

Chinese Academics Are Becoming a Force for Good Governance

As the life sciences in China have rapidly advanced over the past two decades, the country's scientific community has become more adept at shaping policy for responsible research.

At 1:04 a.m. Beijing time on Sunday, March 5, 2023, Chinese bioethicists, legal scholars, and scientists released a consensus statement condemning He Jiankui, the infamous scientist who used the CRISPR gene editing tool to edit the genomes of three babies born in 2018 and 2019. Released from prison in 2022, He quickly began advertising a new—and risky—gene therapy to patients. The March statement denounced He's actions and urged Chinese authorities to be more accountable in their oversight. The statement also protested the censorship and secrecy shrouding He's sentencing and called for more open, public discussion of scientific controversies in China.

Global scientists and regulators welcomed the statement, which was released the day before the Third International Summit on Human Genome Editing. It was one of the few times since He's imprisonment in 2019 that the world heard directly from Chinese academics about how controversies involving human genome editing research should (or should not) be handled.

And in China, the statement's timing was particularly remarkable: it was released the very morning of the opening session of China's annual National People's Congress, a moment when the government is especially intolerant of dissent. This bold timing demonstrated that, contrary to common belief, Chinese academics are not passive followers of the Chinese Communist Party. Instead, China's scientific community is making concerted efforts to actively shape science governance.

As researchers who have long worked with some of the signatories, we closely observed how the consensus statement came to be. It reflects important changes in the domestic dynamics of Chinese science—particularly the increasingly prominent role of academics. Chinese academics have become a proactive, effective force demanding science governance in China, but international counterparts too often fail to recognize their role and so undermine their efforts. China still has much work to do to develop a trusted and accountable regulatory system worthy of its scientific advancement and ambition, but meaningful, sustainable reforms must come from within the country.

From “Wild East” to the rule of law

In 2015, the first of three international summits on human genome editing was held in Washington, DC, under the auspices of the US National Academy of Sciences and National Academy of Medicine, the Chinese Academy of Sciences, and the Royal Society of the United Kingdom. Over nearly a decade, these summits have fostered global discussion around the societal and ethical considerations related to human gene editing and served as bellwethers for national regulations.

The second summit, held in Hong Kong in 2018, became a global media event when Chinese biophysicist He Jiankui announced that he had illegally edited the genomes of human embryos, leading to the birth of three girls. But He was neither the first nor the last controversy at these summits.

The 2015 summit was convened in response to another divisive Chinese experiment: gene function researcher Junjiu Huang's edits with CRISPR-Cas9 on non-viable embryos. The third summit, which took place in London in March 2023, was shadowed by deteriorating relationships between China and global scientific organizations, in particular new uncertainties and restrictions around sharing genetic data from China.

One could argue that China's opaque governance in genome editing has always been prominent in discussions at the summits. What has been overlooked is the role of Chinese scientific communities and their growing confidence in pressing for regulatory changes and a rule-respecting research culture.

Many Chinese scientists see one of their roles in the summits as challenging the "Wild East" reputation of Chinese bioscience, a perception they date to 2003, when Shanghai-based scientist Hui Zhen Sheng sparked controversy by creating human-rabbit embryos. In response to international skepticism, Chinese authorities quickly banned such research, even though Sheng had previously obtained approval for her work and actively promoted bioethics discussion in Shanghai.

In 2010, Sheng's views were featured in the United Kingdom's parliamentary consultations on hybrid embryo research, which led the United Kingdom to endorse such research. By then, China's hasty ban had cost China its lead in the area. The Chinese government's authoritarian approach, along with policy U-turns in the face of international criticism, has proved to be particularly disruptive to Chinese science. This experience has informed Chinese scientists in their efforts to influence governance ever since.

By 2015, when Chinese authorities faced similar global skepticism over Huang's modification of nonviable embryos, they turned to Chinese bioethicists to investigate. Those academics subsequently cleared Huang of any wrongdoing.

As one of us (Zhang) previously documented, this decision to support Huang was a close call. Xiaomei Zhai, the director of China's National Medical Ethics Committee at the time, was tasked by the Ministry of Science and Technology and the Ministry of Health to draft a response. Opinions were divided. Some urged for a repeat of the hybrid embryo response by denouncing Huang's research. However, those like Zhai, who had been through the "Wild East" episode in 2003, believed that upholding the rule of law was critical, particularly for contentious subjects. Zhai and other bioethicists and scholars reminded officials that Huang's research did not breach any national or international regulation or scientific consensus and urged China to support Huang's research as compliant with global and national standards. Ultimately, the ministries heeded Zhai's advice.

The government also allowed the Chinese Academy of Sciences to co-convene the first summit in Washington, DC, which Chinese scientists perceived as crucial in defending the rule of law for science in China.

If there are "rogues," then there must be rules

China's participation at the first summit in 2015, in the wake of the Huang controversy, was a turning point for China's life sciences community: it signified that rules and regulations were not just something to follow, but something that scientists could count on. It meant that individuals are punished according to the law, but also that they can be defended by the law. Regulatory transparency and accountable public oversight were seen as part of these legal protections.

That helps explain why Chinese scientists responded so forcefully to He Jiankui's announcement of his experiments on human embryos in 2018. China had banned such practices in 2013. Within a day of the announcement, 122 Chinese scientists signed a joint statement saying that biomedical researchers "strongly oppose!!! and strongly condemn!!!" He's research. The six exclamation marks in the original text conveyed the anger and frustration of a community that has struggled to develop science that is ordered and consistent. The statement also expressed a deep exasperation with the extreme unfairness of the He incident to the overwhelming majority of law-abiding, conscientious scientists in China. Just as they were determined to use the rule of law to defend Huang's research on nonviable embryos in the first summit, Chinese academics were also unequivocal about using the rule of law during the second summit to condemn wrongdoings at home.

We were at the 2018 Hong Kong summit, where we observed a significant difference in how the Chinese scientific community and Western scientists reacted to the "CRISPR baby" scandal. Many Western academics, openly worried about what they described as a slippery slope of technological determinism, aptly pointed out the ways in which the worldwide scientific culture itself was at fault. They questioned whether He was really a "rogue," or instead a manifestation of larger problems in science.

In contrast, Chinese academics felt strongly that He's deliberate violation of ethics guidelines and public deception warranted his branding as a rogue scientist. Although they recognized issues including the slippery slope toward germline editing of human embryos and ethics dumping (when experiments with questionable ethics are outsourced to researchers in regions with less oversight), they felt that condemning He as a rogue was a necessary declaration for Chinese scientists. The choice emphasized the importance of upholding the rule of law and reinforced that individuals who defy ethics rules deserve expulsion from the scientific community.

To Chinese academics, the criminal case against He further revealed the limitations of China's legal system. Some pointed out that however immoral He's experiment was, he needed to be judged on existing law. They were concerned that He faced criminal charges for illegal medical

practice even though, at the time of his sentencing, there was insufficient medical evidence of the “severity of harm” resulting from the experiment. This led some observers to view the grounds of his sentencing for a criminal offense as an embarrassing legal stretch. For many Chinese researchers, the He case highlighted how a failure to build ethical and governing infrastructures could render scientists legally vulnerable even if they followed existing guidelines.

The scandal galvanized Chinese academics into making sure clinical and scientific research on human genomes and embryos was incorporated into China’s Civil Code and Criminal Law. When the government introduced a 32-page draft on how to regulate genetic research, an interdisciplinary group of scholars from 16 research institutions in China submitted 40 pages of suggested revisions, criticizing the Ministry of Science and Technology’s approach as both nationalist and punitive. A number of the suggested changes are reflected in the final version of the regulation.

This is not to say that Chinese scholars’ views have always been taken into account by their government. Over the past couple of years, Chinese bioethicists and legal experts have

about which state entity was responsible for monitoring his activities, He’s claims went unchallenged.

Chinese scholars attempted to arrange open discussions with He, but their hosting institutions, concerned about political censorship, rejected their proposals. During the COVID-19 pandemic, in collaboration with leading Chinese bioethicist Ruipeng Lei, we established the BioGovernance Commons, a trusted forum where Western scientists meet regularly with Chinese academics online to share thoughts on thorny regulatory issues. On February 11, 2023, the BioGovernance Commons convened an open online discussion on CRISPR technology and invited He to share reflections on past and ongoing research. The event, titled “Looking Back into the Future,” was attended by approximately 110 participants from 13 countries, including at least 70 Chinese academics from a dozen provinces.

Seventeen hours before the event, He announced on Twitter that he was not ready to discuss the past. We thus anticipated that he might use the occasion as a publicity stunt, but we felt that having a record of his response—or nonresponse—to critical questioning was also of public interest.

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advocated for an expansion of ethical oversight to include industry and other privately funded research. But when China updated its ethical review measures in February 2023, their advice was ignored. Nonetheless, this example shows that Chinese scientists are proactively engaging in emerging issues, not simply following the Chinese government or, alternatively, championing Western norms. Unfortunately, very few international outlets covered this debate, or how the Chinese scientific community perceived He’s announcement—or how the community successfully weighed in on new gene-editing regulations.

The struggle for openness

As the third human gene-editing summit approached in March 2023, the aftermath of the He case presented Chinese academics with a paradox. China’s increased censorship, aimed at upholding a positive image, unexpectedly awarded He with considerable freedom for self-promotion. After his release from prison in April 2022, He simply resumed his research and entrepreneurial career, using social media to promote his new venture to study Duchenne muscular dystrophy (DMD), a subject he has no prior expertise in. He repeated his pattern of enticing vulnerable patients into taking unjustifiable risks with daring claims. Amid confusion

At the online event, He used only 25 minutes of the 40 he was given to expound on his work, dedicating most of his talk to explaining basic scientific knowledge and honoring celebrated scientific breakthroughs. He spent less than two minutes talking about his DMD project. During the question-and-answer period, He refused to answer or to participate in any unprepared discussion. Other participants within China and elsewhere told us they were frustrated by He’s insincerity in sharing his ongoing research.

The event advanced some of the dialogue around the ineptitude of He’s work. For example, it prompted mainstream media in China to publicly challenge He for the first time, calling for increased public oversight. Within 36 hours of our event, He discontinued his online marketing to patients. It’s becoming clear that Chinese academics’ persistent fight for transparency and consistency has restored some orderliness to genetic research in China—at least when it comes to He Jiankui.

However, our bottom-up efforts for open discussion on controversial issues are vulnerable to an authoritarian reaction; anything contentious is seen as a threat to social stability. A day after our event, *Nature* published an article with a headline framing the meeting as a “publicity stunt” by He. It did not describe how Chinese academics confronted

him, or the significance of an open, public discussion. It failed to reference any Chinese academic views at all, although Chinese researchers asked about two-thirds of the questions.

Chinese authorities then used the article as justification to silence individuals who had voiced their opinions. We understand that our BioGovernance Commons colleague Lei has been under immense pressure as a result of spearheading the open discussion. Several Chinese attendees were also censured as naive troublemakers and pressured to remove any mention of the event from their social media accounts. One of us (Zhang), a British citizen based in the United Kingdom, was harassed by a prominent individual in China, who berated her for two hours on the phone for the perceived negative press coverage.

Colleagues in China moved quickly to organize a response. After we released our event report, coverage from Chinese and other global news outlets captured a fuller picture of the meeting. And Chinese academics built upon the conversation we had started. Led by leading legal scholar Jiayou Shi, professor of law at Renmin University, and Renzong Qiu, a renowned bioethicist, Chinese scholars convened online on March 2, 2023, with the goal of formulating a collective response, in the form of a consensus statement, to He Jiankui's DMD research and the regulatory gaps his new venture exposed. Both Lei and Zhang, as organizers of the February event, were invited to contribute.

The signatories of the statement include academics at different career stages in China as well as politically influential individuals, such as Qingli Hu, the former World Health Organization deputy director-general, and Xiaomei Zhai, a member of China's newly founded National Ethics Committee for Science and Technology. The statement thus represented an expression of solidarity within the Chinese scientific community. When the statement was read out by Yaojin Peng from the Chinese Academy of Science on the last day of the third summit in London, it signaled China's institutional recognition of the scientific community's requests.

Despite the speed with which the consensus statement was drafted, it would be wrong to imagine that Chinese academics constitute one uniform community. In fact, in both our event and the one hosted at Renmin University, many differing views were expressed about what administrative measures should be taken toward He's DMD research, and how heritable human genome editing should be regulated. Nonetheless, there was unanimous agreement on the need for regulatory clarity and transparency, the right to public debates on controversial issues, and the value of candid international dialogues.

Policy changes almost universally require a series of intersecting discussions. Over time, the Chinese government has come to recognize the importance of transparency in its science governance. In November 2022, China's Ministry of Science and Technology released a draft of administrative

penalty rules on research misconduct for public consultation. The revised rules came into effect on April 20 of this year, stipulating that hearings of misconduct and malpractice should be public by default, and administrative decisions on cases that cause significant societal concerns (such as He Jiankui's experiment) will be automatically made public. Chinese academics remain hopeful that they can count on these new measures for future cases.

Looking back and into the future

Our engagement with the Chinese scientific community over the past decade and through the three summits has revealed the myriad ways that this community has become a driving force. As Chinese science develops, so too does the community's willingness and ability to shape the country's governance, leading to concrete policy changes that promote responsible research and innovation.

However, this process is fragile. It is true that, in China, the state's power dominates society and increased censorship deters debate. That makes it especially damaging for global institutions to disregard Chinese academics when they do speak up. That lack of respect and attention, fueled by a misperception of Chinese academics as submissive and uncritical, undermines their attempts to create better science governance in China, and in the world.

If Western scientists and decisionmakers want to support a transparent and ethical Chinese scientific enterprise, they need to recognize the value of bottom-up initiatives led by academics within China who are working to democratize science governance and support responsible research.

The essential first step is to respect the space Chinese scientists have created to engage in policy debates, making sure that Chinese voices are heard and acknowledged in global conversations. At a fundamental level, this means increasing the visibility of Chinese scientific communities' contributions to policy discussions. That necessitates moving beyond a homogeneous portrayal of China's science and researchers. For just one example, organizers and journalists could apply equality, diversity, and inclusion principles in invitations to and coverage of international events. This would empower a broader spectrum of Chinese academics in domestic dialogues and provide a fuller picture of that diversity to the international community. Everyone everywhere has a role to play in empowering the forces promoting better science governance in China.

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