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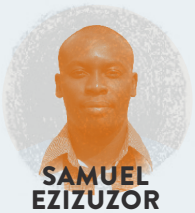

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8 YOUNG INTERNATIONAL SCIENTISTS WEIGH IN ON THE QUESTION:

HOW CAN YOUNG SCIENTISTS INFLUENCE AND SHAPE SCIENCE POLICY IN THEIR HOMES AND ACROSS THE GLOBE?

Although policy making is generally thought to be the responsibility of experienced and senior bureaucrats, the voice of the younger generation and, in particular, the voice of early-career scientists is valuable to consider. History has repeatedly been shaped as the result of the actions of youth. Young people are among the creators of the great religions, the founders of civilizations, the heroes of our republics, and the innovators in the fields of art, science, and technology. Take Albert Einstein, who at the age of 37, published the general theory of relativity. The energy, creativity, enthusiasm, and general open-mindedness that characterize early-career scientists equip them with the ability to pave the path for change in the area of science-based policy making, both locally and around the globe.

In order to amplify their voice in the public debate, it is necessary for early-career scientists to communicate with policy makers as well as with the media. This must occur at a national level, where these young scientists can form new policy-making bodies and interact with existing ones, and, at a global level, where internationally recognized and respected organizations can provide a platform for influence. We, as a group of early-career scientists, would like to highlight some of the existing and prospective mechanisms that we believe have the greatest potential value to help our peers influence local and global science policy.

Although both interaction with and participation in national governments is one of the fundamental pathways to influence science-based policy making, there is often little opportunity for early-career scientists to take on such roles. Professional societies, nongovernmental organizations, and senior scientists can help drive younger scientists to take a more active role in the policy-making process. Senior scientists, in particular, can provide practical guidance for younger generations of scientists by demonstrating the ethical applications of policy as well as by leveraging their research to help form new evidence-based policy. The support of internationally recognized

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Female scientists work in USAID Partnerships for Enhanced Engagement in Research Science project on "Biodiversity and conservation in the Lower Mekong: empowering female herpetologists through capacity building and regional networking at Kasetsart University's lab in Thailand.

Early-career scientists collaborate as PopTech Fellows. They represent a corps of highly visible and socially engaged scientific leaders who embody science as an essential way of thinking, discovering, understanding, and deciding.

societies and organizations can also help early-career scientists have a meaningful impact in the public debate for policy making. Programs that engage early-career scientists in science diplomacy at the international level give them the opportunity to learn about best practices of science-based policy making while collaborating with the broader scientific community.

Such programs should not only continue to evolve, but should always emphasize building global partnerships. One such program, the Global Young Academy (GYA), established in 2010, is an initiative enabling early-career scientists to influence international science policy through partnerships between early-career scientists from various political, scientific, and cultural backgrounds. The GYA supports the establishment of National Young Academies (NYAs) around the globe and fosters cooperation between the various academies. GYA promotes dialogue between science and society and aids the development of science in developing countries. Collaboration of various organizations, like those between GYA and the various NYAs, could be a strategy for leveraging for new insights in major challenges in science policy, international issues, and scientific capacity building. International organizations, professional societies, and senior scientists should develop strong collaborative networks that can serve as platforms for involving early-career scientists at the national and international levels. This could provide opportunity for not only career development for these young scientists, but also foster dialogue between science and society, attempting to overcome the historical boundaries between them.

However, shaping science policy across the globe must first begin with shaping science policy on a national level. National policy makers should seek to include early-career scientists in developing new policies just as early-career scientists should strive to involve themselves in the policy-making process. This can be done by creating a real place for early-career scientists to contribute—such as memberships on boards where they may express their vision of the future, raise questions, or propose new approaches to tackle current and future challenges. Involvement of early-career scientists in the governmental bodies that serve to provide official science-policy advice can be done through other additional pathways that range from direct to indirect involvement in the policy-making processes. Among these is the formation of science committees staffed by scientists seeking to directly create policies grounded in scientific knowledge as well as

the creation of advisory bodies to the government that would bring early-career scientists together and enable them to advise on new or existing science policy.

One example of an existing country-level structure is the Board of Young Scientists in Poland (Pol. Rada Młodych Naukowców) that serves as an officially appointed advisory body to the Polish Ministry of Science and Higher Education. It was created in 2010 to institutionalize the voice of young scientists in public discourse with the goal of promoting best practices in science policy by providing official recommendations to the Ministry. The board identifies the barriers to career development faced by young scientists in Poland and proposes solutions that could be implemented by the authorities of universities and research institutions. There is an urgent need to create similar structures in other countries. For example, in Bangladesh, this type of platform could enable early-career scientists to connect and engage with the University Grants Commission (UGC), which is the body that communicates with the national Ministry of Science and Technology in Bangladesh. The UGC is headed by a person with a scientific background, whose rank is equivalent to a state minister. A board of early-career scientists, working as a subsidiary body to UGC, could play a role similar to that of the Polish Board of Young Scientists, preparing recommendations for tools supporting careers of young scientists.

Very real challenges face scientists, however, particularly those who are just beginning their careers, who seek to make their voices heard in shaping policy. For scientists at any stage of their career, these challenges include disaggregated or conflicting information, which limits credibility and makes the implementation of sound policy more difficult. Furthermore, there is the challenge of how and when to communicate scientific knowledge, because this can have a huge impact on media reporting and public perception and on the acceptance of policy recommendations. For early-career scientists, these challenges are compounded with societal skepticism concerning the value of their voices and the general perception that they lack real-world experience to make meaningful contributions to the conversation.

There is also a distinct set of challenges faced by early-career scientists living and working in the developing world. The challenges that face the world today are complex and diverse. The science-based policy-making aspect of mitigating these challenges requires voices that are diverse as the challenges themselves. As such, this process would value from the perspectives of early-career scientists from both developed and developing countries. However, opportunities to contribute are often even more limited for those in developing countries. International organizations have an indispensible role to play in addressing this inequity by providing opportunities for them to contribute and raising public awareness about their potential to develop science-based policy making at the national and global levels. Organizations such as scientific societies, UNESCO, and WHO can provide a respectable and renowned platform to empower early-career scientists to engage in science-based policy-making decisions.

Whatever the strategy, the involvement of early-career scientists is critical in science-based policy making, given the diversity of challenges and solutions that are required. Professional societies, established scientists and institutions, and the nongovernmental organization community are the core of the science "ecosystem", making their role in enabling and empowering early-career scientists essential. In turn, communication between youth organizations, policy-makers, and the media is essential. The youth generation must take advantage of social media and other emerging platforms to reach the public, share ideas, and change policies – in a way that adds value, and strives for the truth. Collaborating across these ecosystems will allow the voice of young scientists to be heard and respected. The challenges are far too great to ignore and contributions of youth people; the opportunity for young people is far too great not to contribute. ■

ASM Young Ambassadors of Science are dynamic young leaders, who represent ASM in their home country, facilitating networking, professional development, and collaboration to strengthen science globally. ASM Young Ambassadors of Science mobilize the next generation of scientists to develop innovative approaches to meet the grand challenges in science. To learn more, visit asm.org/international.