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the interacademy partnership

Annual Report 2022





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**INTERACADEMY PARTNERSHIP
ANNUAL REPORT 2022**

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A Message from the IAP Co-presidents

In the rapidly evolving global landscape, the InterAcademy Partnership (IAP) continues to adapt and respond to emerging scientific challenges. In 2022, IAP demonstrated unwavering commitment to informing the public and policymakers about the challenges faced by humanity, while also offering evidence-based solutions for a better world.

Our Triennial Conference was held in November on the theme, 'Inclusive Excellence: Harnessing knowledge for sustainable societies'. The in-person component of the hybrid event was held at Biosphere 2 in Arizona, USA. The conference prompted profound reflections on how IAP can enhance the equity of contributing voices in its activities that should help us achieve greater impact of our work. We are grateful to all who contributed to make the Triennial Conference a success (see pages 12-16).

Linked to the Triennial Conference was the IAP General Assembly (GA) where we discussed important issues such as our forthcoming Strategic Plan. Despite limitations on in-person participation in both events due to the tail-end of the COVID-19 pandemic, the hybrid format enabled more academies than ever to attend the GA.

The GA also saw the transition to the new leadership structure of IAP and hand-over of IAP leadership to the newly elected Board. We extend our heartfelt appreciation to Richard Catlow and Depei Liu, our outgoing co-presidents, for their invaluable contributions to IAP. Looking ahead, we are eager to engage with the members of the Advisory Committee (which

includes representatives of IAP's four regional networks), and the three newly instigated Programmatic and Development Committees along with their respective member academies.

The year 2022 also saw the presentation of reports from two major IAP studies – on 'Climate Change and Health' and on 'Combatting Predatory Academic Journals and Conferences'. Both studies have provided IAP with enhanced visibility and have led to follow-up actions. Our regional networks in Africa (NASAC), Asia and Oceania (AASSA), the Americas (IANAS) and Europe (EASAC) also play a pivotal role in ensuring the relevance of IAP's activities and outputs. These networks help make IAP's work relevant to regions worldwide and also amplify the messages of IAP's work, making it heard by policymakers within their regions and globally.

With the urgent and ongoing need for independent and trustworthy advice and input from the global academy community to protect our shared planet, IAP stands ready to fulfill its mission of convening and empowering academies to collaboratively address global, regional and national issues. ■

Masresha Fetene

IAP Co-president



Margaret A. Hamburg

IAP Co-president



Vision, Mission and Structure

The InterAcademy Partnership (IAP) is a global network of 149 academies of science, medicine and engineering that brings together many of 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 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.

IAP provides a platform for member academies to:

- share good practice, learn from each other and build their capacity and visibility;
- develop common positions and agree to actions/interventions on regional and global issues of shared interest;
- build collaborations among academies and with key stakeholders in other networks and sectors;
- promote the importance of inclusive science for generating new knowledge, informing robust decision-making for good governance, and building the science literacy of global citizens; and
- facilitate science serving society as a global public good.

IAP has four main priorities, as laid out in its 2019–2022 Strategic Plan:

- build the capacity of, and empower, regional networks of academies and their national members;
- empower academies and regional academy networks to provide independent, evi-

dence-based, authoritative advice on global, regional and national issues;

- promote the importance of science in research, education, and literacy; and
- build IAP as a progressive and more resilient global academies network.

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). Inclusion in the membership of the Global Young Academy (GYA) facilitates access to the perspectives of early career researchers.

In 2022, member academies endorsed a new set of statutes and IAP completed the restructuring of its three components (IAP Science, IAP Health and IAP Policy). Elections carried out during 2022 led to the appointment of a six-member Board headed by two co-presidents. The Board is supported by an Advisory Committee that includes representatives of the regional networks. Member academies are further engaged in IAP's decision-making processes by representation on three Programmatic and Development Committees: the Policy Advice Committee, Capacity Building Committee and the Communication, Education and Outreach Committee. For further details, see pages 56–57 or visit: www.interacademies.org/iap/governance.

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 to inform the public and policymakers about the challenges faced by humanity and offer evidence-based solutions for a better world. ■

Overview

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Looking Back: An overview of IAP's goals and key activities in 2022

The ambition of IAP is for the world's academies to play a vital role in ensuring that science serves society inclusively and equitably and underpins global sustainable development. To achieve this, IAP convenes and empowers its 149 member academies and four regional networks to work collaboratively on issues of global, regional and national importance.

IAP's secretariat offices are hosted by The World Academy of Sciences, in Trieste, Italy, and the National Academy of Sciences in Washington, DC, USA. The Government of Italy provides core support to the IAP secretariat office in Trieste via UNESCO, and the US National Academy of Sciences and Simons Foundation International to the IAP secretariat office in Washington, DC.

As stated in the IAP Strategic Plan (2019–2023), IAP is uniquely placed to achieve its four main goals:

- Build the capacity of, and empower, regional networks of academies and their national members.
- Empower academies and regional academy networks to provide independent, evidence-based, authoritative advice on global, regional and national issues.
- Promote the importance of science in research, education, and literacy.
- Build IAP as a progressive and more resilient global academies network.

Strategic Priority 1: Capacity Building

IAP helps to build the capacity of its member academies at global, regional and national levels. At the global level, IAP is active in projects and activities that bring together the expertise present in the diversity of its membership on wide-ranging topical and/or urgent issues. Its consensus reports, statements and communities speak to the United Nations (UN) and its agencies, as well as other international bodies,

and in doing so help build the capacity and understanding of academies on global governance systems while supporting evidence-informed decision-making.

Since its inception in 1993, IAP has been producing statements on issues of fundamental importance to humanity. These statements are released only when they have been endorsed by IAP members, and thus engage many members in the development process, encouraging their involvement in international issues. IAP Statements are not only a reflection of the major issues that confront society but are also evidence of the organization's ongoing commitment to society.

In 2022, IAP published the Statement on 'Implications of Urbanization in Low- and Middle-Income Countries', a document that highlights policy measures aimed at improving urban living. This Statement comes ten years after the IAP Statement on 'Population and Consumption' that forewarns of some emerging issues such as those highlighted in the targets of the United Nations Sustainable Development Goal (SDG) #11, 'Sustainable cities and communities'. One of the key messages of the 2022 IAP Statement was that urbanization can lead to inequity, social unrest and the growth of overcrowded informal settlements, but that careful planning can bring access to clean water, sanitation, education and healthcare, and eventually have a positive impact of millions of people across the developing world. The Statement was

released during an IAP Global Webinar in October and presented at the International Conference on Urban Health in Valencia, Spain, the same month.

At the regional level, IAP worked closely with and through its four regional networks: the Association of Academies and Societies of Sciences in Asia and Oceania (AASSA), the European Academies' Science Advisory Council (EASAC), the Inter-American Network of Academies of Sciences (IANAS) and the Network of African Science Academies (NASAC). These networks received grants from IAP to undertake regional activities, including workshops and studies of regional relevance (see pages 37–48). The funds provided by IAP are intended to be used as seed funds to leverage additional funds that help expand the activities and enhance their impact. By involving experts nominated by member academies, the IAP regional-to-global project on Climate Change and Health (CCH, see pages 18–20) also helped to build capacity within regions and to connect across regions, enabling academies in one network to learn from those in another.

At the national level, IAP encourages the engagement of its member academies, including newly established and under-resourced academies, in its numerous global and regional activities. In contributing to working groups and their resulting consensus reports and statements, member academies have the opportunity to provide perspectives on urgent and topical issues and can use the IAP products to engage with their own national policy-makers, other key stakeholders and the wider society. When feasible capacity-building grants are also provided to individual academies to enhance their abilities to pursue strategic national initiatives.

Strategic Priority 2: Science Advice

In 2022, IAP concluded its project on Climate Change and Health (CCH), engaging all four regional networks in a series of webinars to share the outcomes of the project (see pages 18–20).

Climate change poses an existential threat to our planet, impacting various aspects of life, including human health. With EASAC having addressed this pressing issue in 2019, in 2020 IAP engaged with its other regional networks in Africa (NASAC), Asia and Oceania (AASSA), and the Americas (IANAS). The regional-to-global project, completed in 2022, captured regional diversity and evaluated evidence from the different regions to inform climate change policy and actions at national, regional and global

levels. The policy advice recommendations that emerged from the project were presented at fora such as the S20 – the meeting of science academies that feeds into the discussions of the G20 – and at the World Health Organization's (WHO) pavilion during the 2022 United Nations Climate Change Conference (COP27).

Another regional-to-global project on the decarbonization of transport was also initiated by EASAC. The EASAC report, 'Decarbonisation of Transport: Options and challenges', with a European focus, was released in 2019. In 2022, IAP and NASAC sourced funds from ClimateWorks Foundation and the African Climate Foundation to consider the options for decarbonisation of transport in Africa.

Though Africa currently has one of the lowest motorization rates globally, it is poised to become a major new player in the transport sector, with the potential to become a leader in the decarbonization of transport movement. Following a scoping workshop in November 2021, this project progressed during 2022, identifying initiatives that promote sustainable and low-carbon transportation in the region; analysing existing policy frameworks; and identifying challenges and opportunities for sustainable transport in Africa. The project has the ultimate goal of supporting African governments and societies in transitioning to sustainable and low-carbon transportation systems utilizing the region's unique advantages, including its renewable energy resources.

Related to this project, IAP participated in the International Transport Forum (ITF) at the OECD, an intergovernmental organisation with 63 member countries. The 2022 Pre-Summit Research Day took place on 17 May 2022 in Leipzig, Germany, in the broader context of the ITF Transport Summit on 'Transport for Inclusive Societies'. It brought together researchers and decision-makers worldwide to discuss the role of transport in fostering more inclusive societies.

IAP also continued its project on 'Combatting Predatory Academic Journals and Conferences', sponsored by the Gordon and Betty Moore Foundation, and released its final report. The publication has been well received by the scientific community globally. The report's message is stark: predatory academic practices are rising at a concerning rate and require urgent attention if researchers at all stages of their careers are to be protected from their effects and sensitized to the importance of avoiding them and the con-

sequences of not doing so. The English version of the report has been downloaded over 8,000 times from the IAP website. To enhance access to the report, a summary has also been translated into Arabic, Chinese, French, Portuguese, Russian and Spanish. In addition, the report was featured in virtual meetings and conferences, including regional and global webinars in late 2021, and for the Arabic-speaking world in March 2022. Additional virtual presentations were included at the meeting of the Strategic Council for Research Excellence, Integrity and Trust established by the U.S. National Academy of Sciences (in May 2022), and the IAP triannual conference (in November 2022). In December, IAP presented a well-attended in-person panel discussion session on the report at the World Science Forum in Cape Town, South Africa. UNESCO's adoption of the report recommendations in its Open Science Toolkit, a resource designed to support implementation of the UNESCO Recommendation on Open Science, demonstrates both the quality of the report and the impact of IAP's outreach.

IAP also continued its long-term collaboration with the UK Academy of Medical Sciences. In 2022, a series of online workshops resulted in the publication of a joint report, 'Global Health Inequalities: Research for a fairer future', and an associated joint communicate that concisely summarized the main messages of the report for the attention of policymakers and research funding agencies, in particular.

Strategic Priority 3: Education and Outreach

IAP's education and outreach activities support inquiry-based science education (IBSE), refugee and displaced scientists, and the professional development of young scientists and medical professionals.

Since 2003, IAP has been implementing a global Science Education Programme (SEP) which has the objective of improving science education at pre-university levels, specifically via the promotion of the IBSE approach. Among other activities, in 2022 IAP allocated funds to five science education projects around the world: in Chile, Colombia, Kazakhstan and Pakistan as well as the TeachersCOP international project (see pages 25-28).

Outreach and an awareness-raising campaign were also the main focus of the ongoing activity to support refugee and displaced scientists, an activity that now goes under the name

'Science in Exile'. Under this collaboration of IAP, The World Academy of Sciences (TWAS) and the International Science Council (ISC), the main event of the year was the April launch of the Science in Exile Declaration, 'Supporting at-risk, displaced and refugee scientists: A call to action'. The launch-webinar featured keynote presentations by H.E. Princess Sumaya of Jordan and UNESCO ADG Science Shamila Nair-Bedouelle. The webinar also included a video presentation of the Declaration recorded by refugee and displaced scientists from around the world.

Other efforts were made to raise awareness of the issue of refugee and displaced scientists, including online presentations in a webinar 'How to support scholars at risk?' organized by the Global Young Academy (GYA), and the Philipp Schwartz and Inspireurope Stakeholder Forum (both events in May); an online session 'Displacement, Gender, and the Right to Science in the Global South' at the EuroScience Open Forum 2022 (ESOF2022), Leiden, Netherlands, in July; and an in-person session 'At-risk, Displaced and Refugee Scholars: Global dynamics and best practices' at the World Science Forum in Cape Town, in December. By the close of the year, the Declaration had been endorsed by more than 70 organizations and by more than 60 individuals.

In 2022, IAP provided a small grant to the Australian Academy of Science to expand a web portal developed with AASSA to showcase women scientists from Asia and Oceania. The new portal - www.stemwomen.global - aims to increase the visibility of women working in science, technology, engineering and mathematics (STEM) worldwide.

IAP also expanded its Young Physicians Leaders (YPL) network of alumni (see pages 22-23). Twenty-five young physicians, nominated by members of IAP and the 'M8 Alliance' of academic centres, had been selected to participate in the 2021 programme. Due to the COVID-19 pandemic, the 2021 YPL cohort was unable to participate at a leadership training event planned prior to the World Health Summit in Berlin and instead met in Rome, Italy, for an in-person workshop on 14-15 June 2022 prior to the Regional World Health Summit (16-17 June). In addition, IAP launched the call for nominations for the 2022 YPL cohort. Twenty-one outstanding young physicians were selected, again for 2-days of leadership training (14-15 October) before being provided with the opportunity to join the annual Berlin edition of the WHS it-

self (15-18 October). IAP also continued to support the activities of the YPL Alumni Steering Committee and to use the IAP website to highlight the achievements of alumni.

Also in 2022, IAP collaborated with ISC and GYA in a project to re-imagine research evaluation for the 21st century. The initiative aimed to address the complex effects of research evaluation on the culture of research, evidence for policymaking, research funding priorities, and individual career trajectories. An international Scoping Group was formed to advise the three partner organizations on how they can together add value to existing efforts to reform research evaluation, such as those led by research funding agencies, governments and other actors.

Strategic Priority 4: The Network

IAP continues to build a more progressive and resilient global academies network.

In 2022, the major activity in this regard was the convening of the hybrid triennial General Assembly with in person participation in Arizona, USA. As well as reviewing programmatic and financial reports, IAP members present at the General Assembly had the opportunity to feed into preparation of the next strategic plan (2023-2026). The General Assembly also marked the transition to the new IAP leadership structure based on the statutes that were approved by member academies in 2021. The result of online elections were announced a month before the General Assembly. For full details of the IAP leadership, see pages 56-57. Holding the General Assembly as a hybrid event allowed a record number of IAP member academies to provide input on all topics discussed.

At the November General Assembly, nine new academies whose membership applications had been reviewed during the previous three years were accepted for IAP membership. These were: the Algerian Academy of Sciences and Technology, the Australian Academy of Health and Medical Sciences, the National Academy of Sciences of Costa Rica, the Ivorian Academy of Sciences, Arts, Cultures of Africa and African Diasporas (Côte d'Ivoire), the Israeli National Academy of Science in Medicine, the Academy of Medicine Specialties of Nigeria, the Rwanda Academy of Sciences, the Tunisian Academy of Sciences, Letters and Arts, and the National Academy of Medicine of Uruguay.

The General Assembly was held alongside the IAP Triennial Conference on the theme 'Inclusive Excellence: Harnessing knowledge for sus-

tainable societies' and linked for the first time with the Worldwide Meeting of the Young Academies (see pages 12-16).

As in the past, IAP also provided grants to its four regional networks - in the Americas, Africa, Asia and Oceania and Europe.

IAP's communication activities were enhanced in 2022 and included updating and improving its website (www.interacademies.org) and increasing its audience on social media. For example, 2022 saw a 10% increase in IAP's follower base on Twitter (to more than 5,000 followers) and a 60% increase on LinkedIn (to 2,369 followers). The quarterly IAP newsletter that is available to anyone who subscribes to receive it is the best way to keep abreast of IAP activities. Subscribers grew by more than 30% in 2022, to 1,640 recipients. ■

IAP General Assembly and Conference

Every three years, IAP holds a General Assembly during which the leadership and representatives of its member academies meet to discuss the organization's strategy and activities, elect its new leadership, and welcome new members, among other business. In 2022, the General Assembly was held as a hybrid event alongside a conference on 'Inclusive Excellence: Harnessing knowledge for sustainable societies'.

General Assembly

IAP held its triennial General Assembly (GA) on 3 November 2022 as a hybrid event – in-person at Biosphere 2 in Arizona, USA, and online. The hybrid format with limited in-person participation was selected due to uncertainties regarding international travel due to the ongoing COVID-19 pandemic. However, it meant that 79 academies, a record number, were able to participate to the General Assembly.

Governance

The 2022 GA marked the first opportunity for IAP's leadership elections to be held based on the new structure agreed in the IAP Statutes revised and endorsed in 2021. Indeed, the results of the elections – held online for the first time – were announced one month ahead of the GA. Among the six elected IAP Board members, Masresha Fetene (Ethiopia) and Margaret (Peggy) Hamburg (USA) were re-elected and nominated to serve as co-presidents. The four other members of the new IAP Board are Stephanie Burton (South Africa), Asma Ismail (Malaysia), Diane Negra (Ireland) and Gianfranco Pacchioni (Italy).

In addition, an Advisory Committee featuring representatives of IAP's Regional Networks as well as academies in countries hosting the IAP Secretariats, was established (see page: 56), as well as three Programmatic and Development Committees, focusing on Capacity Building, Policy Advice, and Communication, Education and Outreach.

Strategic Plan

The results of two surveys regarding the implementation of IAP's 2019–2022 Strategic Plan, and suggestions for the follow-on plan (2023–2026) were presented to the GA by the chair of the Strategic Plan Working Group, Wolfgang Holzgreve (Germany). During the ensuing discussions, academy members made additional contributions and suggestions. These will be considered by a revised Strategic Plan Working Group, including new Board member Stephanie Burton as co-chair. It is expected that the 2023–2026 Strategic Plan will be ready for endorsement by member academies by June 2023.



The Worldwide Meeting of Young Academies gathers early-career scientists, engineers and medical professionals from more than 50 young academies around the world. (photo: G. Ortolani/IAP)



IAP Triennial Conference participants on site at the University of Arizona's Biosphere 2 facility. (photo: G. Ortolani/IAP)

Membership

Since the previous GA, the IAP Membership Committee, chaired by outgoing Board member Krishan Lal (India), met three times. Among the requests for membership received, nine were reviewed positively by the Membership Committee and circulated in advance of the GA for member academy endorsement. All nine were formally endorsed for IAP membership, namely: the Algerian Academy of Sciences and Technology, the Australian Academy of Health and Medical Sciences, the National Academy of Sciences of Costa Rica, the Ivorian Academy of Sciences, Arts, Cultures of Africa and African Diasporas-ASCAD (Côte d'Ivoire), the Israeli National Academy of Science in Medicine, the Academy of Medicine Specialties of Nigeria, the Rwanda Academy of Sciences, the Tunisian Academy of Sciences, Letters and Arts, and the National Academy of Medicine of Uruguay.

Concerning the IAP-WWMYA conference venue, Biosphere 2, that is now affiliated to the University of Arizona:

We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.

Triennial Conference

Following the theme of the 2022 IAP Triennial Conference, 'Inclusive Excellence: Harnessing knowledge for sustainable societies', the event was held for the first time in conjunction with the Worldwide Meeting of the Young Academies (WWMYA). Young academy representatives were involved in the planning of the joint event, and sessions proposed by young academies were integrated into the conference programme.

As with the IAP GA, the event at Biosphere 2, Arizona, USA, was hosted by the U.S. National Academy of Sciences (NAS) and the Royal Society of Canada (RSC) and was co-organized by IAP, the Global Young Academy (GYA), the U.S. National Academies of Sciences, Engineering, and Medicine, RSC, the RSC College, and the NAS New Voices Program.

Fostering access to science, technology and innovation (STI) can increase productivity and economic growth; promote health; achieve food security through sustainable and equitable agricultural systems; promote renewable energy; and mitigate climate change. The IAP conference explored how, in recent decades, unequal access to advances in STI and therefore benefits from these advances, threatens the sustainability of societies globally. Conference participants (more than half of the speakers were women and 30 were from low- and middle-income countries (LMICs)) discussed several key factors that contribute to unequal benefits from advances in STI. These included: access to science education and academic inclusion; access to digital technologies; representation of women, racial minorities, and persons with disabilities in science

and policy decisions; and scientific publishing practices. Conference sessions addressed these issues holistically, looking across the disciplines of science, medicine and engineering.

Science education and academic inclusion

Science career readiness and global competitiveness starts with high-quality Science, Technology, Engineering and Mathematics (STEM) education for all school-age children. As discussed in the session 'Inquiry-based Science Education for Sustainable Development: Leaving no one behind', inquiry-based science education (IBSE), along with access to science centres and science museums, can provide children with knowledge and skills to solve problems and help make decisions now and in the future that lead to the development of sustainable societies. In addition, many higher education settings have traditionally excluded minority groups and have employed evaluation practices that uphold inequities at multiple points along academic progression. As highlighted in the session titled 'Winning from Greater Inclusion: Relation between diversity and academic culture', there must be an acknowledgement of biases in academic cultures and initiatives to solve structural problems in order to achieve effective and excellence-inspiring academic cultures. Ensuring a healthy global research ecosystem requires the input and commitment from all stakeholders. The session on 'Inclusive Excellence for Sustainable Societies: Making space for at-risk and displaced scholars' addressed the issue of recognizing the damage that war, conflict, sanctions and threats of violence have on individual researchers as well as their institutions.

Digital technology

During the COVID-19 pandemic, the use of modern technology such as the internet of things and information sharing both at global and local levels increased significantly. As societies adapt to the impacts of the pandemic, academic practices must also evolve to increase accessibility, intersectional inclusion and sustainability. However, there are well-recognized inequalities in access to digital technology with regard to both devices and the internet itself, and this inequality – often referred to as the 'digital divide' – creates inequality in access to information and resources. Isabelle Alice Zaugg, Columbia University, USA, spoke on this issue and in particular how translation features

found on the internet focus on only a few of the world's languages to the exclusion of hundreds of others. Digital technologies also featured in the fields of health and medicine, where there are growing concerns related to issues such as equity, unequal access, escalating costs and privacy. The session on 'Societal Implications of Emerging Health Sciences and Technologies: Need for a new governance framework', for example, called for a cross-sectoral, coordinated framework to guide the development and use of emerging science and technology in health and medicine while mitigating potential undesirable risks.

Minorities in science and policy

In the conference's keynote address, the Honorable Mary Robinson, former President of Ireland, and UN Commissioner for Human Rights, highlighted the need for inclusivity in policy decision-making processes and emphasized the need to ensure that women and historically marginalized groups such as racial minorities are part of decision making. Other sessions echoed the importance of equality in policy-making decisions in different contexts. For example, participants of the session on 'Climate Change and Health' noted that women, and especially those in LMICs, are at higher risk of exposure to the effects of climate change, and that several societal, cultural and economic factors contribute to this vulnerability. Yet, gender disparities exist with women having less opportunity to be involved in policy decisions. The session on 'Inclusion and Participation of Women in Science Academies' noted that the membership of many academies comprises less than 20 percent women. Young academies and the GYA boast stronger representation but still are not yet at parity. Although the gender gap is closing in most countries, progress is slower when considering the inclusion of other historically marginalized groups. The session on 'Winning from Greater Inclusion: Relation between diversity and academic culture' noted that other key imbalances such as age, ethnicity, race, disabilities, parenthood, resident status, social and economic status, and multidimensional discrimination have so far received less attention, consequently affecting quality of research and research-based policy advice for sustainable societies. The session 'Science Advice by Young Academies on Critical Issues: Why does it matter?' additionally emphasized the importance of including early and mid-career scientists in policy decisions.

Regarding inclusion of persons with disabilities, some accessibility practices were introduced during the COVID-19 pandemic, but full adoption is slow. The session on 'Preparing Academia for the Future of Collaboration: Opportunities and barriers' discussed online meeting platforms as alternatives to in-person events that often offer closed captioning for those who are hearing impaired but the captioning services are imperfect and often fail to account for accents or languages other than English. In addition, software programs that allow blind or visually impaired users to read text displayed on the screen with a speech synthesizer or other means are not always compatible with common online meeting platforms, making these meetings inaccessible to people with these disabilities.

Inclusive Excellence

In addition to sessions focused on major IAP and GYA/young academy projects, the IAP Tri-

ennial Conference and WWMYA included other sessions that provided concrete examples of the power of inclusive excellence frameworks to help address global challenges such as climate change, pandemic preparedness, and improving human health and education accessibility. Inclusive excellence is a concept that promotes equitable and sustainable research processes. It recognizes that the prosperity and wellbeing of communities, particularly when facing major challenges, depends on valuing, engaging, and including the rich diversity of all members. Attacks on the legitimacy of science during the COVID-19 pandemic have thrown into sharp relief our need to rethink research processes in ways that make them more inclusive, responsive and productive. Conference delegates agreed that one response that needs to be prioritized is the diversification of our research communities. The young academy movement is an important illustration of inclusive excellence, and within many of them are good examples of how we

On-site participants at the conclusion of the IAP-WWMYA events at Biosphere 2, Arizona. (photo: G. Ortolani/IAP)





might imagine new research frameworks that make space for those traditionally excluded. Thus, the Triennial Conference enabled IAP to explore how to achieve greater diversity within research circles.

Scientific publishing practices

Open Science is a movement that aims to make scientific research accessible, efficient and transparent. Practices such as open access publishing are generally viewed favourably by the scientific community to achieve visibility and recognition within the global research system, but implementation of open access publishing practices involves a complex set of issues, especially for researchers from LMICs. For example, complex licensing requirements, technical and other challenges with online data sets result in researchers from LMICs having limited access to research papers even through open access, and create barriers to them publishing their work so it is freely available to others. Various models for an equitable shift towards open access publishing were proposed and discussed in the session titled ‘How to promote inclusiveness in Open Access publishing models’ including waiving article processing charges (APC) for authors based in low income and lower middle income countries; adapting journals for the digital age by utilizing pre-prints and meta data to focus more on discipline rather than a traditional table of contents; and strengthening translation policies and financial support for national and regional journals.

Conclusions

Diverse and inclusive groups broaden the range of perspectives and experiences needed to address any challenge and are better at addressing and solving complex problems such as establishing sustainable societies. Opportunities exist to develop sustainable societies by tackling inequality through inclusive STI and actions taken by academies, higher education institutes, governments and the global research community. Much like the Declaration adopted at the 2022 World Science Forum (WSF) on ‘Science for Social Justice’, which took place a little more than a month after the IAP conference (see page 59, Meetings Supported in 2022), IAP commits to science as an ongoing tool for social justice and encourages its member academies also to implement the call for action in the WSF Declaration.

“We must lead by example and engage with the core principle of the United Nations’ Sustainable Development Goals (SDGs) – leaving no one behind,” concluded IAP co-president Masresha Fetene. “Making inclusive excellence a priority for the global research community will eliminate the barriers to research, development and innovation.”

Abstracts and video recordings of all sessions are available at: www.interacademies.org/event/triennial-conference-interacademy-partnership-iap-and-worldwide-meeting-young-academies. ■

On-site participants had the opportunity to follow guided visits to the Biosphere 2 infrastructures. (photo: G. Ortolani/IAP)

Global Activities

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Climate Change and Health

Climate change poses a significant global health crisis, with diverse impacts on physical and mental well-being, varying between regions. With EASAC having addressed this pressing issue in 2019, in 2020 IAP engaged with its other regional networks in Africa (NASAC), Asia (AASSA), and the Americas (IANAS). The regional-to-global project, completed in 2022, captured regional diversity and evaluated evidence from the different regions to inform climate change policy and actions at national, regional and global levels.

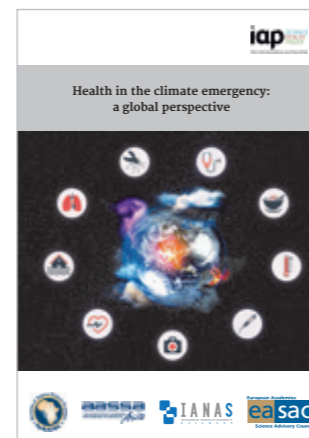
Climate change poses an existential threat to our planet, impacting various aspects of life, including human health. As temperatures rise, extreme weather events become more frequent and ecosystems shift, inducing consequences for public health that are far-reaching and complex. Recognizing the urgency of this global health crisis, in 2020, IAP launched a comprehensive and ambitious three-year project on 'Climate Change and Health'. Collaborating with its regional networks in Africa (NASAC), Asia and Oceania (AASSA), and the Americas (IANAS), the project sought to understand the diverse impacts of climate change on health within and between regions, proposing evidence-based solutions for adaptation and mitigation at local, national, and global levels. Led by former IAP co-president Volker ter Meulen (Germany) and Sir Andy Haines (UK), the project was implemented by the German National Academy of Sciences, Leopoldina, with financial support from the German Federal Ministry of Education and Research (BMBF). It built on the groundwork laid by IAP's European network (EASAC), which published its report, 'The imperative of climate action to protect human health in Europe' in 2019. The regional-to-global IAP project aimed to provide a comprehensive overview of the current situation along with policy recommendations for the other three world regions by producing regional reports that capture the unique challenges and opportunities faced by each region, while also identifying common themes and solutions.

The first phase of the project involved the establishment of a working group of experts for the regional networks in Africa, Asia and Oceania, and the Americas. These working groups drew on their knowledge and experience to analyse the current state of the impact of climate change on health in each region and to project future impacts. The working groups operated on a shared starting point, ensuring consistency and collaboration throughout the process. After an extensive and rigorous analysis, the regional report for Asia was published in late 2021, followed in early 2022 by those from Africa and the Americas.

In addition to these reports from IAP's regional networks, IAP entered into collaboration with the Cyprus Institute and the Pathfinder Initiative to review the climate change health nexus from the perspective of the Middle East/North Africa (MENA) region, with the report, 'Tackling the effects of climate change on health in the Mediterranean and surrounding regions', released in October 2021.

These reports served as essential resources, providing snapshots of the health challenges posed by climate change in different regions. They also offered science-based recommendations for adaptation and mitigation strategies tailored to the unique circumstances of each region. Importantly, the reports were used to facilitate engagement with policymakers, the scientific community and other stakeholders, fostering discussions and partnerships aimed at tackling the complex climate-health nexus.

The results of the three-year project on 'Climate Change and Health' were summarized in this published report.



IAP WEBINAR

Health in the Climate Emergency

online launch of new global report

Date & time:
25 May 2022, 2-4 PM CEST

Registration:
<https://tinyurl.com/CCHLAUNCH>

After signing up you will receive a confirmation email

Logos: iap (the interacademy partnership), AASSA (the academy of sciences in Asia), EASAC (European Academies Science Advisory Council), IANAS (International Academy of North American Sciences), NASAC (Network of African Science Academies), and Federal Ministry of Education and Research.

Social media-friendly image advertising the online launch of the IAP report 'Health in the Climate Emergency: A global perspective'.

Regional Launch Events

The three regional reports for Asia, Africa, and the Americas were officially launched in a series of online events that took place in 2022: 'Tackling Adverse Effects of Climate Change on Health in the Asian Region' (28 February); 'Climate Change and Health in the Americas' (8 March), the session 'Climate Change and Health: From impact to action' took place during the MENA Climate Week Side Event (28 March); 'Building Climate Resilient Health Systems in the Global South' (6 April); and 'Tackling Adverse Effects of Climate Change on Health in Africa' (14 April).

Each of these events featured presentations and discussions with experts, policymakers and representatives from various organizations, allowing for deeper insights into the region-specific challenges and potential solutions. They also facilitated in-depth discussions and interactions with key stakeholders, allowing for the exploration of context-specific policy measures and the identification of areas where collaboration and knowledge sharing can lead to greater effectiveness.

Global Report

The culmination of the regional phase of the project was the global synthesis report, 'Health in the Climate Emergency: A global perspective', launched online on 25 May 2022. This comprehensive report highlighted both the regional similarities and differences in the impact of climate change on health, offering policymakers, decision-makers and stakeholders valuable insights for crafting effective strategies to combat this critical issue. Moreover, the global synthesis report underscored the need for collective action, recognizing that the health effects of climate change transcend national boundaries and require coordinated global responses. Over 80 scientists from more than 50 countries contributed to the project, while the video of the online launch event has been viewed more than 2,000 times.

Global Outreach

In the months following its release, the global synthesis report was presented at numerous high-level global events, including at the United Nations Framework Convention on Climate

Change (UNFCCC) Climate Weeks in Bonn in June; the World Health Summit Regional Meeting in Rome, Italy, also in June; COP27 of the UNFCCC in Sharm El-Sheikh, Egypt, in November, and the World Science Forum in Cape Town, South Africa, in December. The COP27 event was held in the pavilion of the World Health Organization (WHO). In addition, IAP was invited to contribute to the meetings of the S20 (convened by the science academies of the G20 nations). As a result, an online webinar, 'Bringing Science into Policy: Strengthening and integrating climate change adaptation and mitigation solutions and health system resilience', was held on 8 September organized jointly by IAP and the Indonesian Academy of Sciences (AIPI) as part of AIPI's S20 Indonesian presidency programme.

In October, the interaction between IAP's two major regional-to-global projects – on 'Climate Change and Health' and the previous 'Food and Nutrition Security and Agriculture' were presented at a side event to the UN Food and Agriculture Organization (FAO) Science & Innovation Forum. The webinar, 'Impact of Climate Change on Food Systems', was co-organized by IAP, NASAC and the Academy of Science of South Africa (ASSAF).

These and other events provided platforms to engage with a diverse array of stakeholders, including policymakers, scientists, and representatives from non-governmental organizations, to raise awareness about the pressing issue of climate change and health. Through these engagements, the global report's recommendations gained momentum and inspired renewed commitments to address the adverse health effects of climate change.

Tyler Prize for Environmental Achievement

The significance of the IAP 'Climate Change and Health' project was underscored by the prestigious recognition bestowed upon the project's co-chair, Sir Andy Haines. In February 2022, Sir Andy Haines was awarded the Tyler Prize for Environmental Achievement, often hailed as the 'Nobel Prize for the Environment.' The award cited his pioneering research and leadership in understanding the links between climate change and health that have been instrumental in sounding the alarm about the critical interplay between environmental well-being and human health. Haines' accolade serves as a reminder of the urgency of action and underscores the cru-



cial role that academia, scientific communities and policymakers must play in addressing the climate-health crisis.

Milestone Achieved

The IAP project on 'Climate Change and Health' has demonstrated the power of collaboration, inclusivity, and evidence-based policy-making in the face of a global crisis. By bringing together more than 80 scientists from over 50 countries, the project harnessed a wealth of expertise and diverse perspectives, resulting in robust recommendations that are both context-specific and globally relevant. Looking forward, the impact of the 'Climate Change and Health' project will continue to reverberate as its findings inform policymaking, shape health agendas, and contribute to advancing global climate action. The urgency of the climate crisis demands that we act decisively, collectively and collaboratively to safeguard the health and well-being of present and future generations. The IAP, its regional networks, and its partners remain committed to driving meaningful change, advocating for evidence-based policy solutions, and fostering interdisciplinary collaboration to tackle the multifaceted challenges posed by climate change and health. As we strive to build resilient societies and mitigate the impact of climate change on human health, the lessons learned from this transformative project will serve as a beacon of hope and guide us on the path to a sustainable and equitable future.

IAP continues to seek opportunities to build on this important work. ■

Deoraj Caussy (NASAC) with World Health Organization (WHO), Intergovernmental Panel on Climate Change (IPCCC) and University of Melbourne representatives, following the IAP side event in the WHO pavilion at COP27 in Sharm El-Sheikh, Egypt.

Promoting Global Health

Health is a cross-cutting issue that is deeply entrenched in every aspect of modern society, from urbanization and sustainable development to human rights. Recognizing this as a pivotal issue in today's society, IAP promotes health around the globe by working with expertise in its medical and science academies, as well as through interdisciplinary approaches.

Academy Responses to COVID-19

In late 2021, during the height of the pandemic when several different types of vaccines were being rolled out, IAP conducted a webinar on 'Countering Vaccine Hesitancy', aimed at assisting academies in preparing for national vaccination campaigns and addressing concerns related to disinformation and misinformation about COVID-19 vaccines. The presentations made during the webinar were adapted into a comprehensive report launched during World Immunization Week in April 2022. The report, 'Countering COVID-19 Vaccine Hesitancy', provides concrete examples and factual information for improving vaccine acceptance as well as countering hesitancy that various stakeholders can utilize, including academies, scientific bodies, governments, healthcare providers, pharmaceutical companies, journalists and individuals. The report advocates for participatory

engagement, open debates, adjustments to vaccine roll-out plans based on feedback, and the avoidance of politicizing the vaccine discourse. The report also emphasizes the importance of addressing uncertainties, providing up-to-date information on adverse reactions, and managing expectations about vaccine effectiveness and the timeframe for returning to normalcy. The IAP report stressed the need for ongoing monitoring of emerging causes of vaccine hesitancy, transparent data sharing, and non-politicized debates to enhance global immunization rates.

To disseminate the findings and recommendations of the report, IAP organized a launch event, providing a platform for academy leaders, fellows, communications teams, scientific organizations and the press to participate. The event featured presentations by experts focusing on building trust in vaccines and their regulation,



Members of the IAP YPL 2022 cohort at ESMT Berlin, engaged in an 'ambidexterity exercise'. (photo: G. Ortolani/IAP)

combating mis- and disinformation, and implementing a vaccine curriculum for schoolchildren. By undertaking these initiatives, IAP aimed to cultivate a culture of trust in COVID-19 vaccines and address the challenge of vaccine hesitancy. IAP's efforts received recognition from SciDev. Net, a renowned source of science and technology news for global development, which highlighted the significance of addressing vaccine acceptance alongside equity of access and logistics to achieve the goal of vaccinating 70% of the global population against COVID-19.

Also in 2022, IAP continued its collaboration with the UK Academy of Medical Sciences (AMS) to actively address the issue of global health, particularly in response to the ongoing COVID-19 pandemic. AMS and IAP convened a series of workshops on the topic of global health inequalities that brought together participants from across the world to delve into the impact of COVID-19 on health disparities. The activities resulted in a report as well as a joint AMS-IAP synthesis communique, both titled 'Global Health Inequalities: Research for a fairer future'.

Young Physician Leaders

The IAP Young Physician Leaders (YPL) programme, which has been ongoing for more than 10 years, trains emerging leaders (under the age of 40) working in medicine and public health as clinicians, educators, researchers and health-policy makers in health systems around the world and links them in a peer-support network to improve health in their countries and globally. Developing leadership qualities among health professionals is often not prioritized, with many young professionals having to learn leadership skills almost by trial and error as they are handed positions of responsibility. Although incorporating leadership training programmes into the medical curriculum is gaining importance, in practice only few countries provide such training – hence the ongoing need for this IAP programme.

Since 2011, the IAP YPL programme has provided young health professionals with skills to promote health and strengthen health systems around the world. Twenty-five young physicians, nominated by members of IAP and the 'M8 Alliance' of academic centres, were selected to participate in the 2021 programme. Due to the COVID-19 pandemic, the 2021 YPL cohort was unable to participate at a leadership training planned prior to the World Health Summit in Berlin and instead met in Rome, Italy, for an



Jo Boufford (from the back), IAP YPL Project Coordinator, leading a discussion with the IAP YPL 2022 cohort at ESMT Berlin. (photo: G. Ortolani/IAP)

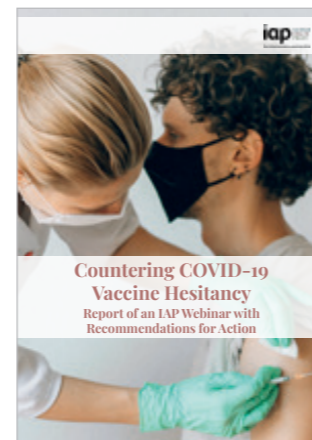
in-person workshop on 14–15 June 2022 prior to the Regional World Health Summit (16–17 June).

In May 2022, IAP issued the call for nominations for the 2022 YPL cohort. Twenty-one outstanding young physicians were selected for 2-days' leadership training (14–15 October) before joining the annual WHS in Berlin (15–18 October).

Both the 2021 and 2022 YPL cohorts joined IAP's leadership development programme, delivered in partnership with the Berlin-based European School of Management Technology (ESMT), with a focus on analysing models of leadership with the aim of developing an individual action plan for personal leadership growth. The two cohorts were also challenged with developing a session to be delivered at the WHS event they were attending. Following the events, the YPL participants joined the IAP YPL network of alumni, which now includes almost 250 leading young medical professionals.

Outstanding achievements by YPL alumni

Over the years, IAP YPL alumni have achieved remarkable recognition in their respective fields. Among the various achievements, two cases from 2022 can be highlighted. Suraj Bhattarai (Nepal, alumnus from the 2016 cohort), conducted research on 'mortality surveillance' in Nepal with support from RTI International and the Bill and Melinda Gates Foundation. His findings, published in the journal *Clinical Infectious Disease*, revealed a significant burden of serious bacterial infections and multi-drug



Released in 2022, the IAP report 'Countering COVID-19 Vaccine Hesitancy' is based on presentations by five experts delivered during the IAP Global Webinar in March 2021.

The IAP YPL session at the World Health Summit, designed and prepared in just three days, attracted a full house. (photo: G. Ortolani/IAP)



resistant bacteria causing deaths in Nepal's adult population. Bhattarai's research emphasized the importance of antimicrobial resistance (AMR) surveillance and antibiotic stewardship programmes at both national and community levels. Likewise, Stefania Mondello (Italy, alumna of the 2018 cohort) was promoted to the position of Full Professor of Biostatistics at the University of Messina, Italy, becoming the first woman to hold this position in the university's history. With extensive experience in clinical neurotrauma and biomarker research, Mondello focuses on precision medicine, using brain injury biomarkers to tailor therapeutic interventions based on individual patients' characteristics. She is an active member of the Global Young Academy and the Global Burden of Disease collaborator network, working to create a global knowledge network for young science leaders.

Urban Health and Well-being

During 2021 and 2022, IAP undertook a desktop review of the urban health initiatives carried out by its member academies, and followed this up with a series of interviews with most active academies to gain a greater understanding of ongoing work in this area. The outcomes of the

review were summarized in a report titled 'What are national academies of science and medicine doing in relation to urban health and its broad determinants?' and were presented at a subsequent webinar, 'Academies of Science and Medicine: Actions to advance urban health'. The webinar emphasized the profound impact of the COVID-19 pandemic on urban health and shared valuable lessons learned from this experience. During the webinar, Jo Ivey Boufford (USA), chair of the IAP Urban Health Working Group, introduced the project and its significance, while Sally Fawkes, an independent health policy consultant and author of the report, highlighted the activities, challenges and opportunities for academies in urban health. Carol O'Donnell, Director of the Smithsonian Science Education Center (SSEC) and a member of the Global Council of the IAP Science Education Programme (see pages 25–28) presented the 'Sustainable Communities!' research guide – an IAP-SSEC collaborative effort – emphasizing the need to integrate global goals into community initiatives. The final speaker at the webinar was Locana Gunaratna, Chair of the Working Group for the IAP Statement on 'Implications of Urbanization in Low- and Middle-Income



Countries', who shared key findings and recommendations from the Statement.

Each of these endeavours affirmed IAP's commitment to enhancing understanding of the complexities of urban environments and their influence on health and well-being, and proposed strategies for improved urban health in communities around the globe.

Sustainable Health Equity

The Sustainable Health Equity Movement (SHEM) advocates for global health and environmental policies that are both sustainable and decolonized. Its goal is to establish favourable conditions for present and future generations, ensuring the attainment of the highest possible standard of health. SHEM brings together individuals, organizations, networks, alliances and other collaborative efforts, primarily focused on global advocacy. Since its inception, IAP has been a supporter of SHEM, playing a significant role in shaping political statements and positions, as well as supporting financially the hosting of the SHEM website.

SHEM operates through a structured approach. Monthly meetings are held for the Steering Committee and two thematic working groups, bolstered by the guidance of an executive team comprising three consultants. SHEM's primary accomplishments during 2022 include:

- Publishing a SHEM concept note on the WHO bulletin in January 2022;
- Issuing a Statement to 49th UN Human Rights Council in February 2022 and a Statement to 5th UN Environment Assembly;
- Organising and hosting the Webinar: Strengthening the Right to Health and Equity in International Law;
- Issuing a statement on health equity through collaboration with other civil society organizations during the 77th Session of the United Nations General Assembly;
- Co-signing the World Federation of Public Health Associations: Statement at the 76th World Health Assembly; and
- Issuing a Statement and Call to Action from the SHEM Working Group on Human Rights and Equity. ■

The Aula Magna of La Sapienza university, Rome, Italy, during the opening ceremony of the WHS Regional Meeting in June 2022, which hosted the IAP YPL 2021 cohort. (photo: G. Ortolani/IAP)

Science Education and Science Literacy

Since 2003, IAP has been implementing a global Science Education Programme (SEP) which has the objective of improving science education and science literacy at the pre-university levels in all countries and regions of the world. The IAP SEP, led by a Global Council of experts, has specifically opted for the promotion of the inquiry-based science education (IBSE) approach.

The IAP Science Education Programme (SEP) is led by a Global Council of experts chaired by Wafa Skalli (Morocco), which defines and implements the annual activities of the SEP. Based on expert recommendations, IAP has specifically opted for the promotion of the inquiry-based science education (IBSE) approach, and together with its partners has developed a series of resources for teachers based on IBSE, that can be downloaded for free from the dedicated section of the IAP website.

With financial support from IAP, a series of five projects on science education and science literacy initiated in 2021 were completed in 2022. Activities implemented by these projects included both local and global actions towards IBSE development, awareness raising and im-

plementation. Short summaries of the five projects follow.

Transforming Minds

The *Instituto de Neurociencia Biomédica (BNI), Facultad de Medicina, Universidad de Chile*, Santiago, Chile, established a professional development programme for teachers titled *Mentes Transformadoras (Transforming Minds)*. Over the years, through more than 35 workshops, the programme has impacted more than 1,000 teachers and 100,000 students. Teachers frequently argued that activities implemented by the programme need to be based on Chilean contexts. To meet this need, BNI created the first educational resource that combines an inquiry-based methodology with research carried



More than 200 teachers in Kazakhstan and Kyrgyzstan have received training on the concepts of 'Big Ideas' applied to science education for children.

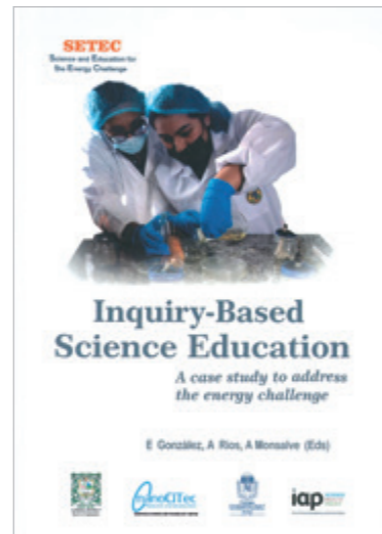
out by Chilean scientists. With this resource, students learn through examples that relate to their community, such as the forest containing thousand-year-old trees (the millenary larches), and with the life stories of local scientists, motivating them to learn about science in an interactive environment.

Pulling these experiences together, BNI used the IAP funding to produce ‘*Mentes Transformadoras, ciencia chilena para usar en la sala de clase*’ (‘Transforming Minds: Chilean science for use in the classroom’). Published in 2022, the book links the local science content to the Chilean national curriculum using IBSE.

Addressing the Energy Challenge

A second project, ‘Inquiry-based Science Education: A case study to address the energy challenge’, was led by IAP SEP Global Council member Edgar González, professor of physics, nanoscience and nanotechnology at the *Pontificia Universidad Javeriana*, Colombia, where he leads the Group of Nanoscience and Nanotechnology.

This project aimed to integrate IBSE into the study of energy production through anaerobic digestion of organic waste to produce biogas. The project was co-funded by IAP and the Colombian Academy of Exact Physical and Natural Sciences and the Nanoscale Science and Technology Centre, Colombia. Anaerobic digestion of



organic waste is considered an environmentally friendly and sustainable way of generating renewable energy that also helps with organic waste management. For this project, students at the Las Alvas Educational Institution, El Águila, near Concepción, developed laboratory-scale systems and built a full-size prototype system that fed biogas to a nearby kitchen and a chicken house. In addition to learning scientific principles, students developed greater understanding of their local community and a commitment and responsibility to overcome the challenges that are part of their environment.

The training of teachers on the implementation of ‘Working with Big Ideas of Science Education’ was implemented in Uzbekistan, Kyrgyzstan and Tajikistan.

Lazzat Kussainova, IAP Science Education Programme (SEP) Global Council member from Kazakhstan (fifth from the left), with teachers attending a training in Almaty, Kazakhstan.



Working with Big Ideas of Scientific Education

In 2015, IAP published ‘Working with Big Ideas of Scientific Education’, which presents ten ‘big ideas’ of science and four ideas ‘about science’, outlining how these ideas can be presented to children as they progress through their school years. The book also explores the implications of applying these principles in terms of content selection, pedagogy, student assessment and teacher education. In 2020, thanks to Lazzat Kussainova, IAP SEP Global Council member from Kazakhstan, in collaboration with the UNESCO Regional Office in Almaty, the book was translated into Russian.

Building on this, Kussainova, President of the International Centre for Scientific Collaborations in Kazakhstan, began training teachers in the use of the book and how it can be used to present science using the inquiry-based methodology. She also produced a ‘Methodological Manual’ (in Russian) that explains these processes to teachers.

Using these resources, more than 200 teachers in Kazakhstan and Kyrgyzstan have received training on the concepts of ‘Big Ideas’.

Climate Science Training Modules

The ECO Science Foundation (ECOSF) is a Specialized Agency of the Economic Cooperation Organization (ECO) for promotion of Science and Technology leading to economic development. Headquartered in Pakistan, it includes 10 largely Central Asian member countries. ECOSF has been implementing IBSE pedagogy for cli-

mate education since 2015, in collaboration with IAP, *La Main à la Pâte* (LAMAP), and with the Malaysia-based organisation, the International Science, Technology and Innovation Centre for South-South Cooperation under the auspices of UNESCO (ISTIC).

Recognizing Pakistan’s vulnerability to climate change impacts due to extreme weather events, glacial melting, heatwaves, floods and droughts, IAP supported the project ‘Development of Training Modules on Climate Change for Science Teachers & Assessment Tool for IBSE Methodology for Pakistan’. The project was led by Khalil Raza, Programme Manager of Energy and Climate at ECOSF, and sought to integrate climate education into primary, secondary and high school education and to raise climate awareness among school teachers.

The completed module employs an inquiry-based approach to enhance students’ learning and understanding of climate change concepts and processes. It is hoped that the success of this module for Pakistan will serve as a model in other ECOSF countries, contributing to informed decision-making and the adaptive capacity of communities in the face of the challenges that climate change is imposing on them.

TeachersCOP

The Paris-based Office for Climate Education (OCE) organized the first edition of a TeachersCOP in 2021 during COP26 of the United Nations Framework Convention on Climate Change (UNFCCC) in Glasgow, UK. The event aimed at highlighting the work of teachers and



the challenges they face in climate change education as well as showcasing the key role teachers play in the global climate response to politicians and decision-makers around the world. The 2021 event attracted more than 500 teachers from 35 countries.

Following this success, OCE hosted a similar event on 6–8 November 2022 during COP27 in Sharm El Sheik, Egypt. This TeachersCOP included invited primary and secondary teachers, trainers, school directors and inspectors to participate by submitting climate change education projects and initiatives. Such projects fell into one of four categories: school curriculum, professional development of teachers, teaching resources, and school-level climate change education projects. The 2022 TeachersCOP concluded with the release of a statement ‘Time for Teacher’s Empowerment’ in both English and French.

Teaching Resources

During 2022, IAP continued its collaboration with the Smithsonian Science Education Center (SSEC) in the development and publication of a series of resources for teachers in the SSEC ‘Science for Global Goals’ initiative.

Three educational resources on different topics related to the Sustainable Development Goals (SDGs) were released in 2022: ‘Biotechnology! How can we ethically create a sustainable future using biotechnology?’, ‘Biodiversity! How can we balance the needs of people with the needs of other living things?’, and ‘Environmental Justice! How can we create environments that are healthy for everyone?’. These resources were designed to facilitate learning and critical thinking among young people about various environmental and scientific issues, empowering them to take action in their communities and promote sustainability and environmental justice. The resources were created in consultation with experts, activists, and young people from different countries around the world, many of whom were identified by IAP through its academy network.

“From an idea originally proposed at the 2016 IAP SEP Global Council meeting in Chile, SSEC has since collaborated with IAP to produce eight such guides, with three more in preparation,” confirms Carol O’Donnell, director of the SSEC and IAP SEP Global Council member. “With our outreach efforts, we estimate to have reached 41,000 educators and 4.7 million students in 88 countries,” she adds.



Science Centres in Africa

A flagship initiative of the IAP SEP is to support the establishment of science centres/museums in Africa, now re-branded ‘The Houses of Innovation, Science and Technology, Education and Culture’ (ISTEC). Led by Wafa Skalli, IAP has identified five academies/countries to participate in the first phase of the project: Benin, Ethiopia, Ghana, Morocco and Sudan. These countries were selected because of the close ties already built between the national academy of the relevant government departments – important for the long-term sustainability of the project. Each centre will provide space for hands-on science exhibits as well as FabLabs, multimedia displays, and workshop spaces for teacher training and the engagement of schoolchildren.

In 2022, IAP received a generous contribution of funds from the Simons Foundation International, which included an allocation to provide seed funding to these academies either to develop their ideas, or to further develop the proposed centres. In the meantime, IAP is seeking additional financial resources to help advance these centres to the stage where they will become self-sufficient national assets. ■

Combatting Predatory Academic Journals and Conferences

In 2022, IAP completed a comprehensive study on ‘Combatting Predatory Academic Journals and Conferences’, sponsored by the Gordon and Betty Moore Foundation. The report highlighted the alarming rise of predatory practices in the academic community and the urgent need to protect researchers at all career stages from their detrimental effects.

Understanding Predatory Practices

Predatory academic journals and conferences have become increasingly sophisticated, exploiting researchers’ pressure to publish and present their work. These practices include pay-to-publish/present models without peer review, with fake editorial boards, fraudulent impact factors, deceptive journal and conference names, and spam invitations to sham conferences with high registration fees. To address these issues, IAP established an independent working group of international experts with the aim of assessing the prevalence and impact of predatory practices, identifying their root causes, and reviewing efforts to combat them.

The IAP report, ‘Combatting Predatory Academic Journals and Conferences’, was launched in the six official UN languages in March 2022. The report emphasizes that predatory practices are on the rise, affecting researchers across disciplines and career stages. It estimated that over one million researchers have unwittingly used predatory outlets, resulting in the waste of billions of dollars in research funds. The report outlines a spectrum of predatory behaviours and offered recommendations to help researchers practice due diligence when choosing where to publish or present their work.

Since its release, the report has been downloaded over 8,000 times and has been featured

Left: Panellists of the IAP session on ‘Combatting Predatory Journals and Conferences’ at the World Science Forum 2022 in Cape Town.

Right: The session was chaired by Stephanie Burton, IAP Co-chair and member of the Academy of Science of South Africa.





at numerous virtual meetings and conferences worldwide, including regional webinars and events in Europe, Africa, the Americas, Asia, and the Arabic-speaking world. A dedicated session at the World Science Forum in December in Cape Town, South Africa, for example, provoked a stimulating discussion. UNESCO's adoption of the report's recommendations in its 'Open Science Toolkit' further validated the quality and impact of IAP's efforts.

Raising Awareness

Recognizing the urgent need to raise awareness about predatory practices, IAP funded local projects through a small grant programme. Six academies received funding to implement awareness-raising efforts, including hosting webinars, carrying out surveys, developing online teaching modules, preparing policy briefs, and using social media creatively. The six academies were: the National Young Academy of Bangladesh, the Czech Republic Academy of Sciences, the *Academia de Ciencias Medicas, Fisicas y Naturales de Guatemala*, the National Young Academy of Nepal, the Nigerian Academy of Science, and the Sudan National Academy of Sciences. Each of these initiatives aimed to educate researchers, policymakers and academic leaders about the risks of predatory outlets.

Acting Ahead

The IAP report highlights three root causes of predatory academic practices: the commercialization of research communication, quantity-based research evaluation systems, and the lack of transparency in peer-review processes. Addressing these drivers is considered crucial to tackling the issues of predatory journals and conferences, which will be a long-term endeavour requiring contributions from a range of stakeholders – including academies, academia and publishers. Indeed, the report specifically calls for universities to provide training on publishing ethics, for research funders to develop policies promoting responsible scholarly communication, and for publishers to waive author fees for researchers in low-income countries.

IAP continues to promote the recommendations of this report and aims to further support academy and other efforts to raise awareness about the issue. IAP affirms the importance of collaboration among scholars, research funders, academic leaders, publishers, policymakers and the international science community to combat these pervasive and damaging practices. Only through collective action can the research community protect its integrity and ensure a robust and transparent academic environment for future generations. ■

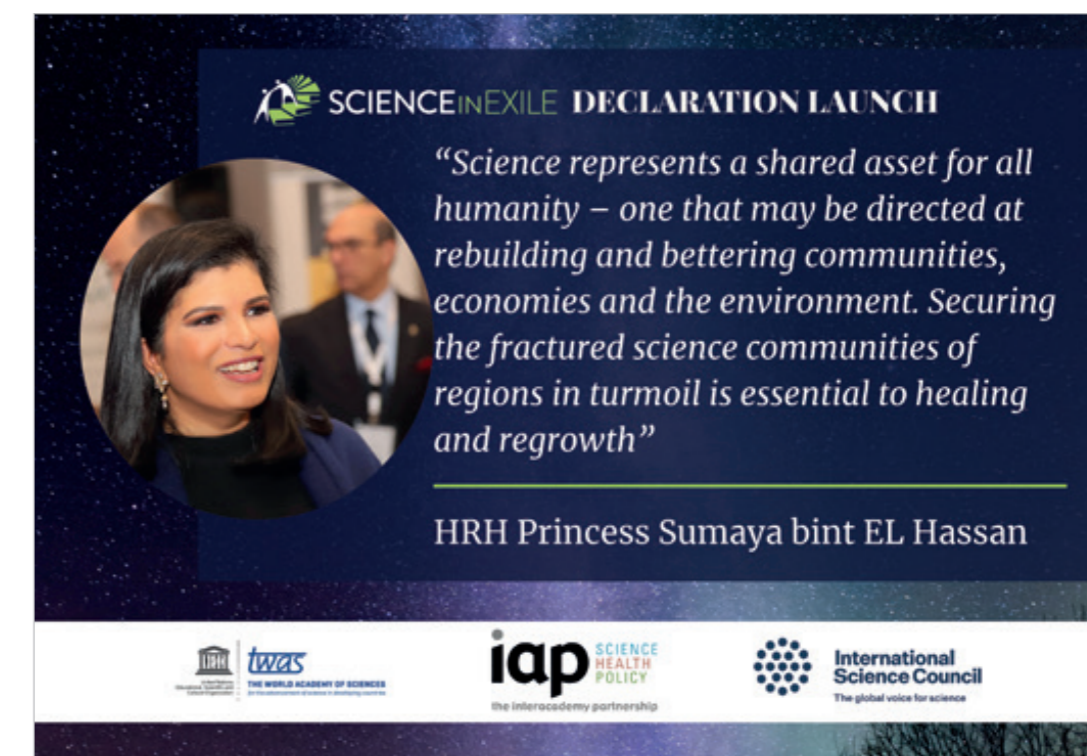
The IAP session dedicated to the challenge of 'Combating Predatory Journals and Conferences' took place at the World Science Forum in December in Cape Town, South Africa, and provoked a stimulating discussion.

Supporting Refugee and Displaced Scientists

In 2022, the Science in Exile initiative made significant progress in supporting refugee and displaced scientists, with the aim to create a network of like-minded organizations that work together to develop a platform, and roll out an advocacy campaign to respond cohesively to the needs of at-risk, displaced and refugee scientists. The initiative was launched in 2021 as a joint effort between IAP, The World Academy of Sciences (UNESCO-TWAS) and the International Science Council (ISC).

In March 2022, IAP, UNESCO-TWAS, ISC and 15 other organizations working on science, technology, education and engineering officially endorsed the Science in Exile Declaration. Among the pre-endorsers were the Global Young Academy (GYA), the Royal Society of Canada (RSC), the International Centre for Theoretical Physics (ICTP), the World Federation of Engineering Organizations (WFEO) and the Organization for Women in Science for the Developing World

(OWSD). The Declaration was subsequently released via a webinar featuring a keynote address by HRH Princess Sumaya bint El-Hassan of Jordan. Princess Sumaya is the President of the Royal Scientific Society of Jordan and UNESCO Goodwill Ambassador and Special Envoy for Science for Peace. Princess Sumaya emphasized that: "Science represents a shared asset for all humanity — one that may be directed at rebuilding and bettering communities, economies



Princess Sumaya bint El Hassan, president of Royal Scientific Society of Jordan, is an influential advocate for research and science education and UNESCO Goodwill Ambassador and Special Envoy for Science for Peace.

and the environment. Securing the fractured science communities of regions in turmoil is essential to healing and regrowth.”

Also speaking at the launch of the Science in Exile Declaration, IAP Co-President and former Foreign Secretary of the Royal Society, Sir Richard Catlow, said: “Together with dozens of scientists and organizations worldwide, we reaffirm our shared vision of an international movement that promotes the protection of scientists, leading to better science and contributions to humanity.”

Following the launch of the Science in Exile Declaration, more than 70 organizations have added their signature to the list of endorsers, as well as some 60 individuals.

The commitments of the Declaration are:

- Preserve the foundations of science and safeguard scientific enquiry, data and institutions.
- Protect and support scientists and their work in the event of war and conflict, political upheaval and repression, natural and human-made disasters.
- Support at-risk, displaced and refugee scientists to engage fully in advocacy and lobbying efforts.
- Develop mechanisms aligned to global standards that will identify and endorse the skills, knowledge and professional credentials of at-risk, displaced and refugee scientists.
- Safeguard the next generation of scientists by providing support programmes for students and early-career researchers who have been displaced or are in exile.
- Work towards rebuilding national scientific systems in the aftermath of conflict or disaster and support the voluntary, safe repatriation of scientists.

IAP, UNESCO-TWAS and ISC continue to raise awareness about the Declaration and to urge organizations from the scientific and humanitarian communities to join in their efforts and also endorse it.

Among IAP’s outreach events was a session during the EuroScience Open Forum (ESOF) held in Leiden, The Netherlands, in July 2022. Session panelists specifically considered ‘The Science in Exile Initiative: Displacement, gender, and the right to science in the Global South’, addressing the challenges faced by refugee and displaced scientists, with a particular focus on gender. The session highlighted the importance of supporting these scientists, enabling them to stay up to date in their research fields, maintain their scientific careers, and



contribute to rebuilding their countries when conditions allow.

Another well attended outreach event took place at the World Science Forum in Cape Town South Africa, in December 2022 (see page 59). The focus of the session – co-organized with the At-Risk Scholars Initiative of the Global Young Academy – was on At-risk, Displaced and Refugee Scholars: Global dynamics and best practices. Among the speakers were Jean-Pierre Mfuamba Mulumba, Associate Professor, *Université Pédagogique Nationale de Kinshasa* – himself a formerly displaced scientist; Saja Al Zoubi, a displaced Syrian scientist currently a lecturer at Saint Mary’s University, Canada; and Anna Plater-Zyberk, Director of the International Cooperation Department of the Polish Academy of Sciences, and member of the team that has implemented a major initiative in support of Ukrainian scientists fleeing the country due to the conflict with Russia. ■

Panelists of the GYA-IAP session on ‘At-risk, Displaced and Refugee Scholars’ at the World Science Forum,

Biosecurity and Responsible Research

IAP has continued its efforts in the field of biosecurity and the promotion of responsible research practices. IAP has a long track record of promoting responsible research practices, dating back to the establishment in 2003 of a Biosecurity Working Group, designed especially to link with the Biological and Toxin Weapons Convention (BWC).

Activities in 2022 focused on disseminating and raising awareness of the ‘Tianjin Biosecurity Guidelines for Codes of Conduct for Scientists’, produced in collaboration with the Tianjin University Centre for Biosafety Research and Strategy and the Johns Hopkins Center for Health Security and endorsed by the IAP leadership in 2021. The guidelines address the need for ethical standards and responsible conduct in bioscience research to prevent intentional misuse.

In April 2022, during a Preparatory Conference of the Biological and Toxin Weapons Convention (BWC) in Geneva, a virtual side event titled ‘Biosecurity for All: The role of scientists’, sponsored by the Chinese Mission in Geneva and IAP, presented the ‘Tianjin Biosecurity Guidelines’ to representatives of States Parties of the BWC. The session, moderated by Iqbal Parker, South Africa, and a member of the IAP Biosecurity Working Group, included experts from

Side event to promote the uptake of the Tianjin Biosecurity Guidelines held during the Preparatory Conference of the Biological and Toxin Weapons Convention (BWC) in Geneva, April 2022. (photo: © TJU CBRS)



Belgium, China, Mexico and the Philippines, and confirmed strong support for the Tianjin Guidelines from the global scientific community. Many creative and practical ideas were proposed by the participants for further dissemination of the guidelines, including developing training courses for scientists, students and administrators.

The Tianjin Guidelines were then presented at the 9th Review Conference of the BWC that took place in Geneva in December, with the request that they be endorsed by States Parties. Despite significant support, this request was not realized.

Engagement with the World Health Organization

During 2021, IAP experts were invited to participate in a series of online workshops organized by the World Health Organization (WHO) to help develop the ‘WHO Global Framework Guidance to Harness the Responsible Use of the Life Sciences’. The output of these workshops was published by WHO in May 2022 as: ‘Towards a Global Guidance Framework for the Responsible Use of Life Sciences: Summary report of consultations on the principles, gaps, and challenges of biorisk management.’ This publication highlighted the Tianjin Biosecurity Guidelines as an example of a biorisk management tool and a mechanism for use by different stakeholders. The report also acknowledged the foundational work by China and Pakistan, and the collaborative efforts of IAP and other partners in developing these guidelines.

Later in the year, in September, WHO published a follow-on report, ‘Global Guidance Framework for the Responsible Use of the Life Sciences: Mitigating biorisks and governing dual-use research’.

“Risks arising from developments in the life sciences and converging technologies need to be recognized and mitigated,” says the report. “The values, principles, tools and mechanisms described in this framework aim to support [WHO] Member States and stakeholders to prevent and mitigate biorisks and govern dual-use research.” Once again, the contributions of IAP experts in the preparation of the document were acknowledged.

Education

IAP has an active Science Education Programme (see pages 25–28), which includes an ongoing partnership with the Smithsonian Science Education Center (SSEC).

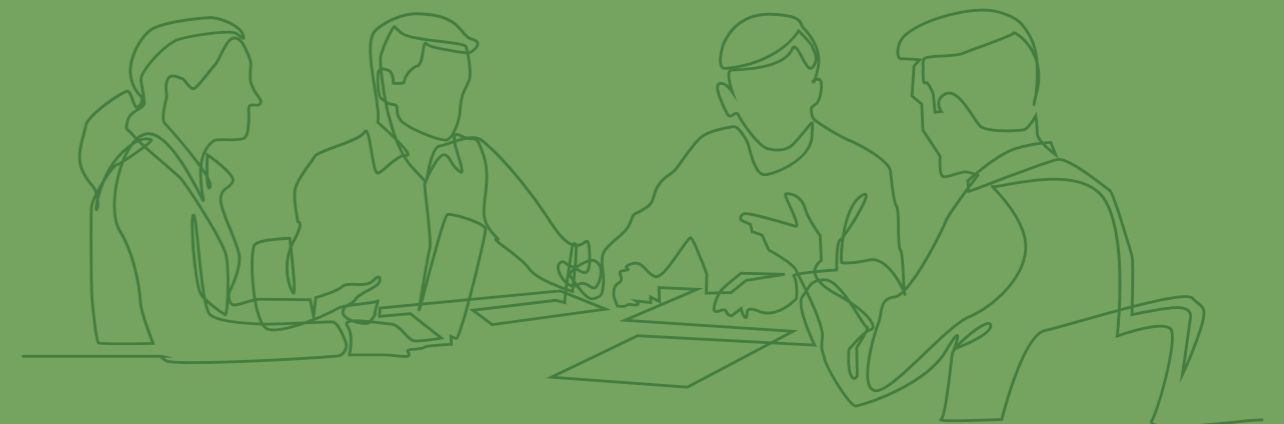


In 2022, IAP and SSEC released ‘Biotechnology! How can we ethically create a sustainable future using biotechnology?’ – a community research guide that can be used as a framework to focus on sustainable actions that are defined and implemented by students aged between 11 and 18. Using the guide, students learn about the potential of biotechnology and its benefits while considering how to navigate risks and concerns. They work through topics such as food systems, materials, human health, genetic data, the environment, and biosecurity, and are introduced to a variety of perspectives presented by scientists from around the globe. Then they use the knowledge they acquired, to decide and implement actions to improve their communities. The ‘Biotechnology!’ guide is freely available for download from the SSEC and IAP websites. ■

IAP was involved in a side event at the Biological and Toxin Weapons Convention in Geneva, November 2022. (photo: © TJU CBRS)

Regional Activities

Association of Academies and Societies of Science in Asia (AASSA)	36
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Association of Academies and Societies of Science in Asia (AASSA)

The Association of Academies and Societies of Sciences in Asia (AASSA) is a non-profit international organization with science, technology and innovation (STI) interests. It consists of scientific and technological academies and science societies in Asia and Oceania and is the IAP affiliated regional network for the Asia/Pacific region. Its current membership consists of 32 national academies and societies of sciences from 30 countries and one regional academy of engineering and technology.



the second focused on culture, human behaviour and religion; while the third day concentrated on science and education. The webinar underscored the exacerbation of prevailing societal inequalities, particularly gender disparities, which became starkly evident in economically disadvantaged nations during the pandemic. Education bore a substantial brunt, with an estimated 1.6

AASSA-KAST Working Group Meeting on 'Neonicotinoids Insecticides: Use and Effects in Asian Agriculture'.

In 2022, the Association of Academies and Societies of Sciences in Asia (AASSA) organized three regional workshops (via webinar), in collaboration with IAP and IAP member academies. AASSA also worked with its host academy, the Korean Academy of Science and Technology (KAST) to host a series of workshops and then a symposium to develop a publication on the use and impact of neonicotinoid insecticides in the Asia-Pacific region.

NASSL-AASSA International Webinar

On 22-24 February 2022, AASSA and the National Academy of Sciences Sri Lanka (NASL), with financial support from IAP, held the International Webinar on 'Long-Term Social Impacts of the Covid-19 Pandemic'. Following a call for abstract submissions from AASSA member academies, 20 papers were selected for presentation. The webinar attracted between 80 and 140 participants each day. The first day was devoted to economics, politics and governance;

billion children worldwide being unable to access schooling during this period. Notably, the workshop stressed the paramount significance of cultivating trust in governing authorities, a critical factor in effectively managing both the pandemic and the rampant spread of misinformation.

Among the notable opportunities identified were the potential for re-envisioning health systems and the need for cohesive strategies to provide informed guidance to governments from knowledgeable groups. Workshop participants proposed several actions to address these challenges. They urged the establishment of protocols for a harmonized integration of various scientific disciplines, aimed at informing policy-making to combat pandemics on both national and international fronts. The notion of a 'One Health' approach was emphasized, with participants advocating for the alignment of human, animal and environmental well-being in pandemic response strategies. Furthermore, workshop participants called for a thorough reassessment of public health and education delivery systems during emergency situations. In education, for example, this would entail a comprehensive transformation of educational systems, encompassing aspects such as lesson delivery, curriculum design, formative assessment methods, and pedagogical approaches. Importantly, the digital divide was identified as a pressing concern that also necessitates attention. In summary, the workshop's outcomes

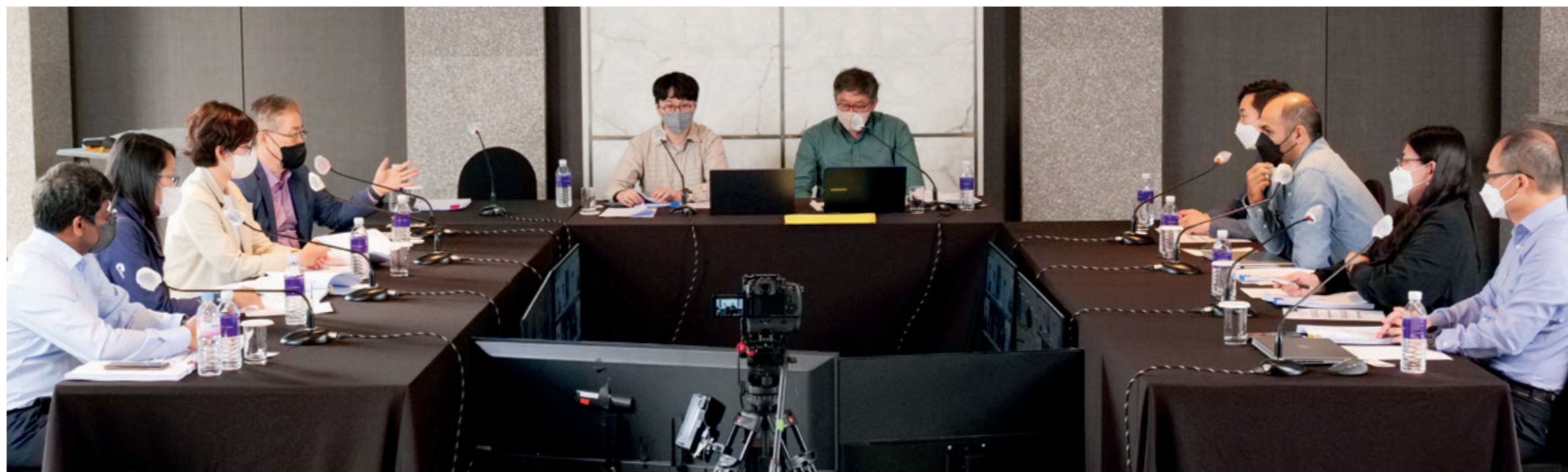
propose a path toward more equitable and effective responses to pandemics, emphasizing interdisciplinary collaboration, holistic health considerations, and innovative educational adaptations.

KAST-AASSA International Workshop

The KAST-AASSA International Workshop on 'Global Climate Change and Zoonotic Infectious Diseases' was held on 25-26 April 2022 as a hybrid event at KAST and online. Seven lectures were given by participants from Hong Kong, Japan and Korea. The first day focused on climate change, while day two focused on zoonotic diseases. The main themes of the workshop were:

- The impact of global warming on living conditions;
- The impact of climate change on global health;
- Tick-borne zoonotic severe fever with thrombocytopenia syndrome;
- Diversity of coronaviruses, phylogeny and interspecies jumping;
- Human-dog-wildlife rabies in South Africa;
- Vaccine development strategies for preparing for the next pandemic;
- Preparedness for new emerging viruses with nanobiotechnology convergence techniques.

Emerging from the workshop was a comprehensive resolution that delineated actionable steps across four distinct target groups. First, there was a suggestion for science academies, along with their interconnected networks, to adopt a transdisciplinary approach that empha-



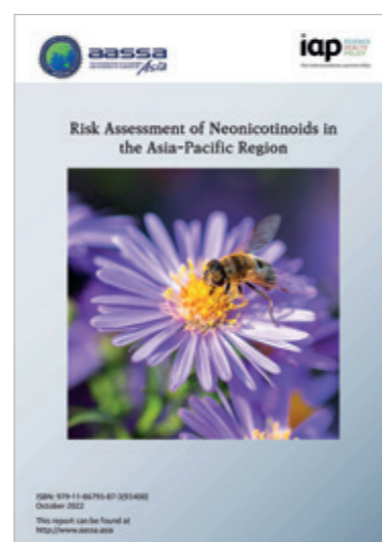
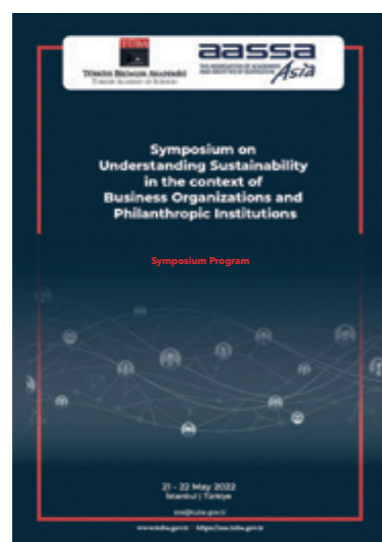


sizes the imperative of a ‘One Health’ methodology. Global cooperation for addressing public health challenges was strongly advocated, fostering collaboration between the infectious disease and climate science communities. Second, encouraging joint responses involving governments, researchers and workers across sectors emerged as a critical strategy to effectively combat and preempt health threats. Third, for institutions and nations, the suggestion was to perpetuate investments in robust disease surveillance systems while strengthening national public health infrastructures. A dual focus was emphasized: augmenting health systems to align with eco-friendly and accessible paradigms, while tailoring prevention and response strategies to suit specific affected communities. Finally, an emphasis on fostering education and training in climate and health research and advocacy was highlighted as a key enabler.

Stakeholders engaged in research and development were urged to harness nanotechnologies for early pathogen detection and enhancing drug efficacy. The imperative of employing multidisciplinary approaches to advance nanotechnological solutions was underscored. As an example, nanomaterials were proposed as adjuvants to bolster immune responses. The pursuit of innovative tools for data analysis and prediction was advocated, including the creation of predictive modelling and early warning systems to decipher disease spread and emergence. Lastly, the

international community was urged to exercise stringent control over the utilization of wildlife for food or in medicine, a measure aimed at mitigating zoonotic disease occurrences. To safeguard against ecological imbalance, the suggestion was to refrain from indiscriminate invasion and degradation of wildlife habitats. Workshop participants also encouraged careful monitoring and studies of permafrost melting to ascertain the potential release of frozen pathogens attributable to climate change. In summary, the workshop’s resolution charted a holistic course of action, encompassing transdisciplinary collaboration, strengthened healthcare systems, innovative nanotechnological applications, and

AASSA-KAST Working Group Meeting on ‘Neonicotinoid Insecticides: Use and Effects in Asian Agriculture’.



ecologically conscious practices, with the overarching goal of mitigating health crises stemming from both infectious diseases and climate change.

AASSA-TÜBA Hybrid Workshop

AASSA-Turkish Academy of Sciences (TÜBA) Hybrid Workshop on ‘Understanding Sustainability in the Context of Business Organizations and Philanthropic Institutions’ took place on 21-22 May 2022. The workshop was attended by the Turkish Deputy Minister of Industry and Technology, M. Mustafa Varank, who sent a video message, the President of AASSA, Ahmet Nuri Yurdusev, the President of TÜBA, Muzaffer Seker, the President of NASL, Priyan Dia, who attended online, as well as bank executives, university rectors and other relevant people from universities. More than 40 experts from 16 countries (Azerbaijan, Bahrain, France, Indonesia, Iran, Malaysia, Montenegro, Moroc-

tinoids in the Asia-Pacific Region’. The report includes overviews of the status of agrochemical use in six countries of the Asia-Pacific region, as well as a review of the molecular mechanisms of negative impacts of this class of insecticide on honeybees. Successive chapters review the environmental impacts of neonicotinoids, and risk assessments of their effect on pollinators and natural enemies of crop pests. The report then discusses risk regulation and mitigation of these insecticides in the Asia-Pacific region and concludes with a set of policy recommendations for risk management.

While preparing the report, KAST arranged seven online workshops involving experts from more than ten AASSA member countries. The purpose was to elucidate the workflow, track the advancement of each section of the report, and ultimately facilitate the organization of a workshop. This workshop, on ‘Neonicotinoid Insecticides: Use and Effects in Asian Agriculture – A Review and Recommendations to Policymakers’, was held on 19 May 2022 in Seoul. Working group members included the main coordinator of the report, Chuleui Jung from Andong National University, South Korea, along with experts from relevant fields such as agriculture and environment. Researchers from Korea’s National Institute of Forest Science and Rural Development Administration also participated, sharing their feedback on the draft report.

Fifty-five experts from the following countries collaborated and contributed to the preparation of the final report: Australia, Bangladesh, China (including Taiwan), India, Indonesia, Iran, Japan, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Singapore, South Africa, South Korea, Thailand, Turkey, Uzbekistan and Vietnam. The report was released in October 2022. ■



The AASSA-KAST study on neonicotinoid insecticides in the Asia/Pacific region follows on from studies by EASAC for Europe and NASAC for Africa.

co, Romania, South Africa, Sri Lanka, Turkey, Uganda, United Kingdom, United States and Uzbekistan) attended. There were also keynote speeches from two renowned scholars: Mehmet Asutay, from Durham University, UK, and M. Kabir Hassan, from the University of New Orleans, USA.

Neonicotinoids in the Asia/Pacific Region

Following on reports assessing the use and impact of neonicotinoid insecticides by EASAC and NASAC for the European and African regions, respectively, during 2022 AASSA and, in particular, KAST, led the development and publication of the report ‘Risk Assessment of Neonic-

European Academies' Science Advisory Council (EASAC)

EASAC is IAP's regional academy network for Europe, consisting of 28 national science academies from 25 European Union Member States plus Norway, Switzerland and the UK. The pan-European academy *Academia Europaea* and the association of all academies in geographical Europe, ALLEA, are represented in EASAC's governing body, the Council. The Federation of European Academies of Medicine (FEAM) has observer status at the Council.



Throughout 2022, EASAC began work on several new projects, such as 'The Future of Gas', which explored the risks of using natural gas instead of fossil fuels such as coal or oil. A kick-off and virtual working group meetings were held throughout the year and a final report is planned for publication in 2023. Research also continued on 'Neonicotinoids and their Substitutes in Integrated Pest Control', a project that revisits and updates the impactful report 'Ecosystem Services, Agriculture and Neonicotinoids' issued by EASAC in 2015. The project 'Meat Alternatives' started with a virtual kick-off meeting and a virtual meeting with the Novel Foods Unit of the European Food Safety Agency (EFSA), while the project 'AI and Healthcare' was jointly scoped with the Federation of European Academies of Medicine (FEAM).

EASAC was also invited to participate in the European Commission's study on the fight against anti-microbial resistance and a number

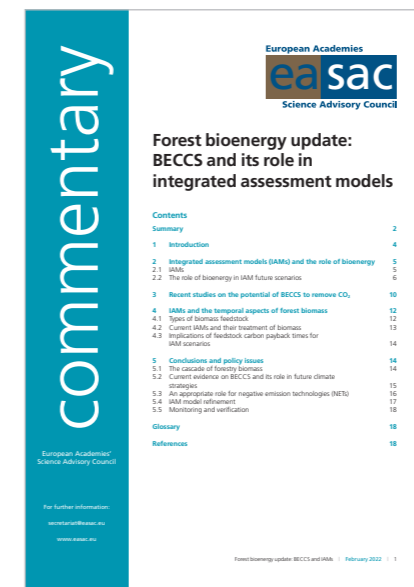
of meetings hosted by DG Sante on sustainable food systems.

Regenerative Agriculture in Europe

April 2022 saw the publication of a major EASAC report on 'Regenerative Agriculture in Europe', preparations for which were conducted entirely virtually. Agriculture is the main driver of



Agricultural production systems are currently severely threatening climate stability and ecosystem resilience and are a significant driver of environmental degradation.



global deforestation and land conversion, and food systems account for more than a third of global greenhouse gas emissions, making it a major contributor to climate change. The report provides evidence that a transformation to regenerative agriculture holds promise for reducing climate risks while providing the growing world population with food while protecting and enhancing biodiversity.

European Actions

EASAC published two commentaries in 2022. The first, 'Forest Bioenergy Update: BECCS and its role in integrated assessment models' (BECCS = bioenergy with carbon capture and storage), was published in February 2022 prior to the Third Report of the Intergovernmental Panel on Climate Change (IPCC). Because of the timing of its release, this EASAC report attracted media interest. Results were presented to the European Parliament and the UK Parliament Environment Select Committee on the Use of Forest Biomass, with an additional submission to the UK Government's Department for Energy and Climate Change. The EASAC President was active in the debate in Sweden on the role of BECCS.

The second commentary was published by EASAC in March 2022. It was a message from European Academies for the United Nations Framework Convention on Climate Change (UNFCCC) COP26 and the Convention on Biological Diversity (CBD) COP15: 'Common themes and objectives should lead to closer cooperation between the UNFCCC and the CBD, EASAC Science Advice for the Benefit of Europe'. The commentary discussed the wide range of interactions

between climate change and biodiversity, and the case for closer coordination and collaboration between the two UN conventions.

Decarbonisation of Transport

In partnership with NASAC and IAP, EASAC contributed to an event on 'Decarbonisation of Transport in Africa' (see page 9, overview) at the World Science Forum in South Africa in December. EASAC also contributed remotely to a workshop on fossil free electricity in Stockholm, Sweden, on 18 May and on 'Decarbonisation of Buildings' in Berne, Switzerland, on 23 June.

Council meetings

EASAC's Council met in person in Prague, Czech Republic, in June 2022 and held a hybrid meeting in Stockholm in December. Council members received a presentation by the Deputy Minister for Science, Research and Innovation of the Czech Republic on the EU Czech Presidency, and approved new initiatives on 'Deep Sea Mining', 'Security of Sustainable Energy Supplies', and 'Ocean Circulation in the Mediterranean and Black Sea'. A significant part of EASAC's Council and Bureau business in 2022 was spent on finding a new host academy for the EASAC Secretariat, which will be the Austrian Academy of Sciences.

Publications

An article, 'Reducing carbon emissions in the transport sector', was published in February 2022 on *Innovation News Network*. In the article, William Gillett, Director of EASAC'S Energy Programme, discusses recommendations for decarbonising transport. 'Up in smoke – could subsidies for BECCS increase emissions?', an interview with Michael Norton, EASAC Environment Programme Director, was published in March in *New Energy World*, the magazine of the Energy Institute, London, UK. Finally, in November, EASAC published an article jointly with IAP titled 'Health must become core to global climate policy negotiations' in *The Lancet*. ■

Inter-American Network of Academies of Science (IANAS)

IANAS is a network of 21 academies of science and three scientific organisations in the Americas. Its mission is to strengthen science communities 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.



The main goal of the Inter-American Network of Academies of Sciences (IANAS) is to support co-operation towards the strengthening of science and technology as a tool for advancing research and development, prosperity and equity in the Americas. The Network's activities are traditionally organized under four programmes: Energy Programme, Science Education Programme (SEP), Water Programme and the Women for Science Programme (Wfs). However, every

year, IANAS carries out several activities outside these categories that are considered important for the Americas.

Actions against Climate Change

In 2022, IANAS held various webinars including the 'Climate Change and Health' conference in collaboration with IAP and the Royal Society of Canada, which then led to the production and release of the report 'Taking action against climate change will benefit health and advance health equity in the Americas' – the regional contribution to the IAP global project on 'Climate Change and Health' (see pages 18–20). Pamphlets summarising the topics addressed were also produced in four languages and distributed among IANAS member academies and beyond.

'The Future of Cities' webinar reviewed the opportunities provided by new technologies and new developments in engineering for addressing urban adaptation in the face of climate change.



Presidents and other representatives of IANAS member academies at the IANAS General Assembly 2022, held at the National Academy of Sciences of Argentina, 19-21 September, Córdoba, Argentina.

As part of the Future of Cities project, the IANAS Energy Programme (see below) also held a webinar on 'Urban adaptation to Climate Change'.

Statement on Nicaragua

In April 2022, IANAS launched a 'Statement on the crisis in science, higher education and freedom of expression in Nicaragua', supported by its member academies, which condemns the cancellation of the legal status of the Academy of Sciences of Nicaragua (ACN) by the Nicaraguan government. The Network encouraged its members to disseminate the statement and to forward it to the Nicaraguan embassy in their country.

Science Education Programme

Immediately following the IANAS General Assembly in September 2022 (see below), the 'STEM Education and Public Outreach' workshop was held at the National Academy of Sciences of Argentina (ANC), in Córdoba. The workshop was organized by the IANAS Science Education Programme and partially funded by an IAP grant on 'Fostering STEM teaching and learning in several South American countries'

that was coordinated by Bonnie Schmidt (Canada) and Beatriz Caputto (Argentina). The event was aimed at young people from Argentina, Bolivia, Ecuador and Peru who are currently working in the field of education. STEM education experts and representatives of IANAS member academies also participated. The main objective of this event was to convene previously selected Nexus Teams that, working together, could create a pilot project that would foster commitment to STEM education in their respective countries. The first virtual follow-up meeting was held on 5 December 2022. These teams are currently having periodic virtual meetings to further develop their projects, which are mainly focusing on primary and secondary school teacher training. They are working with students and teachers on topics such as botany, mathematics and palaeontology in innovative and dynamic ways.

Energy Programme

The IANAS Energy Programme focused on two main projects.

The first project was the 'Future of Cities', a study addressing how cities and other communities in small developing countries can rebuild and adapt to deliver higher standards of energy,



water and resource efficiency. The project was completed in July 2022, and the final report, titled 'Rethinking Caribbean Cities' was launched in December.

The second project was the making of a book, which is a successor to the 'Guide Towards a Sustainable Energy Future for the Americas', released in 2016. The new book will include ideas such as the circular economy, the future of cities, the transition to a post-carbon economy, the development of a hydrogen economy, the implications of the electrification of the world's vehicle fleet, and the importance of the changing social, economic, political context, among others.

Women for Science Programme

Members of the Women for Science Programme (WfS) organized and coordinated two competitions. The first was The Young Scientist Research Award, aimed at acknowledging an outstanding young female scientist who recently

defended her PhD thesis. Andrea Rodríguez Sánchez from Colombia, a social scientist whose PhD focused on peace, conflict and development studies, was the selected winner, receiving a USD 1,500 award. The other competition was the video contest 'Descubramos a las Científicas Latinoamericanas' (Let's Discover Latin American Female Scientists). Latin American secondary school students (aged between 14 and 18) and university students (aged between 19 and 23) could participate by making a brief informative video about a female Latin American scientist and her scientific contributions. The selected winners were: Victoria Diosdado (Argentina), Justo Maestri (Argentina), Aleyda Margarita (Mexico) and Martina Oks (Argentina). The first prize in each category was USD 800 and second prize USD 300.

The WfS also collaborated with IAP and other IAP Regional Networks in the STEM Women Global Network project, representing the Americas.

Nexus Teams and STEM education experts at the IANAS SEP STEM Education and Public Outreach Workshop 2022, held at the National Academy of Sciences of Argentina, 21-23 September, Córdoba, Argentina.

The goal of the webinar series on 'Water and Health in the Americas' was to address the importance of sanitation, hygiene and adequate access to clean water for preventing and containing water-borne, water-washed, vector-borne and water related diseases.

Water Programme

The Water Programme held a series of virtual international webinars on 'Water and Health in the Americas', addressing topics under the 'Bradley Classification' of water-related infectious diseases. A report on the topics discussed is being prepared for publication. Experts in the Water Programme also joined colleagues from Africa to contribute to another publication regarding 'Water Scarcity in Africa and the Americas', which will be finalized in 2023.

IANAS Executive Committee

During 2022, the Executive Committee (EC) met virtually on 22 February, 14 May and 28 November, to discuss progress in the different programmes, ongoing activities with other partners, the organization of the General Assembly (GA), and other topics. Furthermore, the EC held an in-person joint meeting with the incoming and outgoing Executive Committee at the General Assembly on 20 September. The Gen-



eral Assembly took place at the National Academy of Sciences of Argentina (ANC), in Córdoba. The Assembly lasted three days and gathered twenty member academies. Participants were apprised of the Network's actions in the 2019-2022 triennium; were able to revise, modify and approve the IANAS Statutes and Rules of Procedures; as well as elect the leadership of the network for the next three years. Helena Nader from the Brazilian Academy of Sciences, and Karen Strier from the US National Academy of Sciences, were elected IANAS co-chairs for the period 2022-2025.

Symposia

Following the IANAS General Assembly, a series of symposia and plenary conferences were organised. A presentation was given by Claudia Bauzer Medeiros (Brazil) on 'Open Science', followed by the 'Energies for the Transition' symposium coordinated by Victor Alberto Ramos, president of the National Academy of Exact, Physical and Natural Sciences of Argentina. This symposium consisted of four lectures from specialists in the field in Argentina, including Fernanda Raggio, Miguel Laborde, Horacio Corti and Esteban Franceschini. The symposium was followed by the 'Climate Change and Health' symposium, chaired by Helena Nader (Brazil), which included eight lectures on different aspects of this topic (see pages 18-20). ■

Network of African Science Academies (NASAC)

The Network of African Science Academies (NASAC) was established in 2001 in Nairobi, Kenya, and is the affiliate network for IAP in Africa. NASAC is a consortium of 29 merit-based science academies in Africa that aspires to make the ‘voice of science’ heard by policy and decision makers within Africa and worldwide. NASAC is also dedicated to enhancing the capacity of existing national science academies and supports the creation of new academies in countries in Africa where none exist.

Gene Editing Technology Initiative

Between February and May 2022, NASAC and Africa Harvest organized a series of regional webinars as part of the Gene Editing Technology Initiative (GETI). The events were held in February for East Africa, in April for Central Africa and in May for West Africa and North Africa. The webinars advocated for an enabling regulatory environment on gene editing technology, and supported the development and



commercialization of gene editing technology products. The webinars attracted more than 700 participants and included a target audience from the public, policymakers, regulators and researchers.

Later, in November 2022, four Statements on Gene Editing Technology were presented during the General Assembly of

NASAC (see below) for discussion and endorsement. The statements address gene editing in plants for agricultural and food production pur-



This series of NASAC statements addresses the science and regulatory frameworks for gene editing in plants for agricultural and food production purposes.

poses as a mechanism for increasing crop yields and developing drought resistance.

Statement on the War in Ukraine

In March 2022, NASAC joined other academies globally to express concern about the war in Ukraine and the resulting humanitarian crisis. This was done via the NASAC ‘Statement on the War in Ukraine’, which called for an immediate ceasefire, rational dialogue and negotiation leading to peace in the region. The Statement also stressed the need for fair treatment of refugees in all countries. Academic organizations were encouraged to offer opportunities for displaced scientists to work in exile and to rely on evidence-based information to counter circulation of falsehoods from uncertain sources.

Academy Development Initiative

On 5 July 2022, NASAC held a meeting for newly established academies in Angola, the Democratic Republic of Congo (DRC), Lesotho and Malawi, in partnership with the United Nations Technology Bank for Least Developed Countries (UNTBLDCs). The meeting emphasized the importance of science academies in strengthening science, technology and innovation policies using evidence-informed advice. Additional support for this initiative was provided by IAP to enable the new academies to build secretariat capacity and facilitate their application for NASAC and IAP membership.

Impact of Climate Change on Food Systems

IAP, NASAC and the Academy of Science of South Africa (ASSAf) co-organized a webinar on the ‘Impact of Climate Change on Food Systems’ on 13 October 2022. The webinar deliberated on transformative change for sustainable food systems and nutritional quality, including climate-smart, resilient agriculture, improving agricultural research capacity, extension services, and political commitment aligned to the Sustainable Development Goals (SDGs). The webinar made a case for considering indigenous and under-utilized food crops, a re-examination of food processing in the food chain, and the circular economy.

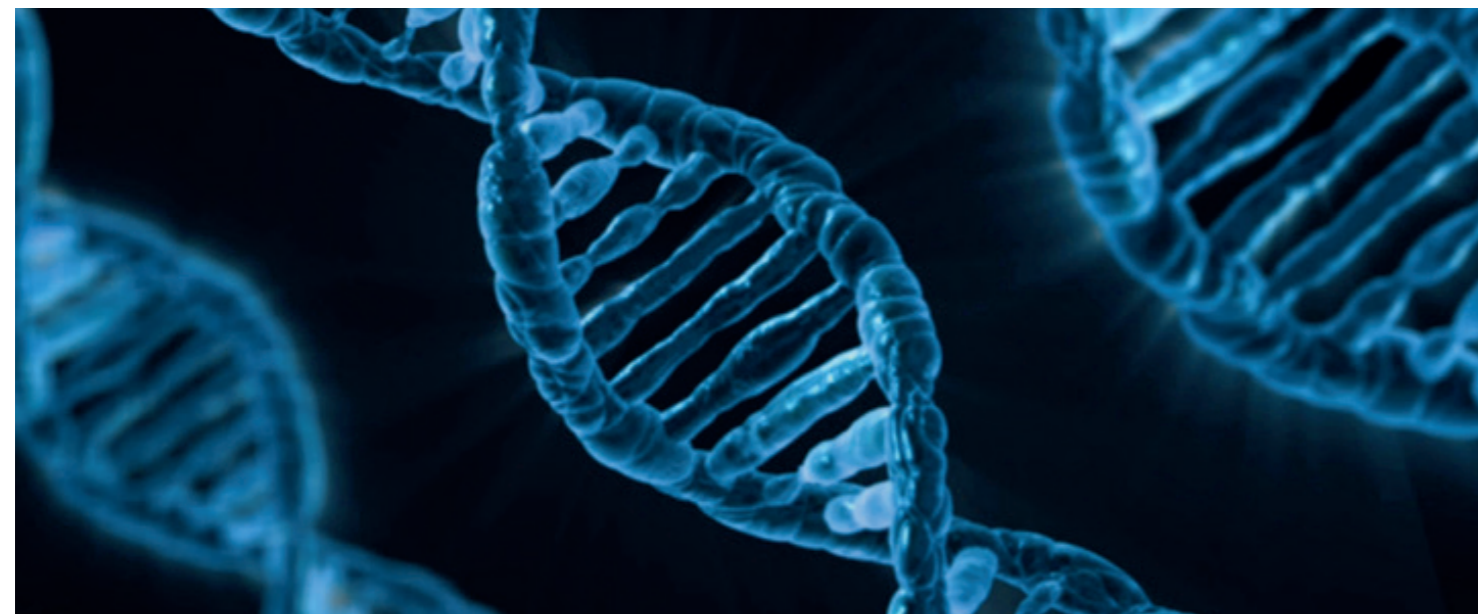
NASAC-INGSA Africa Regional Webinars

NASAC, in partnership with the International Network for Governmental Science Advice (INGSA) – Africa Chapter, hosted a series of webinars

from 24–28 October 2022 themed ‘Science Advice in the Post-COVID Era’. The webinars, which included several keynote speakers and panellists and attracted more than 130 participants, highlighted the challenges of providing rapid science advice after the pandemic. Issues concerning the rise of new variants of COVID-19 were discussed, as well as the importance of science in creating awareness. The challenges facing Africa after COVID-19 were also discussed, with an emphasis that solutions require collaboration across academics, policymakers and society.

Climate Change and Health

IAP’s regional-to-global ‘Climate Change and Health’ (CCH) project reviewed the current evidence of detrimental health effects caused by rising global temperatures and charted a way of reducing these effects through mitigation and adaptation measures. In particular, for Africa, there were recommendations to use innovative indigenous approaches. NASAC and IAP presented and publicized the report at a side-event to the United Nations Framework Convention on Climate Change (UNFCCC) in the COP27 Health Pavilion, ‘Climate Action for Health’. The event took place in Sharm el Sheikh, Egypt, on 10 November 2022 and was coordinated by the lead researcher of the regional CCH report for Africa, Deoraj Caussy (Mauritius). A policy brief summarising the CCH project and its recommendations was made available in French and English.



Subsequently, on 28 November, the IAP global synthesis report, 'Health in the Climate Emergency: A global perspective', was launched and distributed during the Annual Meeting of African Science Academies (AMASA) 2022 in Nairobi, Kenya (see below). The key findings of the report were highlighted including the need for evidence-based data for policymakers in Africa. Participants discussed additional issues such as the increasing social capital in tackling the health impacts of climate change, the use of adaptation and mitigation measures, and the critical role of partnership in meeting the goal of reducing the adverse health impacts of climate change.

Annual Meeting of African Science Academies

AMASA 2022 was held from 28-30 November 2022 in Nairobi, Kenya, on the theme 'Strengthening Capacity for Sustainable Agriculture and Food Systems in Africa'. It was co-hosted by NASAC and the Kenya National Academies of Science (KNAS) with support from IAP, INGS-Africa, The World Academy of Sciences (UNESCO-TWAS) and the African Population and Health Research Centre (APHRC) among others. The conference was co-chaired by the President of NASAC, Norbert Hounkonnou, and the President of KNAS, Ratemo Michieka. It was attended by over 70 participants.

Within the AMASA 2022 sessions, a workshop was co-organised with INGS-Africa on 30 November 2022 on the theme 'Joint Continental



Scoping Capacity Enhancing Workshop to provide Rapid Science Advice in Emergencies such as the COVID-19 Pandemic and Other Infectious Diseases'. Besides this, there were also sessions on gene editing technology, as well as climate change and health, as highlighted above.

Finally, a press briefing was held on 30 November 2022 for the science academies to make a contribution on the safety concerns of Genetically Modified Organisms (GMOs).

Board and General Assembly

Taking advantage of the presence of many NASAC member academy representatives at AMASA in Nairobi, the NASAC Board and General Assembly meetings were held on 27 and 30 November 2022, respectively. ■

NASAC Executive Director, Jackie Kado, and Deoraj Caussie (climate change and health expert) at the Annual Meeting of African Science Academies (AMASA 2022) in Nairobi, Kenya.

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Members of the InterAcademy Partnership

1. Afghanistan Academy of Sciences	38. Croatian Academy of Medical Sciences	77. National Academy of Sciences of the Kyrgyz Republic	115. Slovenian Academy of Sciences and Arts
2. Albanian Academy of Sciences	39. Cuban Academy of Sciences	78. Latvian Academy of Sciences	116. Academy of Science of South Africa
3. Algerian Academy of Sciences and Technology	40. Czech Academy of Sciences	79. Lebanese Academy of Sciences	117. <i>Real Academia de Ciencias Exactas, Fisicas y Naturales</i> , Spain
4. <i>Academia Nacional de Ciencias Exactas, Fisicas y Naturales de la Republica Argentina</i>	41. Royal Danish Academy of Sciences and Letters	80. Lithuanian Academy of Sciences	118. National Academy of Sciences, Sri Lanka
5. <i>Academia Nacional de Medicina de Buenos Aires</i> , Argentina	42. <i>Academia de Ciencias de la Republica Dominicana</i>	81. Madagascar's National Academy of Arts, Letters and Sciences	119. Sudanese National Academy of Sciences
6. National Academy of Sciences of Cordoba, Argentina	43. Academy of Sciences of Ecuador	82. Akademi Sains Malaysia	120. Royal Swedish Academy of Sciences
7. National Academy of Sciences of the Republic of Armenia	44. Academy of Scientific Research and Technology	83. Mauritius Academy of Science and Technology	121. Swiss Academies of Arts and Sciences
8. Academy of Medical Sciences of Armenia	45. Estonian Academy of Sciences	84. <i>Academia Mexicana de Ciencias</i>	122. Turkish Academy of Sciences
9. Australian Academy of Science	46. Ethiopian Academy of Sciences	85. National Academy of Medicine of Mexico	123. Academia Sinica
10. Australian Academy of Health and Medical Sciences	47. Council of Finnish Academies	86. Academy of Sciences of Moldova	124. Academy of Sciences of the Republic of Tajikistan
11. Austrian Academy of Sciences	48. <i>Academie des Sciences, Institut de France</i>	87. Mongolian Academy of Sciences	125. Tanzania Academy of Sciences
12. Bangladesh Academy of Sciences	49. <i>Academie Nationale de Medecine</i> , France	88. Montenegrin Academy of Sciences and Arts	126. Thai Academy of Science and Technology
13. National Academy of Sciences of Belarus	50. Georgian National Academy of Sciences	89. Hassan II Academy of Science and Technology	127. Tunisian Academy of Sciences, Letters and Arts <i>Beit al Hikma</i>
14. Royal Academies for Science and the Arts of Belgium	51. Georgian Academy of Medical Sciences	90. Academy of Science of Mozambique	128. Uganda National Academy of Sciences
15. <i>Koninklijke Academie voor Geneeskunde van België</i>	52. Union of German Academies of Sciences and Humanities	91. Nepal Academy of Science and Technology	129. National Academy of Sciences of Ukraine
16. <i>Academie Royale de Medecine de Belgique</i>	53. German National Academy of Sciences Leopoldina	92. Royal Netherlands Academy of Arts and Sciences	130. Royal Society, UK
17. <i>Academie Nationale de Sciences, Arts et Lettres du Benin</i>	54. Ghana Academy of Arts and Sciences	93. Royal Society of New Zealand <i>Te Apārangi</i>	131. Academy of Medical Sciences, UK
18. <i>Academia Nacional de Ciencias de Bolivia</i>	55. Academy of Athens	94. Nicaraguan Academy of Sciences	132. National Academy of Sciences of Uruguay
19. <i>Academia Boliviana de Medicina</i>	56. <i>Academia de Ciencias Medicas, Fisicas y Naturales de Guatemala</i>	95. Nigerian Academy of Science	133. National Academy of Medicine of Uruguay
20. Academy of Sciences and Arts of Bosnia and Herzegovina	57. Pontificia Academia Scientiarvm, Holy See	96. Academy of Medicine Specialties of Nigeria	134. National Academies of Sciences, Engineering, and Medicine
21. Brazilian Academy of Sciences	58. National Academy of Sciences of Honduras	97. Macedonian Academy of Sciences and Arts	135. National Academy of Medicine, US
22. <i>Academia Nazionale de Medicina</i> , Brazil	59. Hungarian Academy of Sciences	98. Norwegian Academy of Sciences and Letters	136. Uzbekistan Academy of Sciences
23. Bulgarian Academy of Sciences and Arts	60. National Academy of Medical Sciences, New Delhi, India	99. Pakistan Academy of Sciences	137. <i>Academia de Ciencias Fisicas, Matematicas y Naturales de Venezuela</i>
24. Bulgarian Academy of Sciences	61. Indian National Science Academy	100. Palestine Academy for Science and Technology	138. <i>Academia Nacional de Medicina de Venezuela</i>
25. National Academy of Sciences Burkina Faso	62. Indonesian Academy of Sciences	101. <i>Academia Nacional de Ciencias del Peru</i>	139. Zambia Academy of Sciences
26. Ivorian Academy of Sciences, Arts, Cultures of Africa and African Diasporas	63. Academy of Sciences of the Islamic Republic of Iran	102. <i>Academia Nacional de Medicina del Peru</i>	140. Zimbabwe Academy of Sciences
27. Cameroon Academy of Sciences	64. Iranian Academy of Medical Sciences	103. National Academy of Science and Technology, Philippines	141. African Academy of Sciences
28. Royal Society of Canada	65. Royal Irish Academy	104. <i>Polska Akademia Nauk</i> - Polish Academy of Sciences	142. Caribbean Academy of Sciences
29. Canadian Academy of Health Sciences	66. Israel Academy of Sciences and Humanities	105. <i>Academia das Ciencias de Lisboa</i> , Portugal	143. European Academy of Sciences and Arts
30. <i>Academia Chilena de Ciencias</i>	67. Israeli National Academy of Science in Medicine	106. Romanian Academy	144. Federation of European Academies of Medicine
31. <i>Academia Chilena de Medicina</i>	68. <i>Accademia Nazionale dei Lincei</i> , Italy	107. Academy of Medical Sciences of Romania	145. Global Young Academy
32. Chinese Academy of Sciences	69. <i>Accademia Nazionale di Medicina</i> , Italy	108. Russian Academy of Sciences	146. Islamic World Academy of Sciences
33. Chinese Academy of Engineering	70. Science Council of Japan	109. Rwanda Academy of Sciences	147. Latin American Academy of Sciences
34. Colombian Academy of Exact, Physical & Natural Sciences	71. Royal Scientific Society of Jordan	110. <i>Academie Nationale des Sciences et Techniques du Senegal</i>	148. The World Academy of Sciences
35. <i>Academia Nacional de Medicina de Colombia</i>	72. National Academy of Sciences of the Republic of Kazakhstan	111. Serbian Academy of Sciences and Arts	149. World Academy of Art and Science
36. National Academy of Sciences of Costa Rica	73. Kenya National Academy of Sciences	112. Kosova Academy of Sciences and Arts	
37. Croatian Academy of Arts and Sciences	74. National Academy of Medicine of Korea	113. Singapore National Academy of Sciences	
	75. Republic of Korea - National Academy of Sciences	114. Slovak Academy of Sciences	
	76. Korean Academy of Science and Technology		

IAP Financial Summary, 2022

Funds received and expenses incurred the IAP-Trieste secretariat (administered by UNESCO) are reported based on the UNESCO biennium period (in this case 2022-2023).

In 2022, the main contribution was from the Italian Ministry of Foreign Affairs (USD 735,000). Together with funds carried forward and another, smaller contribution, this gave an operating budget for this first year of the biennium of USD 1,387,800.59.

The total amount of funds received by the IAP-Washington DC secretariat in 2022 was USD 414,824. Income primarily came from the US National Academies of Sciences, Engineering and Medicine (NASEM), as host of the IAP-Washington DC secretariat, as well as from the Simons Foundation International.

In addition, it is estimated that member academies and regional affiliated networks contributed a significant amount by providing in-kind support for the organization and hosting of (mostly online) conferences and workshops, the publication of reports, as well as the provision of staff time. They also succeeded to leverage additional funds from various other donors.

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

² The purpose of the Reserve Fund is to cover the end of service entitlements of IAP staff.

IAP – Trieste Office, 2022

INCOME¹ 2022-2023 biennium (in USD)	1 January 2022 to 31 December 2023	Income received 2022
Balance brought forward 01.01.2022	621,955.92	621,955.92
<i>Agreements signed</i>		
1) Ministry of Foreign Affairs, Italy	1,470,000.00	735,000.00
2) IAP Inc., USA	151,000.00	
3) World Health Summit Foundation, GmbH	24,199.67	12,199.67
<i>Agreements under negotiation</i>		
4) Save the Children, USA	110,000.00	
<i>Other</i>		
5) Other miscellaneous income	4,000.00	
6) Interest	22,301.82	18,645.00
TOTAL INCOME	2,399,457.41	1,387,800.59
Transfer to Reserve Fund²		70,000.00
EXPENDITURE		
2022-2023 biennium (in USD)	Approved budget Feb 2022, revised July 2022	Expenditure 1.1. - 31.12.2022
1) Scientific Projects		
1.1) New projects	300,000.00	300,000.00
<i>1.1.1) Competitive grants</i>		
	220,000.00	260,000.00
<i>1.1.2) Support to Science Education Programme</i>		
	50,000.00	25,000.00
<i>1.1.3) Support to Global Young Academy</i>		
	30,000.00	15,000.00
1.2) Regional Network programmes	520,000.00	260,000.00
1.3) Collaboration with IAP Policy	60,000.00	20,000.00
1.4) Fundraising for new activities	50,326.00	50,326.00
Sub-total for (1)	930,326.00	630,326.00
2) Meetings and conferences		
2.1) Executive Committee meetings/ GA conference/ Travels	106,320.00	75,320.00
2.2) Conference for Young Scientists	12,000.00	12,000.00
2.3) Young Physician Leaders	92,417.00	92,417.00
<i>2.3.1) World Health Summit workshop</i>		
	7,920.00	7,920.00
<i>2.3.2) World Health Assembly alumni mtg</i>		
	44,670.00	44,670.00
<i>2.3.3) Web networking</i>		
	15,000.00	15,000.00
<i>2.3.4) Communication costs</i>		
	17,000.00	17,000.00
<i>2.3.5) Staff cost</i>		
	7,827.00	7,827.00
Sub-total for (2)	210,737.00	179,737.00
3) Publications		
	38,000.00	19,000.00
4) Operational Expenses		
4.1) Staff and Consultant costs	715,000.00	425,000.00
<i>4.1.1) General staff costs</i>		
	570,000.00	280,000.00
<i>4.1.2) Strengthening staff cost</i>		
	145,000.00	145,000.00
4.2) Staff travels	20,000.00	10,000.00
4.3) Communications	10,000.00	5,000.00
4.4) Office and other supplies	10,000.00	5,000.00
4.5) ICTP services	50,000.00	25,000.00
Sub-total for (4)	805,000.00	470,000.00
Management costs	138,884.00	90,935.00
TOTAL EXPENDITURE	2,122,907.00	1,389,998.00

IAP – Washington, DC, Office, 2022

Income came from the US National Academies of Sciences (NAS) as host of the IAP-Washington, DC, secretariat, the Simons Foundation International, for operational costs, the Gordon and Betty Moore Foundation for the ‘Combating Predatory Journals and Conferences’ pro-

ject, the ClimateWorks Foundation for the ‘Decarbonisation of Transport in Africa’ project, and IAP-Trieste office’s contribution for the costs of the IAP website and IAP-Washington, DC, office’s indirect charges.

INCOME (in USD)

Beginning Balance	496,450.00
US NAS contribution	292,763.00
Projects and administration	121,000.00
Book royalties	195.00
Other Income	866.00
TOTAL INCOME	414,824.00

Total available **911,274.00**

EXPENDITURES (in USD)

Project expenses	432,750.00
Operational expenses	
1) Staff salaries	119,567.00
2) Website and public information	50,300.00
3) Non-project travel	494.00
4) Professional fees	53,122.00
5) Miscellaneous	643.00
6) Administration	150,457.00
TOTAL EXPENDITURE	807,333.00

Excess (shortfall) of income over expenditure **103,941.00**

Member Contributions

Project Support

IAP projects are also being implemented by various partners, such as the Academy of Medical Sciences UK and The Smithsonian Science Education Center SSEC.

The German National Science Academy, Leopoldina, for example, manages funds from the German Federal Ministry of Education and Research for the IAP ‘Climate Change and Health’ project (see pages 18–20); the Academy of Medical Sciences, UK, managed all the funds for the ‘Exploring the Impacts of COVID-19 on Global Health Inequalities’ project (see page 22); and the Smithsonian Science Education Center (SSEC) sources and manages the funds required to develop and roll out the various curricula in the ‘Science for Global Goals’ series (see page 28).

In-kind Support

IAP would like to thank its many member academies that have provided in-kind support to any of its various activities. Without this buy-in from the members, IAP activities would not have the same visibility and impact around the globe. A special mention to the U.S. National Academy of Sciences, Engineering and Medicine (NASEM) and the Royal Society of Canada (RSC), which hosted IAP’s Triennial Conference in Arizona, and to the Global Young Academy (GYA), NAS, RSC, the RSC College, and the NAS New Voices Program, who co-organised the event with IAP (see pages 12–16).

Standing Committees

IAP Board

- Margaret (Peggy) A. Hamburg, The National Academy of Medicine, USA, President and Co-Chair
- Masresha Fetene, Ethiopia, President and Co-Chair
- Stephanie Burton, Academy of Sciences of South-Africa (ASSAf), Co-Chair
- Asma Ismail, Academy of Sciences Malaysia, Co-Chair
- Gianfranco Pacchioni, *Accademia Nazionale dei Lincei*, Italy, Co-Chair
- Diane Negra, Royal Irish Academy, Co-Chair

IAP Treasurer

- Cherry Murray, National Academy of Sciences, USA

IAP Advisory Committee

- Karen Cloete, Global Young Academy Member, South Africa/USA
- Elina Ikonen, Council of Finnish Academies
- Jeremy McNeil, Royal Society of Canada
- Guang Ning, Chinese Academy of Engineering
- Frances Separovic, Australian Academy of Sciences
- Ahmet Nuri Yurdusev, Turkey, Regional representative, Association of Academies and Societies of Sciences in Asia (AASSA)
- Wim Van Saarloos, Netherlands, Regional representative, European Academies Science Advisory Council (EASAC)
- Helena Bonciani Nader, Brazil, Regional representative, Inter-American Network of Academies of Sciences (IANAS)
- Mahouton Norbert Hounkonnou, Benin, Regional representative, Network of African Science Academies (NASAC)
- Gianni Bussolati, *Accademia Nazionale dei Lincei*, Italy, Ex-officio member
- Romain Murenzi, The World Academy of Sciences (UNESCO-TWAS), Ex-officio member
- John Hildebrand, National Academy of Sciences, USA, Ex-officio member

IAP Policy Advice Committee

- Masresha Fetene, Ethiopian Academy of Sciences, Co-Chair
- Asma Ismail, Academy of Sciences Malaysia, Co-Chair
- Goran Bandov, Croatian Academy of Arts and Sciences

- Sunday Ene Ojo Atawodi, Nigerian Academy of Sciences
- Djillali Benouar, Algerian Academy of Science and Technology
- Pinar Bilgin, Turkish Academy of Sciences
- Jaime Urrutia Fucugauchi, Mexican Academy of Sciences
- S. Karly Kehoe, Royal Society Canada
- Thomas Krieg, German National Academy of Sciences Leopoldina
- Jie Liu, Chinese Academy of Sciences
- Cherry Murray, National Academy of Sciences, USA
- Wonwoo Nam, Korean Academy of Science and Technology, South Korea
- Christian Pirk, Academy of Sciences of South Africa
- Dale Sanders, Royal Society, UK
- Tibor Toth, Hungarian Academy of Sciences
- Roberto Williams, *Accademia Nazionale de Ciencias Exactas, Fisicas y Naturales*, Argentina
- Jaafar A. Bakar, Academy of Sciences Malaysia
- Julian May, Academy of Sciences of South Africa

IAP Capacity Building Committee

- Stephanie Burton, Academy of Sciences of South Africa, Co-Chair
- Frances Separovic, Australian Academy of Sciences, Co-Chair
- Allia Khedidja, Algerian Academy of Science and Technology
- Kosta Barjaba, Albanian Academy of Sciences
- Emmanuel Couacy-Hymann, Ivorian Academy of Sciences, Arts, Cultures of Africa and African Diasporas, Ivory Coast
- Patrice Debré, *Académie Nationale de Médecine*, France
- Ranieri Guerra, *Accademia Nazionale di Medicina*, Italy
- Cecilia Hidalgo, Chilean Academy of Sciences
- Nadira Karunaweera, National Academy of Sciences, Sri Lanka
- Lise Korsten, African Academy of Sciences
- Phoebe Koundouri, World Academy of Arts and Sciences
- Firdausi Qadri, Bangladesh Academy of Sciences
- Patricia Silveyra, The National Academy of Sciences, USA
- Khatijah Mohd Yusoff, Academy of Sciences Malaysia

IAP Communication, Education and Outreach Committee

- Diane Negra, Royal Irish Academy, Co-Chair
- Gianfranco Pacchioni, *Accademia Nazionale dei Lincei*, Italy, Co-Chair
- Henry Cohen, *Accademia Nacional de Medicina de Uruguay*
- E. William Colglazier, National Academy of Sciences, USA
- Amel Benammar Elgaaied, Tunisian Academy of Sciences, Letters and Arts *Beit al Hikma*
- Encieh Erfani, Global Young Academy member, Iran
- Neki Frasherri, Albanian Academy of Sciences
- Jorge Huete-Perez, Nicaraguan Academy of Sciences
- Haseena Khan, Bangladesh Academy of Sciences
- Adila Pašalić-Kreso, Academy of Sciences and Arts of Bosnia and Herzegovina
- Zhe Li, Chinese Academy of Sciences
- Oyewale Tomori, Nigerian Academy of Sciences
- Alberto Zucconi, World Academy of Arts and Sciences Italy
- Hibiya Junko, Science Council of Japan
- Carlos Frenk, Royal Society, UK

Science Education Programme (SEP) Global Council

- Wafa Skalli, Morocco, Chair
- Dato Lee Yee Cheong, Malaysia, Immediate past chair
- Edgar González, Colombia
- Aphiya Hathayatham, Thailand
- Norbert Hounkonnou, Benin
- R. Indarjani, Indonesia
- Lena Kjellén, Sweden
- Lazzat Kussainova, Kazakhstan
- Carol O'Donnell, USA
- Daniel Rouan, France
- Manzoor H. Soomro, Pakistan

IAP Biosecurity Working Group

- Ann Arvin, USA, Chair
- Walter Sandow Alhassan, Ghana
- Neela Badrie, Trinidad and Tobago
- Lela Bakanidze, Georgia
- Flerida A. Cariño, Philippines
- Susana Goldstein Fink, Argentina
- Roderick Flower, UK

- Thomas Lengauer, Germany
- Arnaldo Lopes Colombo, Brazil
- Felix Moronta, Italy
- Sergey Victorovich Netesov, Russia
- Iqbal Parker, South Africa
- Bert Rima, UK
- Zabta Khan Shinwari, Pakistan
- Yuan Zhiming, China
- Menat Zanaty, Egypt
- Kavita Berger, USA (ex-officio)
- Katherine Bowman, USA (ex-officio)

Combating Predatory Academic Journals and Conferences Working Group members

- Abdullah Shams bin Tariq, Bangladesh, Co-Chair
- Susan Veldsman, South Africa, Co-Chair
- Asfawossen Asrat Kassaye, Ethiopia
- Ana Maria Cetto, Mexico
- Victorien Doughton, Benin
- Stefan Eriksson, Sweden
- Lai-Meng Looi, Malaysia
- Shaher Momani, Jordan
- Diane Negra, Ireland
- Rabab Ahmed Rashwan, Egypt
- Marcos Regis da Silva, Uruguay

Decarbonisation of Transport in Africa (since October 2022)

- Abdallah Kouzou, Algeria, Chair
- Thinus Booyesen, South Africa
- Samuel Bwalya, Zambia
- Chux Daniels, UK
- Mafini Dosso, Spain, Ivory Coast
- Daniel Essel, Ghana
- Akii Ibhadode, Nigeria
- Irene Iradukunda, Rwanda
- Irene Karani, Kenya
- Ahmed Osama, Egypt

Meetings Supported in 2022

January

- Online, International Conference on 'Science and Technology for Sustainability 2021 - Achieving Net Zero Emissions: The Roles of Academia', Science Council of Japan (SCJ), 31 January 2022 - 01 February 2022



February

- Online, AAAS Annual Meeting, IAP session on 'Climate Action to Protect and Promote Health: Building and sharing the evidence', 19 February 2022
- Online, 'Long-term social impacts of the COVID-19 pandemic', National Academy of Sciences of Sri Lanka/AASSA, 22-24 February 2022
- Online, 'Tackling Adverse Effects of Climate Change on Health in the Asian Region', AASSA, 28 February 2022

March

- Online, 'Climate Change and Health in the Americas', IANAS, 8 March 2022
- Online, IAP launch event: 'Combatting Predatory Academic Journals and Conferences', 16 March 2022
- Online, 'Water and Health in the Americas: Water-washed pathogens and diseases', IANAS, 17 March 2022
- Online, MENA Climate Week, IAP side event on 'Climate Change and Health: From impact to action', 28 March 2022
- Online, 'Strengthening the Right to Health and Equity in International Law: What can we do?', Sustainable Health Equity Movement (SHEM), 28 March 2022
- Online workshop, 'Exploring the Impacts of COVID-19 on Global Health Inequalities', Academy of Medical Sciences, UK, 31 March 2022

April

- Online, 'Building Climate Resilient Health Systems in the Global South', 6 April 2022
- Online, Biological and Toxin Weapons Convention (BWC) Preparatory Committee Meeting, side event 'Biosecurity for All: The role of scientists', Chinese Mission in Geneva with IAP, 6 April 2022
- Online, 'Tackling Adverse Effects of Climate Change on Health in Africa', NASAC, 14 April 2022
- Online, 'A Call for Action to Support At-risk, Displaced and Refugee Scientists', UNESCO-TWAS, ISC and IAP, 20 April 2022
- Online, launch of IAP report on 'Countering COVID-19 Vaccine Hesitancy', 26 April 2022
- Seoul, South Korea, and Online, International Workshop 'Global Climate Change and Zoonotic Infectious Diseases', Korean Academy of Science and Technology (KAST) and AASSA, 25-26 April 2022



May

- Trieste, Italy, and Online, 'The Importance of Basic Sciences in Addressing the Global Energy Crisis', presentation by IAP co-president, Richard Catlow, International Centre for Theoretical Physics (ICTP), 18 May 2022
- Ankara, Turkey and Online, 'Understanding Sustainability in the Context of Business Organizations and Philanthropic Institutions', Turkish Academy of Sciences (TÜBA)/ASSAA, 20 - 22 May 2022
- Online, launch of IAP global report 'Health in the Climate Emergency', 25 May 2022



June

- Bonn, Germany, and Online, UNFCCC Bonn Climate Change Conference, IAP side event: 'Using Scientific Evidence to Mobilise Action Worldwide on Climate Change and Health', 7 June 2022
- Rome, Italy, IAP Young Physicians Leaders (YPL) Programme in association with the World Health Summit Regional Meeting, 14-17 June 2022
- Rome, Italy, World Health Summit Regional Meeting, IAP session on 'Implications of Climate Changes on Health', 17 June 2022
- Paris, France, and Online, Conference 'Combatting Zoonoses and Addressing AMR on the Planet with a One Health Approach', Federation of European Academies of Medicine (FEAM), 23 June 2022

July

- Online, EuroScience Open Forum (ESOF), UNESCO-TWAS and IAP session on 'The Science in Exile Initiative: Displacement, gender and the right to science in the Global South', 16 July 2022

September

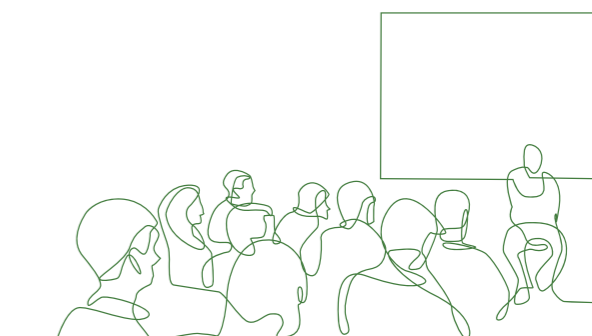
- Online, S20 meeting, IAP session on 'Bringing Science into Policy: Strengthening and integrating climate change adaptation and mitigation solutions and health system resilience', Indonesian Academy of Sciences, 8 September 2022

October

- Online, IAP Global Webinar 'Academies of Science and Medicine: Actions to advance urban health', 5 October 2022
- Online, FAO Science & Innovation Forum, IAP side event on 'Impact of Climate Change on Food Systems', 13 October 2022

November

- Biosphere 2, Arizona, USA and Online, The IAP Triennial Conference and the Worldwide Meeting of the Young Academies (WWMYA), 1-3 November 2022
- Biosphere 2, Arizona, USA and Online, IAP General Assembly, 3 November 2022
- Sharm El-Sheikh, Egypt, COP27, IAP contribution to session on 'Partnerships Beyond the Health Sector: IPCC perspectives' held in the COP27 Health Pavilion, 10 November 2022



December

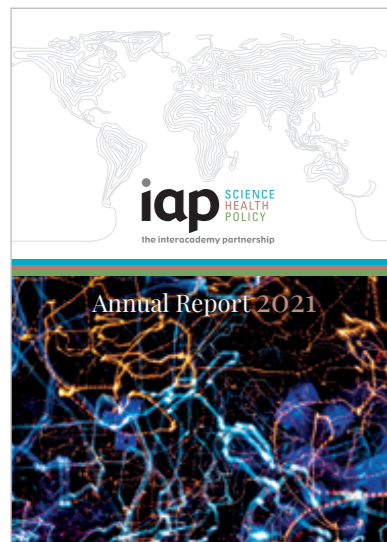
- Cape Town, South Africa, pre-World Science Forum Cape Town 'Social Justice' city orientation tour for young scientists, IAP with the Global Young Academy, the Africa Science Leadership Programme and the South African Young Academy, 6 December 2022
- Cape Town, South Africa, World Science Forum, IAP thematic sessions and side events on: 'Policies for Decarbonising Transport with Social Justice in Europe and Africa: Priorities and lessons learned'; 'Climate Justice: Seeking equitable solutions to adverse effects of climate change on health' (by EASAC); 'At-risk, Displaced and Refugee Scholars: Global dynamics and best practices' (with the Global Young Academy); 'A Global Strategy to Combat Predatory Academic Journals and Conferences', 5-9 December 2022.

Publications Supported in 2022

IAP Annual Report 2021

Published by: IAP

- www.interacademies.org/publication/iap-annual-report-2021



Health in the Climate Emergency: A global perspective

Published by: IAP

- www.interacademies.org/publication/health-climate-emergency-global-perspective

Countering COVID-19 Vaccine Hesitancy

Published by: IAP

- www.interacademies.org/publication/countering-covid-19-vaccine-hesitancy

Combatting Predatory Academic Journals and Conferences (full report in English)

Published by: IAP

- www.interacademies.org/publication/predatory-practices-report-English

IAP Statements 2019–2022

Published by: IAP

- www.interacademies.org/publication/iap-statements-2019-2022



IAP Statement on Implications of Urbanization in Low- and Middle-income Countries

Published by: IAP

- www.interacademies.org/statement/iap-statement-implications-urbanization-low-and-middle-income-countries



Communiqué from the InterAcademy Partnership (IAP) on the current situation in Ukraine

Published by: IAP

- www.interacademies.org/publication/iap-ukraine

What are national academies of science and medicine doing in relation to urban health and its broad determinants?

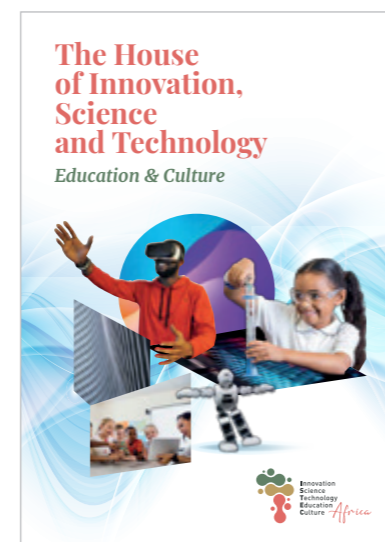
Published by: IAP

- www.interacademies.org/academies-urban-health-broad-determinants

The House of Innovation, Science and Technology (brochure)

Published by: IAP

- www.interacademies.org/publication/house-innovation-science-and-technology



The Value of Science Centres: Especially in low- and middle-income countries

Published by: IAP

- www.interacademies.org/publication/value-science-centres-especially-low-and-middle-income-countries

Les arguments en faveur d'un enseignement des sciences fondé sur l'investigation (ESFI)

Published by: IAP

- www.interacademies.org/publication/les-arguments-en-faveur-dun-enseignement-des-sciences-fonde-sur-linvestigation-esfi



How to prevent misuse of bioscience research? (infographic)

Published by: IAP

- www.interacademies.org/publication/how-prevent-misuse-bioscience-research

Call for a Global Health Data Sharing Framework for Global Health Emergencies

Published by: IAP

- www.interacademies.org/publication/call-global-health-data-sharing-framework-global-health-emergencies

Health must become core to global climate policy negotiations (Article in Lancet Planetary Health)

Published by: IAP

- www.interacademies.org/publication/health-must-become-core-global

climate-policy-negotiations-article-lancet-planetary

Risk Assessment of Neonicotinoids in the Asia-Pacific Region

Published by: AASSA

- www.interacademies.org/publication/risk-assessment-neonicotinoids-asia-pacific-region

Long-Term Social Consequences of the Covid Pandemic: Enduring social impacts, challenges and responses

Published by: National Academy of Sciences of Sri Lanka/AASSA

- www.interacademies.org/publication/long-term-social-consequences-covid-pandemic-enduring-social-impacts-challenges-and

Long-Term Social Impacts of the Covid-19 Pandemic

Published by: National Academy of Sciences of Sri Lanka/AASSA

- www.interacademies.org/publication/long-term-social-impacts-covid-19-pandemic



Regenerative Agriculture in Europe

Published by: EASAC

www.interacademies.org/publication/regenerative-agriculture-europe

Message from European Science Academies for CBD COP15

Published by: EASAC

- www.interacademies.org/publication/message-european-science-academies-cbd-cop15

Climate change and human health in the Eastern Mediterranean and Middle East: Literature review, research priorities and policy suggestions

Published by: EASAC

- www.interacademies.org/publication/climate-change-and-human-health-eastern-mediterranean-and-middle-east-literature-0



Taking action against climate change will benefit health and advance health equity in the Americas

Published by: IANAS

- www.interacademies.org/publication/taking-action-against-climate-change-will-benefit-health-and-advance-health-equity

Protecting human health against climate change in Africa

Published by: NASAC

- www.interacademies.org/publication/protecting-human-health-against-climate-change-africa

Climate change and its disastrous impact in Africa

Published by: NASAC

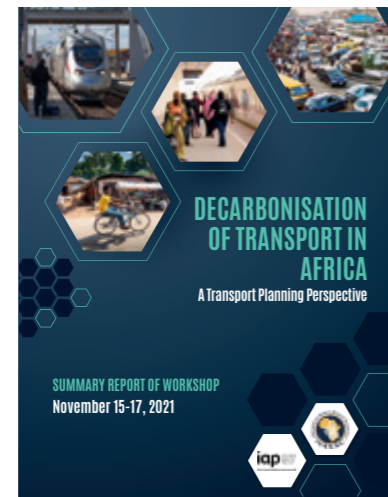
- www.interacademies.org/publication/climate-change-and-its-disastrous-impact-africa



Decarbonisation of Transport in Africa: A Transport Planning Perspective Workshop Summary Report

Published by: NASAC and IAP

- www.interacademies.org/publication/decarbonisation-summary-report



Science in Exile Declaration. Supporting at-risk, displaced and refugee scientists: A call to action

Published by: The World Academy of Sciences (UNESCO TWAS), IAP and the International Science Council (ISC)

- www.interacademies.org/publication/science-exile-declaration-supporting-risk-displaced-and-refugee-scientists-call-action

Global Health Inequalities: Research for a fairer future (report)

Published by: Academy of Medical Sciences, UK, and IAP

- www.interacademies.org/publication/global-health-inequalities-research-fairer-future

Global Health Inequalities: Research for a fairer future (communicate)

Published by: Academy of Medical Sciences, UK, and IAP

- www.interacademies.org/publication/global-health-inequalities



Desigualdades en materia de salud a nivel global: investigación para lograr un futuro más justo (communique)

Published by: Academy of Medical Sciences, UK, and IAP

- www.interacademies.org/publication/desigualdades-en-materia-de-salud-nivel-global-investigacion-para-lograr-un-futuro-mas

Biodiversity! How can we balance the needs of people with the needs of other living things?

Published by: The Smithsonian Science Education Center (SSEC) and IAP

- www.interacademies.org/publication/biodiversity-how-can-we-balance-needs-people-needs-other-living-things

Biotechnology! How can we ethically create a sustainable future using biotechnology?

Published by: The Smithsonian Science Education Center (SSEC) and IAP

- www.interacademies.org/publication/biotechnology-how-can-we-ethically

- www.interacademies.org/publication/create-sustainable-future-using-biotechnology

Environmental Justice! How can we create environments that are healthy for everyone?

Published by: The Smithsonian Science Education Center (SSEC) and IAP

- www.interacademies.org/publication/environmental-justice-how-can-we-create-environments-are-healthy-everyone



The Biological Weapons Convention should endorse the Tianjin Biosecurity Guidelines for Codes of Conduct

Published by: IAP, Johns Hopkins Center for Health Security and Tianjin University

- www.interacademies.org/publication/biological-weapons-convention-should-endorse-tianjin-biosecurity-guidelines-codes

Science academies and disciplinary groups have work to do on gender equality - The Conversation

Published by: IAP, GenderInSITE

- www.interacademies.org/publication/science-academies-and-disciplinary

- www.interacademies.org/publication/groups-have-work-do-gender-equality

Mentes Transformadoras, ciencia chilena para usar en la sala de clase

Published by: Instituto de Neurociencia Biomédica (BNI), Facultad de Medicina, Universidad de Chile, Santiago, Chile

- www.interacademies.org/publication/mentes-transformadoras-ciencia-chilena-para-usar-en-la-sala-de-clase

Prisma Tecnológico magazine, interview with Dr. Peter McGrath

Published by: Revista Prisma Tecnológico

- www.interacademies.org/publication/prisma-tecnologico-magazine-interview-dr-peter-mcgrath

Letter from the World Federation of Public Health Associations (WFPHA) on behalf of the Sustainable Health Equity Movement (SHEM) to the Executive Board of the World Health Organization (EB-WHO)

Published by: Sustainable Health Equity

- www.interacademies.org/publication/letter-world-federation-public-health-associations-wfpha-behalf-sustainable-health

ALLEA Statement in Response to the European Commission's Call for Evidence on Digital Education and Digital Skills

Published by: ALLEA - ALL European Academies

- www.interacademies.org/publication/allea-statement-response-european-commissions-call-evidence-digital-education-and

Combating zoonoses and addressing antimicrobial resistance on the Planet with a One Health approach

Published by: Federation of European Academies of Medicine (FEAM)

- www.interacademies.org/publication/combating-zoonoses-and-addressing-antimicrobial-resistance-planet-one-health-approach

Global Guidance Framework for the Responsible Use of the Life Sciences

Published by: World Health Organization (WHO) (with input from IAP)

- www.interacademies.org/publication/global-guidance-framework-responsible-use-life-sciences



Secretariat

The InterAcademy Partnership secretariat is hosted by The World Academy of Sciences (UNESCO-TWAS) in Trieste, Italy, and by the US National Academies of Sciences, Engineering, and Medicine in Washington, DC, USA.

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