



Elizabeth Blackburn gave a keynote lecture at the Lindau meeting earlier this year.

CHRISTIAN FLEMING/LINDAU NOBEL LAUREATE MEETINGS

POLICY

Science as a global public good

Is it time to support and manage science as a common resource?

BY LUCAS LAURSEN

Elizabeth Blackburn's work on telomeres, for which she was jointly awarded the 2009 Nobel Prize in Physiology or Medicine, has turned her into a socially minded scientist. In a keynote lecture at the 68th Lindau Nobel Laureate Meeting in June, Blackburn — a biologist at the University of California, San Francisco — called on scientists young and old to follow the same path: "Let's use our scientific prowess to be more active, politically."

Blackburn proposed that researchers should adopt the 2015 Paris climate agreement as a model for garnering long-term, international support for science. Her vision goes beyond obtaining funding and includes goals such as increasing the geographical and ethnic diversity of the scientific community, as well as making the publishing process faster and more open. "This proposal is rather like the early stages of climate change, when one saw old ways of doing things that inadvertently led to disadvantageous and unanticipated consequence," she says.

Treating science as a local issue, managed mainly by centralized research agencies or foundations, for example, is inadequate. In a panel discussion alongside Blackburn at

Lindau, Nobel laureate in chemistry Martin Chalfie bemoaned the way in which decision-making in science continues to differ from one country to the next. "There really needs to be a real thinking about global cooperation in terms of the sciences," he said.

That's because the problems that science aims to address span borders.

Blackburn's research on telomeres — DNA caps at the ends of chromosomes that prevent the loss of genetic information during cell division — had implications that made her conscious of the fact that many health problems can be solved through social change. For example, air pollution has been linked to telomere shortening, which can lead to premature cell ageing and an increased risk of disease, including certain cancers. The most straightforward fix for this issue, she suggests, would be to devise and enforce policies that aim to keep the air clean. And because particulate matter is not restricted by national boundaries, such a solution must be applied worldwide.

To craft science-based policies and ensure that they reach everyone, Blackburn says, some of the old approaches — pursuing short-term national interests and budgets, for example — are no longer good enough. During

the Lindau keynote, she suggested that sharing knowledge, through open-access publishing or public research initiatives, is better than competing in walled gardens. She also said that meeting the challenges of today will require the expertise of a diverse array of researchers to generate stronger ideas.

A way to achieve this is to better use the skills of those in low- or middle-income nations. "Science misses out on developing-country talent if there's not the education to support it," she says.

Some high-income countries such as Germany have programmes that are designed to recruit researchers from poorer countries into university-level training schemes or postdoctoral positions, with the aim of supporting the next generation of scientists in those regions.

Institutions are learning to overcome other biases that have limited the diversity of people in science, says Blackburn. She points to progress towards tackling age discrimination, in particular. The US National Institutes of Health and the European Research Council, for instance, have both set aside funds for early-career researchers to ensure that they can access certain grants without having to compete with more-senior scientists, who can benefit from entrenched advantages. "It's a culture change," she says, that will only spread.

Open-access journals will ensure that once knowledge exists, more researchers will be able to use it. But such efforts will require funding that crosses borders. So it's time, Blackburn says, "to make sure that national governments show a real, serious, long-term commitment to science research". Blackburn suggests the 70th Lindau Nobel Laureate Meeting, planned for 2020, as an opportunity for signing such an accord. "I very deliberately avoided specifics, because once one opens that series of discussions — the 'how' — then the discussion can quickly get lost in the vortex of objections," Blackburn says. "It is at the early aspirational and — I hope — inspirational stage, now."

Science-based platforms for change have coalesced before. Three years ago, at the 65th Lindau Nobel Laureate Meeting, Blackburn joined 35 other Nobel laureates in signing the Mainau Declaration 2015 on Climate Change, which echoed the sentiment of its precursor on the dangers of nuclear weapons. Later that year, a delegation of signatories delivered the declaration to then-president of France François Hollande during the 2015 United Nations Climate Change Conference in Paris.

Reflecting on the idea that science can, and should, be less centralized, Blackburn says that she is looking to the more than 500 early-career researchers from around the world who attended this year's Lindau meeting, as well as their peers, to drive forward her proposed agreement on the globalization of science. She asks, "Is this an idea that can be embraced by more than just the young scientists at Lindau?" ■

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