



SHARING KNOWLEDGE IN SERVICE OF SCIENCE

Building on last year's success and the Beijing Declaration for Promoting Public Science Literacy across the world, **THE 2019 WORLD CONFERENCE ON SCIENCE LITERACY (WCSL)** highlighted the importance of accelerating international engagement and collaboration on science communication for the United Nations (UN) Sustainable Development Goals.

A scientifically literate society

is central to sustainable development. Yet, the public is exposed to much misinformation, including fake news and pseudoscience. Collaborative efforts are needed to redress the flow of inaccurate information and help improve public understanding of science, delegates heard at the 2019 WCSL, hosted by the China Association for Science and Technology (CAST) in Beijing in October.

"At the nexus of science education, public outreach, sociology and behavioural sciences, we need to collaborate and develop effective responses to ensure that policymakers and the public are able to distinguish between scientific consensus and pseudoscience," said Daya Reddy, a Cape Town University

mathematician, and chairman of the International Science Council (ISC)'s founding General Assembly.

Reddy's keynote speech was backed by Jinpeng Huai, CAST's executive vice president, and a member of the Chinese Academy of Sciences. "A widening gap in science literacy could jeopardize sustainable development efforts and social advancement worldwide," he said. "We look forward to joining forces with other nations to promote public science literacy."

Bottom-up engagement through new learning models

Outreach and engagement amplifies a global voice for science, Reddy emphasized. This was demonstrated by educators who have succeeded in revolutionizing the way

science is taught in classrooms.

Aurelio Vilbar, a professor of education from the Philippines, outlined his team's development of their own science content for students. "Many existing textbooks we used were set in a Western context, which appears out of place to students," he said. By incorporating students' feedback, they have introduced local context and students' interest areas to scientific content, including indigenous culture, gender empowerment, sustainability and environmental issues, improving learning outcomes.

Similarly, in Thailand, a multidisciplinary curriculum was set up, interweaving community issues with scientific topics, such as electricity and sustainability, explained Chanyah Dahsah from the Science Education

Center at the Srinakharinwirot University. Wei Wang, offered a local example of how the No. 2 Middle School, in Suzhou, China, engages students of all levels to take part in weather monitoring and other projects to hone their hands-on science knowledge.

Beyond classrooms, institutions such as science museums play an important role in communication by crafting memorable and engaging experiences to stimulate students—and the public's interest in science, according to Ayman Elsayed, director of Planetarium Science Center, Library of Alexandria in Egypt. In a session on science museum collaborations across Belt and Road countries, Elsayed also discussed the importance of international exchange.



Gang Wan, vice chairman of CPPCC and president of CAST



Jinpeng Huai, executive vice president of CAST and member of the Chinese Academy of Sciences (CAS)



Daya Reddy, chairman of the International Science Council



Lisa Bailey, President of the Australian Science Communicators



"Together with the Beijing Planetarium and other institutions in China, we hope for joint production and sharing of high-quality popular science resources, in addition to expert training exchanges in both countries," he said.

At the conference, leaders of Chinese science popularization facilities also signed five bilateral agreements with related organisations from Nepal, Cambodia, Russia and Singapore.

Strengthening the collaboration network with business leaders

Beyond government funding, corporate partnership can also contribute to scientific literacy. Athena Fund, an Israeli non-profit founded by business leaders, sets out to equip science teachers across the country with a portable, comprehensive science kit. "We are dedicated to empowering teachers to close the digital gap," said Uri Ben-Ari, its president and founder. To date, Athena Fund has provided laptops, tablets and iPads, along with professional training, to some 23,600

school teachers across Israel.

Michael C. Mitchell, CEO of MCM group, has initiated various development plans across Tibet, to give to local communities sustainable infrastructure and cultural exchanges. "We are building the world's highest sustainable community at 4,500 metres, with protective measures on biodiversity, soil improvement, and carbon emission reduction," he said.

"We are also sharing relevant educational resources, and sending materials to 7,400 students in 58 local schools through collaborations with local governments and education providers."

An exhibition zone, in particular, charted the effort of promoting public science literacy in Western China. An encouraging result is improvements in local environments, according to senior forestry engineer and landscape architect, Zhaxiao Liu. "Enterprises have helped grow local eco-tourism," she said.

In Inner Mongolia, for example, a large reforestation area was created, leading to 150 new positions for local herders.

Rethinking science communication

From addressing desertification and climate change, to eradicating diseases, scientists have a role in public discourse, according to Reddy. "As researchers, we have to defend the scientific method, articulate the values of science, and convey how science works."

Colin Blakemore, a neuroscience professor from City University of Hong Kong, also emphasized the duty of scientists as public intellectuals. He introduced a case study on bovine spongiform encephalopathy, commonly known as mad cow disease, about which a delay in knowledge dissemination led to a higher death toll than would have been the case, if information had been shared transparently.

Greater transparency is also required for gaining public support for animal testing. "As our scientific community opened up to the public to how animals are treated and why we need to perform the experiments, we gradually won more crowds over to our side," said Blakemore.

"When engaging those who do not think like us, we

should be aware of how our scientific communication is framed," said Lisa Bailey, president of the Australian Science Communicators. Her suggestion was to nurture more specialized science journalists.

With a theme of 'Science Literacy for Sustainable Development', 2019 WCSL gathered more than 600 guests and representatives of 35 national S&T organizations from 28 countries. "Our conference is just the beginning," said Reddy. "My hope is that our guests will return next year with new perspectives and inspirations."

As an organization of scientists and engineers, CAST hopes to join hands with counterparts from all over the world to improve public science literacy, said Gang Wan, vice chairman of CPPCC and president of CAST. "Together, we will promote the UN's 2030 Agenda for Sustainable Development, and make positive contributions to sustainable development." ■

