



Best Practice: Green Building Program

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CITY: TOKYO

POLICY AREAS: BUILDINGS ADMINISTRATION; CLIMATE CHANGE; ENVIRONMENT; ENERGY

BEST PRACTICE

In 2002, the Tokyo Metropolitan Government (TMG) launched a **Green Building Program**, requiring that new buildings with 5,000 square meters of total floor area or larger in Tokyo be evaluated on their environmental performance and disclose this information publicly. Additionally, an array of resources are now posted online, including environmentally sensitive guidelines for the construction, performance ratings, and information regarding related programs such as the Certificate Program for Energy Conservation and the Green Labeling Program for Condominiums.

ISSUE

Tokyo is one of the busiest cities in the world regarding construction. Approximately 20,000 square meters are built every year. The Green Building Program was initiated to direct the entire construction industry towards building environmentally friendly infrastructures.

GOALS AND OBJECTIVES

The overall goal of the program is to move towards a greener real estate market where environmentally-sensitive building designs are valued. Promoting environmentally friendly technology by stimulating the expansion of green technology in Tokyo is another important objective of the program.

Finally, the program contributes to the TMG's goal announced in 2000 to achieve a 25% decrease in Tokyo's greenhouse gas emissions by 2020.

IMPLEMENTATION

Each year, the Green Building Program applies environmental standards to approximately 350 buildings which represent 40% of the sum of the floor area in newly built buildings.

The TMG, in its Environmental Master Plan, announced a policy on sustainable development which led to the launch of the Green Building Program in 2002. In 2005, the program was revised and new emphasis was placed on climate change and the reducing the heat island effect by adding evaluation items and making rating scales more robust.

The most recent version of the Green Buildings Program, issued in 2008, focuses on energy to cope with the effects of climate change and includes the following revisions:

- minimum energy performance standards are set higher than the national standards;
- the TMG now requires that a feasibility study be conducted to introduce on-site renewable energy technologies;

Requirements

Green Buildings Program requirements apply to owners of new buildings. The owners and developers of new buildings are required to construct buildings that incorporate environmentally friendly designs based on the TMG green building design guidelines.

Owners must also prepare "building environmental plans" explaining and rating their environmental design, based on TMG standards, and submit these plans one month prior to building permissions.

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Building Environmental Plan

The "building environmental plan" of each building is posted online. Buildings are rated using three grades (grades 1 - 3) and displayed using charts as follows:

Fields	Items
Efficient Energy Use	Reducing in building thermal load (insulation); use of natural energy; energy conservation systems; efficient management systems.
Appropriate Use of Resources	Eco-friendly materials; protection of the ozone layer and global warming control; longer building life.
Preservation of the Natural Environment	Greening; Hydrological recycling.
Mitigation of the Heat Island Effect	Facility artificial heat emission measures; site and building covering measures; consideration for the wind environment.

COST

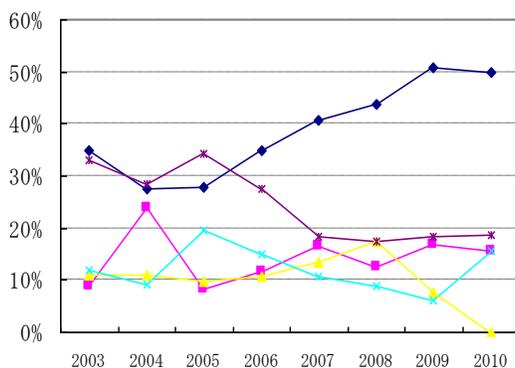
The cost for this program can only be applied in terms of hours worked by technical staff who work with building owners and who verify the submitted plans.

For each developer, introducing environmentally friendly technologies may increase the cost for the developer. However, as the market for sustainable and energy efficient technologies grows in Tokyo, the TMG is confident that the cost of such technologies will become more competitive.

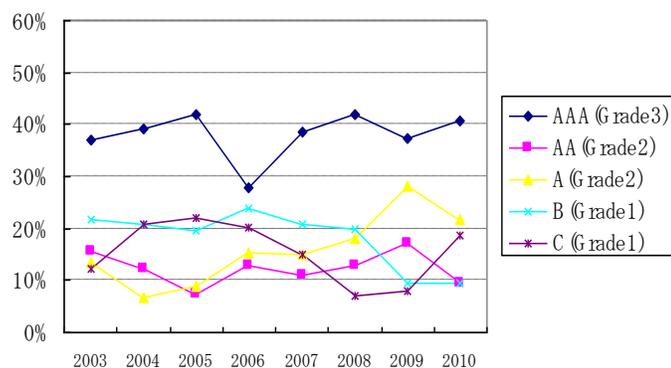
RESULTS AND EVALUATION

Since the program started in 2002, more than 1,500 buildings (as of FY2010) have been included in the program, resulting in drastic improvements in insulation and the use of energy efficient equipment. As showed in the chart below, the number of lower performance buildings (Grade B/C) is decreasing number of higher grade buildings (Grade A/AA/AAA) is increasing.

Reduction in building thermal load (insulation)



Energy conservation system (equipment)



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As mentioned, in conjunction with the Green Buildings Program, the TMG launched the Energy Certificate Program for Energy Conservation (for non-residential buildings) and the Green Labeling Program for Condominiums, which require building owners and sellers to display labels and explain the environmental performance of buildings when buildings are being bought and sold. A final program involves mandating that larger developments that currently have volume bonuses comply with high energy performance standards.

Graphic above is an example of a green label for a condominium required to be displayed by building owners.

TIMELINE

June 2001	The Tokyo Green Building Program was made possible by the Environmental Protection Ordinance
October 2002	Launch date of the Green Building Program
March 2005	Ordinance regarding climate change and heat island effect is revised
July 2008	Ordinance regarding climate change is revised

LEGISLATION

TMG Environmental Protection Ordinance was revised in 2001, 2004, and 2008.

LESSONS LEARNED

As a result of the TMG's mandate that building owners report and disclose information regarding energy use and efficiencies, the program has been a success. Also, linking this program to other related programs has been an effective strategy for comprehensive change. Due to wide-ranging enforcement, there is now a competitive market within sustainable design.

TRANSFERABILITY

This program is easily transferable if one uses a suitable rating system and standards for each area.

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Facts and figures in this report were provided by the highlighted city agency to New York City Global Partners.