

Planting trees to save the planet: The Chinese experience

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Credit: YE Yangyong

A coordinated global effort to reduce the production of greenhouse gas emissions from industry and other sectors may not stop climate change, but Earth has a powerful ally that humans might partner with to achieve carbon neutrality: Mother Nature.

An international team of researchers called for the use of natural climate solutions to help "cancel" produced emissions and remove existing emissions as part of a comprehensive plan to keep [global warming](#) below 1.5 degrees Celsius—the point at which damage to human life and livelihoods could become catastrophic, according to the United Nations' Intergovernmental Panel on Climate Change.

The researchers published their invited views on March 24 in *Advances in Atmospheric Sciences*. "The Earth is heating up, and climate change has become a major environmental concern for the whole planet," said first author Dr. Qin Zhangcai, professor at Sun Yat-sen University and Southern Marine Science and Engineering Guangdong Laboratory (Zhuhai). "In this work, we want to highlight the important role of nature and human action in mitigating climate change."

Called natural climate solutions, largely land-based ecosystems, such as forests, agriculture, grasslands and wetlands, could sequester carbon emissions from industry and store them in trees, grass and soil. While the energy and industrial sectors are essential in their commitment to reduce emissions, Qin said, they are both insufficient and unable to rectify already emitted gases.

"Natural climate solutions have been recognized as one of the most cost-effective and readily available options that can be used to supplement

energy and industrial mitigation in the climate portfolio," Qin said.

He pointed to China, which has launched several nationwide ecological projects over the past half century, as an example of success, although these projects were not intended as natural climate solutions at the time they were initiated. The Natural Forest Protection Project, for instance, was implemented to help mitigate mass flooding in 1998 but has since contributed to more than half of the country's natural carbon sinks.

"China started its first major projects in the 1970s, and it took over 40 years and several phases to finally reshape its degraded landscapes," Qin said. "Studying China's past experiences offers a shortcut to learning how Mother Nature can help us deal with [climate change](#)."

According to QIN's team, the use of natural carbon solutions, if managed properly under local and global guidance, could result in achievable mitigation of the equivalent of nearly 15 trillion pounds of greenhouse gases per year—which would account for more than 10% of current global annual greenhouse gas emissions. That's more than a quarter of the annual global emissions reduction of 50% needed in the next 10 years to reach net zero by the 2050s, as set out in the Paris Climate Agreement.

Qin and the team are now establishing a systematic and comprehensive evaluation strategy for large-scale natural [climate](#) solutions to help avoid any potential failures in an effort to help advance mitigation efforts.

"We call for global collaboration and immediate actions in [natural climate solutions](#)," Qin said. "This is our best shot to achieve a carbon neutral society globally."

More information: Zhangcai Qin et al. Natural Climate Solutions for China: The Last Mile to Carbon Neutrality, *Advances in Atmospheric*

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