



## JOINING FORCES TO OVERCOME SHARED CHALLENGES

At an event hosted from Shanghai in the run-up to the 2020 Pujiang Innovation Forum, climate scientists highlighted the importance of **INTERNATIONAL COLLABORATION IN SOLVING GLOBAL PROBLEMS**.

**Climate change is listed on the United Nations 2030 Agenda for Sustainable Development** as a global challenge. The COVID-19 pandemic, with its enormous impact on humanity, provides lessons on ways to address climate change, according to speakers at the Future Science sub-forum of the 2020 Pujiang Innovation Forum. It highlights the importance of international collaboration — echoing the event theme, ‘Innovation, Co-governance and Collaboration in Climate Change Research’.

### Test run for a bigger challenge

With the COVID-19 outbreak forcing the Future Science sub-forum online this year, it was fitting to talk about what the pandemic has in common

with the climate change threat. Just as strong governance and coordination of national efforts have been crucial to countering COVID-19, they will be vital for trying to mitigate the effects of climate change, said Guan Dabo, a professor from Tsinghua University.

Guan observed that strict lockdowns, while proving decisive in containing COVID-19, played a role in reducing carbon emissions as well. For post-pandemic economic recovery, the common adoption of ‘green’ national stimulus packages, to achieve long-term global restructuring, Guan said, was perhaps mankind’s last chance for meeting commitments made in the Paris Agreement, and averting disaster.

For a common effort to

manage energy consumption, and for effectively communicate what is needed to control emissions, international sharing of data is essential, Guan said.

### Capturing the solution

Also highlighting the importance of international co-governance, Myles Allen, a geoscience professor from the University of Oxford, described the benefits of carbon capture and sequestration (CCS). Outlining the process by which CO<sub>2</sub> is injected into geologically stable rock formations in the Earth’s crust, he said CCS would be a long-term solution to climate change.

Emission limits have always been a sticking point in climate negotiations with

developing countries, which have insisted on their right to use fossil fuels to develop their economies. Allen suggested that instead of carbon taxes, a better solution would be an international agreement that fossil fuel producers sequester a proportion of the CO<sub>2</sub> generated by their products. This could be increased slowly to achieve net zero emissions by 2050 globally, he said.

For developed economies such as the United Kingdom, beyond simply managing their own emissions, Allen said their best contribution would be to develop and share CCS technology. “In the North Sea we have some very good resources for CO<sub>2</sub> storage,” he said. “We have an overwhelming duty to move forward with this technology.”

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### CO<sub>2</sub> emissions and pollution

If international research is coordinated, then wasteful duplication of effort can be avoided, and the findings of one country can benefit all. In this spirit, Denise Mauzerall, a professor of environmental engineering and international affairs from Princeton University, spoke about her study into approaches for simultaneously addressing both air pollution and climate change. In China, she pointed out, there is great potential to move forward with both.

It may seem obvious that anything that reduces emissions also reduces air pollution, but the connection does not automatically follow. Gasifying coal, for example, can reduce air pollution in cities when it is used to fuel cleaner household stoves. But because extracting gas from coal requires energy, overall emissions will not necessarily decrease.

Mauzerall has looked into several technologies, among which, unsurprisingly, electricity generated from renewables such as wind

turbines and solar panels did the most, by far, to reduce both greenhouse gas emissions and air pollution. One reason for this, however, was unexpected.

Air pollution, she found out, reduces the efficiency of PV cells in China’s industrialized east by up to 50%, because soot in the air blocks out sunlight, as well as soiling cells that it settles on.

“We see a win-win opportunity in electrification with renewable energy, resulting not only in improved climate, air pollution and public health, but also increased efficiency of solar electricity generation,” she said.

### A twofold problem

Focusing on the two polar regions — the Arctic and Antarctic, He Jianfeng, from the Polar Research Institute of China, spoke about the effect that climate change is having on the ecosystems of both regions.

Climate scientists are especially interested in the Arctic and Antarctic because temperatures there have been increasing at twice the global

average. The reason sea ice melt is so devastating for both regions, He said, is that their ecosystems depend on it. Algae grow on the underside of the ice to support the entire surrounding food chain. In the Antarctic, for example, small crustaceans, called krill, feed on the algae. They in turn are eaten by fish, which in turn are eaten by penguins and predator fish.

Like the other speakers at the forum, He said more combined effort is needed to avert a looming tragedy. “The polar regions are changing much faster than expected,” he said. “We need global efforts to better understand them, and to formulate better policies to protect their ecosystems.”

### The font of human progress

This emphasis on global collaboration is also in line with the overall theme of this year’s Pujiang Innovation Forum, which centred on ‘Global Cooperation and Governance of Science and Technology Innovation’.

At the opening of the plenary session,

China’s Prime Minister, Li Keqiang, highlighted China’s commitment to promoting global science and technological collaboration, driving innovation and mutual benefits among all partners.

Using the response to the ongoing pandemic as an example, Li outlined how China seeks to strengthen cooperation with the international community, share scientific research data, and jointly study control strategies.

Highlighting technological innovation as a driving force for the development of human society, Li hoped that Pujiang Innovation Forum, as an international collaboration platform, would stimulate and disseminate ideas on innovation for the benefit of all people. ■



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