

Ecological restoration for China's mines

China's 1986 Mineral Resources Law, which is undergoing its third revision, now includes a section that requires mining rights holders to formulate ecological restoration plans (1). Although it is an important step forward, the restoration section focuses heavily on remediating toxic waste. China can maximize the revised law's impact by also requiring mining companies to incorporate plans to restore ecosystem services and carbon benefits and to commit to transparency.

China's domestic mineral mining production has grown substantially in recent years. In 2023, non-ferrous metal production reached 74.7 million tonnes, a 7.1% increase from 2022 (2). International-ly, China's investments in metals mining soared to US\$19.4 billion in 2023, a 158% increase from 2022 (3). Although crucial to the green transition, especially electric vehicle battery production, this expansion has led to environmental degradation, resource depletion, and social inequality in host countries, particularly the "lithium triangle" of Argentina, Bolivia, and Chile (4).

Restoration must go beyond physically restoring landscapes to achieve ecosystem integrity (5). In addition to remediating toxic mineral waste, China should require that mining rights holders reestablish original species to help restore native biodiversity at mining sites that are in use as well as those that have been retired. The benefits of conducting restoration efforts while mining is underway—including accelerated recovery of ecosystems and the potential for more effective integration of mining and conservation activities—outweigh the costs and logistical complexities (6).

Given that mining generates more than 20% of China's carbon emissions (7), the law should also require mining companies to incorporate carbon sequestration in mine area restoration. Restoring 80% of China's coal mine subsidence areas could sequester at least 1.1 billion tonnes of carbon (8), bringing China closer to achieving carbon neutrality.

Finally, the revised law should explicitly require mining companies to conduct due diligence across the entire mineral supply chain (9). Transparency in environmental, social, and governance policies and performance is critical (10). Moreover, Chinese mining companies must integrate ecological restoration into their overseas operations in addition to their domestic sites.

Funding for ecological restoration remains a challenge. To implement the revised law effectively, China should broaden its financing methods, including exploring public-private partnerships (11). Comprehensive approaches to ecological restoration in mining, with adequate funding, could substantially contribute to environmental sustainability, carbon neutrality, and social equity in China and abroad.

Hong Yang^{1,2,5*}, Xiang Gao^{1,3,4}, Jianhua Wu^{1,5,6}, Julian R. Thompson⁷, Roger J. Flower⁷

¹Zhejiang Key Laboratory of Clean Energy Conversion and Utilization, Zhejiang University of Technology, Hangzhou 310014, China.

²Department of Geography and Environmental Science, University of Reading, Reading RG6 6DR, UK.

³State Key Laboratory of Clean Energy Utilization, Zhejiang University, Hangzhou 310027, China

⁴Baima Lake Laboratory (Zhejiang Provincial Laboratory of Energy and Carbon Neutrality), Hangzhou 310051, China.

⁵Moganshan Institute, Zhejiang University of Technology, Deqing 313200, China.

⁶Research Center for Two Mountains Transformation and Green Development, Zhejiang University of Technology, Hangzhou 310014, China.

⁷Department of Geography, University College London, London WC1E 6BT, UK.

*Corresponding author. Email: hongyanghy@gmail.com

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