

Correspondence

CAS: with the people and the government

Your Editorial marking the 70th anniversary of the Chinese Academy of Sciences (CAS) points out some of the remarkable results the organization has achieved since its inception (see *Nature* 574, 5; 2019). However, we find your take on its history quite misleading.

For example, you seem to overplay the modern significance of China's Cultural Revolution. The devastating consequences of that have been recognized by the Chinese government for more than 40 years, and it has painstakingly implemented measures to reverse the negative effects. This great governance has ensured that China has witnessed huge advances ever since.

CAS is not run independently of government, as you imply. The establishment and development of CAS have been entirely based on the wisdom and support of the central government. The role of the academy in leading China's research has always been recognized by China's leadership, which has respected science and technology from the start – for its own sake as well as for developing a sustainable economy.

Contrary to your headline, CAS has never sought or achieved financial autonomy. Over the past 40 years, half of its income has come directly from central-government investment; the rest has been from competitive funding or technology transfer. CAS could not develop without the funding and support of the central government. And CAS is committed to facilitating technology transfer to support economic development, although it does not directly invest in the industrial sector.

The academy has a list of

notable achievements, apart from those you mention. It started China's first talent programme, attracting top-quality overseas-trained scholars back to China. And CAS intends to become a leading research institution that satisfies scientific interests and regional or global needs. We have already established 10 joint research and education centres overseas and, together with another 36 science organizations, have launched the Alliance of International Science Organizations to address shared challenges and to contribute to the United Nations Sustainable Development Goals.

You suggest that CAS could be a model for science academies in other countries – particularly in one-party states or those with authoritarian leadership. Our core competence lies in our unique role as a national research institution. Although every academy should of course determine its own development, we find that an integrated structure combining research, education, consultation and technology transfer suits us well.

We object to your allegation that the Chinese central government takes “harsh measures against its people”. In carrying out its scientific and technical mission, CAS stands firmly with the central government and with the people. We reject any such false allegations with disruptive intentions and are strongly opposed to biased judgments of China's internal affairs, and to any unnatural linking of political or ideological positions with our mission.

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Italy's evaluators: rankings boom is real

As president and vice-president of the Italian National Agency for the Evaluation of Universities and Research Institutes (ANVUR), we disagree that Italy has been climbing the international research-impact rankings because Italian scholars are citing each other's articles more heavily (*Nature* 572, 578–579; 2019).

Scientific productivity in Italy has risen in the past decade, possibly stimulated by the introduction of performance-related university funding. Such systems tend to increase a country's publications in the short term, as well as to boost the number of citations per paper when normalized for each field. The use of metrics can itself have positive effects on scientific output (see D. Checchi *et al. High. Educ. Q.* 73, 45–69; 2019).

ANVUR recognizes the importance of correcting gaming behaviour, including self-citation. In our most recent evaluation exercise (in 2011–14), papers in which self-citation exceeded a given threshold were downgraded. We intend to seek evidence of gaming behaviour at the individual and article level, and clamp down on it in future evaluations if necessary.

The Italian research system has responded to public demand for more transparency and accountability. Citation doping alone cannot explain the concomitant rise in publications and citations (see also P. D'Antuono and M. Ciavarella *Nature* 574, 333; 2019). The rise should in fact be viewed with some pride by the Italian scientific community.

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China's silicon valley must protect nature

We welcome the development of Xi'an – China's former capital and the original eastern end of the Silk Road – into a high-tech city at the heart of the country's 2013 Belt and Road Initiative for worldwide trade (*Nature* 563, S25–S27; 2018). However, it is crucial that the ambitious infrastructure planning includes provisions to protect the city's environment from further degradation.

The nearby Qinling Mountains provide 90% of the drinking water for the 10 million or so residents of Xi'an. The range hosts 4,000 plant and animal species, and contains 15 natural and cultural heritage sites of ancient civilizations going back 5,000 years to the Xia dynasty. Developing China's 'silicon valley' so close to these mountains could seriously disrupt the ecosystem (S. Thacker *et al. Nature Sustain.* 2, 324–331; 2019).

Xi'an is already one of China's most polluted cities, with many outdated coal-burning factories. Only half of the city's 15 rivers are classified as clean. The daily discharge of domestic sewage into these rivers can reach 8,000 tonnes. The Zao River, which crosses the city's Hi-tech Industries Development Zone, is black and malodorous.

All these issues need to be addressed before major changes associated with the development go ahead (see, for example, L. Han *et al. Sci. Rep.* 6, 23604; 2016).

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