

From Project to Policy:

*Lessons from a French GEF project in
China's residential sector*

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Main ideas

- *In the long-run*, all major countries are committed to participate in GHG mitigation effort (UNFCCC)
- *In the medium-run*, development objectives have the decision-makers' legitimate attention
- *To reconcile the two*: avoid choices leading to irreversible greenhouse gas emission trends and prohibiting meaningful efforts in future
- *How?*
 - Illustration from a French GEF (FFEM) project in the residential building in China

Residential sector in China

	Urban areas	Rural areas
Existing buildings (1999)	4.2 billion m ²	22.1 billion m ²
New buildings (per year)	300 million m ²	700 million m ²

In 1997, coal demand from buildings sector in Northern China only: 130 M t.c.e = 350 MtCO₂

Source: Y. Liu, ICE, 2003

Policy issues

- *China's primary concern: build affordable homes for growing urban population*
- *Heating demand and energy efficiency*
 - *Consumption: 50-100% higher than western homes*
 - *National standards aim at improving energy efficiency*
 - *A first standard aiming for a 30% reduction in heat demand of new homes applies to 1% of new buildings after 10 years*
 - *2005 standard requires a 50% saving in heat demand per m²*
- *Efforts to improve energy efficiency cannot come in the way of the primary development concern*
- **The FFEM project sought to reconcile the primary goal of affordability with energy efficiency improvements**

Project description

A new kind of North-South cooperation

- *Launched in 1999 in three Northern Provinces (Heilongjiang, Liaoning, Beijing)*
 - *Cold winters (-40°C in Harbin), wide seasonal variations*
- *Three-pronged approach:*
 - *Apply innovative technology on a large scale*
 - *Improve floor plans, introduce new insulation materials*
 - *Develop technical and industrial partnerships*
 - *Support to local government institutions*
- *FGEF funding for expertise (this phase): 3.2 M€*
- **Goal:** build 700,000 m² of energy efficient homes, avoid emission of 31,000 tCO₂ per year

Project implementation

- *FFEM provided experts, studies and organised stakeholders' meetings – incl. training of developers*
- *Selected large building projects with authorities*
 - *Large projects can be used as benchmarks for standards*
- *Provided assistance to Chinese developers*
 - *French architects and engineers to assist in plan design, indicate technical solutions, follow up during construction*
 - *Organise marketing campaigns for new homes*
- *Created industrial and technical partnerships*
- *Assisted local government institutions*
 - *Introduction of new pricing for heat*
 - *Economic evaluation of project and costs*
- **Work towards provincial energy efficiency policy**

Project results (1)

- *As of 2003: 516,000 m² built with 50% reduction in heating needs, 29 000 tCO₂ avoided per year*
- *By 2004: 786,000 m²; 44,000 tCO₂ avoided*
- *Indirect effects (e.g. Heilongjiang region)*
 - *In 2000: only 600 000 m² of buildings met the standard (THIS project alone accounted for 20% of the total)*
 - *Thanks to new technology developed in the project, 7.5Mn m² of energy efficient homes were built in 2001. In 2003: 20 Mn m² (two years ahead of the national requirement). In 2004: 40 Mn m²*
 - *Large CO₂ reductions compared to a situation where national standards were not implemented locally (3 MtCO₂ over two years!)*

Project results (2): Costs

- *Heating companies*
 - *Heating price: regulated on a per-m² basis*
 - *Agreement to reduce the price by 30% for energy efficient homes*
 - *Heat volume reduced by 50%*
 - *... for a 30% reduction in sales only...*
 - *... resulting in improved profitability of their*
- *Energy efficient homes cost 5.7% more*
 - *... for much higher quality and lower heating bills*
 - *Cost therefore easily passed on to home-owners*
 - *Pay back for extra cost: 4 years, thanks to 30% lower heating bills (~22 Yuan/m² instead of 34)*



Beijing

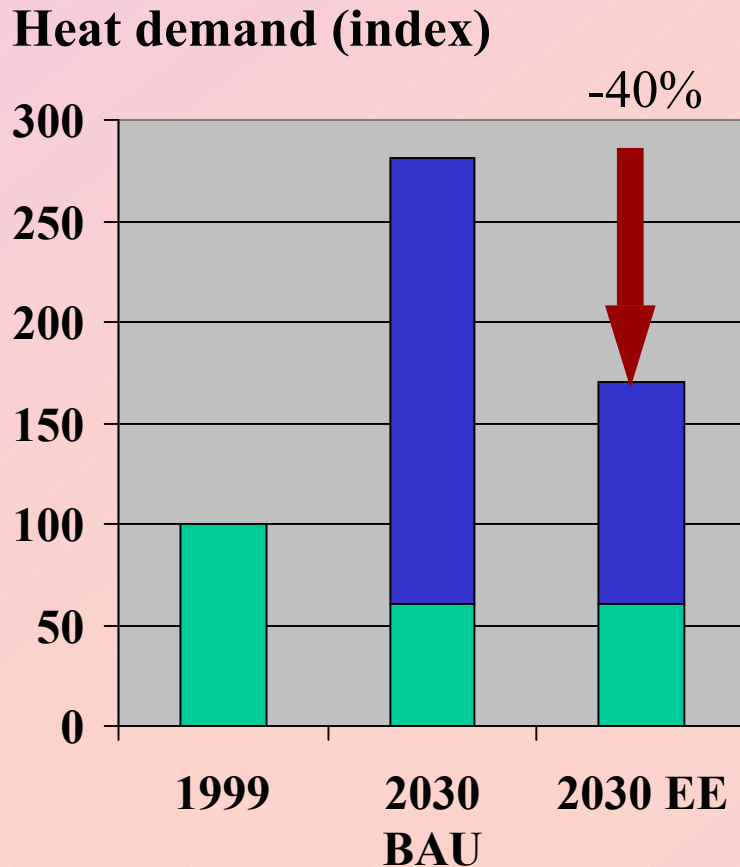
Harbin



In summary

- *Main issue was: Improve efficiency **without undermining development goal**, i.e., demand for new buildings?*
- *End point: the implementation of energy efficiency measures (and institutional support) allowed **over-achieving of development goal***
 - *Home-owners: higher real income through lower heating bills that more than offset increased home price*
 - *Developers: increase home price (+5.7%)*
 - *Heating companies: increase profitability of their activity*
 - *The overall, macro-economic cost, is therefore negative: the project has created a “rent”*

Lessons from a climate perspective



- *Much lower heating capacity from business as usual scenario*
- *New, less GHG intensive technologies - cleaner fuels - would therefore be less costly to adopt*
- *Lower CO₂ emissions in the meantime, in spite of continued reliance on coal*
 - *A shift to gas would be too costly to implement at that scale, without affecting both heating companies and householders*

From project to policy

- *Developing countries must be in a position to afford cleaner technologies tomorrow*
 - *Irreversible GHG-intensive choices risk undermining prospects of future commitments*
- *But we cannot question development objectives*
- *The “technology transfer” approach illustrated here answers to both concerns*
 - *And similar options are available in other sectors*
- **Are current tools for international co-operation adapted to foster such activities? (CDM, technology transfer, bilateral technology protocols...)**

Further references

- *French GEF* - <http://www.ffem.net/anglais/>
- *Executive agency for FGEF:*
 - *ADEME* - <http://www.ademe.fr>
- *Project managers:*
 - *Michel RAOUST* - mraoust@aol.com
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