

**Our commitment** Sekisui House will put forth Life style of Low CO<sub>2</sub> Emissions Measures for reducing the global warming impact of home occupancy, work to encourage residential energy savings and adoption of photovoltaic power generation systems and fuel cell system, and promote education on ways to save energy in daily life. We will also advance energy-saving measures for business activities.

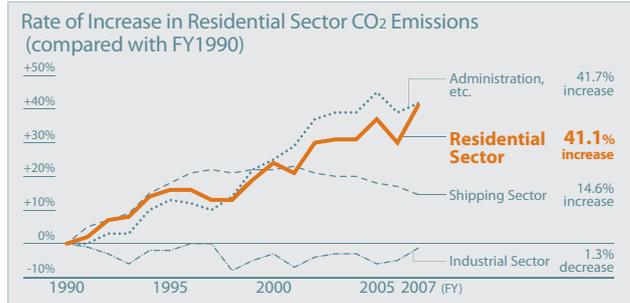
# Working with customers to reduce CO<sub>2</sub> emissions from home occupancy

A house's lifecycle from construction to demolition and disposal is about 30 years, during which occupancy accounts for approximately 70% of the house's CO<sub>2</sub> emissions. As reducing these emissions also reduces global warming, Sekisui House and its customers are working to lower emissions from home occupancy.

## To reduce growing residential sector CO<sub>2</sub> emissions: Action Plan 20 and the environmentally conscious Green First Product Line

Japan is the world's fourth largest emitter of CO<sub>2</sub>, and its residential sector continues to emit increasing amounts of CO<sub>2</sub>, mainly from home occupancy. By source, facilities and lighting account for 40%; hot-water supply, 30%; and heating and cooling, 30%. Therefore, balanced reductions are necessary.

Since 2005, Sekisui House's *Action Plan 20* has aimed at cutting CO<sub>2</sub> emissions by more than 20% annually relative to the 2010



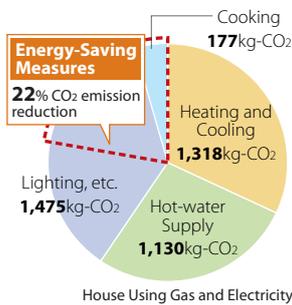
Prepared based on sector emissions data from the Greenhouse Gas Inventory Office of Japan

### Current Principal Model

#### CO<sub>2</sub> emissions under Action Plan 20

Occupancy-related CO<sub>2</sub> emissions: **20% reduction**

Based on its 1990 and 2000 studies, Sekisui House forecasts its CO<sub>2</sub> emissions for 2010 will be 20% lower, which will meet Kyoto Protocol commitments. The Company's standard specifications have already been achieved with CO<sub>2</sub> emissions reduced more than 20%.



#### Annual heating and lighting expense simulation

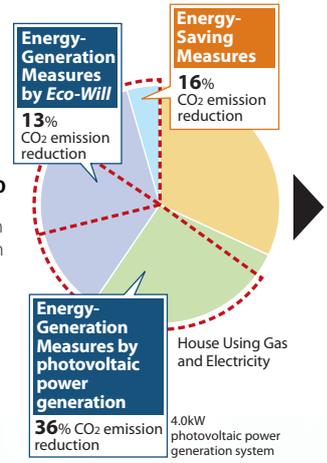
- A 155m<sup>2</sup> detached house in Tokyo occupied by a family of four, with air-conditioning and heating loads calculated using SMASH thermal load software.
- Kerosene heaters and other heating appliances were assumed for an ordinary house.
- Heat-pump air conditioners and warm-water, under-floor heating (50m<sup>2</sup>) were assumed for other houses.
- Utility expenses were calculated using the most economical rates offered by Tokyo Electric Power and Tokyo Gas for October 2008.

## Green First

### Current Recommended Model

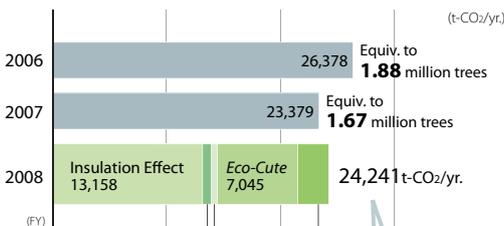
**Green First**  
Occupancy-related CO<sub>2</sub> emissions reduction of **60~80%**

These houses were built to next-generation insulation specifications and equipped with high-efficiency, hot-water supply systems and a photovoltaic power generation system or *ENE FARM* fuel cell system. CO<sub>2</sub> emission reductions vary depending on the performance of installed devices. To illustrate, a house with gas and electricity and equipped with a 4kW photovoltaic power generation system and *Eco-Will* could cut CO<sub>2</sub> emissions by 65%.

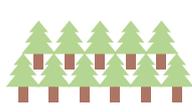


\* A similar All Electricity proposal is possible

### CO<sub>2</sub> emission reductions



CO<sub>2</sub> absorption equivalent to that of **1.73 million trees**



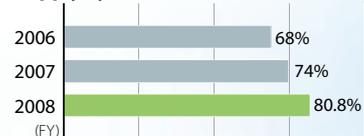
### (1) General application of next-generation energy-saving standards

Multi-layered glass combining crime prevention and airtight insulation qualities, and airtight insulated aluminum sashes are in all detached houses.

### (2) General application of high-efficiency, hot-water supply systems

We recommend *Eco-Jose* systems and *Eco-Will* gas power generation and water heating systems in houses using gas and electricity. For all-electric houses, we recommend *Eco-Cute* systems.

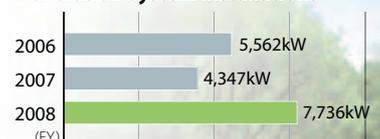
### High-Efficiency, Hot-Water Supply System Installations



### (3) Recommendation of photovoltaic power generation systems

We can reduce fossil-fuel-based energy by using photovoltaic power generation. These systems are also useful as independent power sources during emergencies.

### Annual Photovoltaic Power Generation System Installations



forecast to help meet Japan's Kyoto Protocol commitment of reductions of more than 6% of 1990 levels. Sekisui House is implementing next-generation energy-saving standards (1); promoting high-efficiency, gas hot-water supply systems (2); and advocating photovoltaic power generation systems (3).

In fiscal 2008, we introduced our *Carbon Neutral House*, which uses energy conservation technology to reduce CO<sub>2</sub> emissions as much as possible and a photovoltaic power generation system and home use fuel cell system to offset the remainder. For the future, we are considering efforts to promote the adoption of *Zero Emission House* specifications for which not only occupancy-related emissions, but all CO<sub>2</sub> emissions from the lifecycle will be completely offset. Following up on our *Carbon Neutral House*, we began developing a line of *Green First* environment-conscious housing in fiscal 2009. The flagship will be *Green First Premium* houses equipped with photovoltaic power generation systems and *ENE FARM* fuel cell system.

### Reducing CO<sub>2</sub> emissions through remodeling: Action Plan R20

For the 800,000 homes built by Sekisui House all over Japan, Sekisui House Remodeling Ltd., is pursuing *Action Plan R20* for

existing houses. This plan focuses on repairing or replacing insulation around openings, which is highly cost-effective, and includes installation of a high-efficiency, hot-water supply and a photovoltaic power generation system.

### Sustainability in Action

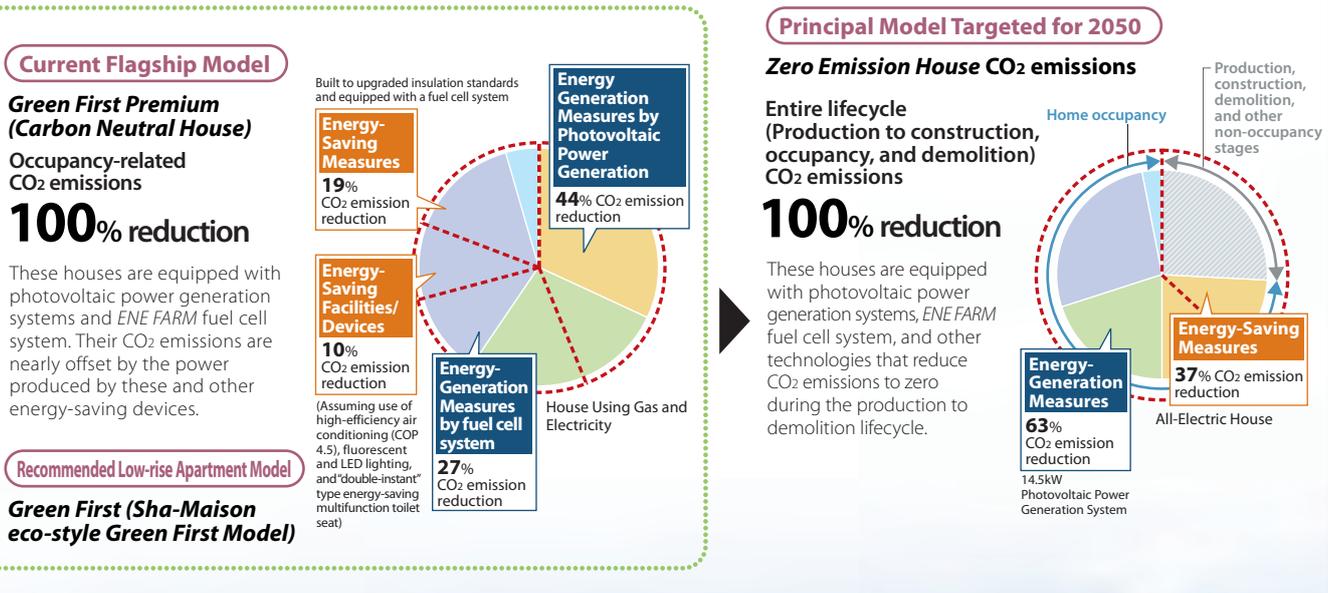


#### Housing construction with built-in environmental performance

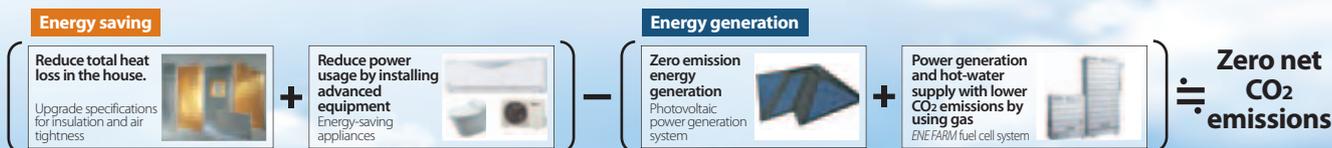
**Kenichi Ishida**  
Head of Global Warming Prevention R&D Institute  
Environment Improving Department

In fiscal 2008, we supplemented *Action Plan 20* with our *Carbon Neutral House* and *Zero Emission House* initiatives to fight global warming by reducing CO<sub>2</sub> emissions from home occupancy. Gaining acceptance of these initiatives depends on our success in providing advantages to customers while lowering the environmental impact and popularizing new technologies.

For fiscal 2009, our *Green First* house objective is to promote greater adoption of our products together with the use of alternative energy.



### CO<sub>2</sub> Reduction Concept in Green First Premium



IS ORDER Green First



**1 To prevent global warming**  
**Working with customers to reduce CO<sub>2</sub> emissions from home occupancy**

**Reducing heating and lighting expenses with the Carbon Neutral House and helping to prevent global warming: The Kunizukas, Kobe, Hyogo Prefecture**

Sekisui House's *Carbon Neutral House* is contributing to the government's efforts to build a low-carbon society and has been chosen among many by the Ministry of Land, Infrastructure, Transport and Tourism under a system that delivers subsidies to houses with excellent CO<sub>2</sub> reductions.

The Kunizukas of Kobe have been living in their *Carbon Neutral House* since December 2008. Until recently, Mr. Kunizuka had worked in an area with significant snowfall and, for many years, he had noticed the declining use of snowplows. Although he was happy with less snow, he became more aware of global warming and that he should do something.

Although *Carbon Neutral Houses* cost more than houses built to standard specifications, the Kunizukas decided to purchase one so they could save on daily heating and lighting expenses. They liked the elaborate designs and the seasonal simulations and other detailed information.

The Kunizukas moved into their new home in the middle of winter and were impressed by its warmth. They give their new home high marks because it allows them to live in comfort, while enjoying reduced heating and lighting expenses. In this way, they are contributing to efforts to prevent global warming.



Checking the power generation monitor

 We love to see how much electricity is generated daily



To help the environment, we recycle plastic bottles and use bathwater for laundry. We regularly check our monitor and see how much electricity our house generates daily. The feeling that we are benefiting as well as doing something for the environment makes me happy. We look forward to receiving advice on the best ways to use energy-saving devices.

**The Kunizukas**  
Owners of a *Carbon Neutral House* in Hyogo Prefecture

**Carbon Neutral House Earns Awards**

In 2008, the *Carbon Neutral House* won the Award for Excellence at "the Green Purchasing Awards," sponsored by the Green Purchasing Network. It also won the Chairman of the New Energy Foundation Prize at the 13th Annual New Energy Awards, sponsored by the New Energy Foundation.



Presentation ceremony at the New Energy Awards



The Energy-Saving Navigator will promote energy conservation awareness by showing residents their electricity consumption

## The Zero Emission House: Greater comfort in daily life and prevention of global warming

At the July 2008 G8 Hokkaido Toyako Summit, the *Zero Emission House* was exhibited by the Ministry of Economy, Trade and Industry to showcase Japan's prefabricated housing and global warming prevention technologies. The house offers comfortable living and uses energy-saving and energy-generating measures to offset CO<sub>2</sub> emissions from occupancy and at every life-cycle stage: production to construction and occupancy to demolition. The house has a photovoltaic power generation system; a fuel cell system; roof vegetation; the *SHEQAS* seismic damping system; high-strength, high-durability *ECORDEC* exterior walls; and *SPACIA* vacuum-insulated glass, among other cutting-edge technologies.

Most of the energy-saving and energy-generating technologies are applied in existing houses.

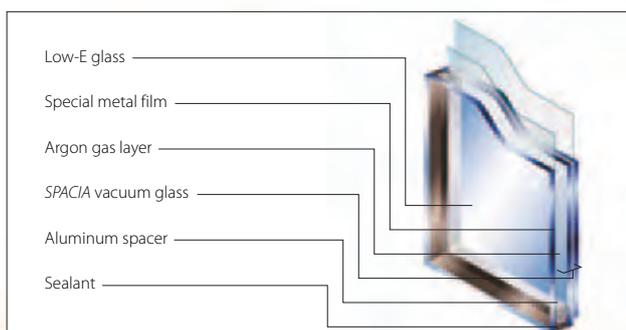
After the G8 Hokkaido Toyako Summit, the house was moved to the grounds of the Resource Management Center at our Kanto Factory, where it was opened to the public as a learning facility in the Ibaraki Next Generation Energy Park.



The introduction of Japanese advanced environmental technologies to interior/exterior parties in front of the International Media Center during the G8 Hokkaido Toyako Summit



Pitched roof vegetation using *Racomitrium Bridel*, which limits increases in indoor temperatures and fixes CO<sub>2</sub>



*SPACIA* vacuum insulated glass offers extremely high insulation efficiency comparable to thermal insulator

## Preventing global warming with profitable, environmentally friendly low-rise apartments

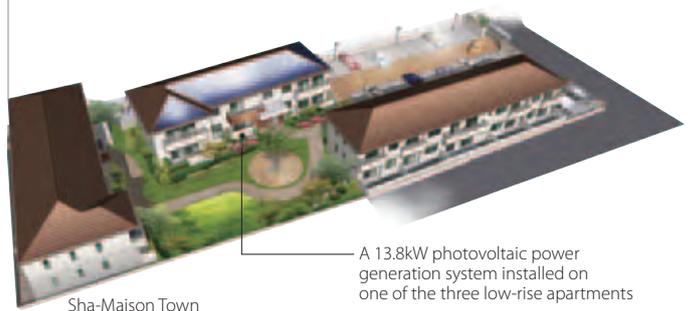
Sekisui House proposed that the property owner build a high-value-added apartment complex equipped with a photovoltaic power generation system. The extra power could be sold to an electric utility on an apartment-by-apartment basis. This complex was completed in 2008 and has a tenant waiting list.



"Avenir" (Osaka Prefecture)



Power generation monitor



Sha-Maison Town

A 13.8kW photovoltaic power generation system installed on one of the three low-rise apartments

In fiscal 2009, Sekisui House introduced the *Sha-Maison Ecostyle Green First Model*, which uses all electric and high-efficiency hot-water supply systems and a photovoltaic power generation system. This model will be promoted throughout Japan.



### Third-party comment

#### Dr. Toshiharu Ikaga

Professor, Department of System Design Engineering  
Keio University Faculty of Science and Technology

Designing and evaluating environmental systems and facilities of buildings and performing research, including work aimed at estimating the 2050 impacts of global warming measures on a prefecture-by-prefecture basis.

## Targeting 2050, high praise for the Zero Emission House

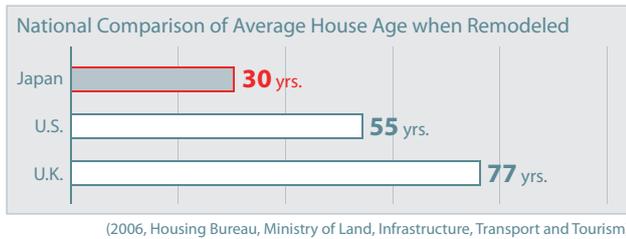
The Japanese government's Action Plan for the Creation of a Low-Carbon Society, developed after the G8 Hokkaido Toyako Summit, includes a call to reduce greenhouse gas emissions to 60%–80% of current levels by 2050. Achieving these goals will require energy-saving and energy-generating measures to extend the useful lives of houses, and efforts by home occupants and the housing industry.

Sekisui House, which has endeavored to implement plans for new construction and remodeling, deserves high praise for having taken another step forward through its efforts in low-rise apartment and laying out a roadmap for making the *Zero Emission House* a construction standard by 2050.

**Our commitment** We will promote our guarantee extension system and *EVERLOOP*, repurchase of housing sold by the Company for reusing purposes, to contribute to a new existing home market so that people can live in their houses for a long time.

# Offering revitalization-oriented, long-term housing

The lifespan of Japanese houses is shorter than those in Europe and the US. In actual transactions, building values are less than 10% of their original levels after 20 years. With Japan transitioning to a society in which high-quality goods are maintained and used long term, in March 2007 Sekisui House initiated a process for home revitalization and distribution business. By doing this, we are adding value to the housing market by making homes available to new owners and extending the lifespan of houses, which is an effective use of resources.



## Invigorating the Market for Existing Homes through *EVERLOOP*

In *EVERLOOP*, repurchase of housing sold by the Company for reusing purposes, we purchase Sekisui House detached housing and *Sha-Maison* low-rise apartments, revitalize them with retrofitting for current earthquake resistance standards, upgrade thermal insulation properties, and install up-to-date products by industry-leading manufacturers, before selling them to new owners. In addition to quality equal to that of new construction, these owners are provided with *U-trus* guarantees (10 years) and after-sales service through our customer centers, all of which add up to long-term peace of mind.

*EVERLOOP* is a proprietary appraisal system that begins with the estimated sale price, which permits homeowners to sell rather than demolish their homes. The system also gives new owners the opportunity to purchase a high-quality home at a price lower than that for new construction. *EVERLOOP* is supporting the existing-home market and helping to change Japan's housing market from consumption to revitalization-oriented.

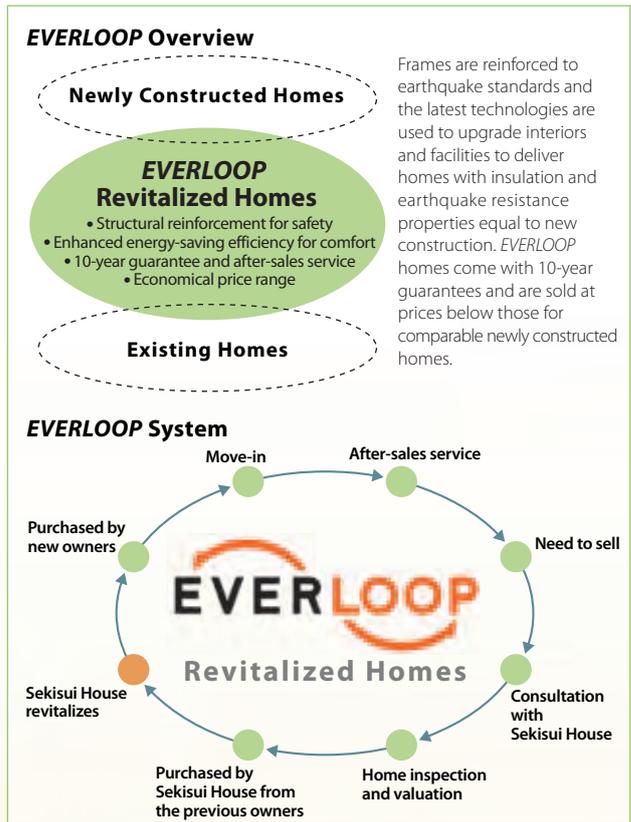


### Sustainability in Action

**Aiming to form a new market as a pioneering model**

**Hironobu Seto**  
Head of House Purchase & Resale Department

Through *EVERLOOP*, Sekisui House is forming a new market separate from markets for new and existing homes. We are also creating environmentally superior housing by upgrading insulation properties and striving for zero emissions. These and other measures will result in a pioneering business model that transforms our consumption-oriented society into one that recycles.



## Completely satisfied with my brand-new looking home—Ms. M.'s experience (Hyogo Prefecture)

In the beginning, Ms. M. compared an *EVERLOOP* home with new wood-frame housing offered by local construction companies. After touring a Sekisui House *EVERLOOP* home for sale, she saw that although the square footage and prices were similar, *EVERLOOP* homes clearly had more in quality and performance to offer.

We explained to Ms. M. that we had carried out a careful ground survey, which confirmed the soundness of the foundation and frame. We also showed her photographs of the extensive remodeling work we did to bring her prospective home up to next-generation energy-saving insulation standards. Eventually, she found the durability and livability of the home she was considering buying agreeable.



“It’s a new home, isn’t it...?”



*EVERLOOP* home owner,  
Ms. M. (Hyogo Prefecture)

My friends ask me whether my home is new, and one could easily think so. I enjoy my home as if it were new. Excellent insulation makes it very comfortable. In addition, large windows and ingenious design features to create open spaces allow for very relaxed living and make mine a comfortable house.

The other day, I watched a cicada emerge from a pupa on a tree in the garden, which was as left the previous owners, and I thought about them. While watching this cycle of life, I thought about the revitalization of housing and understood the significance of the *EVERLOOP* model.



### Sustainability in Action

#### Encouraged by customers’ positive feedback

##### Manabu Ishimura

Manager, Kobe Nishi Sales Office  
Sekisui Real Estate Kansai, Ltd.

When I showed a Sekisui House *EVERLOOP* home to Ms. M., she said that it was much better than other houses on the market. Here acknowledgment that our homes offer more value than new construction was a strong endorsement of all of us. Looking ahead, we aim to continue focusing on customer satisfaction and promoting revitalized homes.



Guarantee of *U-trus* system:  
Under the *U-trus* system, the original frame and water tightness guarantees are supplemented after expiration with additional 10-year guarantees.

## Selected as “Quality, Long-term Sustainable Housing Leading Model Project” Full Skeleton Revitalization Model Social Asset Low-Rise Apartment Advancement Technology

“The Quality, Long-term Sustainable Housing Leading Model Project” launched by the Ministry of Land, Infrastructure, Transport and Tourism in fiscal 2008 solicits business ideas for construction of long-life houses and offers subsidies for a portion of the operating expenses of enterprises, which is a groundbreaking proposition.

In our first call for ideas, the “full skeleton revitalization model,” the core *EVERLOOP* product, was selected. Full skeleton revitalized homes have been remodeled by being dismantled to the frame and retrofitted to provide earthquake resistance and durability properties on a par with new construction. This system, in which existing homes are purchased, revitalized and sold with guarantees, was praised as contributing to the development of a market for existing homes.

In our second call for ideas, our “Social Asset Low-rise Apartment Advancement Technology” to promote the development of long-life, low-rise communal housing was selected based on the need to inspect the condition of facilities, exterior walls, etc.



### Third-party comment

#### Dr. Shuichi Matsumura

Professor, Department of Architecture  
University of Tokyo Graduate School of Engineering

Expert in construction methods and building production.  
Received the 2005 Architectural Institute of Japan Prize for his research on industrialization of housing production.

## Expecting *EVERLOOP* to lead a new trend in Japanese housing

When Sekisui House was established in 1960, Japan had a severe housing shortage, with the number of houses far below the number of households. Now, the number of houses is about 20% greater than the number of households, and excess houses total several million. These figures are a reflection of the tremendous efforts made by the housing industry and a clear indication of a change in the housing environment.

There will be great demand in the housing industry to take care of existing housing stock and effectively use these houses as updated, enriched places to live. I give high marks to the industry leader, Sekisui House, for deciding to launch its innovative, timely *EVERLOOP* operation in which it repurchases homes that it has built, remodels them to meet present-day needs and transfers them to new owners. I have great expectations that this will start a new trend in Japanese housing.

**Our commitment** We will focus on protecting ecosystems based on the *Gohon no ki* gardening concept and continue planting trees at the rate of one million per year.

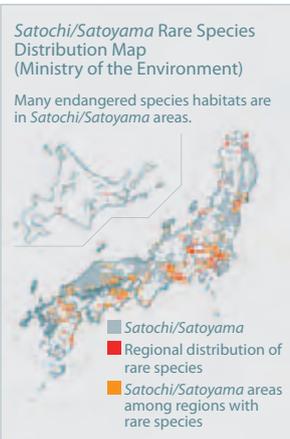
# Satoyama as a model for revitalizing the relationship between people and nature

The term *Satoyama* refers to the natural environments traditionally preserved among tracts of land turned to human purposes. These environments are wooded areas used for resources like firewood and materials for fertilizer and are adjacent to rice paddies, fields for other crops, ponds, and streams. They also serve as complex ecosystems with various habitats. Taking cues from the *Satoyama* concept, Sekisui House is offering gardens suited to local climates and striving to revitalize natural ecosystems.

## Gohon no ki gardening concept for creating gardens that emphasize both comfort and ecosystem protection

The *Satoyama* regions make up approximately 40% of Japan land area. These regions are home to a wide variety of plant and animal species, including endangered ones, and form ecosystem networks where wild animals live..

In recent years, declining *Satoyama* maintenance has resulted



in the proliferation of bamboo grass and groves and the degradation of the quantity and quality of biodiversity.

Consequently, the protection of *Satoyama* has become urgent.

Since 2001, Sekisui House, Japan's leading homebuilder, has been advancing the *Gohon no ki* gardening concept for gardening and greenery activities that support biodiversity. This concept is based on the *Satoyama* example and involves housing-

related activities in protecting the natural environment.

If gardens are created by relying not on non-native species chosen simply for their appearance, but mainly with indigenous species, mixing evergreen and deciduous varieties with ponds or other water resources in configurations like those in natural woodlands will attract birds, butterflies, and other insects. These, in turn, create a peaceful, relaxing atmosphere for homeowners, who come to appreciate, and communicate, the joy of living amid such a living environment. Gardens with a natural balance also require relatively little work by the homeowners.

In fiscal 2008, Sekisui House planted 850,000 trees. We will continue advancing the *Gohon no ki* gardening concept.



**Mr. Y, (Hachioji City, Tokyo)** who has built a garden based on the *Gohon no ki* gardening concept

Sharing the desire to restore natural conditions

Having a better-than-expected garden, I feel like I'm in a second house deep in the forest. I understand Sekisui House's efforts to restore a balance with nature. In the future, I want to continue tending a garden that attracts birds and butterflies.

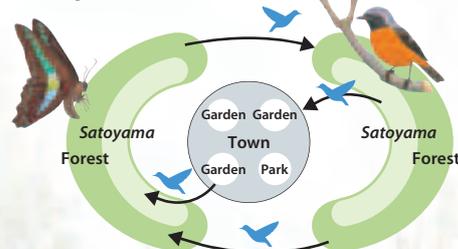


Garden with an arrangement of *sanbaseki* (stones) and an artificial mound covered by undergrowth



A great tufted titmouse visiting the garden

## The Gohon no ki gardening concept



We aim to create ecosystem networks that link residential gardens and *Satoyama* areas, allowing animals and insects to go back and forth and restoring natural conditions

The country will be categorized using five climate zones with representative indigenous trees selected for each zone. A single indigenous tree can support several hundred birds and other species.



### Sustainability in Action

#### Building a nature-friendly garden based on the *Gohon no ki* gardening concept

Keiichi Enomoto  
Tokyo Center  
Greentechno Sekiwa, Ltd.

Gardens, which look like bright thickets, are based on the *Gohon no ki* gardening concept. In the garden, the trees' shapes and heights have been adjusted, the ground has been contoured, and other steps have been taken to make the garden appear deeper and more luxurious.

*Gohon no ki* trees from natural forests make a robust, insect- and disease-resistant garden with natural forms that support birds, which feed on destructive insects. These beautiful gardens require relatively little care.

Garden designs based on planning that benefits people's lives are true sustainability.

### Actively participating in international biodiversity protection initiatives

In April 2008, the Japan Business Initiative for Conservation and Sustainable Use of Biodiversity (JBIB) was established with 17 members (21 as of January 2009), including Sekisui House.

In May 2008, at the UN's 9th Conference of the Parties to the Convention on Biological Diversity (COP9), held in Germany, 34 companies from six countries signed the Business and Biodiversity Initiative. Nine Japanese companies, including Sekisui House, backed the Leadership Declaration.

COP10 will be held in Nagoya in 2010, and international attention is now turning to the activities of Japanese companies.

#### Annual Tree-Planting Results



#### Biodiversity project, *Shin-Satoyama*, at the *Umeda Sky Building* in Osaka

With wooded areas, bamboo groves, and terraced paddies, *Shin-Satoyama* attracts wild birds and insects and is loved as a relaxing place in the surrounding urban environment



A semi-endangered sparrow hawk visits *Shin-Satoyama*



Experiential nature study

### *Gohon no ki* gardening concept receives Partnership Prize

In November 2008, Sekisui House and the Sharing Earth Association were awarded the Partnership Prize in "the 6th Partnership Grand Prix." This prize is sponsored by the Partnership Support Center for biodiversity protection work based on the *Gohon no ki* gardening concept.



### Third-party comment

Dr. ADACHI Naoki  
C.E.O., Response Ability, Inc.

As a consultant specialized in the conservation of biodiversity and responsible procurement, Dr. Adachi supports corporate activities contributing to the development of a sustainable society. He is also a member of the Ministry of the Environment's Committee for the Business Guidelines for Biodiversity.

### Biodiversity Conservation through the Business of Sekisui House

With the 10<sup>th</sup> Conference of the Parties to the Convention on Biological Diversity (COP 10) to be held in Nagoya in 2010 approaching, the number of Japanese companies developing activities for biodiversity conservation is rapidly growing. However, it is obvious that COP 10 itself cannot be the true goal. If a company were to make only superficial activities, it would lose reputation.

Meanwhile, Sekisui House has been making substantial contribution through their core business; *Gohon no Ki* gardening concept, a unique way to encourage their customers to assist in revitalizing and reviving local biodiversity, which was once lost or degraded. They also have developed and employed a very advanced policy on the procurement of timber. It was the first of this kind among Japanese house builders. Involvement of both customers and suppliers is the feature of their activities. I believe and hope that such activities will help Sekisui House's proactive and enthusiastic attitude toward conservation of biodiversity to prevail.