



EDITORIAL

A COMMITMENT TO BIG DATA



TWAS President Bai Chunli

For many scientists and engineers devoted to sustainable development, the challenges of hunger, clean water, public health and energy are top priorities. That is understandable – their efforts have a direct, positive impact on communities around the world. Compared to such work, big data and the emerging field of data science may seem like a luxury.

But that impression would be mistaken. Big data is a field of enormous potential power. If we can analyse galaxies of data to guide planting decisions or recognise emerging food shortages, and if the data help us to spot incipient epidemics or build better cities, then clearly we can address other priorities more efficiently and more effectively. This will be especially important as we work to achieve the Sustainable Development Goals (SDGs) by 2030.

This field emerged only in recent years; in some developing countries, researchers and policymakers have had little exposure to big data. At TWAS, we believe this is a moment to accelerate the learning. Big data and data science are essential tools *now*, and will only become more valuable in the years ahead.

Businesses and governments in the South are increasingly important sources of data. In the short span of a decade, mobile phones, social media, the Internet of Things and satellite technology have become so pervasive in the developing world that vast volumes of data can be marshalled to detail human and environmental conditions.

The SDGs, approved by the United Nations in 2015, comprise 17 goals focused on human prosperity and environmental health, plus 169 related targets. Big data can help improve our understanding of agriculture, ocean health, educational programmes and other conditions related to the SDGs. Big data also can help us measure progress toward the goals. And we should seek to make data and analysis available

quickly, so that the data can provide real-time guidance to policymakers.

Building capacity in data science will require significant investment – in education and training, and in technology for data storage, analysis and sharing. But we cannot rely on the North to make these investments alone. To address global challenges effectively, we need data and analysis generated by local researchers.

TWAS is committed to advancing big data capacity, and we're helping to build South-South and South-North partnerships to support this goal.

In autumn 2015, TWAS and its partner organisation, the InterAcademy Partnership (IAP), joined the International Council for Science (ICSU) and the International Social Science Council (ISSC) to develop an accord urging that publicly funded data should be open to review and reuse by researchers, policymakers and others. Working under the banner of Science International, we have mounted a global campaign to win endorsements for the accord. [Learn more at www.science-international.org.]

In summer 2016, we joined with the Research Data Alliance (RDA); ICSU's Committee on Data for Science and Technology (CODATA); and the Abdus Salam International Centre for Theoretical Physics (ICTP) on a course in Trieste, Italy, to teach scientists from developing countries the skills to work with big data.

And in September, TWAS will hold a roundtable on big data at the annual Trieste Next science festival. Our panel will include experts from Kenya, Italy and the UK.

More such efforts are needed to build a strong foundation for big data culture in the developing world.

Bai Chunli, *president, TWAS*