



GYA Position Statement on Global Research

Towards a Global Research Culture

Following the General Assembly of the Global Young Academy (GYA) in May 2013, members identified three key challenges – inclusivity, capacity building and sustainability – standing as barriers to achieving a truly global and open research culture. This statement discusses these challenges and ways to confront them in the future.

At the heart of the scientific enterprise lies a set of core values including equality, equal opportunity, and inclusivity that, together, allow the scientific process to work most effectively. Efforts to support and promote these values have proven challenging and, at times, controversial in the face of the economic disparities among nations and enduring discrimination against specific groups. There remain major imbalances in the distribution of education, infrastructure, and support for science across countries around the world. This is most starkly seen in the divide between the developed and the developing world, where the bulk of scientific training, output, and funding flow from the former to the latter.

These disparities have started to shrink over the last thirty years, thanks to five major developments that signal an expansion in the global reach of scientific research:

- (1) increasing numbers of individuals, institutions and stakeholders are involved in scientific research and diplomacy;
- (2) projects and outputs are more geographically distributed through the establishment of multinational networks and the rise of centers of excellence in the global south;
- (3) standards for science training, recruitment and promotion are increasingly transparent;
- (4) new information and communication technologies, particularly those devoted to data generation and sharing, support rapid communication and international collaborations; and
- (5) open access to publications and data, increasingly promoted by governmental policies, facilitates participation in research and fairness in publication and credit mechanisms.

At the General Assembly held in May 2013 at the German National Academy of Sciences Leopoldina, GYA members discussed these developments and agreed that, encouraging as they are, they do not guarantee that science functions as a truly global endeavor. Effort is still required from both scientific and policy organizations to identify key remaining obstacles to the development of excellent research and widespread education around the world, and find ways to overcome them. Young Academies around the world have a crucial role to play in this effort as they provide the emerging generation of scientific leaders a forum to articulate what they see as the main challenges of current research and participate in shaping policy landscapes. Members of Young Academies are also the first generation of researchers to experience the institutional, technological, and demographic shifts identified above as integral parts of their training and career paths, and their viewpoint needs to be considered as complementary to the views of Senior Academies. The GYA, comprising emerging scientific leaders from 55 countries around the world, is particularly well positioned to provide a unique perspective on efforts to achieve a truly global research enterprise.

GYA members have identified and discussed three key challenges to achieving a global research agenda. The first is **inclusivity** in the global research enterprise. Despite welcome advances such as the inclusion of South Africa in the Square Kilometer Array initiative, developing countries remain largely excluded from the development and implementation of key scientific endeavors. The GYA encourages efforts to integrate developing countries directly into 'big science' projects, which increases the scope for training new talent as well as the means available to researchers in those countries. Further, inclusivity is compromised by discrimination in terms of seniority, gender, religion, ethnicity and location. Such discrimination strongly impacts hiring, promotion and publication practices. The GYA proposes that discrimination can be countered via *increased transparency* in the criteria and practices used to foster career paths in academia; the *streamlining of funding applications*, which will make it easier for talented individuals with family responsibilities and/or limited research time to ask for support; and the *implementation of gender shares* on scientific committees and panels, so as to facilitate the inclusion of women in decision-making processes across the globe.

The second challenge concerns **capacity building** in science. Despite the recent emphasis on openness and data sharing, vast disparities remain in publication regimes, credit structures, access to relevant technologies and the provision of key infrastructures across different nations. Such barriers, due partly but not exclusively to economic conditions, must wherever possible be removed, particularly in terms of access to research and knowledge; and the steps taken to remove them should be sustainable in the long term. The GYA recommends that *Open Science* be promoted in terms of access to data, rights to re-use and access to resources required for reproducing the results. This means fostering *cross-national collaborations around research infrastructures and tools*, rather than solely around research outputs, so as to support capacity building in developing countries with little to no extra-cost. Increased support for *research visits across nations*, and particularly south-south collaboration, is another way to enhance the use of existing resources, so that countries where investment in capital equipment is still minimal can benefit from the efforts of others.

The third challenge is that of **sustainability** in the career trajectories of researchers. Current disparities in the financial, political and cultural support for science across countries are hampering the labor market for science and engineering. At a time when financial constraints are pushing governments to cut science funding, early career researchers end up being the most vulnerable workforce in the research enterprise. The average age for early career investigators in securing their first independent grant award is increasing; and increasingly high numbers of postdoctoral researchers compete for few academic positions. The GYA recommends that *research careers outside academia* should be promoted as options for early stage researchers, so as to increase employability and promote interactions between science and society. One way to do this is to involve young scientists in policy discussions, as promoted for instance by National Young Academies (NYAs); to this end, the GYA recommends that *NYAs be established in every country*.

This statement was prepared by GYA members Sabina Leonelli (UK), Guruprasad Madhavan (USA/IN), Abdullah Shams Bin Tariq (BD), Rees Kassen (CA), Rob Jenkins (UK), Sameh H. Soror (EG) and Arianna Betti (NL) and approved by the GYA EC in October 2013.

About the GYA

The Global Young Academy, founded in 2010, serves as the voice of young scientists around the world. Members are chosen for their demonstrated excellence in scientific achievement and commitment to service. Currently there are 155 members from 55 countries. Learn more at: www.globalyoungacademy.net.