

► Statistics reveal that cities are the most productive regions in terms of numbers of papers and their scientific impact. Tokyo, London, San Francisco, Paris, New York, Boston and Beijing all score highly on these metrics, and they each hold vast populations. These urban centres not only provide ample opportunities for scientific collaboration, but also contain a wealth of nonscientific resources, such as centres of the arts, entrepreneurship and financial markets.

Researchers who benefit from opportunities in cities should ask what they can give back. More than half of the world's people live in cities, and that number is growing rapidly. So if scientists want to help the majority of the population, they need to turn their attention to urban areas.

Metropolitan concerns should also draw the focus of scientists for other reasons. Cities suffer from pollution, poverty, insufficient health resources and vulnerability to climate change and natural disasters; just look at the situation in Port-au-Prince after the Haiti earthquake in January, or Dhaka after this year's floods in Bangladesh. At the same time, cities are the unit of government with the greatest chance of managing problems such as climate change. More than 40 of the world's large cities are setting voluntary goals to reduce their own emissions. If researchers can help to solve the problems of cities, they will go a long way towards tackling these issues on a bigger scale.

Individual scientists and organizations have been slow to realize this. The Intergovernmental Panel on Climate Change, for example, has over the past two decades produced four major assessments and many smaller reports on the causes and effects of global warming, but it has focused its analyses on the national level and has not conducted any extensive studies on cities — even though they are responsible for the vast majority of carbon dioxide emissions and will suffer from shifts in climate.

This negligence is now being addressed. Several universities — such as the University of Colorado Denver and Newcastle University, UK, are building doctoral programmes in urban sustainability.

Individual scientists can make a difference, too. Cynthia Rosenzweig,

for example, has worked in New York City for more than 20 years to help assess the risks of climate change and plan how the city can prepare for coming hazards (see page 909). She co-chairs the New York City Panel on Climate Change, and has helped to develop a sustainability plan for the city. In China, scientists are often consulted by mayors trying to meet goals for energy efficiency and other green metrics.

Scientists who have been involved in helping cities prepare for the future say that researchers need to venture outside their comfort zones. Too often, scientists simply publish their findings and assume that the information will reach the policy-makers who need it. But information does not flow on its own. Researchers should create opportunities to provide information in clear language directly to officials, through meetings and in the form of reports and websites such as the 2008 assessment *Climate Change and Chicago* (see go.nature.com/18ygmnn). When they do sit down with policy-makers, scientists may learn that the information they provide is not always what is most needed. Water managers, for example, require projections of shifts in precipitation patterns and temperature trends over the next decade — a level of specificity that might be beyond the current capabilities of climate models. But interactions between scientists and information users can help to shape how researchers plan their future work.

Scientists who don't study topics with obvious urban connections may wonder what they can do. Those from many disciplines can chip in; on page 916 of this issue, synthetic biologists argue that their community could help, for example, by developing engineered molecules to cover buildings and provide protection from the elements while absorbing carbon dioxide from the environment.

Researchers could also assist urban communities through appearances in classrooms. Many cities suffer from a lack of resources and can't give students adequate instruction in science and mathematics. Scientists can tutor students, help with science fairs or just talk about their work. In the most crowded places on the planet, there is often a shortage of inspiration. Scientists can help to fill that gap. ■

A hammer blow to national ethics

China needs to act on broader science failures, not simply condemn an isolated case.

The trial of Chinese urologist Xiao Chuanguo for organizing beatings of two of his critics started on a Sunday. By Monday, the Beijing district judge had handed him a five-and-a-half-month sentence, and lesser or equal terms to other men involved. One of the victims, Fang Shimin, a self-styled science watchdog who investigates misconduct claims under the name Fang Zhouzi on his New Threads website, says the penalty is too light. But the judgment has already made Xiao *persona non grata* in China.

The attacks involved a hammer, steel rods and pepper spray (see *Nature* 467, 511; 2010). Xiao's supporters argue that the incident involving Fang Shimin followed a long-standing feud between the two men. The Chinese scientific establishment is right to condemn Xiao for his crime, but the authorities should not use this case to divert attention from wider failings in the research community.

The science ministry issued an online statement after the verdict, saying that Xiao "should be condemned for his vicious misconduct and lack of integrity". The ministry wants nothing to do with Xiao, taking pains to disavow claims that he was chief scientist on a ministry-sponsored science project. The China Association for Science and Technology (CAST), the country's largest non-governmental

organization of scientists and engineers, likewise welcomed the judgment. Meanwhile, the widespread and debilitating failures in China's scientific community go on largely uncontested, even though they have created fertile ground for this ugly episode.

Lack of monitoring and regulation in China means false CVs and scientific misconduct are rife there. The laxity can lead to a blurring of the lines between what is considered acceptable and unacceptable scientific behaviour, especially among young researchers. Channels of complaint about misconduct exist, but fear of identification and doubts over effectiveness drive many to launch unofficial, often anonymous attacks. Reasoned examination of facts and allegations gives way to vitriol and fear.

The impacts can be widespread. More than 250 patients in China are now threatening to sue hospitals, or Xiao directly, because they claim a surgical procedure he pioneered — which aims to restore bladder and bowel function in patients with spina bifida or spinal-cord injuries — doesn't work. The procedure has its critics, who say it should be considered experimental (K. M. Peters *et al. J. Urol.* 184, 702–708; 2010). But others back it, and last month 31 scientists (including 22 from the United States) posted a letter of support on the CareCure Community website, which is largely devoted to discussions of cutting-edge spinal therapies. The letter, signed by many who use Xiao's method, asks that his "scientific and humanitarian contributions to the world" are considered. With Xiao's conviction, will his technique get a fair trial?

Chinese government officials often promise to deal with scientific misconduct. This time they should do more than just punish hammer-wielding thugs and take steps to create a system that properly monitors fraud and plagiarism, checks reasonable allegations, prosecutes libelous ones and protects whistleblowers. The careers of scientists, the health of patients and the scientific future of the nation are at stake. ■