Academy of Sciences
46.	Georgian Academy of Medical Sciences
47.	Union of German Academies of Sciences and Humanities
48.	German National Academy of Sciences, Leopoldina
49.	Ghana Academy of Arts and Sciences
50.	Academy of Athens, Greece
51.	<i>Academia de Ciencias Medicas, Fisicas y Naturales de Guatemala</i>
52.	National Academy of Sciences of Honduras
53.	Hungarian Academy of Sciences
54.	Indian National Science Academy
55.	National Academy of Medical Sciences, India
56.	Indonesian Academy of Sciences
57.	Academy of Sciences of the Islamic Republic of Iran
58.	Iranian Academy of Medical Sciences
59.	Royal Irish Academy
60.	Israel Academy of Sciences and Humanities
61.	<i>Accademia Nazionale dei Lincei, Italy</i>
62.	<i>Accademia Nazionale di Medicina, Italy</i>
63.	Science Council of Japan
64.	Royal Scientific Society of Jordan
65.	National Academy of Sciences of the Republic of Kazakhstan
66.	Kenya National Academy of Sciences
67.	Korean Academy of Science and Technology
68.	National Academy of Sciences, Republic of Korea
69.	Kosova Academy of Sciences and Arts

70.	National Academy of Sciences of the Kyrgyz Republic
71.	Latvian Academy of Sciences
72.	Lebanese Academy of Sciences
73.	Lithuanian Academy of Sciences
74.	Macedonian Academy of Sciences and Arts
75.	Madagascar's National Academy of Arts, Letters and Sciences
76.	Academy of Sciences Malaysia
77.	Mauritius Academy of Science and Technology
78.	Mexican Academy of Sciences
79.	National Academy of Medicine of Mexico
80.	Academy of Sciences of Moldova
81.	Mongolian Academy of Sciences
82.	Montenegrin Academy of Sciences and Arts
83.	Hassan II Academy of Science and Technology, Morocco
84.	Academy of Science of Mozambique
85.	Nepal Academy of Science and Technology
86.	Royal Netherlands Academy of Arts and Sciences
87.	Royal Society of New Zealand
88.	Nicaraguan Academy of Sciences
89.	Nigerian Academy of Science
90.	Norwegian Academy of Sciences and Letters
91.	Pakistan Academy of Sciences
92.	Palestine Academy for Science and Technology
93.	<i>Academia Nacional de Ciencias del Peru</i>
94.	National Academy of Science and Technology, Philippines
95.	Polish Academy of Sciences
96.	<i>Academia das Ciencias de Lisboa, Portugal</i>
97.	Romanian Academy
98.	Academy of Medical Sciences of Romania
99.	Russian Academy of Medical Sciences
100.	Russian Academy of Sciences
101.	<i>Académie des Sciences et Techniques du Sénégal</i>
102.	Serbian Academy of Sciences and Arts
103.	Singapore National Academy of Sciences
104.	Slovak Academy of Sciences

105.	Slovenian Academy of Sciences and Arts
106.	Academy of Science of South Africa
107.	<i>Real Academia de Ciencias Exactas, Fisicas y Naturales, Spain</i>
108.	National Academy of Sciences, Sri Lanka
109.	Sudanese National Academy of Sciences
110.	Royal Swedish Academy of Sciences
111.	Swiss Academies of Arts and Sciences
112.	Swiss Academy of Medical Sciences
113.	Academy of Sciences of the Republic of Tajikistan
114.	Tanzania Academy of Sciences
115.	Thai Academy of Science and Technology
116.	Turkish Academy of Sciences
117.	Uganda National Academy of Sciences
118.	National Academy of Sciences of Ukraine
119.	Academy of Medical Sciences, UK
120.	Royal Society , UK
121.	US National Academy of Sciences
122.	US National Academy of Medicine
123.	National Academy of Sciences of Uruguay
124.	Uzbekistan Academy of Sciences
125.	<i>Pontificia Academia Scientiarvm, Vatican</i>
126.	<i>Academia de Ciencias Fisicas, Matematicas y Naturales de Venezuela</i>
127.	<i>Academia Nacional de Medicina de Venezuela</i>
128.	Zimbabwe Academy of Sciences
129.	African Academy of Sciences
130.	Caribbean Academy of Sciences
131.	European Academy of Sciences and Arts
132.	Islamic World Academy of Sciences
133.	Latin American Academy of Sciences
134.	TWAS, The World Academy of Sciences
135.	World Academy of Art and Science

IAP for Science and IAP for Health Financial Summary, 2017

The total amount of funds received for activities in 2017 was USD 1,507,942. The main contribution was from the Italian Ministry of Foreign Affairs (USD 714,443). Additional contributions were received from the Academy of Medical Sciences of Romania, the Korean Academy of Science and Technology (KAST), the Royal Society, UK, the Australian Academy of Science, and the National Academy of Sciences and Technology, Korea (NAST as voluntary contributions to support IAP activities in 2017. A contribution from the Open Philanthropy Project LLC helped support the organization of a side event to a meeting of the Biological and Toxin Weapons Convention in Geneva (see page 31).

Staff costs increased compared to 2016 (USD 226,314) partly because of the exceptional savings made in 2016, but also because of the appointment (from March) of a project developer, made possible thanks to the contribution from the Volkswagen Foundation.

In addition, it is estimated that member academies and regional affiliated networks contributed more than USD 1,000,000 by leveraging funds for activities from other donors, and through in-kind support for the organization and hosting of conferences and workshops, travel support for their representatives to IAP and other events, the publication of reports, as well as the provision of staff time.

In 2107, special mention should be made of the Sudanese National Academy of Science, for hosting the IAP Science Education Programme's Global Council and policy forum in February; the German National Academy of Sciences, Leopoldina, for supporting the IAP for Science Executive Committee meeting in Halle, in April, and the IAP for Health Executive Committee and IAP Board meetings in Berlin in October; the Georgian Academy of Medical Sciences for hosting an international workshop on 'New Steps in Critical Care Medicine' in Tbilisi in September; and the Chinese Academy of Sciences (CAS) for hosting the IAP Science for Poverty Eradication Committee (IAP-SPEC) meeting in Beijing in December.

IAP for Health itself leveraged additional funding for its activities from the UK Academy of Medical Sciences, the World Health Summit Foundation GmbH and the Bayer Science and Education Foundation.

In July-August, the financial affairs of IAP and its host academy, TWAS, were audited by UNESCO's Internal Oversight Service (IOS). While the IOS audit report was largely positive, some new administrative procedures were imposed on TWAS and IAP at the end of 2017. Partly because of these new procedures, the IAP secretariat experienced difficulties finalizing grant contracts to its regional networks and other academies before the end of 2017, accounting for the large carry-over at the end of the year.

IAP for Science Financial Report for 2017 (in USD)

INCOME ¹	2017
Balance brought forward 1.1.2017	629,603.87
1 Ministry of Foreign Affairs, Italy	714,443.24
2 Volkswagen Foundation, Germany	113,766.00
3 Open Philanthropy Project LLC	14,605.00
4 Academy of Medical Sciences of Romania	5,000.00
5 Korean Academy of Science and Technology	5,000.00
6 Royal Society, UK	3,971.69
7 Australian Academy of Science	1,000.00
8 National Academy of Science and Technology, Korea	500,00
9 Interest	20,052.00
TOTAL income	1,507,941.80

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	2017	
	Budget	Spent
1) Scientific Projects		
1.1) New Projects	279,000	27,464.74
1.2) Regional Network Programmes	380,000	
1.3) Policy collaboration with IAP for Research	40,000	
1.4) Fundraising for new activities	150,000	
<i>Sub-Total for (1)</i>	840,000	27,464.74
2) Meetings and Conferences		
2.1) Executive Committee Meetings/GA Conference/Travels	60,000	38,456.54
2.2) Conference for Young Scientists	20,000	17,886.26
2.3) Young Physician Leaders	12,000	6,424.06
<i>Sub-Total for (2)</i>	92,000	62,766.86
3) Publications (Website/Brochure)		
3.1) Website	5,000	2,640.01
3.2) Other publications	15,000	14,597.24
<i>Sub-Total for (3)</i>	20,000	17,237.25
4) Operational Expenses		
4.1) Staff and Consultant Costs	500,000	388,871.76
4.2) Staff travels	10,000	9,614.52
4.3) Communications	5,000	3,342.97
4.3) Office and Other Supplies	20,000	6,770.30
4.4) ICTP services	30,000	30,000
<i>Sub-Total for (4)</i>	565,000	438,599.55
<i>Total Expenditure</i>	1,517,000	546,068.40
Savings on prior years' obligations		80,841.70
Excess (Shortfall) of income over expenditure		1,042,715.10
Reserve Fund¹		
Amount available at the beginning of period		127,301.51
End of service entitlements		0.00
Reserve Fund balance end of period		127,301.51

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

IAP for Research Financial Summary, 2017¹

In 2017, the InterAcademy Council (IAC) hosted by the Royal Netherlands Academy of Arts and Sciences (KNAW), dissolved and transferred all assets to the new organization, the InterAcademy Partnership for Research (IAP-R), a US-based non-profit organization hosted by the National Academies of Sciences, Engineering and Medicine. During this transition year, financial management of the organization was transferred from IAC to IAP-R. The total amount of funds received by IAP for Research in 2017 was EUR 596,208. Income came from the US National Academies of Sciences, Engineering and Medicine (NASEM) as host of the IAP-R secretariat, the Carnegie Corporation of New York through the Institute for Advanced Study to support the projects 'Improving Scientific Input to Global Policymaking: Strategies for Attaining the Sustainable Development Goals', and 'Harnessing Science, Engineering, and Medicine to Address Africa's Challenges' (see pages 24-25), IAP for Science for the InterAcademy Partnership website, and IAP-R indirect charges. A small amount came from the royalties from the book, 'Doing Global Science: A guide to responsible conduct in the global research enterprise'.

IAP for Research Financial Report for 2017 (in Euro)

INCOME	
US NASEM contribution	146,004
Projects and administration ²	449,731
Book royalties	473
Total income	596,208

EXPENDITURES	
Project Expenses	378,681
Operational Expenses:	
Staff salaries	108,529
Website and public information	32,710
Travel	9,040
Professional fees	9,849
Miscellaneous	-16,574 ³
Administration	20,316 ⁴
Total Expenditure	542,551
Excess (Shortfall) of income over expenditure	53,657

¹ Sources for report include: 2017 profit & loss (P&L) statement prepared by IAC and expenses paid by IAP-R fiscal sponsor, the Institute for Advanced Studies (IAS) at the end of 2017 during transition from IAC to IAP-R.

² Includes Carnegie project expenses reimbursed by IAS, Carnegie project administration, and IAP for Science contribution.

³ Includes cancelled accounts payable in the amount of -24,826 EUR for IAC audit that was never conducted once it was decided that IAC would be dissolved, plus 8252 EUR in miscellaneous expenditures.

⁴ NASEM-assessed administration charges for project time October - December 2017 (administration charges were not assessed by NASEM prior to October 2017).

Member contributions

direct financial contributions and in-kind support

Pledges to the IAP fundraising campaign initiated in 2013

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

Voluntary Membership Contributions (since 2013)

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

Project support

IAP projects are also being implemented by various partners. The German National Science Academy, Leopoldina, for example, is holding funds from the German Federal Ministry of Education and Research for the IAP Food Nutrition and Security and Agriculture (FNSA) project (see page 26). The Leopoldina also received funds from the Volkswagen Foundation and the Gordon and Betty Moore Foundation to host the international workshop on 'Assessing the Security Implications of Genome Editing Technology' that was held in Herrenhausen, Germany, in October (see page 31). Likewise, the Institute of Advanced Study in Princeton, USA, is holding funds from the Carnegie Corporation of New York for two projects that link science to policymaking (see pages 24-25). Under the IAP Science Education Programme, the Smithsonian Science Education Center, Washington DC, USA, also holds a grant of some USD100,000 to develop modules to educate schoolchildren on the life cycle of mosquitoes and how to stay safe from mosquito-transmitted diseases (see pages 18-23).

In-kind support

IAP would like to thank its many member academies that have contributed to its fundraising campaign, have provided voluntary membership contributions, or that have provided in-kind support. Without this buy-in from the members, IAP activities would have much less visibility and impact around the globe.



Standing Committees

InterAcademy Partnership Steering Committee

- Volker ter Meulen*, Germany (Co-chair IAP for Science)
- Krishan Lal, India (Co-chair IAP for Science)
- Depei Liu*, China (Co-chair IAP for Health)
- Detlev Ganten, Germany (Co-chair IAP for Health)
- Richard Catlow, UK (Co-chair IAP for Research)
- Daya Reddy, South Africa (Co-chair IAP for Research)

* Depei Liu and Volker ter Meulen are the current Presidents of the InterAcademy Partnership

In addition to the Steering Committee members, the following individuals, representing the IAP regional networks, make up the **InterAcademy Partnership Board**

Yoo Hang Kim, South Korea (Association of Academies and Societies of Sciences in Asia, AASSA)

Thierry Courvoisier, Switzerland (European Academies Science Advisory Council, EASAC)

Juan Asenjo, Chile (Inter-American Network of Academies of Science, IANAS)

Mostapha Bousmina, Morocco (Network of African Science Academies, NASAC)

IAP for Science Executive Committee

- Krishan Lal, India (Co-chair)
- Volker ter Meule, Germany (Co-chair)
- African Academy of Sciences, Felix Dapare Dakora
- Australian Academy of Science, Cheryl Praeger
- Brazilian Academy of Sciences, Luiz Davidovich
- Royal Society of Canada, Jeremy McNeil
- *Academia Chilena de Ciencias*, Juan Asenjo
- Cuban Academy of Sciences, Sergio Pastrana
- Academy of the Islamic Republic of Iran, Reza Shams Ardekani
- Science Council of Japan, Takashi Onishi
- Korean Academy of Science and Technology, Myung Chul Lee
- Academy of Science of South Africa, Daya Reddy
- Royal Society, UK, Richard Catlow

Ex-officio member:

The World Academy of Sciences (TWAS)

IAP for Health Executive Committee

- Detlev Ganten, Germany (Co-chair)
- Depei Liu, China (Co-chair)
- *Academia Nacional de Medicina* (Argentina), Jorge Alberto Neira
- *Accademia Nazionale dei Lincei* (Italy), Mario Stefanini
- Academy of Sciences Malaysia, Lai-Meng Looi
- Hassan II Academy of Science & Technology (Morocco), Rajae El Aouad
- National Academy of Science and Technology (Philippines), Carmencita D. Padilla
- Academy of Science of South Africa, Karen Hoffman
- Swiss Academy of Medical Sciences, Thomas Zeltner
- Academy of Medical Sciences (UK), George Griffin
- US National Academy of Medicine, Margaret Hamburg

Ex-officio member:

The World Academy of Sciences (TWAS)

IAP for Research Board

- Richard Catlow, United Kingdom (Co-chair)
- Daya Reddy, South Africa (Co-chair)
- African Academy of Sciences, Felix Dapare Dakora
- Australian Academy of Science, Andrew Holmes
- Brazilian Academy of Sciences, Luiz Davidovich
- Chinese Academy of Sciences, Tao Zhang
- *Académie des Sciences* (France), Sébastien Candel
- German National Academy of Sciences Leopoldina, Jörg Hacker
- Indian National Science Academy, Ajay K Sood
- *Accademia dei Lincei* (Italy), Alberto Quadrio Curzio
- Science Council of Japan, Juichi Yamagiwa
- Royal Scientific Society of Jordan, HRH Princess Samaya Bint El Hassan
- Mexican Academy of Sciences, Jose Luis Moran Lopez
- Royal Netherlands Academy of Arts and Sciences, José van Dijck
- Nigerian Academy of Science, Mosto Onuoha
- National Academy of Sciences, Sri Lanka, Azeez Mubarak
- The World Academy of Sciences (TWAS), Bai Chunli

Ex-officio members:

IAP for Health

IAP for Science

International Council of Academies of Engineering and Technological Sciences (CAETS)

Membership Committee

- Sergio Pastrana, Cuban Academy of Sciences (Chair)
- Fola Esan, IAP for Health
- Khairul A. bin Abdullah, AASSA
- Thierry J.-L. Courvoisier, EASAC
- Jeremy McNeil, IANAS
- Barney Pityana, NASAC

Statements Governance Committee

- George Griffin, UK (Chair)
- Marcello Barcinski, Brazil
- Jeremy McNeil, Canada

Science for Poverty Eradication Committee

- Luiz Davidovich, Brazilian Academy of Sciences (Chair)
- Lai Meng Looi, IAP for Health
- Aya Abe, AASSA
- Aishah Bidin, AASSA
- Richard Catlow, EASAC
- Peter Fritz, EASAC
- Ricardo Paes de Barros, IANAS
- Judith Teichman, IANAS
- Yousuf Maudarbocus, NASAC
- Ratemo Michieka, NASAC
- Robert Lepenies, Global Young Academy
- Pending - IAP for Research

Science Education Programme (SEP) Global Council

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

Improving Scientific Input to Global Policymaking: Strategies for Attaining the Sustainable Development Goals*

Working Group Members

- Eva Alisic, Australia (Co-chair)
- Jinghai Li, China (Co-chair)
- Michael Barber, Australia
- Peter Fritz, Germany
- Norichika Kanie, Japan
- Muhammad Saidam, Jordan
- Francisco José Sánchez-Sesma, Mexico
- Rajae El Aouad, Morocco
- Robert Scholes, South Africa
- Keto E. Mshigeni, Tanzania
- Sandy Harrison, United Kingdom

Harnessing Science, Engineering and Medicine to Address Africa's Challenges*

Working Group Members

- Robin Crewe, South Africa (Co-chair)
- Oyewale Tomori, Nigeria (Co-chair)
- T.J. Higgins, Australia
- Norbert Hounkonnou, Benin
- Sameh Soror, Egypt
- Odile Macchi, France
- Peter Fritz, Germany
- Eric Odada, Kenya
- Rajaâ Cherkaoui El Moursli, Morocco
- Himla Soodyall, South Africa
- Guéladio Cissé, Switzerland
- Keto E. Mshigeni, Tanzania
- Richard Catlow, UK
- Cato Laurencin, USA

* Both projects are supported by a secretariat led by Tracey Elliott, Project Director, together with Teresa Stoepler (Executive Director, IAP for Research, US NASEM), Nina Ward (Research Associate, US NASEM) and Arlen Hastings (Director of External Projects, Institute for Advanced Study, Princeton).

For additional information, contact:

projects@iappartnership.org

Meetings supported in 2017

January

- Isfahan, Iran, IAP Science Education Programme Inquiry-based Science Education (IBSE) workshop, hosted by ECOSF, 7-13 January 2017
- Berlin, Germany, EASAC Working Group Meeting on Homeopathy, 13 January 2017
- Tromsø, Norway, EASAC Bureau Meeting, 31 January-2 February 2017

February

- Paris, France, Working Group meeting, IAP/Carnegie project on 'Improving scientific input to global policymaking', 1-2 February 2017
- Cape Town, South Africa, 'Urban Health in Africa: Advancing multi-disciplinary approaches', 6-7 February 2017
- Khartoum, Sudan, IAP Science Education Programme conference and policy forum, 6-10 February 2017
- Khartoum, Sudan, IAP SEP Global Council, 8 February 2017
- Addis Ababa, Ethiopia, Working Group meeting, IAP/Carnegie project on 'Harnessing SEM to address Africa's challenges', 27-28 February 2017

March

- Tokyo, Japan, AASSA-Science Council of Japan workshop on the 'Role of Science for Inclusive Society', 1 March 2017
- Lima, Peru, IANAS 'Food and Nutrition Security for the Americas: Country Chapter Coordinators Meeting', 13-17 March 2017
- Sofia, Bulgaria, EASAC-JRC Regional Event on 'Nuclear Fuel Cycle', 15 March 2017
- Piran, Slovenia, EASAC-JRC Regional Event on 'Marine Sustainability', 22 March 2017
- Rome, Italy, G7 Academies planning meeting at the *Accademia Nazionale Lincei*, 23-24 March 2017
- Irvine, California, IANAS meeting on 'Women for Sciences' Focal Points and Encounter with US-Women Scientists, 27-29 March 2017

April

- Halle, Germany, IAP for Science Executive Committee meeting, 2 April 2017
- Halle, Germany, global review meeting of IAP 'Food and

Nutrition Security and Agriculture' project, 3-5 April 2017

- Lisbon, Portugal, EASAC Environment Steering Panel Meeting, 11 April 2017
- Trieste, Italy, Federation of European Academies of Medicine (FEAM) Council meeting, 20 April 2017
- Trieste, Italy, IAP for Health Executive Committee /FEAM Council Joint Session, 21 April 2017
- IAP for Health Executive Committee meeting, 21-22 April 2017
- Tucson, Arizona, IANAS meeting on 'Energy Focal Points' and 'Smart Villages', 24-26 April 2017
- Athens, Greece, EASAC Energy Steering Panel Meeting, 25 April 2017
- Paris, France, AEMASE planning meeting, 26 April 2017
- Kathmandu, Nepal, Nepal Academy of Science and Technology and Nepal Health Research Council, Ministry of Health first research training workshop, 28-29 April 2017

May

- Trinidad and Tobago, CARICOM Science, Technology and Innovation Committee, UNESCO and CARISCIENCE conference on 'Science, Technology and Innovation in the Caribbean: Strengthening cooperation', 2-4 May 2017
- Rome, Italy, G7 Academies meeting at the *Accademia Nazionale Lincei*, 3 May 2017
- Brussels, Belgium, Public Launch of EASAC policy report on 'Genome Editing', 4 May 2017
- Paris, France, Urban Health meeting, 10-11 May 2017
- Brussels, Belgium, Public Launch of EASAC report on 'Sustainable Forests', 11 May 2017
- New York, US, IAP/Carnegie-led side event at UN STI Multistakeholder Forum, 'Mobilising the global science community to support the SDGs', 15 May 2017
- Aviemore, Scotland, GYA 7th International Conference of Young Scientists and Annual General Meeting, 15-19 May 2017
- Pokhara, Nepal, Nepal Academy of Science and Technology and Gandaki Medical College second research training workshop, 19-20 May 2017
- Tallinn, Estonia, EASAC Bureau meeting, Estonian Academy of Sciences, 25 May 2017

June

- Chitwan, Nepal, Nepal Academy of Science and

Technology and Nepal Health Research Council (NHRC) third research training workshop, 16-17 June 2017

- Brussels, Belgium, Public Launch of EASAC policy report on 'Dedicated Electricity Storage', 19 June 2017
- Ezulwini, Swaziland, NASAC-ASSAf workshop on the 'Role of Science Academies in the National System of Innovation', 19-21 June 2017
- San Jose, Costa Rica, IANAS Executive Committee Meeting, 25-28 June 2017
- Paris, France, 3rd World Science Forum Steering Committee meeting, 26 June 2017
- Rio de Janeiro, Brazil, Brazilian National Academy of Medicine Young Physician Leaders workshop, 29-30 June 2017

July

- Beijing, China, 2017 IAP Science Education Programme 'International Forum on Science Education', 2-5 July 2017
- London, UK, UK Academy of Medical Sciences-IAP workshop on 'Strengthening Clinical Research Capacity in Low and Middle Income Countries', 3-4 July 2017
- Brussels, Belgium, EASAC open workshop on 'Decarbonisation of Transport', 4-5 July 2017
- Nairobi, Kenya, NASAC-Leopoldina capacity building workshop on 'Academies' Communications, Outreach & Distribution of Science-Based Advice to Policymakers and the Public', 6-7 July 2017
- Nairobi, Kenya, 6th NASAC Board meeting, 8 July 2017
- Johannesburg, South Africa, 3rd World Wide Meeting of National Young Academies, 19-21 July 2017
- Beijing, China, IAP Science Education Programme at the 'The Belt and Road Teenager Maker Camp and Teacher Workshop', 17-22 December 2017

August

- Kiel, Germany, International Congress on Traditional Asian Medicines (including launch of IAP for Health book), 6-12 August 2017
- Ottawa, Canada, IANAS meeting on 'Urban Water Challenges for the Americas', 13-17 August 2017
- August 14th to 16th Hosted by Royal Society of Canada and Carleton University
- Kampala, Uganda, ICSU-NASAC-ISSC 'Transdisciplinary Training: Advancing the implementation of SDG 11 in Africa', 28 August - 1 September 2017

- London, UK, EASAC Working Group meeting on 'Negative Emission Technologies', 29 August 2017

September

- Erice, Italy, Summer school on Climate Change Education, 1-7 September 2017
- Dublin, Ireland, Royal Irish Academy Breakfast Briefing on Latest EASAC Report 'Electricity Storage', 7 September 2017
- Trieste, Italy, OPWC-TWAS-IAP workshop on 'Policy and Diplomacy for Scientists: Introduction to responsible research practices in chemical and biochemical sciences', 12-15 September 2017
- Rome, Italy, CESAME committee meeting, 13 September 2017
- Halle, Germany, EASAC Bureau and strategy meeting, 14-15 September 2017
- Warsaw, Poland, EASAC Environment Steering Panel meeting, 18-19 September 2017
- Nassau, Bahamas, IANAS meeting on 'Water Challenges and Solutions for the Caribbean', 19 September 2017
- Kiev, Ukraine, Biological Weapons Convention (BWC) regional meeting for scientists, 21-22 September 2017
- Tagaytay, Philippines, AASSA-NAST (Philippines) International Symposium on 'Realizing the Full Cycle of Research and Development: From bench to the community', 21-23 September 2017
- Tbilisi, Georgia, Georgian Academy of Medical Sciences, IAP for Health: International Workshop on 'New Steps in Critical Care Medicine', 20-22 September 2017
- Nairobi, Kenya, NASAC Women for Science Working Group (WfS-WG) meeting, 21-22 September 2017
- Halle, Germany, Leopoldina Annual Meeting - Genome Editing, 22- 23 September 2017
- Dushanbe, Tajikistan, IAP Science Education Programme science teacher training workshop, 25-29 September 2017
- Coimbra, Portugal, 14th International Conference on Urban Health, 26-29 September 2017
- Seoul, Korea, 4th AASSA Expert Meeting on IAP Food and Nutrition Security and Agriculture project, dates?

October

- Halle, Germany, GYA Executive Committee meeting, 2-3 October 2017



- Paris, France, 3rd African-European-Mediterranean Academies for Science Education conference (AEMASE III), 3-4 October 2017
- Brussels, Belgium, EASAC Biosciences Steering Panel meeting, 6 October 2017
- Bishkek, Kyrgyzstan, AASSA-NAS (Kyrgyzstan) workshop on 'Strategies for Building a Link between Earthquake Science and Policies to Inform State Structures and Public to Reduce the Risks and Consequences of Earthquakes', 10-13 October 2017
- Hannover, Germany, IAP-EASAC-US NASEM-German National Academy of Sciences, Leopoldina, international workshop on 'Assessing the Security Implications of Genome Editing Technology', 11-13 October 2017
- Berlin, Germany, 7th IAP for Health Young Physician Leaders (YPL) Programme, 12-14 October 2017
- Berlin, Germany, M8 Alliance meeting, 14 October 2017
- Berlin, Germany, IAP for Research Board meeting, 13 October 2017
- Berlin, Germany, IAP Board Meeting, 14 October 2017
- Berlin, Germany, IAP for Health Executive Committee meeting, 14 October 2017
- Berlin, Germany, World Health Summit 2017, 15-17 October 2017
- Brussels, Belgium, EASAC Energy Steering Panel meeting, 24 October 2017
- Cordoba, Argentina, IANAS meeting on 'Science Education' and the 'International Congress on teachings sciences, technology, engineering, and mathematics', 31 October-4 November 2017

November

- Cordoba, Argentina, IANAS Science Education Meeting & International Congress on 'Teaching Science, Technology Engineering and Mathematics', 1-5 November 2017
- Cordoba, Argentina, Book launch: 'Inquiry Based Science Education. Promoting changes in science teaching for the Americas', 2 November 2017
- Beijing, China, Working Group meeting, IAP/Carnegie project on 'Improving scientific input to global policymaking', 2-3 November 2017
- Berlin, Germany, International Dialogue on STEM, 2-3 November 2017
- Dead Sea, Jordan, IAP-GYA-ICoRSA-UNESCO workshop for young scientists on 'Avoiding the Weaponisation of Research', 6 November 2017
- Dead Sea, Jordan, World Science Forum 2017, 7-11 November 2017
- Zurich, Switzerland, EASAC Working Group Meeting on 'Decarbonisation of Transport', 13 November 2017
- Abuja, Nigeria, LIRA 2030 Annual Research Forum, 13-15 November 2017
- Abuja, Nigeria, 13th Annual Meeting of African Science Academies (AMASA), 13-16 November 2017
- Brussels, Belgium, EASAC-EEAC workshop on 'The role of science in strengthening an integrated policy approach for our seas and oceans', 14 November 2017
- New Delhi, India, AASSA-INSA-NISCAIR Workshop on 'Sustainable Development Goals: Communication strategies', 16-18 November 2017
- Abuja, Nigeria, project Working Group meeting, 'Harnessing SEM to Address Africa's Challenges', 17-18 November 2017
- Sofia, Bulgaria, EASAC Bureau and Council Meeting, 23-24 November 2017
- Xiamen, China, workshop on Urban Health at Institute of Urban Environment, Chinese Academy of Science (CAS-IUE), 27-29 November 2017
- Xiamen, China, 11th IUE Scientific Committee meeting, 30 November - 1 December 2017

December

- Brussels, Belgium, EASAC participation in European Parliament public hearing on the EU forest strategy, 4 December 2017
- Geneva, Switzerland, 'IAP's Experience in Engaging Scientists in Biosecurity' side event at 2017 Meeting of States Parties of the Biological and Toxin Weapons Convention (BWC) and, 4-8 December 2017
- Pretoria, South Africa, IAP/Carnegie-led side event at Science Forum South Africa 2017, 'Mobilising African academies to support Africa's commitment to global and regional policy frameworks', 6-7 December 2017
- Beijing, China, IAP Science for Poverty Eradication Committee (IAP SPEC) meeting, 9-10 December 2017
- Sanya, China, AASSA-Chinese Academy of Sciences workshop on 'Space Technology for Disaster Mitigation: Towards science based disaster risk reduction (DRR) in developing countries', 11-15 December 2017
- Kuala Lumpur, Malaysia, IAP Science Education Programme 'Fusion of Civilisations' Working Group meeting, 11-15 December 2017

Publications supported by IAP in 2017

- **IAP Annual Report 2016**
Published by: IAP
URL: <http://www.interacademies.org/42235/IAP-Annual-Report-2016>
- **IAP Statement on Climate Change and Education**
Published by: IAP
URL: <http://www.interacademies.org/38806/IAP-Statement-on-Climate-Change-and-Education>
- **IAP Statement on Science and Technology for Disaster Risk Reduction**
Published by: IAP
URL: <http://www.interacademies.org/36499/IAP-Statement-on-Science-and-Technology-for-Disaster-Risk-Reduction>
- **Assessing the Security Implications of Genome Editing Technology: Report of an international workshop**
Published by: IAP
URL: <http://www.interacademies.org/43251/Assessing-the-Security-Implications-of-Genome-Editing-Technology-Report-of-an-international-workshop>
- **Supporting the Sustainable Development Goals: A guide for merit-based academies**
Published by: IAP for Research
URL: http://www.interacademies.org/37864/IAP_SDG_Guide
- **Advancing Health and Wellbeing in the Changing Urban Environment**
Published by: Springer
URL: <http://www.interacademies.org/31495/Advancing-Health-and-Wellbeing-in-the-Changing-Urban-Environment>
- **Opportunities and Challenges for Research on Food and Nutrition Security and Agriculture in Europe**
Published by: EASAC
URL: <http://www.interacademies.org/38802/EASAC-Opportunities-and-Challenges-for-Research-on-Food-and-Nutrition-Security-and-Agriculture-in-Europe>
- **EASAC statement on: Homeopathic products and practices: assessing the evidence and ensuring consistency in regulating medical claims in the EU**
Published by: EASAC
URL: <http://www.interacademies.org/37304/EASAC-statement-on-Homeopathic-products-and-practices-assessing-the-evidence-and-ensuring-consistency-in-regulating-medical-claims-in-the-EU>
- **Multi-functionality and Sustainability in the European Union's forests**
Published by: EASAC
URL: <http://www.interacademies.org/31485/EASAC-Multifunctionality-and-sustainability-in-the-European-Unions-forests->
- **EASAC statement on Homeopathic Products and Practices: Assessing the evidence and ensuring consistency in regulating medical claims in the EU**
Published by: EASAC
URL: <http://www.interacademies.org/37304/EASAC-statement-on-Homeopathic-products-and-practices-assessing-the-evidence-and-ensuring-consistency-in-regulating-medical-claims-in-the-EU>
- **Challenges and Opportunities for Food and Nutrition Security in the Americas: The view of the academies of sciences**
Published by: IANAS
URL: http://www.ianas.org/docs/books/Challenges_Opportunities.html
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Additional administrative support is provided by TWAS, especially Patricia Presiren, Nino Coppola and Ezio Vuck. Both TWAS and IAP are hosted on the campus of the Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste, Italy.

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The InterAcademy Partnership, Inc. is a 501(c)3 non-profit organization, registered in Washington, DC, USA, as a public charity.

Funds from the Government of Italy to support TWAS and IAP are provided to the United Nations Educational, Scientific and Cultural Organization (UNESCO), headquartered in Paris, France. Both TWAS and IAP (IAP for Science and IAP for Health) are considered 'programme units' of UNESCO, which provides administrative oversight for TWAS and IAP activities.

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