

**BLUEPRINT FOR THE FOUNDING NATIONAL YOUNG ACADEMIES (NYA)**

**Produced by the  
GLOBAL YOUNG ACADEMY**

*The voice of young scientists around the world*

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## I. SUPPORT FROM THE IAP: THE GLOBAL NETWORK OF SCIENCE ACADEMIES

To whom it may concern,

Attached to this document, please find a blueprint for the establishment of National Young Academies (NYAs), which was developed by the *Global Young Academy: Voice of Young Scientists around the World* (the GYA). The blueprint includes justifications for forming a NYA, along with suggested activities, outcomes, measures of success, model principles and statutes for a hypothetical NYA. We hope such documents will be informative about this important global development, and encourage your support for establishing a NYA in your own country.

The *IAP: the Global Network of Science Academies* supports the recent trend to create NYAs and the GYA, which are dedicated to advancing issues critical to young scientists. The GYA, for example, currently includes young scientists from >50 countries who work together in the spirit of friendly, international cooperation on early scientific career issues. Membership selection has been, and will remain, highly competitive involving international peer review of largely nominations by national academies and similar organizations. The GYA will help catalyze international research collaborations amongst young scientists world-wide. One of its main effects will be to build bridges between young scientists from developed and developing countries to promote the expansion of research capacity and the dual directional exchange of best practices in science policy and education. The GYA also has a working group dedicated to assisting with the formation of NYAs, and, for example, can provide peer-to-peer help for young scientists leading such efforts.

Just as the *IAP: the Global Network of Science Academies* depends on the activities of senior Academies in member countries, the GYA will best maximize its impact through links with NYAs from around the world. Such academies have already been established with great success in Germany, the Netherlands, Nigeria and Sudan. Many more countries are currently in the process of establishing such Young Academies. Therefore, the GYA and *IAP: the Global Network of Science Academies* wish to encourage national science academies to support the creation of NYAs in their own countries.

If you have any questions, we encourage you to contact directly the Co-Chairs of the GYA, Prof. Gregory A. Weiss (gweiss@uci.edu, University of California, Irvine, USA) or Prof. Bernard Slippers (Bernard.Slippers@fabi.up.ac.za, University of Pretoria, South Africa).

Yours sincerely,

## II. JUSTIFICATION FOR ESTABLISHING A NATIONAL YOUNG ACADEMY (NYA)

Contemporary scientific challenges often benefit from investigators with diverse backgrounds and expertise areas. Thus, bringing together talented young scientists creates new opportunities for better solutions to both national and international challenges. Furthermore, the exchange of best practices amongst young scientists across disciplines could further expand the opportunities for career development of young scientists in any country. To achieve this, there is a need for a strong platform where top young scientists can interact, coordinate, and organize to meet these challenges. More specific motivations for the establishment of such young academies can be summarized as follows:

### 1. Global awareness and support

- a. The concept of bringing together top young scientists has earned support from international scientific organizations and bodies including the *IAP: the Global Network of Science Academies*, Leopoldina (German Academy of Sciences), World Economic Forum, The Academy of Sciences of the Developing World (TWAS), UNESCO, Alfred Krupp von Bohlen and Halbach-Stiftung, etc.
- b. In an editorial, Prof. Bruce Alberts, Editor-in-Chief of *Science* magazine pointed to the benefits of NYAs, and called for their support.<sup>1</sup>
- c. Successful examples of NYA's have been established in about 10 countries, including Germany, Netherlands, Nigeria, Sudan, Japan, and Egypt.
- d. The NYA will link to the growing global network of NYA's, including the GYA, which will provide opportunities for young scientists to interact globally with other young scientists.
- e. The NYA will provide visibility and recognition to outstanding young scientists both nationally and internationally through their affiliation with the National and the GYA.

### 2. Contribution to national science policy

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1. Alberts, B. (2011). The Young Academy Movement. *Science* **332**, 283.

- a. The NYA will represent the voice of young scientists on national and international issues.
  - b. The NYA will encourage debate and discussion on national and regional science policies.
  - c. The NYA will promote science education to increase the understanding of science by the general public.
3. A symbol of scientific excellence
- a. The NYA will identify and bring together the very best young scientists to champion innovation and excellence in national scientific research.
  - b. The NYA will be a future source of talented senior scientists to increase the national scientific capacity.
  - c. The NYA will provide role models and motivation for future scientists in training at high schools and universities.
  - d. The NYA will reward and promote excellence among young scientists.
  - e. Such developments could help reverse “brain-drain” amongst talented researchers by recognizing their importance and excellence.
4. National development of science, technology and innovation (STI)
- a. The NYA will encourage collaborative, multi-disciplinary research activities among national and international young scientists.
  - b. The NYA will initiate activities aimed at identifying and promulgating best practices and excellence in scientific research.
  - c. The NYA activities will spark the interests of a younger generation to pursue science as career.
  - d. Recognition of top researchers could encourage them to remain committed to developing the STI infrastructure of the home countries, and provide them with a platform to accomplish such goals.
5. Promote interdisciplinary collaboration and representation
- a. The NYA will provide a network for young scientists from a wide range of disciplines to interact and collaborate both nationally and internationally.
  - b. The NYA will encourage interdisciplinary research among young scientists nationally, thereby fostering this habit early in their careers.

- c. The NYA will promote ethnic, cultural and gender equality and diversity amongst young scientists.
  - d. The NYA will facilitate the sharing of scientific knowledge to reduce the gaps between developed and less developed countries and also amongst different regions within countries.
6. A bridge between the young and senior scientists
- a. The NYA will promote mentorship by senior scientists for sustainability of the scientific community.
  - b. The NYA will provide a source of talented young scientists that senior scientists can draw on for research collaborations, policy consultation, and other activities.

### **III ESTABLISHMENT OF A NATIONAL YOUNG ACADEMY (NYA)**

1. Engage with the senior national Academy. Support from well-respected members of the NYA is critical to drive and champion the initial process of establishment.
2. Establish a committee of excellent young scientists with a proven track record of social and science-service responsibilities to help establish the NYA. The excellent young scientists may be selected from recipients of major prizes, service on national panels, or attendance at high-profile meetings organized by the senior national Academy, the GYA, or the *IAP: the Global Network of Science Academies*. This committee will be charged with engaging the stake-holders (senior national Academy members and leaders, the GYA, potential funders), establishing an initial selection committee, and organizing an initial general assembly meeting.
3. Seek the support of the GYA. In particular, engage members of the GYA with practical experience in establishing a NYA.
4. Request financial and administrative support for the activities of the NYA from the senior national academy, the government, philanthropist foundations and/or business leaders who are interested in developing young scientists and the scientific foundation of the country. An important principle in negotiating funding remains the independence of the national young academy. The activities and the decisions taken by the young academy remain separate from funding and other considerations. Guidance on administrative and budgetary needs can be obtained from members of the GYA.
5. At the first general assembly meeting, a governing committee should be elected, along with the acceptance of principles and statutes for the organization. The GYA guidelines and model statutes can provide a good starting point for such issues.
6. Establish a website to circulate and exchange information regarding the NYA.
7. Decide on the short and long term activities for the NYA, a timeline for their implementation, and committees to oversee the process.

#### **IV. ACTIVITIES OF A NATIONAL YOUNG ACADEMY (NYA)**

1. Organize meetings for its members on a regular basis to manage the NYA, discuss issues of concern to young scientists in their countries, and promote interdisciplinary research.
2. Mobilize potential young scientists (first degree graduates, young researchers, pre-PhD, prospective PhD`s) through public seminars, enhancing science education, international exchange, internships and mentorship.
3. Provide advisory services to young researchers to build their research career potential.
4. Become a facilitator of additional opportunities for research career development by using connections with the GYA, the *IAP: the Global Network of Science Academies*, other international and national institutions.
5. Develop and run a national database for the scientific events, funding opportunities and resources.
6. Publication on scientific issues of national importance in journals and magazines owned and run by the national academies, publicizing the activities of the NYA and the GYA.
7. Leverage the connections of senior National Academies to initiate discussions between young scientists and policy-makers (government), business leaders and media representatives.
8. Engage government, universities, and schools with science education outreach programs.
9. Connect with science education programs in other countries and consider sharing experiences and possible exchange programs.

## **V. EXPECTED OUTCOMES FROM A NATIONAL YOUNG ACADEMY**

1. Documents and reports on issues concerning young scientists (e.g. academic, research, employment, funding, environment, economy and career development).
2. Providing an effective platform at the science-business and science-policy interfaces.
3. Collaboration between scientists (young and senior) and science organizations nationally and around the globe to work on scientific and regional issues.
4. Promote and identify science leaders of the future.
5. Free information and knowledge transfer away from political, economic and cultural interference.
6. Integration between developed and developing countries.
7. Exchange and training programs to increase the qualifications of young scientists worldwide.
8. Empowerment of women in science whether by removing the constraints or by addressing the problems facing their progress their society and families.
9. Increasing the investments in science and in scientists as a fruitful renewable sources and the future wealth of countries.
10. Enhance the public understanding and exposure to science, both with regards to key topics, how science works, and its role in society, and attract the next generations to pursue careers in scientific research.
11. Recognition and encouragement of outstanding and promising mid-career young scientists, which otherwise might have been overshadowed by the prominence of senior accomplished scientists.
12. Increased visibility of young scientists to their global peers through the NYA and the GYA, as well as to the general scientific community.
13. Establishment of interdisciplinary research programs entirely run by young scientists within the country, as well as from other countries through the GYA.
14. An established link to facilitate exchange programs, sharing of facilities, current literature, and expertise among young scientists within the country, as well as from other countries through the GYA.

**VI. MEASURES OF SUCCESS FOR A NATIONAL YOUNG ACADEMY (NYA)**

1. Number of young scientists who become members of the NYA
2. Number of interdisciplinary projects nucleated through the activities of the NYA
3. Number of young scientists who participate in the interdisciplinary projects
4. Number of public activities held (workshops, forums, policy advice papers, etc.) to address issues of immediate importance to society (e.g. climate, poverty, health, etc.).
5. Number of research reports (documents, statements, publications, books, proceedings, etc.) emanating from the activities of the NYA
6. Impact and outcomes of the research supported
7. Impact and outcomes of the interaction on members of the NYA

## **VII. PROPOSED PRINCIPLES FOR A NATIONAL YOUNG ACADEMY (NYA)**

### **1. Representative**

The NYA should consist of a group of early career scientists, with the aim to include scientists from across the country and for inclusive representation by gender, race and scientific disciplines.

### **2. Independent**

The over-arching aim of the NYA is to foster early career independence for young scientists. The Academy acts and operates independently from the government, other academies, funding sources, and businesses, although working in collaboration with these institutions to make an impact in society. The Academy should exist not for profit.

### **3. Science-based**

As scientists, members of the NYA would seek answers to society's problems in evidence-based solutions. The members would seek to contribute innovation and science-based policy ideas to the debates of concern to young scientists and the wider community.

### **4. Excellence**

The members of the NYA should be elected based upon a proven track record for outstanding contributions to science and potential as scientists, together with their commitment to public service. The NYA should strive for the highest quality in its activities.

### **5. Impact**

To be effective, the NYA should focus upon activities of concern to young scientists and where young scientists can contribute uniquely to addressing issues of relevance to society, locally and internationally. The NYA's interests could range broadly from issues at the science-society interface to the career development of young scientists and interdisciplinary research.

## **VIII. MODEL STATUTES FOR A NATIONAL YOUNG ACADEMY (NYA)**

### **Preamble**

Contemporary science must address increasingly complex problems. Such challenges often require participation from investigators with different backgrounds and areas of expertise. Furthermore, scientific progress frequently requires coordination of policies and inputs or support from different sectors of society. Yet, early scientific career development tends to favor academic specialization and focus. Bringing together young scientists from different disciplines, as well as with business, media and government representatives, can compensate for this pressure to differentiate from other disciplines and society. In addition, the exchange of ideas across disciplines and cultures is expected to expand opportunities for scientists, increase scientific capacity and contribute to the development and improvement of the country. The NYA will as a platform to promote these goals under young scientists and to represent their voice in dialogues of national and international importance.

### **§ 1. Foundation**

Hereby is constituted the National Young Academy (NYA) within the framework of the National Academy of Sciences. The NYA is autonomous with regard to the content of its academic activities and organizes itself, in consultation with the chairperson of the National Academy of Science. The NYA is not supervised by any organ of the parent academy. Its members have the status of a “Member of the National Young Academy” and are not members, nor will they later be automatically elected as members, of the National Academy of Sciences.

### **§ 2. Goals**

The objectives of the NYA are:

1. To give voice to young scientists by-
  - Providing a channel for its members to actively participate in policy development
  - Encouraging interactions with media organizations, through workshops, internships and job partnering
  - Developing statements on science issues of national and global importance
2. To promote science as a career of choice for young people by:

- Recognizing exceptional young scientists from all countries as role models
  - Developing policies to remove obstacles to participation in science for women, ethnic minorities and other under-represented groups
  - Promoting mentorships with internationally recognized senior scientists
  - Identifying the science leaders of the future
3. To promote science capacity by:
- Promoting science as an engine of economic development
  - Building capacity for scientific research
  - Supporting exchange visits for young scientists between institutions and internationally to increase the scientific skill base
4. To encourage the development of novel approaches to problems of national and international significance by:
- Fostering international and interdisciplinary collaborations between young scientists
  - Holding regional and topical workshops
  - Encouraging Government, research foundations and other philanthropic organizations to channel resources into identified projects
5. Any other goals that concern young scientists, which the General Assembly decides to promote.

### **§ 3. Membership**

- A. The NYA is composed of members who all have the right to vote and exercise all of the rights within the NYA.
- B. Members of the NYA shall be selected for one term of 4 years.<sup>2</sup>
- C. The number of members to be selected each year shall be decided annually.
- D. The NYA shall consist of no more than 200 members.
- E. Nominations for membership shall be made by National Young

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<sup>2</sup> We prefer this relatively short membership term to assure that the members remain early career scientists and to reduce the risk that it will be harder to incentivize worn out participants to take part in the NYA's activities after too many years of active membership. We also fear that the intensive activity, in which the NYA members will be expected take part, might come in the way of their research if it the membership last too long.

Academies, National Academies, International Science Societies, Funding Agencies, Professional Bodies and other institutions of scientific repute as decided by the selection committee. The overriding aim should be to ensure that all meritorious candidates have an opportunity to be nominated. Self-nominations shall also be considered.

F. Criteria for nomination include all of the following:

1. A PhD or an equivalent degree in natural sciences, engineering, social sciences, arts or humanities or equivalent experience in a research environment;
2. Scientific excellence, ascertained by proven track record and expected future achievements;
3. Demonstrated commitment to making a difference in the world or in the society;
4. Broadly matching the median age of 35 and median career-point profile of 7 years from PhD of the NYA general membership. Candidates deviating significantly from the expected profile shall need to demonstrate a reasonable case for consideration.<sup>3</sup>

G. Selection of candidates<sup>4</sup>

1. Short-listing of nominated candidates and final selection of candidates shall be conducted by a committee formed by the Executive Committee (the Selection Committee), and may include representation from the *IAP: the Global Network of Science Academies*.
2. The over-riding criteria for selection shall be scientific excellence and commitment to service according to points 3F(2) and 3F(3) above.
3. Within the bounds established by point 3F(2), the selection committee shall seek to maximize breadth of regional, disciplinary and gender representation.

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<sup>3</sup> The flexible terms of this clause are aimed to allow the selection committee to adapt the membership criteria to different countries and regions where the Ph.D. or equivalent degree is obtained at different age. Specifically, in several developing countries, restricting the age too much might result in too few potential applicants.

<sup>4</sup> Since the number of members is limited to 200, there is no need to restrict the number of selected nominees. The selection committee only has to make sure that after nomination, the number of members does not exceed 200. We envision that about 50 new members will be selected every year, (and for that reason, some of the founding members will step down in two and three years' time) but if, for some reason, too many members decide to leave the NYA before the end of their membership term, the selection committee may fill up the ranks by selecting more than 50 candidates.

#### § 4. General Assembly

- A. The General Assembly is the highest decision-making body of the NYA; the General Assembly shall be empowered, subject to the provisions of this constitution, to make decisions on all matters affecting the NYA
- B. The General Assembly is composed of all of the NYA members.
- C. The General Assembly is entitled:
  - 1. to amend the constitution of the NYA by 2/3 majority of the participants in a vote;
  - 2. to set up rules and regulations for the different bodies and officers of the NYA;
  - 3. to elect the Executive Committee and Co-Chairs;
  - 4. to terminate membership of individual members if the member seriously damages the interests of the NYA by 2/3 majority of the participants in a vote;
  - 5. to take any other decision required to promote the goals of the NYA, according to its constitution;
  - 6. to exercise any other right arising from the law or the Constitution;
  - 7. The General Assembly shall convene at least once every calendar year<sup>5</sup> (hereinafter: The General Meeting) at a location and time set by the Executive Committee. The notice shall be sent at least three months before the meeting.
  - 8.
- D. The Executive Committee may call for a Special General Meeting of the General Assembly and it shall do so at the request of one-third of the members. The Executive Committee may decide that the Special General Meeting shall convene virtually, in any way that will assure the integrity of the voting process.

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<sup>5</sup> Since membership lasts only four years at most, an annual meeting is required to assure that a group atmosphere is created and that members will know each other well enough to be able to initiate projects and cooperate in promoting them.

- E. Any proposal to be discussed in the General Meeting submitted by a member and forwarded in writing to the Co-Chairs at least fifteen days before the meeting must be put on the agenda of the meeting. The Executive Committee may put on the agenda additional proposals at any time.
- F. The General Assembly may only take formal decisions if at least one-third of its members participate in the General Meeting. Unless explicitly provided otherwise in the constitution, the General Assembly shall decide by a majority vote, abstentions not considered a vote.
- G. The resolutions of the General Assembly shall be recorded in a minute which shall be distributed to the members soon after the meeting.
- H. The NYA Co-Chairs preside over the General Meetings.

#### **§ 5. Co-Chairs**

- A. The General Assembly shall elect two Co-Chairs, one from a developing country and one from a developed country.
- B. The Co-Chairs shall preside over the meetings of the General Assembly and the Executive Committee with a partition of tasks to be agreed by them.
- C. In case of unresolved disagreement between the Co-Chairs, the Co-Chairs shall refer the matter to the Executive Committee.
- D. The Co-Chairs represent the NYA on a day to day basis, and supervise the function of the administrative staff.
- E. If a Co-Chair resigns before the end of his term or is otherwise unable to continue as Co-Chair, the Executive Committee shall appoint one of its members as acting Co-Chair for the remainder of the term of the original Co-Chair.

#### **§ 6. Executive Committee**

- A. Subject to the provisions of the constitution and the decisions of the General Assembly, the Executive Committee shall take such initiatives and actions as are necessary for the achievement of the objectives of the NYA.

- B. The Executive Committee shall be composed of the two Co-Chairs and nine additional members elected by the General Assembly.
- C. The Executive Committee is in charge of developing the strategic direction of the NYA, and shall hold overall responsibility for the programs and activities of the NYA
- D. The Executive Committee may exercise full powers with regard to the management and administration of the NYA except with regard to the powers specifically vested in the General Assembly.
- E. The Executive Committee shall, in particular, be responsible for
  - 1. Setting the time and venue for the meetings of the General Assembly
  - 2. Preparing the agenda of the meetings of the General Assembly
  - 3. Implementing the decisions taken by the General Assembly
  - 4. Securing funding for the programs and activities of the NYA
  - 5. Approving programs and activities, as well as their budgets
  - 6. Ensuring that actual spending is in accordance with these budget
  - 7. Issuing statements in the name of the NYA
- F. The Executive Committee may set up such standing or *ad hoc* committees and may nominate a secretary, a treasurer and other officers as it deems necessary for the discharge of its tasks and responsibilities
- G. The Executive Committee shall be responsible for fund-raising, managing accounts and budgets, and shall provide annual fiscal reports to the General Assembly.
- H. The Executive Committee shall decide by a majority vote, abstentions not considered a vote. In the interval between meetings a vote may be taken by email, conference call or other virtual means. In a vote by email a non-reply shall be considered an abstention.
- I. The resolutions of the Executive Committee shall be recorded in a minute and made available for the inspection by the members of the NYA.

## **§ 7. Procedures for electing the Co-Chairs and the Executive Committee**

- A. Election to the positions of Co-Chairs and Executive Committee shall take place during each regular General Meeting by a secret ballot.<sup>6</sup>
- B. Co-Chairs and the other members of the Executive Committee are elected for a term of office that expires at the end of the first regular General Meeting following the meeting in which they were elected. They may be reelected.
- C. The General Assembly shall elect two members to serve as Co-Chairs, one from a developing country and one from a developed country.
- D.
- E. The first candidate to receive a majority of votes from each group of countries (developed or developing), where abstentions are not considered a vote, shall be elected Co-Chair. In the event that no candidate receives such majority in the first ballot a run-off ballot shall be held between the two candidates from that group of countries receiving the most votes in the first ballot.
- F. After electing the Co-Chairs, the Executive Committee shall be elected, with each participating member of the General Assembly voting for up to nine candidates for the Executive Committee.
- G. Three members from developing countries and three members from developed countries receiving the highest number of votes shall be elected. The additional positions shall be filled by the members receiving the highest number of votes among the remaining candidates.
- H. In case two or more candidates receive the same number of votes and only one or some of them may be elected, these candidates shall stand for election separately for the open positions.
- I. The General Assembly may set up more detailed election regulations.

## **§ 8. Alumni**

- A. Former members of the NYA are alumni.

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<sup>6</sup> Though the election takes place annually, it is fair to assume that Co Chairs and Members of EC will be often reelected to assure consistency (unless the General Assembly is unsatisfied with them). There is no limitation on the number of times a Co-Chair or member of the EC is elected, since the membership anyway lasts only four years.

B. The General Assembly shall determine the roles and privileges of the Alumni.

**§ 9. Language**

A. The operational language of the NYA will accommodate all scientists in the country.

These model statutes are based on the GYA statutes. In addition, the statutes from the German Young Academy are available as model statutes.

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