

September 2018

Protecting the Rights of Individuals Fleeing Conflict: The Role of Scientists, Engineers, and Health Professionals

Proceedings of a Symposium—in Brief

On December 7-8, 2017, the Committee on Human Rights of the U.S. National Academies of Sciences, Engineering, and Medicine gathered leading scholars and practitioners for a symposium on Protecting the Rights of Individuals Fleeing Conflict: The Role of Scientists, Engineers, and Health Professionals. Participants discussed ongoing efforts to help address difficulties faced by forcibly displaced persons, including scholars forced to flee their homes. Speakers also identified potential areas for further engagement of the academic community in response to these difficulties, highlighting methodological, ethical, and other considerations. This article briefly summarizes themes discussed at the symposium, with selected examples of participants' work on displacement.



According to the most recent estimates from the Office of the UN High Commissioner for Refugees (UNHCR), more than 68 million people have been forcibly displaced from their homes and communities around the world. This number includes over 25 million people from South Sudan, Afghanistan, Syria, Myanmar, and other countries who have been displaced across international borders and are considered by UNHCR to be refugees fleeing conflict and persecution,¹ as well as more than 3 million asylum-seekers who have crossed borders and are awaiting decisions about their refugee status. It also includes 40 million people displaced internally within the borders of their home countries.² Most of the world's forcibly displaced persons are based in developing countries, living in camps or among the local population in cities, towns, or rural areas.³

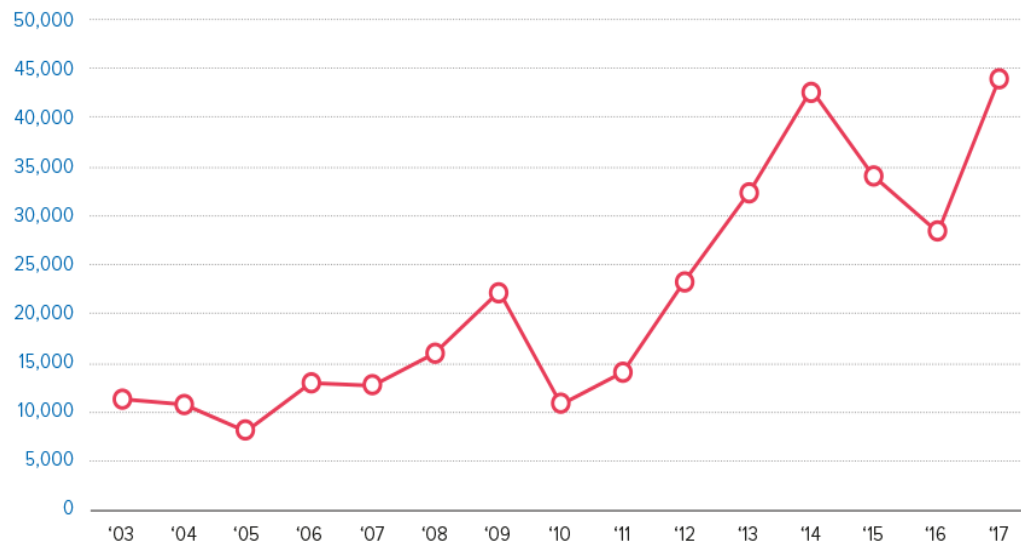
Refugees and other forcibly displaced persons, like all people, are entitled to fundamental rights and freedoms. The Universal Declaration of Human Rights (UDHR), and many legally binding instruments to which the UDHR has given rise, recognize that individuals possess civil and political rights, including the right to life and to individual liberty, as well as economic, social, and cultural rights, including the rights to education and health. In practice, though, rights and freedoms often exist largely on paper for refugees and other displaced persons, many of whom face life-threatening situations even in their countries of refuge, where they may undergo abuse and discrimination and lack access to basic social services. Individuals forced to flee their homes frequently face these difficulties for years, sometimes decades.

To learn more about the rights-related challenges confronting forcibly displaced persons, as well as efforts by scientists, engineers, and health professionals to help address these challenges, the Committee on Human Rights of the U.S. National Academies of Sciences, Engineering, and Medicine hosted a public symposium on **December 7-8, 2017** at the National Academies in Washington, D.C. The symposium brought together experts, including some who were themselves forced to flee their countries, from academia, UN agencies, human rights organizations, and research and policy institutions.

¹ This includes refugees under the mandate of both UNHCR and the United Nations Relief and Works Agency for Palestine Refugees in the Near East.

² UNHCR, *Global Trends: Forced Displacement in 2017* (UN High Commissioner for Refugees, 2018). Note that data concerning displacement trends have been updated since the symposium.

³ Ibid. at 15, 60 and Internal Displacement Monitoring Centre, *2018 Global Report on Internal Displacement* (May 2018) 48.



Number of people newly displaced per day (2003-2017).

Source: UN High Commissioner for Refugees (<http://www.unhcr.org/globaltrends2017/>).

Discussion at the symposium focused on efforts to address systematic challenges faced by displaced persons, thereby contributing to the realization of these individuals' rights, as well as efforts to provide targeted assistance for scholar refugees seeking to reestablish their careers in exile. Participants also identified potential opportunities for further engagement by the academic community. Major themes of the symposium are summarized below. A full recording of the meeting can be found on the Committee on Human Rights website.⁴

THE ROLE OF RESEARCH

An important theme of the symposium was the pressing need for more detailed and better-quality information on forced displacement, as evidence gaps and poor data quality can pose significant problems when designing interventions. As **Grant Gordon** (Associate Director of Research and Development, International Rescue Committee [IRC]) noted, finite resources and the need to set priorities make it important to assess the efficacy of various policies and programs. During the symposium, many forced migration researchers described their efforts to support the development of effective responses to displacement by clarifying the needs of forcibly displaced populations, evaluating the impact of existing policies and programs, and identifying promising responses to displacement-related challenges.

Researchers shared their work on a wide range of related topics, including public health in displaced populations, the use of mobile information and communication technology to support education in refugee camps, the impact of domestic political change on economic activities for refugees, and the development of incentive programs aimed at enhancing refugee livelihood opportunities. They used various methods to learn directly from displaced individuals about their situations including, inter alia, surveys, focus groups, and in-depth interviews.

Responding to Methodological and Ethical Challenges

Frequent challenges encountered in the participants' research included insecurity, problems of access to displaced populations (sometimes resulting in problems determining the number and location of displaced persons in a given country), and government obstruction of information-collection. **Karen Jacobsen** (Professor in Global Migration, Fletcher School, Tufts University) observed that, although donors often want researchers to provide quantitative data, survey research is sometimes extremely difficult in displacement contexts as a consequence of these and other problems. Qualitative or mixed methods research can therefore be vital to obtain an accurate picture of the situation facing individuals who have fled their homes.

Participants discussed creative responses they have devised to some of the methodological challenges they have faced. For example, when **Francesco Checchi** (Professor of Epidemiology and International Health, London School of Hygiene and Tropical Medicine) was asked to provide mortality estimates in response to food insecurity in Somalia, but was unable to obtain access to the entire affected population, he captured secondary data on variables

⁴ See <http://www.nationalacademies.org/CHRSymposium>.

that could be plausibly correlated with mortality. Ultimately, he was able to estimate how many individuals died during the crisis through the development of a model that can estimate mortality in areas for which relevant data does not exist.

Jonathan Hiskey (Associate Professor of Political Science, Vanderbilt University) has used technology to address problems of survey implementation in Latin America. In response to cases of survey fabrication, his team introduced digital hand-held devices for data collection. These devices ensure that survey information is only collected in certain geo-fenced areas and take a random photo of the interviewer (not the interviewee) to ensure that the designated individual is conducting the survey. Hiskey cautioned, however, that technology should not be used to replace face-to-face interactions with interviewees, and that reliance on internet surveys, for example, is problematic given global disparities in access to technology.

Research concerning individuals who have been forced from their homes and communities also presents ethical challenges that relate, inter alia, to the importance of ensuring that such research helps give voice to these individuals and does not increase their vulnerability. Such vulnerability can arise through reference to issues that interviewees do not wish to discuss or through insufficient attention to confidentiality and privacy issues. Many displaced individuals have concerns about sharing information due to a fear that it may be traced back to them and used to harm them. Fear of reporting has, for example, contributed to gaps in data concerning targeted attacks against health care professionals and facilities. According to Checchi, however, some promising efforts are underway to address this problem through the use of technology. Checchi noted that attacks against health care in Syria are being reported to the Health Cluster in Gaziantep (Turkey), which coordinates humanitarian activities in Syria, through WhatsApp messaging using solid verification and strict information security protocols.⁵

Maysa Ayoub (Research Manager, Center for Migration and Refugee Studies, American University in Cairo) put forward recommendations on how to deal with ethical challenges and ensure the protection of human subjects. She emphasized the importance of transparency with interviewees to build trust, help eliminate confusion, and address questions about the potential use of research results. Ayoub highlighted the importance of clarifying the purpose of the research before the research process begins, in order to avoid creating false expectations (which can sometimes lead individuals to provide misleading information). She also stressed the importance of sharing findings with the communities researched before those findings are published, both to validate the research and in recognition of the fact that individuals researched are agents of knowledge production in their own right.

Eva Alisic (Associate Professor, Child Trauma and Recovery, University of Melbourne), who studies how children and young people cope with traumatic experiences such as displacement, noted that there is a move toward a more participatory approach to research on mental health. In her own mixed-methods research, Alisic asks interviewees “what have we not asked that we should have asked?” and “what do you find important for us to know?”

Integrating Academic Research Into Humanitarian Response Efforts

According to Checchi, notwithstanding the important ongoing research on issues related to displacement and the existence of some partnerships between humanitarian/human rights organizations and academics, the global capacity for robust data collection and analysis is limited. Academic researchers are not currently well integrated into humanitarian response efforts, partly because responses to displacement crises are often reactive. Other mentioned barriers to greater involvement of academics in humanitarian response efforts include inadequate funding, difficulties connecting research with relevant decision makers, lack of professional incentives, and competing obligations.

Checchi suggested that new models of academic involvement in humanitarian response efforts should be explored, including creation of an independent standing international consortium, led by academic researchers, scientific bodies, and select, credible non-governmental organizations—possibly with a scheme of delegation or accreditation by the United Nations—for the purpose of monitoring information in crisis situations.

Some universities have developed innovative programs for engaging civil society actors on pressing social problems, such as Stanford’s Digital Civil Society Lab, which “investigates the challenges and opportunities for civil society to thrive in the digital age.”⁶ Programs of this sort are instructive when thinking about ways of structuring the involvement of scholars in interventions related to displacement. **Leslie Roberts** (Professor, Mailman School of Public Health, Columbia University) suggested that the evidence base on questions related to displacement could be

⁵ See M. Elamein, H. Bower, C. Valderrama, D. Zedan, H. Rihawi, K. Almilaji, M. Abdelhafeez, N. Tabbal, N. Almhawish, S. Maes, and A. AbouZeid, “Attacks against health care in Syria, 2015–16: results from a real-time reporting tool”, *The Lancet* (November 18, 2017, v. 390) 2278.

⁶ Stanford PACS Center on Philanthropy and Civil Society, *Digital Civil Society Lab*, <https://pacscenter.stanford.edu/research/digital-civil-society-lab/>, last visited on June 19, 2018.

strengthened if universities were to place greater value on fieldwork and improving practices, perhaps through creating space for clinical professors (as exist in many medical schools) who are not evaluated primarily on publications or grants acquisitions.

Finally, in considering the role of research and data in shaping interventions related to displacement, several speakers stressed that, while data offer a powerful tool when formulating policies and programs, they cannot alone provide the answers to the challenges of displacement. Evidence-based approaches to displacement should go hand in hand with interventions that acknowledge and respect individual rights.

OPPORTUNITIES AND RISKS OF TECHNOLOGICAL ADVANCES

New technologies and novel applications of existing technology are transforming the way in which humanitarian and human rights problems are approached, with civil society, private sector actors, and—in some cases—universities becoming involved in developing and using technological tools to help respond to displacement.

Admir Masic (Professor, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology [MIT]), and other symposium participants, offered the example of the growing role of technology in educational interventions for displaced students. Masic's Refugee ACTION Hub, based at MIT, leverages online platforms, together with in-person classroom/lab experiences, to offer courses in computer and data sciences to displaced persons.

A more general effort, Leiden University's HumanityX, is an interdisciplinary support team designed to help "organisations in the peace, justice and humanitarian sectors to adopt digital innovations to increase their impact on society."⁷ HumanityX, which develops prototypes with quick turnaround times, is rooted in the view that open, joint, and fast innovation is part of the future of academic research. **Ulrich Mans** (co-founder of HumanityX) discussed the benefit of university experimentation with 'd-search' (with 'd' referring to 'design' or 'discover')—close engagement with actors outside academia on concrete societal challenges, allowing the need for innovation in particular contexts to inform research.⁸

Many humanitarian innovations developed in recent years have made use of smartphones to provide information and services to refugees and other displaced persons. Symposium participants offered the following examples:

- The IRC has used mobile phones to provide primary school teachers with coaching and social and emotional teaching material (through SMS).⁹
- Mercy Corps, in partnership with IRC, has constructed a website and mobile phone application (Refugee Info in Europe and Khabrona.Info in Jordan) that provides refugees with guidance on obtaining personal identification documents, information about applying for asylum, and resources for accessing services such as language classes, cash assistance, and public transportation. In connection with this application, a live chat function in Arabic and Farsi has been introduced on Facebook, through which displaced persons can ask questions and receive information from trained moderators in response to challenges that they face.¹⁰
- PeaceGeeks, a Canadian organization that builds technology tools to support communities working to build peace, is developing a mobile phone application (*Services Advisor Pathways*) that assists immigrants and refugees coming to Canada to develop personalized roadmaps to the services they need most, such as language training and health care.¹¹

Participants also discussed efforts to leverage new data streams to help address displacement-related challenges. **Katharine Donato** (Director, Institute for the Study of International Migration, Georgetown University) suggested that big data, though often messy, may be able to offer a fairly low-cost way of answering questions related to forced migration—"If we become creative in how we marshal those data, we can move the field forward." The UN's Global Pulse initiative, which harnesses big data for development and humanitarian action through labs in Uganda, Indonesia, and the United States, has several ongoing projects in this area. According to Director **Robert Kirkpatrick**, two of Global Pulse's projects involve identifying xenophobic speech targeted at refugees in social media across Europe and training an artificial intelligence algorithm to recognize refugee rescue events in the Mediterranean, using ship location data.

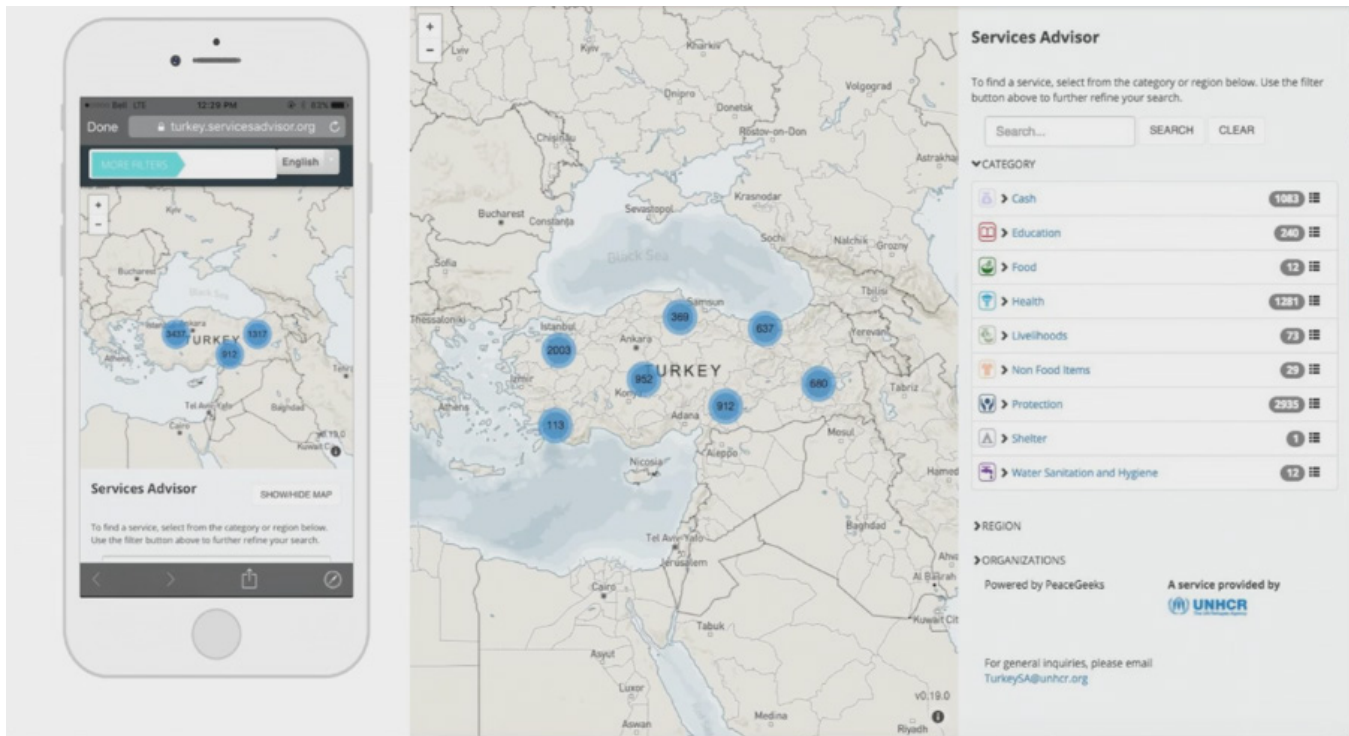
⁷ HumanityX, *People First in a Digital Age*, <https://www.humanityx.nl/>, last visited on June 26, 2018.

⁸ U. Mans and L. Bernholz, "Shifting the Starting Point: Should We Give More Priority to Societal Impact?", in Leiden University Centre for Innovation, *Trend Report* (2016-2017) 9-10.

⁹ Presentation by Paul Frisoli (former Senior Technical Advisor for Education, IRC).

¹⁰ Presentation by Alexa Schmidt (Grant and Project Communications Manager, Technology for Development Department, Mercy Corps).

¹¹ Presentation by Renee Black (Co-Founder, PeaceGeeks).



PeaceGeeks Services Advisor Pathways.

Source: Renee Black, presentation, December 7, 2017, Washington, DC.

Addressing Real (Rather than Perceived) Needs and Safeguarding Rights

Advances in technology—from smartphone innovation to e-identities and blockchain—will no doubt continue to shape responses to humanitarian and human rights problems. At the same time, several experts counseled a careful approach when leveraging technological advances to address humanitarian/human rights problems. **Alexander Aleinikoff** (former UN Deputy High Commissioner for Refugees), **Ntakamaze Nziyonvira** (Co-Founder, COBURWAS International Youth Organization to Transform Africa [CIYOTA]), and several other participants stressed that the use of technology should reflect the needs and desires of those individuals whom it is designed to benefit. Nziyonvira, who was forced to flee his home in the Democratic Republic of the Congo, indicated that an understanding of these needs and a willingness to learn from displaced persons are often missing on the ground.

Several speakers emphasized that, when designing tools for displaced individuals that rely on access to technology, developers should be aware of the challenges these individuals face, the resources they possess, and how these vary by context. A 2016 UNHCR study found that 7 percent of refugee communities “lack the requisite digital infrastructure for internet access and mobile communications” and, in rural areas, 20 percent of refugees are living in areas with no connectivity. The main obstacle to refugee connectivity is cost. “Globally, refugees are 50 percent less likely than the general population to have an internet-enabled phone, and 29 percent of refugee households have no phone at all.”¹² As with data, participants stressed that technological innovations should be seen as a potentially useful tool for individuals seeking to address displacement-related challenges, and not as a panacea.



CIYOTA Co-Founder Ntakamaze Nziyonvira described his forced displacement—and that of other CIYOTA Co-Founders—to Uganda. Source: Ntakamaze Nziyonvira, presentation, December 7, 2017, Washington, DC.

¹² UNHCR, *Connecting Refugees: How Internet and Mobile Connectivity Can Improve Refugee Well-Being and Transform Humanitarian Action* (September 2016) 8.

Renee Black (Co-Founder, PeaceGeeks) observed that humanitarian initiatives related to digital technology are often fragmented, with replication of functions and services. According to Black, more discussion between and among different actors working in this area is important, as well as greater willingness to evaluate and learn from interventions that are not working and move on. Black noted the importance of additional resources from donors to incentivize and reward cooperation among organizations that are often otherwise competing for funding.

Finally, participants drew attention to the importance of ensuring the safety of displaced individuals when leveraging technological advances and data streams and avoiding actions that would expose these individuals to further risks. In particular, they pointed to dangers posed by inadequate data protection and the use of open digital platforms and “big data” by actors wishing to harm displaced persons. Speakers also stressed that programs and services relying on technologies such as smartphones can further isolate individuals within displaced communities (e.g., women, the elderly) who may have difficulty accessing those technologies. Several participants emphasized the need to learn more about barriers to access and to consider how such barriers might be addressed.

In the view of Kirkpatrick, the global community can’t afford not to make use of technological advances in addressing humanitarian and human rights crises, but it is important not to sacrifice rights in the process. One notable effort to grapple with these issues, and to clarify the rights that apply to humanitarian activities involving information communication technologies and digital data, is *The Signal Code: A Human Rights Approach to Information During Crisis*. The product of the Signal Program on Human Security and Technology at the Harvard Humanitarian Initiative,¹³ *The Signal Code* (2017) aims to serve as a foundation for the development of ethical obligations for humanitarian actors, as well as provide minimum technical standards for the “safe, ethical, and responsible conduct” of humanitarian activities involving information.

Aid for Displaced Scholars

Among the tens of millions of individuals who have fled their homes and communities are many displaced scholars seeking to continue their careers in exile. Precise numbers are not available, but more than 2,000 scholars have fled Syria alone, along with more than 100,000 higher education students.¹⁴

The Institute of International Education’s Scholar Rescue Fund (SRF) and Scholars at Risk (SAR), both represented at the symposium, are among the many actors working to provide assistance for displaced scholars. SRF provides fellowships to professors, researchers, and public intellectuals under threat and arranges visiting academic positions for them with partner institutions around the world. SAR, a global network of universities that promote academic freedom, also arranges temporary academic placements for threatened scholars at its member institutions. Professional societies have sometimes been helpful in identifying institutions that can serve as temporary hosts. Both SRF and SAR are making efforts to assist scholars with longer term career planning, with SAR engaged in trainings for scholars seeking to integrate into the academic job market and SRF hosting a “twinning” program through which scholars under threat receive support from colleagues in their fields as they prepare to transition out of SRF fellowships. In cases where scholars are able to return to countries where higher education systems have been decimated, such support is also hoped to assist with the reconstruction of these systems.

Robin Perutz (Professor, Department of Chemistry, University of York), himself the child of refugees, discussed the involvement of his university’s chemistry department in hosting several scientists from Syria and emphasized the extraordinary contributions that refugee scientists and scholars have made to British society. **S. Karly Kehoe** (Canada Research Chair in Atlantic Canada Communities, St. Mary’s University, Canada/Executive Committee member, Global Young Academy) highlighted other efforts to support scholar refugees, specifically the Global Young Academy’s creation of a mentoring program for refugee scholars, and the Young Academy of Scotland’s allocation of membership places specifically for academics who are refugees or otherwise at risk.

Many institutions around the world are also involved in creating a new generation of scholars through their support for refugee students. In the United Kingdom, for instance, dozens of universities have created special scholarships and granted fee waivers for refugees and asylum seekers.¹⁵ In Lebanon, the Lebanese Association for Scientific

¹³ F. Greenwood, C. Howarth, D. Poole, N. Raymond, and D. Scarnecchia, *The Signal Code: A Human Rights Approach to Information During Crisis*, Standards and Ethics Series 02 (January 2017). The Signal Code was created “with the purpose of identifying, defining, articulating, and translating existing international human rights standards into the context of (humanitarian information activities) and the use of information, data, and ICTs in humanitarian contexts.” Ibid. at 4-5.

¹⁴ K. Sheikh, “Scholars Describe Exodus from Syria”, *Science* (May 2, 2016) and M. AlAhmad, “The Crisis of Higher Education for Syrian Refugees”, *Brookings* (June 17, 2016).

¹⁵ Universities UK, *World Refugee Day: A Look at How UK Universities are Welcoming Refugees and Asylum Seekers*, <http://www.universitiesuk.ac.uk/International/Pages/World-Refugee-Day-a-look-at-how-UK-universities-are-welcoming-refugees-and-asylum-seekers.aspx>, last visited on March 12, 2018.

Research (LASER)'s Scholarships for Syrians program has provided undergraduate scholarships for hundreds of young Syrians who have fled to Lebanon, along with dozens of master's degree scholarships and a few Ph.D. scholarships.¹⁶

Unfortunately, the needs of scholars and students at risk far outstrip the services currently available. With respect to established scholars, even those who are able to secure temporary fellowships frequently find longer term academic positions elusive, and training and mentoring opportunities are not always available to them. Visa, transport, and other logistical hurdles also prevent many individuals from taking up existing opportunities. These problems not only have serious consequences for the individuals concerned, they have negative implications for higher education in their communities and countries in years to come. Several scientific academies and societies, including The World Academy of Sciences and the Global Young Academy, have thus emphasized the need for a more holistic approach to these problems.¹⁷



Professor Robin Perutz, son of Nobel Prize winner and displaced scientist Max Perutz, discusses the University of York's efforts to aid displaced scientists and scholars in the United Kingdom. Committee on Human Rights Symposium, December 7-8, 2017, Washington, DC.

Needs and Opportunities

Over the course of the symposium, participants and audience members pointed to various ways in which scientists, engineers, and health professionals can help address the challenges facing displaced persons. They can, for instance, support colleagues fleeing conflict by encouraging institutions of higher education to host displaced scholars and, where possible, provide other forms of needed assistance (e.g., fellowships, travel grants). Individual academics can serve as a source of guidance for displaced colleagues on issues such as speaking, publishing, and networking opportunities.

Professional societies can also provide assistance by reaching out to their members about at-risk scholars, including the needs of specific individuals in search of temporary academic placements. Societies can make efforts to ensure that their own organizations are welcoming to displaced scholars (for example, through the waiver of membership fees). SRF and SAR can both serve as an important resource for those in a position to provide such assistance. More generally, many symposium participants underscored the need to map the landscape of assistance currently available for displaced scholars, in order to clarify the nature and scope of the need and to avoid duplication. They also pointed to the importance of scaling up existing efforts to aid at-risk scholars and ensuring that such efforts are truly global.

Scientists, engineers, and health professionals also have an important role to play in responding to challenges faced by other individuals forced to flee their homes. As Aleinikoff observed, the role of researchers and innovators is vital for providing the groundwork necessary to realize rights in displacement settings.

Throughout the symposium, numerous participants emphasized the need for:

- Better understanding of the needs and priorities of displaced individuals, including on issues related to health, education, and livelihoods;
- Appreciation of the particular challenges faced by certain sub-groups within displaced communities;
- Improved surveillance and a richer evidence base on displacement, including studies on the effectiveness of service provision; and
- Efforts to ensure that technological and other interventions do not render displaced individuals more vulnerable.

¹⁶ Presentation by Mustapha Jazar (Founder and President, Lebanese Association for Scientific Research).

¹⁷ In March 2017, The World Academy of Sciences (TWAS) held a weeklong, high-level meeting on this issue with "more than 50 participants from 12 nations, including policymakers; representatives of scientific and educational institutions and refugee agencies; and a half-dozen current or former refugee scientists." <https://twas.org/article/refugee-scientists-way-forward>, last visited on February 15, 2018. In partnership with the Dutch Young Academy and the Royal Netherlands Academy of Arts and Sciences, the Global Young Academy convened a two-day workshop in December 2015 for the purpose of exploring issues surrounding refugee integration in Europe. This workshop focused, inter alia, on support for displaced scientists: <https://globallyoungacademy.net/fresh-eyes-on-the-refugee-crisis/> and <https://globallyoungacademy.net/wp-content/uploads/2016/02/Fresh-Eyes-on-the-Refugee-Crisis.pdf>, last visited on February 15, 2018.

To help address these needs, many participants highlighted the importance of finding ways to integrate scholars and researchers more effectively into humanitarian and human rights work. Several speakers suggested that universities consider creating institutes through which their researchers can engage with humanitarian organizations and other appropriate external actors on pressing global problems. Although efforts have been made along these lines, much more remains to be done.

DISCLAIMER: The Proceedings of a Symposium—in Brief was prepared by **Rebecca Everly** as a factual proceedings of what occurred at the meeting. The statements made are those of the rapporteur or individual meeting participants and do not necessarily represent the views of all meeting participants, the Committee on Human Rights, or the National Academies of Sciences, Engineering, and Medicine.

REVIEWERS: To ensure that it meets institutional standards for quality and objectivity, this Proceedings of a Symposium—in Brief was reviewed by **Jessica Brandt**, Brookings Institution; **Daryl Grisgraber**, Refugees International; and **Muhammad Hamid Zaman**, Boston University.

COMMITTEE ON HUMAN RIGHTS: **Martin Chalfie**, NAS/NAM (Chair), Columbia University; **Mary Jane West-Eberhard**, NAS (Vice Chair), Smithsonian Tropical Research Institute; **Chris Beyrer**, NAM, Johns Hopkins Bloomberg School of Public Health; **John Carlson**, NAS, Yale University; **Christine K. Cassel**, NAM, University of California, San Francisco; **Michael T. Clegg**, NAS, University of California, Irvine; **Ruth David**, NAE Foreign Secretary (Ex Officio Member); **Vanessa Northington Gamble**, NAM, The George Washington University; **Margaret A. Hamburg**, NAM Foreign Secretary (Ex Officio Member); **John G. Hildebrand**, NAS Foreign Secretary (Ex Officio Member); **John G. Kassakian**, NAE, Massachusetts Institute of Technology; **Michael Katz**, NAM, Columbia University/Stanford University; **Anthony Leggett**, NAS, University of Illinois at Urbana-Champaign; **Elaine S. Oran**, NAE, University of Maryland, College Park; **Elsa Reichmanis**, NAE, Georgia Institute of Technology.

STAFF: **Rebecca Everly**, Director; **Patricia Evers**, Senior Program Officer; **Tracy Sahay**, Associate Program Officer; **Ana Deros**, Program Assistant; and **Adriana Courembis**, Financial Officer.

SPONSORS: This symposium was supported in part by the Blum-Kovler Foundation/Peter and Judy Kovler and the Burroughs Wellcome Fund.

For additional information regarding the meeting, visit <http://www.nationalacademies.org/CHRSymposium>.

Committee on Human Rights

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

The nation turns to the National Academies of Sciences, Engineering, and Medicine for independent, objective advice on issues that affect people's lives worldwide.

www.national-academies.org