



The Journey so far: Global Young Academy Developments and Activities

GYA Evaluation Report 2018

September 2018

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Foreword from current and past GYA Co-Chairs

Scientists and scholars committed and empowered to effect positive change in and for society are needed today more than ever to contribute to innovative and sustainable solutions to complex, global challenges. Since its foundation in 2010, the Global Young Academy (GYA) has nurtured a global ecosystem supporting the next generation of these science leaders. The GYA acts as a catalyst, a facilitator, and a promoter of the voice of young scientists around the world: an inclusive, global, and innovative voice.

The GYA fosters a network and community of future science leaders that build bridges across cultures, geographies and disciplines. We support young scientists in their contribution to global policy dialogues, infusing these discussions with novel perspectives on emerging societal challenges. Through our leadership and mentoring initiatives, we cultivate the broader community of early and mid-career scientists and scholars to effectively play an active role as change-makers to positively impact society. We work to feed the pipeline of tomorrow's scientists through outreach initiatives in schools; whilst contributing to improving the scholarly environment for today's scientists and scholars. At the same time, the GYA's reputation as a reliable partner for senior and emerging young academics, science organisations and networks, and other national and international science and policy bodies, continues to grow.

In 2015, we laid out key targets for the subsequent five years in our Strategic Plan 2016-2020, aiming to further consolidate, strengthen, and extend the effectiveness of the organisation in core areas of our work. In this report, we are honoured to present the many concrete actions we have undertaken to reach these targets. Further, we are excited to outline what we – GYA members, alumni and future members – have positioned ourselves to accomplish in the future.

These incredible achievements would not have been possible without the collaborative work of our committed supporters, who have volunteered their time and energy to shape and advance the mission and vision of the GYA. We are indebted to our founding members and alumni, the invaluable engagement of our current members, our past and current advisory board members, our national and international partners, supportive senior and young academics, our managing Office, and all those who work with the GYA and support our endeavors.

Thank you!



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1. Introduction

1.1. Why a Global Young Academy?

The next frontiers of discovery, thought, and ideas, which will be essential to solve today's and future global challenges, will be from those who understand the need for collaborations that transcend traditional geographical and disciplinary boundaries. The Global Young Academy (GYA) and its members recognise this and are motivated to consider what role scientists and scholars can and should play in reframing dialogues and bridging socio-cultural divides. GYA members believe that the ability of scientists to play an impactful role in society cannot be assumed to be innate, but rather should be nurtured, to enable the young scientists of today to take on societal responsibility and become the science (and societal) leaders of tomorrow. As leaders, they need to hone the ability to effectively navigate geographical, cultural, and disciplinary boundaries, to influence policy, and to engage with key stakeholders in ways that utilize their scientific skills to confront and address societal challenges and enact positive change.

1.2. A brief history of the Global Young Academy

The GYA grew out of discussions among top early to mid-career scientists and researchers from a broad disciplinary spectrum and from around the world, convened by the InterAcademy Partnership (IAP) at the Annual Meeting of New Champions of the World Economic Forum (WEF "Summer Davos" meetings) in China in 2008 and 2009. These young scientists recognised the need to build a true and integrated global scientific community of young scholars, regardless of geographical or financial barriers to enhance the contribution that young scientists from around the world can make to science and that science and scholarship can make to society. They collectively published the Tianjin Statement of Global Young Scientists, "[Passion for Science, Passion for a Better World](#)", in which they outline how young scientists can contribute to shaping a better world, and emphasize the importance of supporting competency and career development as well as collaboration and mobility in order to enhance this contribution. The motivation behind this statement gained momentum, and following meetings in 2009, the GYA was founded at a follow-up workshop in Berlin, Germany, in February 2010, with 99 founding members from 43 countries.

With support from the IAP, the German National Academy of Sciences Leopoldina, the Berlin-Brandenburg Academy of Sciences and Humanities (BBAW) and the German Junge Akademie, the GYA received start-up funding for its first professional staff, including a managing director, from the Volkswagen Foundation, as well as travel support from the German Federal Ministry of Education and Research (BMBF), The World Academy of Sciences (TWAS), and the German Academic Exchange Services (DAAD). From 2011 to 2016, the GYA was hosted by the BBAW in Berlin, Germany. Since 2014, the BMBF has provided generous core funding to the GYA, allowing for the expansion of the professional team in the GYA Office, which is essential in supporting the activities of the members, first in 2014, then further in 2017. To finance its annual general meetings and increasing number of projects and activities of its members, the GYA has also successfully raised further funds from donors and partners worldwide. In 2017, the GYA moved to Halle (Saale), Germany, where it is now hosted by the German National Academy of Sciences Leopoldina.

1.3. Vision and mission

Society, and the planet we live on, are confronted with increasingly complex and shared challenges at local, regional, and global scales. These challenges range from climate change to global inequalities, from digital vulnerabilities to continuing conflicts and poverty. Solving our world's current and future societal challenges adequately and quickly will require innovative ideas from diverse perspectives. Since its establishment, the vision of the GYA has been to give a voice to young scientists and scholars, and to help them contribute to intergenerational, cross-cultural dialogues in global and regional forums on science policy, advice, and diplomacy. To achieve this, the mission of the GYA has been to nurture the ecosystem of future science leaders, empowering outstanding early to mid-career researchers from all disciplines to build a better and fairer world. Its members share a passion for the role of science in creating a better world, and are willing to lead by taking on responsibility and implementing concrete actions.

Beyond their own research and analyses, GYA members exercise societal responsibility by engaging in activities to achieve the mission of the GYA, communicating with society, building bridges with each other and others, providing an evidence base for policies, and working with diverse sectors, at many scales. In this way, the GYA works towards closing gaps in science and scholarship across all parts of the world. Through mentoring and capacity-building activities, the GYA strives to build and enhance capacity of early to mid-career scholars to effectively engage with a diverse range of stakeholders in these global forums to promote reason and inclusiveness in global decision-making, and to apply interdisciplinary approaches to addressing societal challenges.

Beyond nurturing scientists of today, the GYA recognises the need to contribute to building a gender-equal pipeline of scientists for tomorrow. To improve the science education and training environment, the GYA advocates for conditions that promote the type of research and evidence needed to advance society in the short, medium and long term; and through outreach, aims to encourage children and youth to choose scientific careers.

1.4. Strategic Plan 2016-2020 and report outline

With this vision and mission in mind, the GYA adopted a five-year Strategic Plan through to 2020, articulating five targets, as well as specific sub-goals and supporting actions, to be at the focus of the GYA's continued development. These targets are guided by the following principles:

Excellence: GYA members are selected based upon a proven track record for outstanding contributions to science and their commitment to public service. The GYA strives for the highest quality in its activities: excellence is an imperative.

Diversity: The GYA is an Academy of early to mid-career scientists (this term is used to include all disciplines) whose membership draws from across all disciplines and research areas. The Academy aims to include scientists from every geographical region around the world and for inclusive representation by gender and scientific disciplines.

Responsibility: Concerned with global challenges, GYA members take special responsibility for their actions and work towards cooperative solutions, considering the social, ethical and moral issues involved, and being aware of dilemmas created by the interactions of science and society.

Evidence: As scientists, GYA members expect solutions to society's problems to incorporate scholarly knowledge. The GYA seeks to contribute innovative science-based policy ideas to the debates of concern to both scientists and the wider community.

Independence: The Academy fosters early-career independence for young scientists. It operates independently from governments, other academies, funding sources, and businesses. It exists as a non-profit organisation.

Impact: The GYA focuses on activities of concern to young scientists, supports career development of young scientists, and is committed to addressing global challenges. The GYA supports the formation of National Young Academies that empower these scientists to contribute to national improvement.

The five **strategic targets** adopted to realise the GYA's vision and mission are to:

1. Contribute to efforts to address societal challenges
2. Identify, develop, and nurture global science leaders
3. Maximize the potential of National Young Academies
4. Provide benchmark reports on science policy topics relevant for young scientists
5. Serve as an outstanding example for interdisciplinary, intergenerational, collaborative, and cross-cultural dialogue in science

The complete Strategic Plan 2016-2020, including sub-goals and supporting actions, can be seen in the Annex 4.

This report begins in Section 2 by introducing the backbone of the GYA: its membership and growing number of alumni. Section 3 presents the breadth of GYA activities and achievements, showcasing how the number of these has steadily increased, as well as how they contribute towards achieving the GYA's strategic targets. The supporting structures of GYA activities – its member-led governance and engagement, its administrative Office, funding, and mutually beneficial relationship with its host country, Germany – are outlined in Section 4. Finally, to inform the future direction of the GYA, the current Executive Committee is performing an impact assessment of GYA activities, described in Section 5.

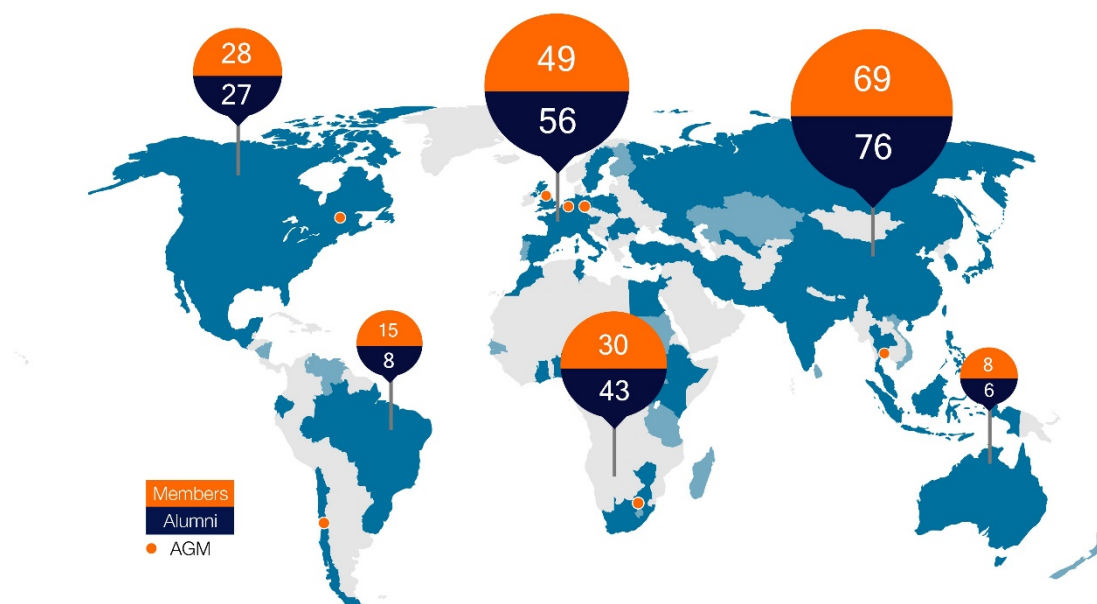
2. GYA members and alumni: Who are they?

At its inaugural meeting in February 2010, the GYA counted 99 members from 43 countries; in 2014, the GYA had reached its full capacity of 200 members: leading young scholars and scientists, typically 3-10 years after their PhD, typically between 30 to 40 years of age, and in the early to middle stages of their independent academic careers. Members are selected for their scientific excellence and their commitment to service to society, and serve five-year terms. Currently, the GYA counts 216 alumni in addition to its 200 members; together representing 83 countries. The vibrancy of this global organisation results from the energy of its members.

2.1. Members – the engine of the GYA

The GYA is a member-driven and member-run organisation, governed by an annually elected Executive Committee (EC) that reflects the diversity of its membership, and supported by an external Advisory Board (AB) composed of outstanding scientists and science managers. Members meet once a year at GYA Annual General Meetings (AGMs), where they initiate and propel their work together in thematic working groups, on large externally-funded projects, and in member-led committees. At these meetings, members also deliberate and vote on key issues of the Academy, and elect their leadership. The EC works together with the administrative Office – since 2017 located in Halle (Saale), Germany, at the Leopoldina – to provide institutional stability to GYA structures, as well as strategic professionalization of GYA activities.

For details on the distribution of members by region, discipline and gender see Annex 1.



The Global Young Academy

The GYA is a worldwide network of 200 members and 216 alumni from 83 countries.

2.2. Alumni – a growing global network

Since May 2018, the GYA now has more alumni than members. This global network will continue to grow, as each year approx. 40 GYA members become alumni upon the completion of their 5-year term as GYA members. Recognising the importance and relevance of a functioning alumni network for its activities and growing impact, the GYA through its General Assembly in 2013 adopted an Alumni Policy detailing the role and rights of GYA alumni. Alumni are asked to provide guidance and advice, as well as mentoring and help with fundraising by making use of their professional and individual networks. Since 2017, renewed efforts have been made on behalf of the EC and alumni to discuss and establish a professional approach to alumni communications and relations. An Alumni Council was set up to facilitate the GYA's alumni engagement and provide a structured space for alumni participation in the future. GYA alumni are also closely involved in the preparations for the GYA's 2019 Anniversary AGM.

Alumni currently also play an important role in promoting the call for new GYA members in their country or region and among their networks. Additionally, both the Membership Selection Committee and the Review Committee draw on alumni's experience and support in their work (see 4.1.4).

Advice from Eva Alisic (Australia) for new members starting their term in May 2018:

Two years ago, I was in South Africa to help with the second edition of the Africa Science Leadership Programme (ASLP). The programme builds leadership capacity in Africa and helps shape the science system. The fellows came from around the continent. Angola, Egypt, Kenia, Nigeria, Mauritius. Many of them have big plans. A meteorite scientist from Morocco wants to set up an African Space Agency – you can't say that's not a vision!

It was not the first time I was in South Africa, or with the ASLP, but this time the conversations I had, they caused a whirlwind in my head. They made me realise that I needed to change research direction, focus more on big problems, such as the wellbeing of people who are on the move. I'm a psychologist and I work on how people cope with traumatic experiences, especially young people. But I had done that mostly in highly resourced areas. There is still work to do there, but these are marginal improvements in comparison. This experience led me to change the direction of my research, and I have since focused on the most vulnerable children and young people.

My shift in direction is credit to the GYA. This organisation does make change happen, starting on a very personal level. For that to happen, it also needs your personal investment. Cross those boundaries, connect, work together. That is where novel ideas develop and where your life gets changed."

Eva Alisic, GYA alumna and past GYA Co-Chair (May 2014-May 2016) is Associate Professor of Child Trauma and Recovery at the Melbourne School of Population and Global Health.

3. Activities to achieve Strategic Targets

This section outlines the activities of the GYA and how they work towards reaching the strategic targets laid out in the Strategic Plan 2016-2020. GYA activities include projects and engagement in working groups, Incubator groups and large externally-funded projects, as well as member participation in key international science policy events. These activities are clustered in three themes: **Science and Society**, **Research Environment**, and **Science Education and Outreach**. Additionally, a core area of GYA work is its support for **National Young Academies**, and partnerships with senior science academies, academy networks, and international organisations.

3.1. Strategic Target 1

TARGET 1: Contribute to efforts to address societal challenges
<p>Goal 1: <i>Step forward as an idea generator to expand the range of options available to decision makers.</i></p>
<p>GYA ACTIVITIES</p> <p>The following areas of recent work particularly exemplify how GYA members act as idea generators.</p> <p>Global Migration</p> <p>To provide an international and interdisciplinary forum for addressing global challenges brought about by international migration, the working group “Global Migration and Human Rights” led a symposium in April 2018 which brought scholars and practitioners together to address “Global Individual Responsibility” in the context of refugee integration. The symposium was funded by the Fritz Thyssen Foundation (Germany), and a report and a scholarly publication are forthcoming.</p> <p>A recent GYA-JRC-INGSA-IIASA evidence and policy summer school “Science, Policy and Demography” (2018) focused on the role of population and migration for sustainable development in the European neighborhood. The summer school aimed to help researchers to have more impact and policymakers to use evidence for policy solutions.</p> <p><i>More information about key GYA activities on global migration is expanded below.</i></p> <p>Biodiversity</p> <p>Members of the “Biodiversity for Survival via Biomedicine” working group organised a panel on “Biodiversity and Biomedicine: Sustainability for Human Health” at the World Social Science Forum (WSSF) in September 2018, and the group is prominently involved with the global body for biodiversity science and policy, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).</p> <p>Synthetic Biology</p> <p>The GYA working group on “DIY Biology” organised a policy hackathon on “Future Security Challenges of Genome Editing Technologies” with the Leopoldina, IAP and the Volkswagen Foundation in October 2017.</p>

The group is currently working to develop a longer-term research project to facilitate the development of informed policy mechanisms and interventions that promote the potential positive impact of DIY Biology while mitigating any unintended negative consequences. “DIY Biology” was established in 2017, after members had provided input to the IAP Statement on “Realising global potential in Synthetic Biology” in 2014, and discussions at the 2017 Annual General Meeting had revealed expressions of interest from GYA partners indicating the need for such a group to promote a responsible DIY Biology culture.

Accessible Energy

GYA members partnered with the Smart Villages Initiative (SVI) in 2016 and 2017, contributing their research strengths to highlight the broader socio-economic and cultural value of improved energy access. The [SVI-GYA partnership](#) represents a commitment to establishing and maintaining a dialogue about making energy more accessible to those who need it most. One of the meetings resulted in a joint [report](#) on the Smart Villages Initiative’s engagement in South and Southeast Asia. GYA members involved have remained in dialogue with the SVI about possible future cooperation.

Global Migration

GYA members are actively addressing the effects of international migration and displacement. A working group titled “[Global Migration and Human Rights](#)” was established in 2017. The group provides an international and interdisciplinary forum for addressing global challenges brought about by international migration. A symposium addressing “Global Individual Responsibility” was held in 2018, funded by the Fritz Thyssen Foundation (Germany). A report including policy advice and a scholarly publication are forthcoming (2018 and 2019, respectively).

The formation of the Global Migration working group was a direct outcome of the 2016 young academy project titled “Fresh eyes on the refugee crisis: an interdisciplinary approach” involving the Dutch Young Academy, the Young Academy of Scotland, the Israel Young Academy, the German Junge Akademie, the South African Young Academy of Science (SAYSA) and the GYA. The resulting report, “[Fresh eyes on the refugee crisis: an interdisciplinary approach](#)” provides policy advice based on an international workshop co-organised by National Young Academies and the GYA. A resulting [video](#) (published on Vimeo and Youtube) has been viewed over 30,000 times. A GYA member involved in this report played a role in the documentary film “[Science in Exile](#)”, produced by TWAS (2017).

A further outcome of the “Fresh Eyes on the refugee crisis” workshop was the active engagement of several young academies and the GYA in creating structures to support young, at-risk and refugee scientists and scholars (see Target 2).

TARGET 1: Contribute to efforts to address societal challenges

Goal 2: Regularly produce statements and vision documents on societal challenges to disseminate progress.

GYA ACTIVITIES

The GYA, through its members and working groups, regularly publishes statements, joint statements and reports, and contributes to statements addressing various societal challenges. In the following, some of the most recent GYA contributions are contextualised.

Together with 36 National Young Academies and academy initiatives, the GYA issued a statement on [“The role of Young Academies in achieving the UN SDGs”](#). The statement unequivocally states that Young Academies can and should play a central role in conceptualising, developing and implementing strategies towards achieving the SDGs.

More information about key GYA activities on the UN SDGs is expanded below.

As an outcome of its 2018 International Conference for Young Scientists in Thailand, the GYA published a conference statement on healthy aging: [“Creating a World Friendly to all Ages”](#), drafted by members of the “Global Health” working group, with input from conference participants.

The [“Biodiversity for Survival via Biomedicine”](#) working group published a position statement on the [“Conservation of Biodiversity: Protecting Molecular Diversity and Biomedical Discoveries”](#) in 2018. Members of this group were involved in the publication of an article in the *Journal of Global Health* in December 2017: “Bio2Bio Consortium: Biodiversity, Drug Discovery, and the Future of Global Health – introducing the Biodiversity to Biomedicine Consortium, a Call to Action”.

Resulting from GYA participation in an IAP horizon-scanning exercise in 2014, a joint project identified best practices of solid waste management. A GYA working group, supported by IAP funding, published the report [“Municipal Solid Waste Management and Green Economy”](#) in 2016.

The 2016 [“Fresh eyes on the refugee crisis: an interdisciplinary approach”](#) report provides policy advice based on an international workshop co-organised by National Young Academies and the GYA (see above).

Members of the “Science Advice” working group published a workshop report [“Broadening the scope of science advice”](#) in 2016. The group also contributed input to the International Network for Government Science Advice (INGSA) Science Advice Manifesto in 2017.

The working group [“Trust in \(Young\) Scientists”](#) produced two videos for a competition on “Trust in Science” organised by ALLEA (All European Academies) in 2018, as well as a [promotional video](#) to showcase the work of the group. Statements on “Trust in Science – A Young Scientists’ Perspective” and on “Why the incentives in academia need to change to build trust in science. Perspectives from young scientists around the world” are forthcoming (2018).

GYA members contributed to the 2017 joint statement with ALLEA and other European academy networks on the humanities and social sciences perspective on the next European Research and Innovation Framework Programme: [“Living Together: Missions for Shaping the Future”](#).

A member of the “[Climate Change and Disaster Risk Reduction](#)” working group currently serves as one of the lead authors for the upcoming 6th Assessment Report by the Intergovernmental Panel on Climate Change (IPCC).

The GYA and the United Nations Sustainable Development Goals (SDGs)

The GYA actively engages with the United Nations Sustainable Development Goals (SDGs) through many of its working groups, by taking part in meetings on the implementation and monitoring of the SDGs, and by providing science-based policy advice to policy-makers and global science organisations.

To bring together these activities, a [new page](#) on the GYA’s website showcases the GYA’s SDG-related activities. The GYA aims to further engage directly with the UN and to ensure that the voice of young scientists and scholars is at the table for the planning of a post-2030 agenda. Since 2015, when the GYA was invited by UNESCO to contribute to the UN Global Sustainable Development Report, which was submitted to the Third Session of the High-level Political Forum, GYA members have continued to be involved in these annual fora.

In 2017, the GYA participated in a survey of academies conducted by the IAP for its project on “[Improving Scientific Input to Global Policymaking](#)”, which collected information about the ways in which academies of sciences are involved in the implementation and monitoring of the UN SDGs. With this input, the IAP project published a guide for academies, “Supporting the Sustainable Development Goals: A Guide for Merit-Based Academies”, in 2017. The GYA has helped disseminate this guide to its members and to National Young Academies (NYAs). Furthermore, as part of the project and to facilitate exchange and action among science academies, IAP organised four regional SDG workshops in 2018, in which GYA members actively participated, alongside regional academy networks (IANAS in the Americas, AASSA in Asia, EASAC in Europe, and NASAC in Africa), as well as National Young Academy and senior academy representatives. Former GYA Co-Chair Eva Alisic (Australia) currently acts as one of the co-chairs of this global project, and GYA member Teresa Stoepler (USA) is involved in the project via her position as IAP for Research Executive Director.

A report on all workshops is forthcoming, and reports on the first regional workshops in [the Americas](#) and [Asia](#) can be accessed online.

The GYA and young academies statement mentioned above, on “The role of Young Academies in achieving the UN SDGs” was a direct result of the 2017 Third Worldwide Meeting of Young Academies (WWMYA), which is outlined further in Target 3. The statement calls on policy-makers and senior academies of sciences to jointly work with young academies and young scientists and scholars in their regions towards a “global science” driving sustainability.

TARGET 1: Contribute to efforts to address societal challenges

Goal 3: *Strengthen its connections with global stakeholders, such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), the InterAcademy Partnership (IAP), the International Council for Science (ICSU), and the World Economic Forum (WEF).*

GYA ACTIVITIES

Since its foundation, the GYA has built a strong relationship with the InterAcademy Partnership (IAP) and The World Academy of Sciences, TWAS (see 4.4.1). Relationships with further key international partners have been intensified over the past years – e.g. with the ISC (formerly ICSU and ISSC), the United Nations and UNESCO, INSA and the JRC – leading to expanded opportunities for mutual cooperation to involve the voice of young scientists and scholars in the world.

More information about the GYA's cooperation with its key partners is expanded below.

G7

In 2016, a GYA alumna spoke at the G7 Meeting of the Science and Technology Ministers in Japan. A number of GYA recommendations on strengthening the position of young scientists, and especially women researchers in science, were included in the Ministers' final communiqué.

G20

In 2017, members from the [DIY Biology](#) working group contributed to the G20 policy brief on "Consolidated G20 synthetic biology policies and their role in the 2030 Agenda for Sustainable Development".

The InterAcademy Partnership (IAP)

The InterAcademy Partnership (IAP), convenor of the Annual Meeting of New Champions at the World Economic Forum 2008 and 2009, has supported the GYA since its foundation, both financially and conceptually. The GYA currently has observer status at IAP for Science, and has applied to membership of the Partnership in July 2018. The IAP has supported every GYA Annual General Meeting from 2011 to 2018, with travel co-funding for members from low and middle-income countries. Additional IAP grants have supported networking activities between the GYA, young and senior academies and other international partner organisations. Furthermore, the GYA regularly nominates members, and facilitates the nomination of National Young Academy representatives, to IAP committees, including e.g. the committee "Science for Poverty Eradication (SPEC)", the IAP's global "Science Education Programme (SEP)" and a newly formed steering committee for the project "Respect and Dialogue".

The GYA actively contributes to IAP work on the UN SDGs (see above). Finally, the GYA working groups on "[DIY Biology](#)" and on "[Global Health](#)" have in part emerged from active relationships with IAP; with the latter enjoying an excellent working relationship with IAP for Health, the global network of Academies of Medicine.

In 2017, the GYA cooperated not only with IAP in hosting the Science Leadership training at the World Science Forum (WSF) in Jordan, but is also a partner in strengthening GYA's role in global science meetings in general. IAP backs up with GYA initiatives to move young scientists at the core of the planning of such conferences instead of only being invited to conduct a panel of early career researchers for their peers. Similarly, a jointly organised science leadership training will

take place prior to the Second Latin America and the Caribbean Open Science Forum (CILAC) in Panama in October 2018.

Moreover, GYA Co-Chairs or members have been serving on the organising committees for tri-annual IAP Conferences since 2013, thereby ensuring that each panel at the 2016 IAP Conference had at least one young scientist. One GYA member is currently part of the scientific committee for the 2019 IAP Conference in South Korea.

The World Academy of Sciences (TWAS)

The GYA enjoys a long-standing collaboration with The World Academy of Sciences (TWAS), including financial support. Participation in the TWAS-convened Joint Meeting of the Leadership of International Science Organisations in 2014 served as an important trigger for the Academy to establish a number of close ties with further international organisations. GYA members have participated in TWAS Young Affiliate Network (TWAS-TYAN) activities; for example, the International Thematic Workshop on “Fundamentals of Photo-electrochemistry: From Materials Chemistry to Energy Conversion” in Argentina in 2018.

The International Science Council (ISC)

The GYA's cooperation with the International Science Council (ISC) (formerly: International Council for Science (ICSU) and International Social Science Council (ISSC)) began in 2014 as a result of GYA's participation in the TWAS-led meeting of international science organisations (see above). In 2017 and 2018, cooperation centred mainly around the merger between ICSU and ISSC in July 2018. As the GYA has been open to social scientists and the humanities and natural sciences right from its beginnings, GYA members could add valuable insights from GYA's experiences with inter- and multidisciplinary work into the Councils' merger discussions. GYA Co-Chair Tolu Oni gathered feedback from GYA members on questions related to the biggest global priorities and challenges, and spoke at the Joint ICSU-ISSC meeting in 2017, where the world's largest science councils voted to merge, to become the International Science Council in 2018.

The United Nations

In 2014, the GYA in a letter to then-UN Secretary General Ban Ki-moon put forward 5 recommendations, stressing the importance of science for achieving sustainability and poverty reduction globally. This letter marked one of the first major science advice activities on a global level by the Academy, and as such heralded a new phase in GYA activities. Upon recommendation from the Leopoldina, the GYA then enjoyed a good working relationship as an observer with the UN Secretary General's Scientific Advisory Board (2013-2016), with members participating in and addressing the board's meetings on a number of occasions, thereby adding the voice of young scientists to the global policy discourse. GYA members regularly contribute policy recommendations to the UN-STI Forums (2017, 2018 on DIY Biology). GYA Co-Chair Tolu Oni spoke at the [UN High-Level Political Forum](#) in 2017 in a session on science-policy interface.

The United Nations Major Group for Children and Youth (UN MGCY)

Following a joint engagement on Disaster Risk Reduction in late 2015, the GYA was invited to the Advisory Board of the UN Major Group for Children and Youth (UNMGCY) and has since developed a mutually beneficial partnership. While the UNMGCY facilitated the GYA's participation in the 2017 Science-Innovation Forum at the UN Headquarters in New York, their representatives were guests at the 2017 GYA Annual General Meeting and also attended the Third Worldwide Meeting of Young Academies in South Africa in 2017.

The United Nations Educational, Scientific and Cultural Organization (UNESCO)

The UNESCO and the GYA began actively collaborating in 2014, when UNESCO invited GYA members to contribute to their “Recommendations on the Status of Scientific Researchers”. This was followed by GYA contributions to the UN Global Sustainable Development report in 2015. The GYA’s Science Leadership Programmes (see Target 2) are a point of joint interest. In 2017, the GYA cooperated with UNESCO to enhance the voice of young scientists at the World Science Forum in Jordan. Furthermore, a mutual understanding exists that Latin America is of strategic importance to the GYA, given that there is currently very little young academy activity in the region, and relatively few young scientists involved in science engagement and outreach. To address this gap, the GYA and UNESCO organised a joint science leadership workshop at the Second CILAC in October 2018.

The International Network for Government Science Advice (INGSA)

The key goal for INGSA is to build capacity for scientists to provide advice. The GYA enjoys a strong relationship with INGSA: GYA members and alumni are represented on INGSA regional chapter steering committees in Asia, Africa and North America; GYA members contributed to the INGSA Science Advice Manifesto in 2017; GYA members were involved in a GYA-INGSA workshop on science advice skills prior to the 2016 INGSA Conference in Belgium. A recent GYA-JRC-INGSA-IIASA evidence and policy summer school “[Science, Policy and Demography](#)” (2018) aimed to help researchers to have more impact and policymakers to use evidence for policy solutions, focusing on the topic of migration. Preceding the upcoming INGSA conference in 2018, the GYA has co-organised a science leadership workshop for young scientists.

The European Commission’s Joint Research Centre (JRC)

Cooperation with the European Commission’s Joint Research Centre (JRC) started in 2014 and is of high relevance for the GYA and for German foreign science policy (see 4.2). The GYA regularly cooperates with the JRC in the field of science advice and science advice training, as well as in the field of open science. The GYA’s “[Science Advice](#)” working group, which was formally established in 2017 and is focusing on contributing to the development of best practices for science advice giving and enhancing members’ advice-giving capacity, is currently contributing to the JRC’s Enlightenment 2.0 Flagship Report.

TARGET 1: Contribute to efforts to address societal challenges

Goal 4: *Strengthen its role as nexus for global stakeholders and excellent scientists worldwide.*

GYA ACTIVITIES

Many GYA activities are relevant to this goal, where the GYA either acts as a convener by (co-) organising events, or by increasing the presence and influence of young scientists and scholars at important events. Several of these activities are explained in more detail in other sections.

(Co-)Organising events

The largest events organised by the GYA are its Annual General Meetings (AGMs) and International Conferences for Young Scientists, which take place annually in different countries around the world.

These meetings bring together over 100 young scientists and scholars, representatives from national young and senior academies, and regional and international stakeholders (more on the AGMs in Target 5).

The GYA takes on a coordinating role for the bi-annual worldwide meetings of National Young Academies, including publishing the call for host academies, co-organising and helping with fundraising. The GYA is currently acting as co-organiser for the 2019 meeting in Vietnam (more on the WWMYAs in Target 3).

The GYA working group on "[DIY Biology](#)" organised a policy hackathon on "Future Security Challenges of Genome Editing Technologies" with the Leopoldina, IAP and the Volkswagen Foundation in October 2017, bringing international scientists to Germany to assist in the development of science policy for the rapidly advancing field of genome editing (see above, Goal 1). The group were also invited to participate in a session on "Do-it-yourself biology movement in Latin America as a driving force of innovation and entrepreneurship" at the 2018 CILAC.

Convening Young Scientists

World Science Forum (WSF)

GYA members co-organised a Young Scientist Forum at the WSF in 2015 on "Scoping the Future: Views and Ideas of Young Scientists to tackle Global Challenges". GYA involvement increased at the WSF 2017: nearly 30 GYA members and alumni actively participated in the World Science Forum 2017 in Jordan, the theme of which was "Science for Peace". The perspective of young scientists was given particular attention in a special session co-organised by the GYA titled "Young researchers identify skills of the future to advance science diplomacy and society". Members shared science diplomacy experiences, thereby inspiring others to become engaged in science diplomacy activities. The GYA is currently in discussions with UNESCO and the IAP to establish more permanent structures to ensure the input of young scientists and scholars at the WSF.

Next Einstein Forum (NEF)

The GYA was involved in multiple activities at the most recent NEF in 2018, one of the largest gatherings of scientists in Africa to date. One key activity was the workshop on "Connecting Networks to Co-Design Transformative Science Leadership Programs for Africa," co-organised by the GYA, the Robert Bosch Foundation and the University of Pretoria, South Africa.

Young African Scientists in Europe

In 2018, a Young African Scientists in Europe (YASE) event, connected to the EuroScience Open Forum (ESOF), gathered 200 scientists and scholars from 40 countries in Africa to share ideas on the opportunities that Young African Scientists in Europe have to contribute to addressing the diverse challenges that the continent faces. GYA Co-Chairs Connie Nshemereirwe and Tolu Oni each moderated a panel at this event. The panels dealt with topics as diverse as how to carry out world class research within the continent, and the scientist as entrepreneur. The main insight from this conference was that whether or not the young African scientists return to Africa, there are many avenues through which they can contribute to the continent's further development; the conference also connected African scientists abroad with those within Africa.

EuroScience Open Forum (ESOF)

In 2016 and 2018, the GYA was actively involved in the EuroScience Open Forum (ESOF). In 2018, a particular focus of GYA member input was on the topic of open science.

World Health Summit (WHS)

The WHS has grown into the world's most prominent forum for addressing global health issues. GYA members have continuously been involved in the WHS and the connected IAP for Health's Young Physician Leaders programme since 2016. In 2018, members from the GYA working group [Global Health](#) are participating in the 10th World Health Summit in Berlin, Germany, and the corresponding New Voices in Global Health programme. In addition, two GYA-nominated young medical scientists have been invited to take part in the Young Physician Leaders programme 2018. It is planned that GYA members will contribute a joint session to the World Health Summit from 2019 onwards.

Science Leadership workshops

Since 2017, the GYA has co-organised several pre-conference science leadership workshops as a way to bring young scientists to key conferences and build upon their leadership skill-set. The workshops are described in more detail in Target 2.

The Global Young Academy does not only play an important role in supporting and facilitating the collaboration between existing National Young Academies, in Europe as well as across other continents. It has in many cases also been central to the foundation of new National Young Academies across the globe.

The Global Young Academy is closely connected to important international policy debates, both with regards to the development of science and research (such as Open Science, Open Access etc.) and broader societal questions (such as the Sustainable Development Goals). It taps into important policy-making networks (e.g. the UN and the European Commission) and is thus well positioned to give advice on salient points in political debates.

Marion Schulte zu Berge, Managing Director, Die Junge Akademie (Germany)

TARGET 1: Contribute to efforts to address societal challenges

Goal 5: *Initiate a searchable database of 1,000 Young Academy members and alumni to facilitate inclusion of young scientists in the committees and events of global stakeholders.*

GYA ACTIVITIES

This goal, in its specific wording, has not been followed up on to date, in part for legal data protection reasons. Rather, the GYA continues to facilitate the inclusion of young scientists in committees and events of global stakeholders. As a part of its coordinating role of National Young Academies and similar initiatives, the GYA regularly disseminates opportunities (to participate in committees, conferences, apply for fellowships, etc.) with its members and alumni as well as with young academies. NYAs are invited to share these communications with their respective membership (see 4.3. Communications strategy).

The College of New Scholars of the Royal Society of Canada is grateful for the work of the Global Young Academy. The Global Young Academy is the crux of the emergent international "Young Academy Movement" both for individual scholars and National Young Academies, and plays an important role in mobilizing these emerging voices and providing opportunities that wouldn't otherwise be available. As one of the early National Young Academies in the Americas, the Royal Society of Canada's College of New Scholars was brought into the family of National Young Academies by the GYA, and was able to connect with likeminded organisations from around the world. And while coming from Canada we may have been able to access these networks, the GYA emphasizes and epitomizes an egalitarian model of membership, and has been able to connect us with voices from many developing countries with whom we wouldn't have otherwise encountered.

Russel MacDonald, Manager Programmes, The Royal Society of Canada

3.2. Strategic Target 2

TARGET 2: Identify, develop, and nurture global science leaders

Goal 1: *Systematically reach out to more young scientists around the world. The Academy will actively engage with young scientists irrespective of geographical region.*

GYA ACTIVITIES

In addition to increasing the reach of the GYA's network (through the network of National Young Academies (Target 3) and by spreading its member call to underrepresented areas of the world), specific GYA projects increase the reach and diversity of young scientists and scholars who engage with the GYA.

Support for At-Risk Scholars

Recognising the urgent need to protect and support academic researchers fleeing conflict zones around the world, the [At-Risk and Refugee Scholar Membership Initiative](#) was established by GYA members in 2017. As of September 2018, 19 at-risk scholars are being mentored by GYA members and alumni: mentees are proposed by partner organisations (TWAS, JRC, the Alexander von Humboldt Philipp Schwartz Initiative, the IIE Scholar Rescue Fund, and the Council for At-Risk Academics (Cara)).

More information about the At-Risk and Refugee Scholar Membership Initiative is expanded below.

Global platform for Women in Science

The GYA "[Women in Science](#)" working group raises awareness of the potential of women scientists' contributions to society and science, to contribute to a better future for female scientists across the world. Members have been involved in the "Women in Science without Borders" conference series from 2017 onwards. In 2018, group members endorsed the Dar-es-Salaam Declaration on Women and Sustainable Development in Africa. Results from the group's project on "Inclusive Research", which started in 2015, are forthcoming.

The group's online mentorship programme for young female scientists (currently trial-running) creates a platform for building the knowledge and leadership skills of GYA members but also of young women scientists outside the GYA. Through this platform, but also through projects like a 2018 [video](#) featuring encouraging messages to potential future female scientists, and frequent contributions to the Falling Walls blog, the group actively provides and showcases role models for career success to inspire young women in all parts of the world.

Support for At-Risk Scholars

Inspired by the 2015 “Fresh Eyes on the Refugee Crisis” workshop, co-organised by the GYA, and initiated by GYA members in early 2017, the [At-Risk and Refugee Scholar Membership Initiative](#) was established. This initiative recognises the urgent need to protect and support academic researchers fleeing conflict zones around the world. It supports the re-integration of exceptional, early-career at-risk and refugee scholars into research through a mentorship programme developed and led by GYA members. The initiative uses a mentorship model to foster the professional skills that are most relevant to refugee scholars' host countries.

As of September 2018, 19 at-risk scholars are being mentored by GYA members and alumni: mentees are vetted by partner organisations (TWAS, JRC, the Alexander von Humboldt Philipp Schwartz Initiative, the IIE Scholar Rescue Fund, and Cara). One possible outcome of this mentorship is the development of competitive applications to the GYA or to an NYA. For 2019, the GYA membership decided to reserve up to two new member places for refugee scholars. Future developments of this project can be followed on the At-Risk and Refugee Scholar Membership Initiative [webpage](#). Current planning for a mentorship training workshop in early 2019 is underway, and the team has secured 75 per cent of funding needed to hold these workshops in Oxford, UK, from 2019-2021.

TARGET 2: Identify, develop, and nurture global science leaders

Goal 2: *Identify high potential global science leaders through membership selections, the annual meeting and workshops, GYA speaking opportunities, and leadership roles within the GYA. The Academy focuses on identifying leadership potential in young scientists from all backgrounds and countries.*

GYA ACTIVITIES

In the past two years, the GYA has further increased the reach of its membership call, geographically and across disciplines, resulting in an increased number of applications from which those with the highest potential for future global leadership are selected.

Facilitated by its global partners (Target 1; Goal 2), the GYA regularly provides opportunities for its members to engage in new opportunities (see Annex 12 for a list of nominations in 2017-18).

Within the GYA, members are encouraged to take on leadership roles, within working groups, committees or by standing for the Executive Committee (see 4.1. Governance).

TARGET 2: Identify, develop, and nurture global science leaders

Goal 3: *Provide structured and tailored training and development opportunities to its members on science diplomacy, education, communication, and policy. Unique to the GYA's activities is its natural focus on interdisciplinarity and cross-cultural engagement.*

GYA ACTIVITIES

Science Advice

One of the strategic aims of the GYA is to engage in science-for-policy advice and to help GYA members to develop the skills needed for this. The GYA currently works with a number of organisations to deliver science advice globally and regionally. The number of engagements has increased with partner organisations increasingly asking for GYA participation in events or input to policy papers and reports.

Science Diplomacy

GYA members have taken advantage of opportunities to participate in science diplomacy workshops organised by TWAS and the American Association for the Advancement of Science (AAAS) in Trieste (2016), and the regional Africa Science Diplomacy course organised by TWAS-ROSSA and AAAS (2018).

Science Leadership at conferences

To increase the reach of the science leadership programmes, the GYA has co-organised several pre-conference science leadership workshops (see Target 2; Goal 4).

Mentor training

In the context of the At-Risk and Refugee Scholars project (Target 2), planning is underway for a mentorship training workshop for mentors in Oxford (2019).

Presentation coaching

At its 2018 Annual General Meeting, the GYA offered pre-conference webinars followed by an in-person masterclass on effective presentations. Individual coaching was also available during the week of the conference.

TARGET 2: Identify, develop, and nurture global science leaders

Goal 4: *Develop new Science Leadership Programmes (SLPs). An SLP provides in-depth training and empowerment of young scientists with regard to collective leadership in science, including skills training in creative facilitation, peer mentorship, and stakeholder engagement. The GYA is already a partner in the successful Africa Science Leadership Programme, and it aims to partner in, and facilitate the establishment of, other local, regional, and global SLPs.*

GYA ACTIVITIES

Since 2014, more than 200 young scholars and scientists have taken part in GYA-supported capacity-building science leadership programmes or workshops.

Science Leadership in Africa and ASEAN

The GYA supports the capacity-building Science Leadership Programme (SLP) in [Africa](#) (currently in its second 3-year funding period with the Robert Bosch Foundation) and [ASEAN](#) (the third ASEAN SLP is in preparation; funding for the programme from 2019-2021 has been secured from the Thai National Science and Technology Development Agency).

More information on Africa and ASEAN SLP below.

Science Leadership workshops

At the 2017 World Science Forum, the GYA co-organised a one-day, pre-conference science leadership workshop, addressing “[Avoiding the Weaponisation of Research](#)”, including 43 young scientists and scholars, 29 of these GYA members and alumni.

The GYA continued to advance this pre-conference science leadership workshop model. Prior to its 2018 AGM in Thailand, the GYA held a two-day leadership workshop for its new members (27 participants).

Similar workshops for young scientists and scholars are being co-organised by the GYA at the Second CILAC (October 2018, Panama) and at INGSAs Biennial Conference (November 2018, Japan).

At the 2018 Next Einstein Forum, the GYA working group on “Women in Science” together with the Canadian Institute for Advanced Research (CIFAR) co-organised a Women in Science leadership workshop entitled “[Fostering diverse and inclusive leadership in academia](#)”. More than 30 participants strengthened their individual (co-)leadership skills and extended their respective personal networks with other workshop participants, departing with a special emphasis on diverse and inclusive perspectives on driving forward one’s academic career.

Developing the Science Leadership model

The GYA aims to build on the success of the African and ASEAN SLPs and explore the science leadership model as a long-term, global project. In this context, the GYA is actively looking for partners to explore a science leadership programme in Latin America. Furthermore, past GYA Co-Chair Orakanoke Phanraksa (Thailand) has been driving an application to start a science leadership programme for APEC countries.

Science Leadership in Africa

Building on research results of the GYA's Global State of Young Scientists (GloSYS) project, the [Africa Science Leadership Programme](#) (ASLP) was initiated in South Africa in 2014 by the University of Pretoria (led by Bernard Slippers, GYA alumnus and past Co-Chair) and the GYA, to address two central issues that emerged from the early research: *mentoring and support structures*, and *focused training to increase leadership skills*. The ASLP focuses on the next generation of scientists and scholars, creating a lasting network of science leaders on the continent, spanning not only across countries, but also across disciplinary boundaries. Interdisciplinarity remains a challenge in many African countries, where the definition of scientific disciplines tends to remain narrow.

Participants meet for a week-long workshop, followed by a year of practical application and mentorship. The ASLP is funded by the Robert Bosch Foundation, currently in its second funding period (2018-2020). Since 2014, over 100 young scientists and scholars have taken part in the ASLP, approximately 20 per cent of these have been GYA members or successfully applied for membership after their participation in the programme. One aim of the programme from its start has been to expand its application, within Africa, and in other parts of the world, by developing awareness, mentoring and facilitation skills of participants.

Without the GYA ASLP, I would never have known of the existence of the GYA, first and foremost - this led to me applying and getting accepted, and then having enough of a vision of my contribution to run for the EC in my second GYA year, and then again for Co-Chair in my third year.

But beyond that, participating in the ASLP sharpened my vision for myself as an individual, especially around how I could best contribute to addressing the challenges that my continent faces. Ultimately, this would lead to a change in career, to where I now act at the interface of science and policy as a writer, a speaker, and a trainer. So close to my heart has this programme become that I now sit on its steering committee, which means I can participate in spreading the model across the continent and beyond, and this really gives purpose to my life. It sounds a little cliché but in a few words: the Science Leadership Programme changed my life.

Connie Nshemereirwe (Uganda)

As a National Young Academy of Science, the South African Young Academy of Science (SAYAS) values its partnership with the GYA. The assistance provided in establishing the young academy at its inception as well as co-organising global meetings of National Young Academies has been invaluable. We have seen individual member growth as some of our SAYAS members have gone on to become GYA fellows and serve on its Executive Committee. In this way, a symbiotic relationship has evolved and charting new paths in science leadership for our members.

We would like to single out the support lent to the initiation of the Science Leadership Programme in Africa that is developing a network of emerging science leaders across the continent whom will hopefully contribute to solving the grand challenges of our time.

Edith Shikumo, Secretariat, South African Young Academy of Science

Science Leadership in Asia

Following the early successes of the Africa Science Leadership Programme, and as a first concrete outcome of the preliminary results of the GloSYS ASEAN study, the GYA co-operated in the launch of an ASEAN Science Leadership Programme in 2016 in Thailand. With funding from the Thai National Science and Technology Development Agency (NSTDA), TWAS-TYAN and local funders in

the host countries, the [ASEAN Science Leadership Programme](#) has now run for two consecutive years (2016 in Thailand, 2017 in Malaysia), with the third meeting planned to take place in November 2018 in Vietnam. In its first two years, 47 young scholars and scientists from all 10 ASEAN countries have participated in the ASEAN SLP, and its success is further marked by the confirmation of a further three years of funding by NSTDA (2019-2021) for the programme to take place in Thailand.

TARGET 2: Identify, develop, and nurture global science leaders

Goal 5: *Stimulate collaboration between young scientists, policy makers, industry representatives, artists, journalists, and the general public through joint events and projects to build bridges between science, policy, industry, and society that will continue to grow subsequent career stages.*

GYA ACTIVITIES

Several GYA activities outlined in Target 1; Goal 1 are also relevant to this goal, for example the DIY Biology working group activities and recent GYA activities on the theme of migration. Most recently, GYA members were an active part of Germany's first science-media film festival in 2018.

Science and the media

Six GYA members from around the world actively participated in the first German science media film festival, "SILBERSALZ", in Halle (Saale) in 2018. The festival was coordinated by Documentary Campus and supported by the Robert Bosch Foundation and the Leopoldina. The event served as a platform where scientists and media practitioners met and actively engaged each other in order to exchange ideas and learn from each other's expertise. The conference aimed to support more science content in the media and to transform scientific progress into compelling stories that can impact and inspire the public. Interactive workshops honed the skills of participants and aimed to bridge the gaps between scientists and media professionals.

Science Communication

In 2018, the GYA elected science journalist Linda Nordling to serve on its Advisory Board. Her input and insights are highly valued in the GYA's ongoing efforts to improve the communication of its activities to partners, stakeholders and the wider public.

3.3. Strategic Target 3

TARGET 3: Maximize the potential of National Young Academies

Goal 1: *Encourage and facilitate the establishment of new National Young Academies in any country that has a critical mass of young scientists, and helping to build critical mass in countries where there is not yet any. The GYA's experience with NYAs and relation with senior academies puts the organisation in an excellent position to connect local young scientists, garner support from senior academies and other stakeholders, as well as to provide blueprints and practical support regarding constitutions, coordination, and projects/activities.*

GYA ACTIVITIES

Facilitating a growing global network

The GYA acts as a facilitator of the growing [global network of young academies](#) and supports their establishment. Young Academies are academies formed by early and mid-career young scientists and scholars who typically have been selected for the excellence and impact of their research and their commitment to service for society. They work towards giving a voice to young scientists and for the advancement of emergent issues vis-à-vis society, the media and policy-makers. In 2000, with the foundation of the first ever NYA, Die Junge Akademie, Germany planted the seed of what has become the international young academy movement.

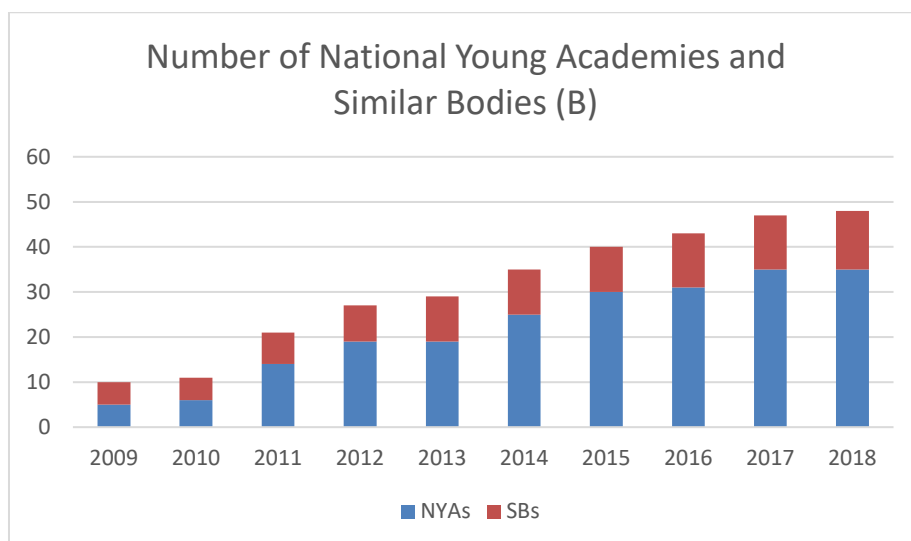
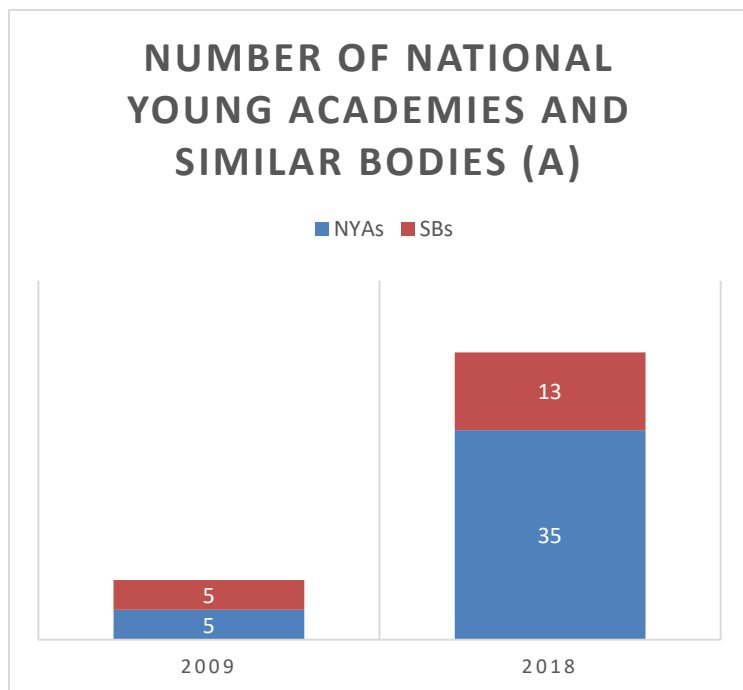
The GYA supports the establishment of NYAs around the world by providing information material, connecting initiatives to existing NYAs for an exchange of experiences, and – if relevant – facilitating discussions with the country's senior academy and additional relevant partners.

When the GYA was established in 2010, only five NYAs and five similar organisations existed worldwide. This network has now grown to almost 50 National Young Academies and similar organisations, most of these have been established with the support from the GYA and individual members.

The latest additions to the NYA network have been the Albanian Young Academy, the Burundi Council of Young Scientists, the Estonian Young Academy of Sciences, the Young Academy Finland, and the Young Korean Academy of Science and Technology. In September 2018, GYA alumni contributed an [editorial in Science](#) on the launch of the US New Voices in Sciences, Engineering and Medicine.

The global NYA network continues to grow dynamically with an unprecedentedly high number of young academy initiatives currently being active in almost 20 countries (e.g. Bangladesh, Cameroon, Chile, Colombia, Cote d'Ivoire, Hungary, Mauritius, Nepal, Rumania, Switzerland, Spain and Zambia). Of the current GYA membership, more than a third are engaged in an existing NYA or an NYA initiative. A large number of those who have been active within the NYA network continue to contribute their experience in this regard after becoming GYA alumni.

A number of GYA members are engaged in a Young Affiliates Programme by a senior science academy, e.g. the TWAS-TYAN.



In 2017, I was selected by the Global Young Academy as a “Young Scientist” for attending the World Science Forum in Jordan. The efforts that the GYA are making for representing the voice of young scientists is priceless. They are changing the perception that people have towards science and creating the possibility of collaborative work between professions and nations. Meeting members of the GYA in Jordan was a life experience, and as soon as I returned to Colombia, I knew that I wanted to establish a Young Academy in my country. All the support that GYA members, including co-chairs, have given to me is amazing.

Henry Mauricio Chaparro-Solano, Colombia NYA Initiative

The Global Young Academy has played a fundamental role in introducing our initiative of the Hungarian Young Academy to the broad family of National Young Academies. By maintaining an important link between NYAs worldwide, it has enabled us to learn from and connect with a global network of similar bodies and has supported our growth from the very beginning. Furthermore, the Global Young Academy has also provided their own organisational experience and essential practical advice for our initiative.

Gergely Toldi, Hungarian Young Academy Initiative, GYA member

TARGET 3: Maximize the potential of National Young Academies

Goal 2: *Encourage and facilitate regional and inter-regional activities of NYAs. Based on the successful initial examples of our African and Asian regional meetings, the GYA will facilitate (inter-)regional meetings and activities that will strengthen the connections and collaborations between both young and senior scientists, as well as with the wider community.*

GYA ACTIVITIES

Regional NYA networks

The GYA continues to support cooperation among NYAs in particular regions, e.g. in Africa, Asia and in Europe. NYA meetings in these regions take place every two years, with the GYA being involved to varying degrees in their organisation.

More information on the regional NYA meetings below.

In Europe, the GYA has established a good working relationship with the Young Academy of Europe (YAE). For example, GYA members now also receive the calls for nominations to SAPEA (Science Advice for Policy by European Academies) working groups, for which the YAE acts as the distributor to European young academies. A GYA member has recently been selected for the SAPEA working group on “Micro- and nanoplastic pollution”.

GYA members in Asia have been instrumental in bringing together the ASEAN Young Scientists Network, a group of young scientists that came together as a platform to engage, train and empower a new generation of ASEAN Young Leaders who will champion ASEAN scientific progress.

The GYA was a partner in the “[Strengthening African Science Academies](#)” capacity enhancement project by the Leopoldina, NASAC, the Academy of Science of South Africa (ASSAf) and the Ghana Academy of Arts and Sciences from 2015-2018. Within this project, the GYA brought young scientists and young academies from Africa together with the senior national academies. The GYA nominated 5 members and an additional 3 representatives from African NYAs to participate in the project’s concluding conference on “Sustainable African Cities” in 2018.

Regional NYA meetings

The GYA and its members engage in the organisation of a series of [regional NYA meetings](#). The longest-running of these have been the African Young Academies Regional Meetings, which aim to empower leading young scholars from the African continent to use scientific development as a means to achieving a sustainable future for their region. The first of these meetings was organised by the GYA and NASAC with additional funding from the Robert Bosch Foundation in Kenya in 2014. A follow-up meeting took place in Mauritius in 2016 on “Empowering the Next Generation of Scientists in Africa”. The meeting brought together representatives from all existing NYAs in Africa, as well as NYA initiatives and young scientists from NASAC countries together with the NASAC (senior) member academies. The main objective of this second regional meeting was to engage and empower excellent young researchers from across Africa and from the diaspora to address the challenges that impede scientific development towards a sustainable future for the region. The next African NYA meeting is scheduled to take place in 2020 (possibly in Nigeria).

The 2016 African NYA meeting also served as a model/template for the First Asia National Young Academies meeting in Thailand in late 2016, which was jointly organised by the Thai Young Scientists Academy, the GYA, the Thai NSTDA and the Thai National Science Museum. This meeting was the first of its kind for leaders of NYAs in Asia to convene to exchange experiences, share lessons learned and discuss common challenges, e.g. funding, getting members engaged, diaspora engagement with young scientists from Asia, and building on relationships with senior academies. The meeting succeeded in building and strengthening the Asian NYAs and to promote opportunities for collaboration among them. A follow-up meeting was held in Israel in 2018.

In my different capacities in the Israel Young Academy, I have been working with the GYA in various ways for about 3 years now. It is an inspiring organisation, bringing together outstanding young scientists from around the world, who are engaged in science outreach and in forging scientific networks. In February 2018, in collaboration with the GYA, and using the GYA's invaluable support, we organised in Jerusalem a meeting of the Asian Young Academies. The meeting brought together young scientists from a large number of countries in the region and we were fortunate to have the representatives from the GYA as well. The meeting was well attended and successful in reaching its goals not least because of the cooperation of the GYA and its leadership.

Udi Sommer, Executive Council, Israel Young Academy

In 2018, GYA representatives also attended the meeting of young academies in Europe. This regional NYA network is very active and the meeting resulted in an even more improved awareness of the potential of this virtual network for contributing to European science and policy debates. First steps towards a Joint Statement on academic freedom in Europe were made.

The GYA does an excellent job in representing the interests of early-career scholars. What makes their work particularly relevant is that their focus is beyond their own membership and that they work in collaboration with National Young Academies. These collaborations are most effective because the GYA does not impose itself as an umbrella organisation on the Young Academies. Instead, it offers a platform for communication and it facilitates activities. Their global focus, along with their proper attitude towards National Young Academies has put them in the exactly right position to pursue the interest of young scholars, both nationally and globally.

Behnam Taebi, Member of Executive Board of the Dutch Young Academy,
responsible for Internationalisation (2018)

TARGET 3: Maximize the potential of National Young Academies

Goal 3: *Encourage and facilitate communication & collaboration among NYAs. The GYA is in a good position to provide an online platform for all NYAs to share their activities, agendas of events, and calls for experts. The GYA will promote NYA activities through its networks and social media connections. The GYA will continue to co-organise and facilitate worldwide meetings of NYAs on a bi-annual basis, and facilitate the production of collaborative statements on topics that are close to the hearts of young scientists (e.g. Open Science, mentoring) or where young scientists can provide innovative support for policy issues.*

GYA ACTIVITIES

Communication and dissemination

The GYA acts as an information hub for the NYA network, [providing materials](#) on its website designed to help members and non-members to establish an NYA, communicating via email list serves to NYAs about relevant funding and project calls, and upcoming events as well as opportunities for joint projects. Furthermore, news from the network or from individual NYAs are included in the GYA monthly newsletter and on the website news section. Connections within the NYA network are maintained via social media, e.g. Twitter and Facebook.

Worldwide Meetings of Young Academies

The GYA takes on a coordinating role for bi-annual worldwide meetings of NYAs, publishing the call for host academies, co-organising and helping with fundraising for these. It is currently acting as co-organiser for the 2019 meeting in Vietnam.

More information on worldwide meetings of young academies is expanded below.

Joint Statements with Young Academies

The GYA has been active in coordinating the publication of joint Young Academy Statements, e.g. on Open Access (2016), Open Data (2016) and on the UN SDGs (2017). It is currently coordinating a statement by European young academies to reply to “Plan S” - the European Commission’s proposal that all scientific publications resulting from publicly funded research must be published in compliant Open Access journals or platforms from January 2020.

Worldwide Meeting of Young Academies

After a first worldwide meeting of young academies in 2012 in The Netherlands, and a second in 2015 in Sweden, the [Third Worldwide Meeting of Young Academies](#) was hosted by the South African Young Academy of Science (SAYAS) with the GYA acting as co-organiser. For the first time, this meeting took place on the African continent where the young academies movement is particularly active. The meeting brought together representatives from more than 35 young academies as well as from young academy initiatives, and resulted in the joint statement on [“The role of Young Academies in achieving the UN SDGs”](#). The 2015 meeting had already featured a panel discussion between young and senior academy representatives on the role of science in sustainable development, and this issue then featured prominently in the 2017 meeting.

Generally, the meeting provided a platform for NYAs to exchange ideas and expertise, discuss successful activities and plan for future networking and cooperation. Meeting participants emphasised that young academies play a very important role in influencing policy development

and providing advice to national governments. However, they are also facing a number of challenges which might impact their future activities. As the young academy movement is still in its early days, processes will have to be found to make the young academies' work more sustainable and to consolidate their influence within the science-policy-society nexus. Moreover, engagement in science-for-policy advice requires a good set of specific skills and knowledge of policy processes as well as diplomatic skills.

Planning and organisation for the [Fourth Worldwide Meeting of Young Academies](#) in Vietnam in 2019 has now begun, with the GYA taking on the role of co-organiser and the Vietnam Young Academy acting as the host academy. Ten NYAs and NYA initiatives have nominated one member each to the Programme Organising Committee for this meeting, thereby ensuring that the meeting agenda will reflect the global nature of these meetings.

My participation in the Worldwide Meeting of Young Academies in South Africa in 2017 provided me an insight about different modalities for establishing and functioning of National Young Academies. Based on this experience, we are collecting constitutions from different countries and working with the Nepal Academy of Science and Technology (senior academy) to formally establish the National Young Academy of Nepal. We are also seeking technical support and guidance from GYA and its members. GYA's support and guidance so far, as well as the motivation we have been receiving from other NYAs, has been instrumental in this process.

Meghnath Dhimal, Nepal NYA Initiative & GYA member

3.4. Strategic Target 4

TARGET 4: Provide benchmark reports on science policy topics relevant for young scientists

Goal 1: Issue statements and reports regarding developments and practices in science across the globe, including equality, mentoring, and merit-based academic reward systems with the aim of improving the scientific enterprise internationally. The GYA will empower young scientists to propose and promote the development and implementation of novel approaches in science and policy development with a particular focus on inclusive decision-making.

GYA ACTIVITIES

Fundamental Research

The GYA working group on the "Importance of Fundamental Research" published a case study report on [fundamental research funding in Canada](#) in June 2017. The report received extensive attention from the media and policy-makers in Canada during a vital phase of policy development in this country. The group's work on a global report with survey data from a number of countries continued in 2018.

Assessing Excellence

The long-running GYA working group on “[Scientific Excellence](#)” (formerly: Optimising Assessment – Promoting Excellence) looks at scientific systems worldwide with the aim of suggesting potential ways of improving the situation for (young) scientists.

More information about projects and publications of the Scientific Excellence group is expanded below.

Open Access worldwide

A lack of access to research software, mainly in developing countries, is hindering equal access to research opportunities and the reproducibility of research results. In 2018, the GYA published a report on “[Global Access to Research Software: The Forgotten Pillar of Open Science Implementation](#)”, based on a global survey undertaken by GYA members.

Words of Wisdom

In 2016, a group of GYA members published “[Words of Wisdom](#)”, a collection of advice from academic mentors from around the world. PhD students and postdoctoral researchers often receive words of wisdom from their supervisors that stay with them for the rest of their lives. Good advice at the right time can make a huge difference to early-career researchers. The project gathered outstanding examples of supervisors’ advice and published a book and [online resource](#) that is freely available worldwide. The publication generated positive feedback from young researchers across the world:

“Strangely moving to see so much good advice for others, from so many disciplines and so many countries. Gives a glimpse of what Global Young Academy meetings must be like. [...] Beautiful looking book too. Simple, elegant. Thank you for sending me a copy.” (a reader, 2016)

Scientific Excellence

The GYA working group on “[Scientific Excellence](#)” runs a number of small-scale projects to identify which indicators are used to measure excellence in science and what kind of work environment would be most suited to help foster curiosity and creativity in science. A workshop on “Publishing models, assessment, and open science” will lead to a brief publication including some recommendations on open access models and the use of pre-print servers (forthcoming in 2018).

The group also engages with a number of partner organisations, with members of the group actively participating in the EuroScience Open Science Fora since 2014. They have provided feedback to ALLEA on “The European Code of Conduct for Research Integrity – Revised Edition” (2017) and given input to a study by the US National Academies of Sciences (US NAS) on “Reproducibility and replicability in science and engineering” (2018). Members of the group are part of the IAP project on “Evaluating Research: Assessment and Improvement of Current Practice” (forthcoming).

TARGET 4: Provide benchmark reports on science policy topics relevant for young scientists

Goal 2: Build and maintain a global database of quantitative and qualitative information regarding the state of young scientists around the world. The Global State of Young Scientists (GloSYS) project collects qualitative and quantitative information on the situation and environment of young scientists. The GloSYS database will contain information from all major regions in a standardised format.

GYA ACTIVITIES

The Global State of Young Scientists

The [Global State of Young Scientists \(GloSYS\)](#) project examines the challenges young researchers face around the world. Following an international GloSYS pilot study, the GloSYS ASEAN study was completed in 2016, and a GloSYS Africa research project is currently underway in 14 African countries and the diaspora.

The impact and further development of this GYA project is described below under Target 4; Goal 3.

TARGET 4: Provide benchmark reports on science policy topics relevant for young scientists

Goal 3: Encourage and facilitate GloSYS projects focusing on the state of young scientists in specific countries or regions. GloSYS reports can empower local young scientists to demand attention for and improve local conditions.

GYA ACTIVITIES

GloSYS ASEAN

The [final report on GloSYS ASEAN](#) – which explored the conditions for young scientists and scholars in four ASEAN countries – was presented in January 2017. This study achieved high-level impact on policy in the region. After being presented at the ASEAN Sub-Committee on S&T Infrastructure and Resources Development (SCRID) in April 2018, the report was used as the evidence base to support the launch of the ASEAN Young Scientists Network. This network was later endorsed by the ASEAN Committee on Science and Technology (COST).

GloSYS Africa

Currently, the third and largest GloSYS study is underway in Africa. Although GloSYS Africa is funded through a BMBF project separately from GYA core funding, it is nonetheless a key GYA project, which should be mentioned in the context of the development of the Academy. GloSYS Africa collects data on early-career researchers in 14 African countries and in the African diaspora to investigate the context in which young African researchers today work, and the challenges and motivations that shape their career trajectories. Particular themes of interest include access to funding and infrastructure, mobility, mentorship, and gender. As of August 2018, the GloSYS Africa research team had collected over 1,000 survey responses and nearly 50 hours of interview data from early-career

researchers in Africa and the African diaspora. The anticipated release data of the full GloSYS Africa report is June 2019.

More information on GloSYS Africa is expanded below.

Further development of GloSYS

The GYA is currently working on developing a funding proposal for a fourth GloSYS study, with a focus on Latin America and the Caribbean. GYA members are contributing their expertise, and a preliminary look into the conditions and potential stakeholders in this region is being undertaken.

GloSYS Africa

Throughout the project, the team has engaged with a variety of stakeholders. GloSYS Africa was presented in an interactive session at the 2018 Next Einstein Forum Global Gathering in Rwanda in March 2018. As one of the largest gatherings of scientists in Africa to date, this conference was an ideal opportunity to increase the profile of the project and engage with interested stakeholders, including representatives from the African Union (AU), regional bodies, and university administrators. The GloSYS Africa project has already garnered media attention, with articles published in *University World News* (see [here](#) and [here](#)) and [The Conversation Africa](#) (later reposted on other news sites, such as [here](#)). This early interest in the project is an indication of the need for cross-national data on young scientists in Africa, and a strong interest in using evidence to develop policy for higher education and science and technology policy. In line with the two GloSYS projects that came before it, the GloSYS Africa project is thus poised to make a real impact.

TARGET 4: Provide benchmark reports on science policy topics relevant for young scientists

Goal 4: *Develop and foster opportunities for GYA and NYA members and alumni to participate in global committees, speaking engagements, and other opportunities that move the state of science forward.*

GYA ACTIVITIES

The GYA is requested by its regional and global partners at an increasing rate to nominate a candidate or candidates with specific expertise to, e.g., speak at an international conference or participate in an international committee. Depending on the nature of the request, the GYA nominates its members, and/or candidates from NYAs or young scientists nominated by members, alumni and NYAs. To facilitate and regulate the internal selection process, a member-led Nominations and Opportunities Committee was initiated in 2017 (see 4.1.4. Committees).

For a full list of nominations since 2017, see Annex 12.

3.5. Strategic Target 5

TARGET 5: Serve as an outstanding example for interdisciplinary, intergenerational, collaborative, and cross-cultural dialogue in science
Goal 1: <i>Continue to hold the International Conference of Young Scientists on a yearly basis and use innovative meeting and outreach formats to stimulate interdisciplinary, intergenerational, and intercultural dialogue and collaboration.</i>
GYA ACTIVITIES Annual General Meetings and International Conferences for Young Scientists GYA Annual General Meetings (AGMs) and International Conferences are the main forum for GYA members from across the world to communicate, exchange ideas, and enter into collaborative projects. Throughout the rest of the year, the connections, plans and projects initiated at these annual meetings fuel members' motivation to continue cross-disciplinary, international projects across distances. The GYA has held annual meetings and conferences in different countries since 2011, alternating between low/middle-income and high-income countries. <i>More information about AGMs and International Conferences is expanded below.</i>

Annual General Meetings and International Conferences for Young Scientists

AGMs are combined with an International Conference for Young Scientists, designed by a team of GYA members, to facilitate international and interdisciplinary debate around a theme of global relevance. In this context, the event strives to engage local and regional researchers, and increase the visibility of young scientists in the host country. An additional important feature of the annual conference is the participation of policy-makers and senior representatives of the international science management and policy community who contribute their expertise, and enter into dialogue with GYA members over the course of the meeting.

AGMs and conferences have successfully taken place each year since 2011, despite a lack of permanent funding for this purpose. Past AGMs have been held in Berlin, Germany (2011), Johannesburg, South Africa (2012), Halle (Saale), Germany (2013), Santiago, Chile (2014), Montebello, Canada (2015), Eindhoven, The Netherlands (2016), Aviemore, UK (2017), and Pattaya, Thailand (2018). The 2016 AGM in Eindhoven was originally planned to take place in Turkey, but was moved at the last minute due to political unrest.

The impact of GYA AGMs and Conferences can be measured by specific outcomes and outputs – e.g. new working groups formed, projects initiated, statements and reports published. However, the effects of the intense interdisciplinary, international exchange that takes place at these events reaches beyond these numbers. Each year since 2011, on average 86 GYA members and a handful of alumni representing a wide variety of disciplines and countries around the world have met and collaborated. In addition to the many productive outcomes described in the GYA activities section of this report, the effect of these meetings in members' own words adds a richer understanding of the meetings' atmosphere and impact:

The GYA is unlike any other organisation I have been a part of. This is most felt at the AGM where I'm continually inspired by such a diverse group of talented, emerging leaders who each bring an endless supply of enthusiasm and dedication to working together as a global community.

Ali Douraghy (USA, Nuclear Medicine and Medical Imaging), UK 2017

Today, our world faces many challenges that absolutely require international and interdisciplinary solutions. By attending the 2017 AGM as a new member, I realised that the GYA is an ideal path for tackling those challenges through interactions with colleagues from diverse backgrounds.

Wataru Iwasaki (Japan, Bioinformatics), UK 2017

I am motivated to tackle medical challenges and my passion is to develop novel therapeutics for patients. I believe that cross-disciplinary collaboration is important to create such innovation. The 2018 AGM gave me an opportunity to work with many talented scientists with diverse expertise from around the world to create projects and exchange ideas. By building a collaborative approach, we will be able to make an immediate and meaningful impact to our world.

Soracha Thamphiwatana (Thailand, Nanoengineering /Nanomedicine), Thailand 2018

The number of smart ideas and fascinating research I've encountered at the 2018 GYA AGM will inspire for a long time: from shark protection in the Mediterranean, to smart cement, astrophysics, history of migration in Cambodia, cheap solar cells, homemade flood warning sensors. No other conference is this enriching - members should try to attend all five conferences (and then attend even more as alumni).

Robert Lepenies (Germany, Political Science & Political Philosophy), Thailand 2018

TARGET 5: Serve as an outstanding example for interdisciplinary, intergenerational, collaborative, and cross-cultural dialogue in science

Goal 2: Actively seek opportunities to further understand, develop and contribute best practices regarding interdisciplinary, intergenerational, and intercultural collaborations in science policy, policy for society, science education, and innovation.

GYA ACTIVITIES

Almost all GYA activities are interdisciplinary and intercultural by nature: the GYA's North-South Interdisciplinary Grant harnesses the potential of bringing diverse GYA members together, with an annual, competitive grant for innovative pilot projects.

Furthermore, GYA members and alumni engage in science outreach activities around the world, in order to address persisting differences in capacity, resources and expertise between low/middle and high-income countries. Outreach activities promote efforts to bridge this international scientific gap by facilitating scientific, cultural and educational interactions. The projects under this theme are wide-ranging and are not limited to traditional educational pathways.

Interdisciplinary research pilots: the GYA North-South Interdisciplinary Grant

This grant scheme supports the development of small-scale, innovative, curiosity-driven, blue-sky, exploratory research pilots or prototypes that unite GYA members in low/middle-income and high-income countries and across disciplinary boundaries. Each year, the GYA grants up to 10,000 EUR to the selected project.

More information about past and current Interdisciplinary Grants is expanded below.

Expedition Mundus

One of the three GYA activity themes is Science Education and Outreach. Here, members are currently active in three working groups. For example, the GYA's "[Expedition Mundus](#)" group supports the global dissemination of the science game Expedition Mundus. GYA members continue to take this science-based exploration game as a science education tool to various countries, e.g. to Thailand, the Philippines, Malaysia and Cambodia in 2017. The game was developed by the Dutch Young Academy in 2011, and is now available in seven languages. Many of these translations have been compiled by NYAs, e.g. the Hebrew version by the Israel Young Academy in 2017.

Young Scientist Ambassadors

The GYA's "[Young Scientist Ambassador Programme](#)" (YSAP) working group strengthens cooperation between scientists in low/middle and high-income countries. The group organises and funds ambassadorships whereby GYA members travel between low/middle and high-income countries, transferring expertise and knowledge and otherwise increasing engagement between countries at different stages of scientific development. The aim is to create collaborations. Since its inception in 2010, the YSAP has funded 16 missions, which have produced interactions between 22 nations and more than 1,000 scientists, students or high school students.

Members of the group also conduct volunteer outreach activities, e.g. participating in Skype-a-Scientist sessions with schoolchildren. A "[Science Caravan for Peace](#)" in May 2018 brought together GYA members from the YSAP group and the Science Education for Youth group for four workshops in Cambodia.

Science Education for Youth

Members of the "[Science Education for Youth](#)" working group run individual science education activities in their national contexts, e.g. a scientific writing workshop in Vietnam or a workshop on food security in Cambodia. Moreover, the group is working on creating a "Learning Space" platform on the GYA website, which will provide teaching material for science outreach activities in the future.

Citizen Science

In July 2018, an Incubator group on "[Citizen Science for the UN SDGs](#)" was formed, aiming to harness the potential of citizen science as an approach for increasing the GYA's public engagement with the UN SDGs.

Interdisciplinary research pilots: the GYA North-South Interdisciplinary Grant

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Following a selection procedure by the GYA internal review committee, the 2018-19 GYA North-South Interdisciplinary Grant was awarded to Suzanne Bouclin (Canada) and Binyam Sisay Mendisu (Ethiopia) for the research project proposal on “Can Digital Storytelling be used as a Tool for Countering Language Endangerment?”

Beyond the scope of initial research, past grants have also resulted in educational outreach, lasting institutional partnerships and spin-off activities. For example, work conducted for the 2015/16 grant project “[Connecting epigenetics and natural resources](#)“, created great momentum and interest among GYA members in connecting biomedicine and biodiversity, giving rise to the working group “[Biodiversity for Survival via Biomedicine](#)”.

Current and past grant recipients and projects

2018/19: [Can Digital Storytelling be used as a Tool for Countering Language Endangerment?](#)
 2017/18: [Biochar for food security and sustainable ecosystem services](#)
 2016: [Ethics in environmental decision-making: From individual acts to global outcomes](#)
 2015/16: [Connecting epigenetics and natural resources](#)
 2014/15: [One-dimensional molecular current wires using tailored-to-the-purpose chemistry](#)

Receiving the North-South Interdisciplinary grant from GYA provided me with an opportunity to do a research project beyond my own comfort zone. It allows me to find a solution to one of our societal concerns by thinking outside of my own research field and by linking with other disciplines. I think most of our societal concerns are multi-disciplinary in nature, and GYA has just provided a platform to create solutions.

Thomas Edison dela Cruz (Philippines)

The interdisciplinary grant provided me with the enriching experience to learn something new beyond engineering, in philosophy and ethics. Beyond results - I continue working on data to resolve our research question - I had the opportunity to get to know a great man and thinker, fellow GYA member Jan-Christoph Heilinger. Through him, I could learn about ethics applied to numbers and engineering. I hope to show our results in the next conference.

Alex Godoy-Faúndez (Chile)

I could not believe it, but thanks to North-South interdisciplinary grant, I was supported for what has become a turn in my whole career. Interdisciplinary collaboration with a like-minded researcher from a different discipline and from very far away, allowed me to step away from the well-defined research track to look for the path of the heart.

Alexander Kagansky (Russia)

TARGET 5: Serve as an outstanding example for interdisciplinary, intergenerational, collaborative, and cross-cultural dialogue in science

Goal 3: *Make its data, reports, and templates as much as possible freely accessible, in order to support and promote Open Science and Open Source movements.*

GYA ACTIVITIES

All GYA publications are published digitally and freely accessible online. In addition to this, GYA members are active in the open science movement worldwide: GYA recommendations regarding the assessment of scientific excellence and Open Science continue to generate interest in various international fora.

Open Science

GYA members have been actively participating in the global (and European) Open Science dialogue since its inception. A statement on "[Making Open Science Possible](#)" was published in 2012, identifying obstacles to true open science at that time. Over the years, the GYA remained a constant contributor to Open Science discussions, especially at the European level. Since 2016, a GYA alumna has been serving on the European Commission's Open Science Policy Platform (OSPP), opening a direct pathway for GYA advice into the policy sphere.

More information about GYA involvement in open science dialogues is expanded below.

Open Access

The lack of access to research software mainly in developing countries is hindering equal access to research opportunities and the reproducibility of research results. From 2015, a group of GYA members focused on this need to ensure equitable global access to research software in the spirit of Open Science. A survey report on "[Global Access to Research Software: The Forgotten Pillar of Open Science Implementation](#)" was published in March 2018. It shows that researchers in developing countries overwhelmingly rely on proprietary software and that a lack of access to software significantly affects research content and networks, and makes recommendations on how to improve the situation, e.g. by raising awareness and knowledge of Free and Open Source Software (FOSS) alternatives.

Open Science

Since 2016, the GYA and the JRC are not only regularly cooperating in the field of science advice, but also in the field of open science. The European Union (EU) strives to set new standards in scientific publishing which have considerable overlap with the perspectives developed in the GYA working group on "[Open Science](#)". The GYA's involvement via one of its alumnae in the European Commission's OSPP helps to include the perspective of early-career researchers in the concepts of new publication structures, which are of utmost importance for building up the careers of young scientists and might even serve as examples for new publishing models in other regions of the world.

Moreover, the GYA is a partner in the Faculty for 1000 (F1000) proposal to deliver the European Commission's Open Research Publishing Platform (2018).

The field of Open Science is proving to be a fertile area for joint statements with NYAs, e.g. the position statement on "[Open Access](#)" and one on "[Open Data](#)" with the young academics of

Europe in 2016. European NYAs have recently nominated members to draft a joint statement on Plan S, the plan by the European Commission and some of Europe's biggest funding bodies to only fund open access publications from 2020 onwards.

Following the GYA's "[More Open Access Pledge](#)" in 2016, over 320 early and mid-career researchers from around the globe pledged to submit at least one manuscript to an Open Access outlet by the end of 2016. As a direct result, GYA member Anna Coussens succeeded in negotiating open access for the first six months after publication for a 2017 special edition of *Photochemical & Photobiological Sciences*.

4. Supporting structures and actions

4.1. Governance and internal structures

The GYA is a member-led and member-driven organisation. The general assembly of the membership is the highest governing body, but members are represented year-round by an Executive Committee (EC) with two Co-Chairs.

4.1.1. Constitution

The aims, structure and procedures of the GYA are described in its [Constitution](#) (see Annex 3). The initial constitution was drafted at the foundation workshop held in Berlin in February 2010, revised with the help of expert legal opinion and adopted by the membership shortly afterwards. Reflecting the growth of the organisation, major changes were voted on by GYA members in 2014. Membership terms were aligned with the Annual General Meetings and extended to five years (previously four), the roles of the GYA Office and Managing Director were described, and the Advisory Board and the Nominations and Elections Committee were introduced. GYA members voted on further constitutional changes in an online “Special General Meeting” procedure in 2017. The most substantial change introduced was the possibility for GYA members to take a one-year leave from active membership, during which their rights are identical to those of GYA alumni. The reason for this proposal was to support GYA members interested in not missing out on opportunities due to circumstances that temporarily prevent them from actively contributing to the organisation (e.g., maternity/paternity commitments, illness).

A member-led constitutional committee mediates any contentious issues regarding the constitution or related procedures.

4.1.2. Executive Committee

Each year at its AGM, GYA members elect an [Executive Committee](#) consisting of two Co-Chairs, one representing a low/middle income country and one representing a high-income country, and nine additional EC members. The EC reflects the geographic, cultural and disciplinary diversity of the membership. The EC holds virtual meetings once a month to discuss GYA business, prioritise tasks and approve GYA documents and proposals. Since 2014, core funding from the German Federal Ministry of Education and Research (BMBF) has allowed the EC to meet in-person once a year, in addition to in-person meetings at Annual General Meetings. In October 2017, the EC convened in Halle (Saale), Germany, at the Leopoldina and GYA Office. Throughout the constructive two-day meeting, EC members discussed progress with respect to GYA strategic aims, virtually met with the GYA Advisory Board, and liaised with regional and national politicians, science administrators, and academy representatives. An in-person meeting of the 2018/19 EC took place in Halle (Saale) in September 2018, and included an in-person Advisory Board meeting with new AB members and outreach to local research institutions, local and national policymakers in Halle (Saale) and in Berlin, Germany, and science attachés from embassies in Berlin.

With each passing year, the EC has developed new initiatives for more effective governance and work practices. An EC-to-EC transition meeting at the end of each AGM ensures that institutional knowledge and experience is passed on. Since May 2017, the EC has organised itself in a portfolio structure, meaning that every member of the leadership team takes on responsibility for a certain theme or area of work. Important portfolios look at the development of the GYA’s working groups, externally funded projects, the engagement with the NYA network, the enhancement of GYA

diversity, the Academy's public relations work and visibility, as well as fundraising. The Co-Chairs coordinate and lead the portfolio teams and develop external partnerships. A comprehensive overview of current and past EC members can be seen in Annex 2.

4.1.3. Advisory Board

The GYA's Advisory Board (AB) comprises eminent and internationally distinguished scientific leaders who have demonstrated a passion for supporting the development of early-career researchers and scholars. The role of the GYA AB is to advise the EC with respect to the development, activities, public promotion and general operations of the GYA. Co-Chairs and the EC may consult with the AB at any time, and the board members are invited to attend the GYA Annual General Meetings and the annual EC in-person meetings. Based on preparatory work of its predecessors, the EC 2014/15 developed and adopted Rules and Regulations for the GYA Advisory Board, in consultation with the board members. The term of AB members was agreed to be three years, with an option for a second term. The AB shall comprise a maximum of nine members selected from diverse disciplines, career backgrounds and nationalities, and elected by a unanimous vote by the current EC.

After the terms of four long-standing Advisory Board members expired in early 2018, four new AB members were successfully recruited. The current AB is composed of eight members from Europe, North America, Asia, Africa, South America and the Middle East (see Annex 6).

In 2018, the GYA held its first dedicated in-person meeting of members of its Advisory Board with the current Co-Chairs, the GYA Managing Director and one of the Project Officers. At the meeting, board members used the opportunity to obtain better insight into the practical work and challenges of the GYA, while the GYA obtained diverse and valuable, targeted advice on several GYA challenges discussed, including fundraising and strategic network-building. The most recent in-person meeting with the AB was connected to the EC in-person meeting in Germany in September 2018.

Having been associated over the years in various ways with a large number of national and regional academies I am most struck by the incredible dynamism, sense of purpose and commitment of the GYA, both as a body and of the individual members. It gives me enormous optimism for the future of science and society to see the GYA bringing together such an inspiring group of researchers from across the globe and from such a wide range of disciplines. My own special focus is on building science in the African continent and it is a particular pleasure to see such strong and vibrant African representation in the GYA and this in turn is acting a stimulus to the formation of young academies in many countries across the continent, where perhaps more than anywhere else, the future depends critically on its young leaders.

Professor Kevin Marsh, African Academy of Sciences and University of Oxford, GYA Advisory Board member

4.1.4. Member Committees

Member committees represent an important column of the GYA's member-led governance. Committees ensure that procedures, e.g. peer-review, new member selection, or elections, run fairly and smoothly but also undergo reflection and adaptation by and for members. In addition to members, GYA alumni play an important role in several committees: the membership selection, review and fundraising committees draw on a pool of volunteer alumni's experience and support in their work.

Due to an increase in instances in which the GYA is requested to nominate a candidate with specific expertise to, e.g., speak at an international conference or participate in an international committee, the 2016/17 EC established a **Nominations and Opportunities Committee**. This committee selects GYA members or other young scientists and scholars for opportunities based on a call and application system. The committee was launched following the 2017 AGM, and since strives to establish fair review procedures, and provide feedback to all applicants.

The **Fundraising Committee** works continuously to expand the current GYA core funding by establishing and maintaining contacts to relevant partners. Committee members also encourage GYA members to assist with these fundraising endeavours by soliciting ideas for potential funders, and working with members to approach the right funding bodies to support GYA activities. The committee liaises closely with Advisory Board members and alumni with fundraising experience, as well as with professional fundraisers.

The **Review Committee** reviews internal funding requests (e.g. of GYA working groups, or Interdisciplinary Grant applications), but also has a stream which coordinates peer review of all GYA statements and reports which are released into the public domain.

The **Member Selection Committee** is the largest GYA committee (ca. 40-50 members, reconstituted each year), and evaluates member applications each year on the basis of a well-established, multi-staged evaluation procedure. In May 2017, the previous chair of this committee, Julia Baum (Canada), handed over this responsible position to Maral Dadvar (Germany), who has provided a letter outlining the work of the selection committee in Annex 9.

It is our continuing goal to improve the selection process from all aspects. We believe that by making use of the inputs, critical suggestions, and experiences of all the GYA members, who themselves once been through this process, as well as addressing the shortcomings that we face every year, we will enhance the selection process towards achieving our desired objectives and the GYA mission.

Maral Dadvar (Germany, Computer Science)

Implemented by the GYA Office, a new electronic application form facilitates the processing of application data and statistical analyses for the committee.

Resulting from the desire to strive for ever greater diversity within the GYA, the **Membership Diversity Committee** was re-instituted in 2017, and led efforts to support spreading the member call. With the help of GYA member volunteers, a flyer advertising the call for applications was translated from English into the other five UN languages – French, Chinese, Arabic, Spanish and Russian. In particular, statistical analysis in 2017 had shown that GYA membership was underrepresented in Francophone Africa and Latin America, geographically, and in the social sciences, overall. With these deficits in mind, the Diversity Committee and the GYA Office made a concerted effort to reach out to networks in these regions and disciplines.

Due to these and further strategic efforts, the calls for new members to join the GYA in 2018 and 2019 motivated a record number of early to mid-career researchers to apply for membership. The GYA received 402 applications for 2018 and 415 for 2019 membership. Application numbers from previously underrepresented regions and the social sciences increased. Approximately 40 per cent of applicants in the past two years have been women. As there are no reliable global statistics showing how many women are in the course of building careers in the many different research-based disciplines, the GYA is not in a position to compare its membership statistics with the overall number of women scientists globally. Despite this difficulty in assessing the situation, the GYA aims for gender parity in its membership, beginning with excellent applicants.

The Diversity Committee is currently working closely with the EC to critically reflect on how the organisation measures diversity and with which consequences, with regard to regional as well as disciplinary diversity, in order to continuously improve GYA practices. Relatedly, at the recent 2018 AGM, GYA members formed an [Incubator group](#) to work towards creating a safe space to discuss issues related to the various levels of discrimination faced by minorities in general and LGBTQ in particular within the academic world.

A complete list of existing GYA committees and their remits can be seen in Annex 13.

4.1.5. Working Groups and Incubators

As of September 2018, GYA members collaborate in 14 active working groups (WGs) and 4 Incubator groups (see Annex 10). All in all, 160 members (80 per cent) are involved in a WG or Incubator, and 34 of those serve as group leads (of these, almost half are female). Half of the current GYA membership is active in more than one group, with one-third of members engaged in more than two groups. Approximately 5-10 per cent of alumni stay on to actively advise groups of which they used to be a member.

To make it easier for members and new members in particular to engage with current GYA activities, a GYA working group Fair was held for the first time at the 2018 AGM. Groups presented recent outcomes and planned activities on posters, and entered into conversation with AGM participants to improve collaboration.

Also in 2018, internal GYA Guidelines for working groups and Incubators were compiled as a support document for group leads; providing information on the running and administering of a working group, output publishing and dissemination processes, and travel funding reimbursement.

4.1.6. Annual General Meetings

In addition to the networking and idea-generating function of Annual General Meetings and International Conferences (Target 5), fundamental constitutional and organisational procedures of the GYA are enacted and discussed at its AGMs. These include electing leadership, developing the GYA Constitution and taking major policy decisions about the future development of the GYA.

As GYA AGMs are not included in the core budget, local fundraising and organisation is a necessary part of these events. A local organising committee (LOC) works on local and regional fundraising as well as on-site event issues, such as the venue, and educational, community and science policy outreach. These members cooperate with a programme organising committee (POC) – a volunteer group of GYA members who help shape the conference and AGM programme – and the GYA Office to facilitate the event. This means that each AGM is made possible by major voluntary involvement of GYA members in each host country and their partners, as well as by local donors and partners. In addition, the IAP has so far supported all AGMs with travel co-funding for members from low/middle-income countries. The GYA is currently working with professional fundraisers and its Fundraising Committee towards more sustainable funding for AGMs, as the burden of local fundraising can be very high.

4.1.7. Administrative Office

Starting with the current funding period in 2017, the GYA was re-located from Berlin to an [Office](#) in Halle (Saale), Germany, under the auspices of the German National Academy of Sciences Leopoldina. By the end of 2017, the GYA had established a core team of professionals at its Office: a Managing Director, two Project Officers (one part-time), part-time Media and Press

Officers, a full-time Accountant and a part-time Assistant. Overall, the role of the GYA Office is to support the professionalization of activities initiated and driven by GYA members.

The Managing Director, Dr Beate Wagner, oversees the Office team and its activities, maintains and develops strategic relations, and liaises with the Executive Committee. The Managing Director also guides strategic development of the GYA, strengthens national and international networking, and offers guidance and institutional memory to the annually elected leadership.

The Membership and Finance Officer is the accountant for all GYA financial transactions, reports to donors and GYA leadership, liaises with Leopoldina bookkeeping, manages membership data and statistics, and assists with the new member application process and new member integration. A part-time Office Assistant supports the entire team and executes travel bookings and reimbursements.

Since 2017, the GYA enjoys the support of two Project Officers, who work closely together to support expanding member activities. The Project Officers coordinate and support activities of GYA working groups and the GYA's engagement with and support for the global network of National Young Academies. They also support GYA activities related to the UN SDGs and the external partner project on "Strengthening African Academies" (until 31 December 2018). Furthermore, they provide support for the GYA's large externally-funded projects, for nomination calls and for member-led committees in organising the GYA's AGMs and International Conferences.

A part-time Media Officer coordinates website updates, facilitates online tools for members, coordinates mailing lists and server infrastructure, works towards establishing a database, and addresses new European data protection regulations.

A part-time Press Officer strategically approaches public relations and a communications strategy, and facilitates the procedure of regular publications, such as the GYA newsletter, the newly established Quarterly Bulletin and annual reports.

In addition to its regular staff, the GYA currently employs two student assistants, and occasional interns dedicated to specific projects. Funded by a separate BMBF project, but also part of the GYA Office team, are the GloSYS Research Officer and student assistant, who centrally coordinate and support the GloSYS Africa project and, are coordinating member involvement in a GloSYS Latin America proposal.

4.2. The GYA's contribution to the science community in Germany

Historically, Germany is the home of the beginnings of the young academy movement. More than 20 years ago, the Leopoldina and the BBAW established "Die Junge Akademie" because they recognised the necessity to give early to mid-career scientists and scholars a voice in Germany. Ten years later, these academies supported the founding of the GYA, expanding their support of young scientists from the national to the international level. The BBAW hosted the GYA Office in Berlin (2011-2016) and served as a legal umbrella, lending administrative support in cooperation with the Leopoldina. Since 2017, the GYA is being hosted by the Leopoldina in Halle (Saale). The GYA's location in Germany and support from German academies provides a solid footing for effective work on the international stage.

GYA cooperation with the German science community continues to be of mutual benefit. Hosting the GYA administrative Office places Germany in a leading role for international science, and expands goodwill amongst a key constituency of future leaders in science from around the world. Support from the BMBF and the Leopoldina is mentioned in all GYA publications and presentations, e.g. at the at the Next Einstein Forum 2018 in Ruanda, one of the largest science

meetings in Africa, or at the ALLEA General Assembly which lastly convened at the Bulgarian Academy of Sciences in Sofia in May 2018.

Relevance to German science policy

The GYA's global mission synergizes with the goals of German science policy and the related international mission to enhance the effectiveness of science in discovery and impact on society. The GYA's Global State of Young Scientists (GloSYS) project provides important background information for German foreign science organisations and policy (see Target 4; Goal 3). Further, combining the international relations of the German academies and the international networks and outreach of the GYA continues to benefit all academies involved. Both the GYA and the Leopoldina, for example, maintain close ties with science academies on all continents, and academy networks, such as the IAP, where the Leopoldina is a member and the GYA has applied for membership (2018, outcome pending).

The GYA and its German host academies BBAW (until 2016) and Leopoldina have started to fruitfully bring their international networks together. GYA members are active at ALLEA conferences, lately (May 2018) by presenting a well-received video on the theme of trust in science. The European Academies' Science Advisory Council (EASAC), which is hosted at the Leopoldina, has begun to invite GYA members to join EASAC working groups and facilitated the contact between the GYA and the JRC.

From 2015-2018 the GYA and the Leopoldina have formally cooperated in the BMBF-funded "Strengthening African Academies" project, where they bring together their networks with senior and young academies in Africa respectively.

The GYA's cooperation with the European Commission's Joint Research Centre (JRC) is of high relevance for German foreign science policy. This cooperation began with the co-organisation of a brainstorming workshop on so-far undetected global challenges in 2014 (see Target 1, Goal 3). Over the years, GYA members have participated in and contributed to a number of JRC-organised events and publications, thereby ensuring the voice of young scientists is included in the development of science advice. Interactions included, among others, GYA participation in the JRC Annual Meetings, or the launch of the JRC's report on "Science for the African Union-European Union Partnership: building knowledge for sustainable development" in 2017. The GYA also provided feedback to the European Commission's Directorate-General for Research and Innovation's consultation in April 2017, about Horizon2020 and the direction a new framework programme (FP9) should take.

Internationalisation of the German science community

The GYA is well-connected with the major internationally-oriented German science organisations and foundations. Through its projects and member activities, the GYA has made significant contributions to the internationalisation of the German science community: hosting international events in Germany and/or bringing international GYA members to events in Germany; providing international leadership experience to young German scientists; and cooperating with German science organisations and foundations in ways which reinforce and support German foreign science policy.

International meetings in Germany

Major international meetings of the GYA have been held in Germany, including the founding workshop in 2010, the first Annual General Meeting in 2011 (Berlin) and the third AGM in 2013 (Halle (Saale)). The GYA's next International Conference of Young Scientists & Anniversary Annual

General Meeting will take place from 29 April - 3 May 2019 in Halle (Saale), addressing the theme “Re-Enlightenment? Truth, reason and science in a global world”. These and smaller meetings, such as the GYA-IAP workshop on Solid Waste Management and Green Economy in October 2015, and Executive Committee meetings in 2017 and 2018 in Halle (Saale) bring excellent international young scientists and scholars to Germany, who themselves stand to take on future leadership roles in the global science community.

International leadership experience for young German scientists

Early to mid-career scientists and scholars living and working in Germany have always had a high level of representation among the GYA membership. There are presently more than twice as many GYA members living and working in Germany as could be expected in relation to the population size of Germany. The GYA regularly encourages application by young German scientists for GYA membership, and disseminates its membership calls to major German science organisations (e.g. Max Planck Society, Helmholtz Association, Leibniz Association, and Fraunhofer Society).

Cooperation with German science organisations and foundations

German science organisations are privileged partners at GYA events abroad, such as the GYA's AGMs. In the long-term, such networking can encourage the inflow of scientific talent to Germany. For example, the GYA Office has regular communication and exchange with the leadership of the Alexander von Humboldt Foundation (AvH). AvH's Immediate Past President, Helmut Schwarz, was a member of the GYA Advisory Board until 2017. In 2018, Ulrike Albrecht (former head of Strategic Planning and External Relations at AvH) was elected to the GYA Advisory Board. The AvH Foundation's Philipp Schwartz Initiative is a supporting partner of the GYA At-Risk and Refugee Scholar Membership Initiative, a mentoring programme supporting young scientists and scholars fleeing conflict zones (see Target 2).

The GYA Office is in regular communication with the DAAD, to exchange information on projects and use opportunities for mutual support. Furthermore, contact with the leadership of the Volkswagen Foundation and the Lindau Nobel Laureates Meeting is upheld, and the GYA encourages these organisations to support membership applications by their best alumni from abroad, offering alumni of German academic programmes additional opportunities for networking, international impact and international leadership roles. GYA non-German members include quite a high number of AvH, DAAD, DFG, Marie Curie, Max-Planck and other alumni or fellows, with connections to German science organisations and foundations. Through the GYA, these alumni have further opportunities to develop their international networks and leadership competencies – hence contributing to German foreign science policy goals with a new tool for capacity building.

In addition to cooperating with the leadership of many of the high-profile German organisations in science, the GYA helps identify international participants for their events and programmes, thus supporting international outreach efforts, especially in countries where existing linkages are weak (see Annex 12 for most recent nominations).

GYA contributions to Saxony-Anhalt

Since its relocation to Halle (Saale), the number of GYA events held in Saxony-Anhalt have increased. The GYA's presence brings outstanding young scientists and scholars from around the world to Saxony-Anhalt – a recent example being the science media film festival “Silbersalz” in June 2018 – and introduces them to local science institutions and professionals. In addition, with its focus on science education and outreach, the GYA also offers links to its future outreach activities for the broader public and schools in Saxony-Anhalt.

The GYA's Annual General Meeting and International Conference for Young Scientists, as the main forum for GYA members from across the world to communicate, exchange ideas, and enter into collaborative projects, is one of these key events which will be held in Halle (Saale) in 2019. The 2019 conference topic will draw on the historical Enlightenment movement, which is particularly linked to the local history of Halle (Saale). Together with the Helmholtz Centre for Environmental Research (UFZ), the GYA is presently planning a panel on trust in (environmental) science. Furthermore, leading scientists from the Interdisciplinary Centre for European Enlightenment Studies (IZEA) at the Martin Luther University Halle-Wittenberg will also contribute to the programme.

Last but not least, the GYA employs three full-time and four part-time highly qualified staff and up to four student assistants. This adds to the international profile of the job market in Halle (Saale).

4.3. Communication strategy

Since late 2017, the GYA EC has worked with the Media Office (Media Officer, Press Officer and student assistants) on a structured communications strategy. Defining target audiences for different types of GYA communications and output was one of the first tasks. Since the AGM in 2018, a newly active member-led Communications Committee, with increased support from the EC, have worked towards developing and implementing a communications strategy, with a focus on developing the GYA brand, enhancing and implementing a social media strategy, and improving overall reach of communications.

Key communication channels and target audience are summarised in the table below. In addition to steadily increasing numbers of followers on social media channels (Facebook (nearing 5,000 followers, rate of increase since mid-2017 approximately 150 per month), Twitter (over 3,500 followers, rate of increase since mid-2017 approximately 100 per month), LinkedIn (newly opened)), GYA working groups have continually increased their output of videos: nearly 20 new videos were added to the GYA YouTube channel in 2018, resulting in over 500 views.

	Internal Newsletter	External Newsletter	Quarterly Bulletin	Connections Magazine	Website	Intranet	Social Media	Email Listservers	Opinion Editorial	Press and Media Release
Members/Alumni										
Partner Organisations (e.g. NYAs, IAP, TWAS)										
Young Scientist community										
Science community										
Stakeholder organisations										
Policy-makers (global, regional, national), NGOs										
Academic Media										
General Media										
Funders										
Society / General Public										

4.3.1. Newsletter, Quarterly Bulletin, and Year Report

A global organisation like the GYA would have difficulty functioning without modern communications technology; thus virtual communication (e-mail, web-conferencing and file-sharing) have been a part of internal and external communications since its early days. One supporting action of the GYA's strategic targets has been to streamline effective, professional communication, both with its members and alumni, as well as with its external partners.

As part of these efforts, the GYA has moved to issuing a monthly newsletter (internal and external versions), and introduced a [Quarterly Bulletin](#) in 2018. This communicates to external partners the strategic aims of the organisation, including recent publications, key meetings, GYA involvement in the UN SDGs, science leadership workshops and National Young Academy initiatives.

The GYA also publishes Year Reports, each detailing 12 highlight activities or publications from the previous year (see [Year Report 2017](#) as the latest example).

4.3.2. Website

Another supporting action of the GYA's strategic targets is the development of an internal website to encourage and facilitate communication and collaboration between members and alumni, as well as the effective functioning of working groups. With its larger professional staff since mid-2017, the GYA has been able to update and restructure its website to increase the visibility of GYA activities and themes and to facilitate internal use of intranet pages for GYA members. Overall, the GYA has also increased its overall content publication on the website since mid-2017, with 57 news publications in 2017 and 74 thus far in 2018. This reflects both increased activity of GYA members and increased capacity of GYA Office staff to solicit, edit and write reports and publish about these activities, in cooperation with members and working groups.

4.3.3. GYA Connections Magazine

The GYA magazine *Connections* has evolved from a bi-annual magazine featuring reports and editorials on various global issues alongside reports of GYA projects and events, to a topic-based annual journal, inviting GYA members to publish peer-reviewed articles on a broad theme of global importance, from their disciplinary perspectives. This new format was introduced by then editor, GYA member Rob Jenkins (UK) in 2016, with the publication of an edition focusing on [Open Science](#). In addition to the thematic focus, *Connections* continues to highlight key GYA projects and introduce new members. The most recent two issues of *Connections* explored the themes of [Water](#) (2017) and [Pollution](#) (2018).

The publication of *Connections* is a result of efforts by engaged members and the GYA Office. The lead editor (Anindita Bhadra (India) 2019; Marian Nkansah (Ghana) 2018; Rob Jenkins (UK) 2014-2017) solicits articles from members and alumni and co-ordinates the peer review process amongst selected, volunteer GYA member authors. Layout and editing of GYA *Connections* and other reports are co-ordinated by GYA staff, a process which has been facilitated with the addition of a Press Officer in late 2017.

4.4. Funding

4.4.1. Funding history

Early support and start-up funding: The IAP and German academies

The GYA, founded by young scientists and scholars, benefited from early support from senior academies and their networks. The InterAcademy Partnership (IAP), convener of the Young Scientists Forum at the World Economic Forum's Annual Meeting of the New Champions 2008 and 2009, has supported the GYA since its foundation, both financially and ideally. For example, the IAP has supported every GYA AGM from 2011 to 2018, with travel co-funding for members from low and middle-income countries, and often also supporting other AGM costs. Additional IAP grants have supported networking activities between the GYA, young and senior academies and other international partner organisations. In 2010, the German academies joined as early supporters of the GYA: the founding meeting of the GYA held in Berlin in February 2010 was co-sponsored by the IAP, the Leopoldina, the BBAW and the German Junge Akademie. Later in 2010, the IAP provided start-up funding for the GYA. At the same time, the German academies Leopoldina, BBAW and Junge Akademie supported and co-submitted the application for GYA seed-funding to the Volkswagen Foundation.

Seed-funding from the Volkswagen Foundation (2011-2013)

From 2011-2013, the GYA received a 220,000 € lump sum of seed-funding from the Volkswagen Foundation, which enabled the GYA to set up an Office hosted at the BBAW in Berlin, staffed by one full-time Managing Director from October 2011, and two student assistants. The BBAW provided office room, equipment, and infrastructural services, and supported the GYA together with the Leopoldina. This initial seed-funding expired in late 2013.

Another important and financially substantive funding source throughout this period was the covering of all local costs of the AGMs since 2011 by the respective host countries, as well as e.g. of the First Worldwide Meeting of Young Academies by the Dutch academies. Nearly all funding for other GYA activities and travel had to be fundraised from other sources (e.g. DAAD, BMBF, TWAS).

For 2013, the BMBF granted 100,000 € for conducting the GloSYS precursor study with a researcher based in the GYA Office. The Volkswagen Foundation complemented this project by hosting and funding the International Expert Workshop for this study (2013 in Hanover, Germany). The Robert Bosch Foundation was most interested in the Africa networks of the GYA and funded the First Africa Young Academies Regional Meeting in February 2014 with nearly 50,000 €.

Core funding from the BMBF (2014-2016)

The BMBF granted core funding for the GYA from 2014 for an initial three years. This substantial grant, with 930,000 € over three years (2014-2016), enabled a major qualitative improvement, as the GYA establishing a professional core team at the GYA Office based at the BBAW with a full-time Managing Director, a part-time Media Officer, a part-time Project Officer, and a full-time Assistant/Accountant. It was thus possible to professionalize and improve the GYA's support for growing member activities. This funding period saw a major push to the media work of the GYA through the Media Officer as well as the central coordination of working groups and activities through the support of the Project Officer. In addition, seed funding for the working groups enabled them to jump-start projects, often successfully applying for expanded funding from other

sources. The new opportunity for the EC to meet in person in between AGMs highly increased the quality of strategy and procedural development.

Annual General Meeting funding was excluded from the BMBF grant, but received continued support from the IAP (travel co-funding) and the host countries (during this period: 2014 Chile, 2015 Canada, 2016 The Netherlands). GYA members contributed substantially by paying or raising their own travel and accommodation funds.

In 2014-15, the GYA also received extra funds to conduct the GloSYS ASEAN study: ca. 66,000 € from the STI Policy Office in Thailand and 12,500 € from the BMBF Asia section. Joint projects also received external funding, e.g. from IAP, the JRC, and for the Second Worldwide Meeting of Young Academies in 2015 from the Young Academy of Sweden.

Core funding from the BMBF (2017-2020) - GYA at the Leopoldina

Core funding for the GYA by the BMBF was extended for a further four years from 2017-2020, connected with a move of the administrative headquarters from Berlin to Halle (Saale), Germany, under the auspices of the German National Academy of Sciences Leopoldina. Total core funding for the GYA from 2017-2020 amounts to 1,995,000 €. The budget supports an enlarged staff, office infrastructure, the website, some media work and publications, an annual meeting of the EC in Germany, seed money for working groups and the annual North-South Interdisciplinary Grant.

Further external funds were successfully raised for the AGMs in the UK (2017) and Thailand (2018). The fundraising activities for the 2019 AGM in Halle (Saale), Germany, are presently well underway. Agreements for 85.000 € have so far been made. Early fund acquisition clearly leads to a larger participation by members as they do not need to wait for the confirmation of requested cost-sharing agreements. The AGM in Thailand in 2018 saw the largest number of GYA members participating, in part because 30.000 € additional travel funding was secured (see Annex 5).

The GloSYS Africa study is funded separately by the BMBF, from 2015 to 2019 this amounts to 425.363,94 € for a quantitative and qualitative research study on early-career researchers in 14 African countries.

In-kind contributions by members

The GYA is a voluntary organisation: the time donated by individual members is a valuable resource, which amounts to at least 10,000 hours per year, conservatively calculated only for those members who have committed to lead in specific roles. The calculation includes two Co-Chairs contributing on average 15 hours per week, 9 EC members at 5 hours per week, at least 30 active working group leads and 16 committee leads who each commit at least 2 hours per week and approximately 30 members of the membership selection committee, who commit 5 hours per weeks over a period of at least 5 weeks.

4.4.2. Fund management

As the GYA does not have an independent legal status, it is formally a department of the Leopoldina. Therefore, all applications and contracts are (co-)signed by the Leopoldina, and grant money is allocated to special accounts on the Leopoldina account.

4.4.3. Fundraising

In order to attract funding for GYA projects and to diversify the funding structure, in 2015, the GYA began to professionalise its fundraising initiatives, forming a Fundraising Committee (composed of the Co-Chairs, additional EC members, members with links to industry, alumni, an Advisory Board member, and the Managing Director) to discuss fundraising strategies in monthly meetings.

The attached funding overview (Annex 5) clearly shows positive outcomes reflecting these efforts. The GYA attracted more external funds for GYA projects in 2015 and 2016, and 2018. At the same time, fundraising campaigns for the AGMs alone tie up far too much member and GYA Office capacity. Another recurring challenge for the GYA is building funding relationships, especially in cases when, e.g. fundraising for working group projects is undertaken by members through their institutions rather than through the GYA. This situation, while a success for individual working groups, makes it difficult for the GYA to request follow-up projects with that particular funding institution when the respective member has finalised his/her membership term.

To address these challenges, in 2018, GYA invested in winning more generic funding partners to supplement its core funding. A professional fundraiser was hired in order to help build up such long-term funding relations and at the same time qualify the fundraising initiatives of GYA Office and membership. The goal is to obtain multi-year funding for the AGMs by 2019 and, step-by-step, also for large projects such as GloSYS and the Science Leadership Programmes. First successful endeavours have been made: with the help of the professional fundraiser, the GYA attracted funding for three annual mentoring and networking workshops (2019-2021) for the GYA At-Risk and Refugee Scholars Membership Initiative. The aim is to have the 19 current mentors and mentees meet in person and work jointly on capacity building.

5. Roadmapping the future

This report showcases the breadth of activities of the GYA that serve to achieve its overall mission and strategic targets from the present strategic plan. Looking forward, GYA members continue to be motivated by this mission, and aim to support further growth and development of the organisation.

In the immediate future, goals of the GYA include:

Contribute to strengthening the role of science to achieve the UN SDGs 2030:

GYA members believe science will play a vital role in achieving the SDGs by 2030. To date, members have contributed to global policy dialogues to further this aim, including at the United Nations Science, Technology, and Innovation Forum. Building on existing collaborations within its partner network, the GYA will explore better strategies to engage with the UN on this topic, to ensure that the perspectives of young scientists are included in these dialogues.

Harness the GYA alumni network:

2018 marked the first year that GYA alumni numbers surpassed the number of current members. This body represents a growing resource for the Academy. The GYA will therefore explore ways to strengthen the alumni network and for alumni to contribute to mentoring members and supporting GYA activities, whilst stepping down as active members.

Strengthen partnerships with the InterAcademy Partnership as the global science academy network:

To date, the GYA has had a fruitful partnership with the IAP, including collaborating on capacity building activities, and contributions by members to IAP steering committees and conference organising. To further consolidate this partnership, the GYA has applied to become a full member of the InterAcademy Partnership in 2019 (application submitted; outcome pending).

Promote best practices of science education and training in all global regions:

The GloSYS surveys undertaken in a global precursor study and in the ASEAN region, and currently being conducted in Africa, serve to provide data which can inform strategies to improve the training and scholarly environment for young scientists. Results from earlier surveys informed development of the Science Leadership Programmes. Looking forward, the GYA has observed a gap in these data in the Latin American region, and is currently exploring the development of a proposal to conduct a GloSYS Latin American and Caribbean survey.

Continue to build and connect a community of science leaders globally:

The GYA has demonstrated support of the establishment of National Young Academies, with the aim to activate early and mid-career scientists and scholars to play an active role in national and regional policies for science; and to support evidence-informed policies. The GYA aims to ensure that this capacity is built equitably worldwide. In this context, the GYA is focusing efforts on supporting initiatives in the Latin American and Caribbean region. To continue to explore strategies to better connect the NYA community, the GYA is currently running a survey of NYAs, to capture their experiences and the nature of support that would be most beneficial from the GYA.

Informing and developing a Strategic Plan 2021-2025:

To inform its future strategic direction, the GYA recognises the value of assessing current activities and goals. In addition to this evaluation report, and the feedback from evaluators that will be received, the GYA is conducting a 360-degree impact assessment survey to better understand the contribution of the GYA to:

- Careers and lives (academic and non-academic) of members and alumni, (and their proximal and distal environments and networks);
- Young scientists not part of the GYA but who have interacted with GYA initiatives;
- Activities of partners in the science policy, advice and diplomacy space.

With this assessment, the GYA aims to generate evidence, applying a theory of change to:

- Inform strategic planning for the future direction of the GYA, including informing development of the next strategic plan 2021-2025 and its objectives, and ensuring that GYA activities align with its overall vision and mission;
- Leverage resources and inform fundraising efforts;
- Inform allocation of resources and how these can be better harnessed to achieve strategic goals;
- Motivate active participation of members in GYA activities;
- Inform indicators to be routinely collected to facilitate future evaluations.

By considering which areas the GYA is persistently critically engaged in, and themes which consistently mobilise members, this impact assessment will help to identify gaps in activities which can be filled in order to more effectively achieve the GYA's targets. The assessment will also inform the strategic direction of GYA activities to support the ambitious goal of shaping a better, fairer world.

6. List of Abbreviations

Abbreviation	Description
AAAS	American Association for the Advancement of Science
AASSA	Association of Academies and Societies of Sciences in Asia
AB	Advisory Board
AGM	Annual General Meeting
ALLEA	ALL European Academies
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
ASLP	Africa Science Leadership Programme
ASSAf	Academy of Science of South Africa
AU	African Union
AvH	Alexander von Humboldt Foundation
BAW	Berlin-Brandenburg Academy of Sciences and Humanities
BMBF	German Federal Ministry of Education and Research
Cara	Council for At-Risk Academics
CIFAR	Canadian Institute for Advanced Research
CILAC	Open Science Forum for Latin America and the Caribbean
COST	ASEAN Committee on Science and Technology
DAAD	German Academic Exchange Service (Deutscher Akademischer Austauschdienst)
DFG	German Research Foundation (Deutsche Forschungsgemeinschaft)
DIY	Do-it-yourself
EASAC	European Academies' Science Advisory Council
EC	Executive Committee
ESOF	EuroScience Open Forum
EU	European Union
F1000	Faculty for 1000
FOSS	Free and Open Source Software
FP	Framework Programme
GloSYS	Global State of Young Scientists
GYA	Global Young Academy
IANAS	InterAmerican Network of Academies of Sciences
IAP	InterAcademy Partnership
IAP-SEP	IAP Science Education Programme
IAP-SPEC	IAP Committee on Science for Poverty Eradication

ICSU	International Council for Science
IIASA	International Institute for Applied Systems Analysis
IIE	Institute of International Education
INGSA	International Network for Government Science Advice
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
ISC	International Science Council
ISSC	International Social Science Council
IZEA	Interdisciplinary Centre for European Enlightenment Studies
JRC	Joint Research Centre
Leopoldina	The German National Academy of Sciences Leopoldina
LGBTQ	Lesbian, Gay, Bisexual, Transgender, Queer
LOC	Local Organising Committee
NASAC	Network of African Sciences Academies
NEF	Next Einstein Forum
NGO	Non-Governmental Organisation
NSTDA	National Science and Technology Development Agency (Thailand)
NYA	National Young Academy
OSPP	European Commission's Open Science Policy Platform
POC	Programme Organising Committee
SAPEA	Science Advice for Policy by European Academies
SAYAS	South African Young Academy of Science
SCRID	ASEAN Sub-Committee on S&T Infrastructure and Resources Development
SDG	Sustainable Development Goals
SLP	Science Leadership Programme
S&T	Science & Technology
STI Policy Office	National Science Technology & Innovation Policy Office (Thailand)
SVI	Smart Villages Initiative
TWAS	The World Academy of Sciences
TWAS-ROSSA	TWAS Regional Office for Sub-Saharan Africa
TWAS-TYAN	TWAS Young Affiliates Network
UFZ	Helmholtz Centre for Environmental Research
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNMGCY	UN Major Group for Children and Youth

UN-STI Forum	UN Multi-Stakeholder Forum on Science, Technology and Innovation
US NAS	U.S. National Academy of Sciences
WEF	World Economic Forum
WG	Working Group
WHS	World Health Summit
WSF	World Science Forum
WSSF	World Social Science Forum
YAE	Young Academy of Europe
YASE	Young African Scientists in Europe
YSAP	Young Scientist Ambassador Programme