

Effecting Market Transformation in Building Construction: Critical Factors

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International Workshop:
Mainstreaming Building Energy Efficiency Codes
in Developing Countries

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Points of Departure

- ▶ Buildings account for a large amount of total energy use, and growing in developing world
- ▶ Much of energy footprint of building is set at construction
- ▶ Building energy codes can be powerful, effective tool
 - Cases in China and U.S.
 - Potential for zero energy buildings in the building energy code
- ▶ Enforcement as a weak link



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New Construction and Building Energy Codes

- ▶ China alone accounts for about 50% of annual global new construction, adding about 1.8 bill. m² per year
- ▶ India and other developing countries also typically have high rates of new construction
- ▶ Buildings last 30-50 years.



Lessons Learned

- ▶ Code requirements are becoming more stringent, common
- ▶ More experimentation with enforcement mechanisms
 - Sticks and carrots are getting stronger
- ▶ Enforcement design essential
 - Real penalties and rewards important
 - Training and tools to support process
 - Quality inspection without conflict of interest
 - Creative use of 3rd parties to ensure quality code oversight while keeping government costs low
- ▶ Metrics: how do you know enforcement is working
 - No global standard, which makes it harder to compare enforcement approaches



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Lessons Learned, 2

- ▶ China has improved enforcement rapidly. How applicable are the lessons?
 - Authoritarian powers—not so applicable
 - Structure of multiple checks paid for mostly by developer—may be applicable
- ▶ Mexico is applying an interesting new carrot for high-quality construction

Challenges and Questions

- ▶ Balance between flexibility and complexity of requirements, on one hand, and compliance, on other
- ▶ Do we need to consider behavioral issues particularly as requirements get stronger? If so, how?
- ▶ How can we best allow for rapid and ongoing improvement in requirements?



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Climate scientists and architects say that no single policy change could do more to save energy over the long run — and reduce the nation's contribution to global warming — than building codes that make saving energy the law.



**Clifford Krauss
New York Times
July 2009**