Shanghai Tower received a green building certifica
but no label in China currently assesses the
carbon generated by a building throughout its lifespan.

LETTERS

*Edited by* **Jennifer Sills**

# Improve energy-efficient construction in China

In the past few decades, China's construction industry has undergone a swift expansion, increasing its energy use and carbon emissions (*1*). In an effort to meet climate goals (*2*), China has formulated guidelines to minimize carbon emissions in new development (*3*). However, the construction industry lacks effective regulatory standards and assessments to ensure energy efficiency.

When inspecting the carbon impact of construction, the Chinese government primarily refers to the Green Building Evaluation Standard and the Technical Guidelines for Energy Efficiency Evaluation and Labeling of Civil Buildings, which comprehensively assess variables such as resource management, land planning, and building features (such as air conditioning units, light and sound impacts, and green spaces) (*4*, *5*). However, these standards rely on outdated baselines. For instance, the 2022 Beijing Winter Olympics have been hailed as the first Olympics in history to achieve carbon neutrality (*6*), but the construction of the Olympic venues adhered to 2014 regulations for green buildings (*7*). Since 2014, carbon mitigation strategies have improved, and lower emission options could have been used for energy systems, construction materials, and operational strategies (*8*, *9*).

The current standards also lack a framework for monitoring and appraising the carbon footprint throughout the entire lifecycle of buildings. The impact of new infrastructure includes not only design and construction but also the emissions produced while it is in use—in some cases spanning decades—and its demolition and disposal (*10*). Many projects in China now claim to qualify as "low-carbon construction" (*11*) (a more efficient classification than "green construction") by citing energy-saving technologies used during limited stages, such as construction or operation. To accurately classify projects as low carbon emitters, China needs a comprehensive evaluation system.

To maximize the use of low-carbon construction equipment, materials, and methods, the central government should standardize the design and construction of energy-efficient buildings. Local governments and relevant agencies should rigorously review project applications, strengthen construction quality monitoring, and increase the frequency of spot checks during the building operation phase. Finally, an evaluation system that determines the carbon emissions over the entire lifespan of new infrastructure, similar to the US Evaluation System for Zero Net Carbon Building Performance (*12*), should inform development decisions.

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# Researchers need better access to US Census data

The US Census Bureau decided to adopt a differential privacy framework by adding noise to the 2020 Census data to improve the confidentiality of individual Census responses (*1*). To protect the collected data, random noise was added to the tabulated statistics, and the data and noise were stored together in a Noisy Measurement File (NMF). The NMF is critical for understanding biases in the Census data and for performing valid statistical inferences, as it potentially allows data users to adjust for the noise in their analyses. However, in 2021, the Census Bureau released only the final tabulated statistics that were produced after postprocessing the NMF (*1*). This postprocessing ensured the final published data met data consistency requirements (such as nonnegative population counts), but it may have also introduced systematic biases (*2*–*7*). The Census Bureau must provide data users access to the NMF in usable form to facilitate the wide array of use cases for Census data.

In April, after public requests (*2*, *8*), the Census Bureau released a demonstration NMF based on the 2010 Census data (*9*). It plans to release the NMF for the 2020 Census later this year (*10*). Unfortunately, the current NMF release is difficult to process and is unlikely to be useful for most Census data users (*11*).

To help users work with the NMF, the Census Bureau should host an unnested, labeled version on the Census website with Application Programming Interface access so researchers can more easily access and analyze data. Centralized NMF documentation

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should be made available that explains the high-level structure of the NMF and its relation to published decennial statistics and tabulation geographies. Aggregation specifications should link raw noisy measurements to traditional tabulation statistics to facilitate statistical analysis. An additional version of the NMF for which these aggregations have already been performed should also be made available, so that each tabulation has a single estimate. Detailed geographic information for the NMF, including shapefiles and geography assignment files that describe the relationship between traditional tabulation geographies and NMF geographies, will also help analysts.

Census data serve as the backbone for a substantial number of scientific analyses and policy decisions. Producing a more accessible and useful NMF will benefit researchers and facilitate more accurate and applicable conclusions without compromising the confidentiality of individual Census responses.

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# Chile's road plans threaten ancient forests

During the United Nations Biodiversity Conference (COP15) in December 2022, nearly 200 countries, including Chile, agreed to halt biodiversity loss by 2030 and to take urgent actions to stop the extinction of endangered species. Despite this commitment, the Chilean government is pushing for the construction of a road that would cross the Alerce Costero National Park (*1*), an area of global importance for biodiversity conservation (*2*) and home to the endangered conifer *Fitzroya cupressoides* (*3*). Throughout the world, roads threaten biodiversity and ecosystem functions (*4*). Before pushing this project ahead, Chile should consider the likelihood that the road will undermine the country's progress toward international environmental commitments.

*Fitzroya*, which grows exclusively in Chile and Argentina, is one of the longest-living tree species on Earth (*5*, *6*). *Fitzroya* forests are among the forests that sequester the most carbon worldwide, and they provide critical ecosystem services and a wealth of historical and environmental information (*7*). *Fitzroya* populations face a high risk of extinction after centuries of overexploitation and burning (*7*) and, more recently, as a result of climate change (*3*).

The Alerce Costero National Park is the only area that protects a genetically unique *Fitzroya* population and the last remnants of species-rich Valdivian temperate rainforests from the Coastal range (*8*, *9*). Building a road through this vulnerable ecosystem would increase the risk of invasion by alien species, facilitate illegal logging, and greatly increase the probability of extensive wildfires in the park (*4*). More than 90% of wildfires occur within 1 km of roads in Chile (*10*).

Chile's proposed road completely ignores the COP15 agreement. The government must honor its commitments and prioritize the protection of the country's most endangered species. The global biodiversity crisis and the unprecedented high risk of species extinction (*11*) call for timely and concrete actions. The preservation of roadless areas is critical to the goals of reducing extinction risks and protecting 30% of the planet.

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## TECHNICAL COMMENT ABSTRACTS

### Comment on "Policy impacts of statistical uncertainty and privacy"

**Yifan Cui *et al.***

Steed *et al.* illustrate the crucial impact that the quality of official statistical data products may exert on policy decisions. We underscore the importance of conducting principled quality assessment of official statistical data products. We observe that the quality assessment procedure employed by Steed *et al.* needs improvement, due to the inadmissibility of the estimator used and the inconsistent probability model it induces on the joint space of the estimator and the observed data. We propose alternative statistical methods to conduct principled quality assessments for official statistical data products.

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### Response to Comment on "Policy impacts of statistical uncertainty and privacy"

**Ryan Steed *et al.***

Cui *et al.* propose a valuable improvement to our method of estimating lost entitlements due to data error. Because we don't have access to the unknown, "true" number of children in poverty, our paper simulates data error by drawing counterfactual estimates from a normal distribution around the official, published poverty estimates, which we use to calculate lost entitlements relative to the official allocation of funds. But, if we make the more realistic assumption that the published estimates are themselves normally distributed around the "true" number of children in poverty, Cui *et al.*'s proposed framework allows us to reliably estimate lost entitlements relative to the unknown, ideal allocation of funds—what districts would have received if we knew the "true" number of children in poverty.

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# Researchers need better access to US Census data

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