

# CIERP Policy Brief

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## Accelerating Green Building in China

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### SUMMARY

This policy brief highlights several key challenges facing Chinese policymakers as they aim to accelerate green building in China and provides policy insights to support future growth. Research was conducted through the examination of scholarly papers, policy documents, and discussions with architects, urban designers, and non-profits in China.<sup>1</sup>

### BACKGROUND

Buildings are a significant contributor to China's energy consumption and carbon emissions. It is estimated they account for roughly 25% of China's total energy use. China's new building stock nearly tripled from 1995 to 2005; in recent years, China added roughly 1.7 billion square meters of new buildings annually. Projections estimate that Chinese building stock will triple again by 2030; 10 to 15 billion square meters of residential buildings will be constructed in Chinese cities, and 10 billion square meters of public buildings will be built between 2010 and 2020.

Regulatory targets and incentives in China's 12th Five-Year Plan aim to accelerate the green building market. In April 2012, China's Ministry of Finance and the Ministry of Housing and Urban-Rural Development announced the country's first goal for the development of green buildings. The document states that 30% of all new construction projects should be green buildings by 2020. Green buildings are defined as those that achieve China's National Green Building Evaluation Label Three Star certification. A subsidy of 80 yuan per square meter will be awarded for 3 star certification and 45 yuan per square meter for 2 star certified buildings. Green building subsidies will not apply to foreign-based green building certification systems. As of 2011, 217 projects had been rated and certified under China's Three Star green building certification program, with 122 commercial projects and 95 residential projects.

### CHALLENGES TO ACCELERATING GREEN BUILDING IN CHINA

Chinese policymakers will face several challenges to accelerating green building in China. These challenges are highlighted below.

#### Lack of Transparency in the Three Star Rating System

Twenty-one Green Building Label Management Offices are authorized to review projects across China for 1 or 2 star certification; a 3 star rating must be evaluated by the Ministry of Housing and Rural Development's Building Energy Efficiency and Technology Division. China's Three Star system is consultative and subjective; it has more qualitative than quantitative indicators. Local Green Building Label Management Offices may eliminate specific items if they are not compatible with geographic or climate conditions of the local area. The impact is that green building certification practices vary, and the rigidity in measurement differs from province to province. As green building expands, the challenge will be to ensure consistent and objective evaluators across the certification levels. A lack of uniformity limits the reach and market impact of China's green building activities. The application for government subsidies for the new green building incentives is also currently unclear at both the central and local levels, so ensuring this process is streamlined for developers will be another policy challenge.

#### Absence of Market Demand for Green Buildings

There is limited public awareness of the economic and health benefits of green buildings in China. As a result, there is little demand from the market to construct green buildings. The impact may be that developers are unable to capture the benefits of building green in marketing to future tenants.

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1 Conducted summer of 2012 while in residence at the China Sustainable Energy Program in Beijing, China.

### **Lack of Technical Capacity**

China has a shortage of professionals who are qualified to execute integrated building design and perform operations and maintenance for green buildings. Capacity building to improve green building knowledge and activities do not target construction workers. Relevant training materials may not have been developed to address their education level or the difficulties they frequently encounter during their work.

### **Lack of a Robust Green Building Materials Supply Chain**

Green building materials represent only 5% of the total building materials market. Green materials are difficult to source and often not available in China, making products very expensive. Furthermore, because building code enforcement is inconsistent across locales, developers may have little incentive to use legitimate green building materials. Suppliers may certify materials without complying with requirements.

### **Developers' Perceptions of Cost-Benefit Analysis**

Chinese developers have cited hesitation to construct green buildings because of higher upfront costs in investments, commissioning, building intelligence systems, and monitoring. Chinese decision-makers expect a 3.2 year payback on building efficiency measures.<sup>2</sup> Costs include green materials and technologies, cost of installation to the design specifications, and higher skilled labor. Developers are accustomed to building quickly and cheaply and want investment to be returned in a much shorter period of time.

## **POLICY IMPLICATIONS**

- Improve measurements and quantitative indicators to ensure uniform standards and consistent evaluators across geographic and climate regions for 1 and 2 star certification
- Execute a clear and accessible process for developers to take advantage of green building subsidies
- Ensure and monitor adequate training for the green building construction and facilities management workforce
- Improve public awareness of the benefits of green building, specifically that green building will bring a healthy indoor environment and reduce long-term operation costs, to improve market demand for green buildings
- Improve enforcement of building energy codes in new buildings and target compliance in the construction stage.

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<sup>2</sup> Institute for Building Efficiency, 2012, Energy Efficiency Indicator Survey, <http://www.institutebe.com/>

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