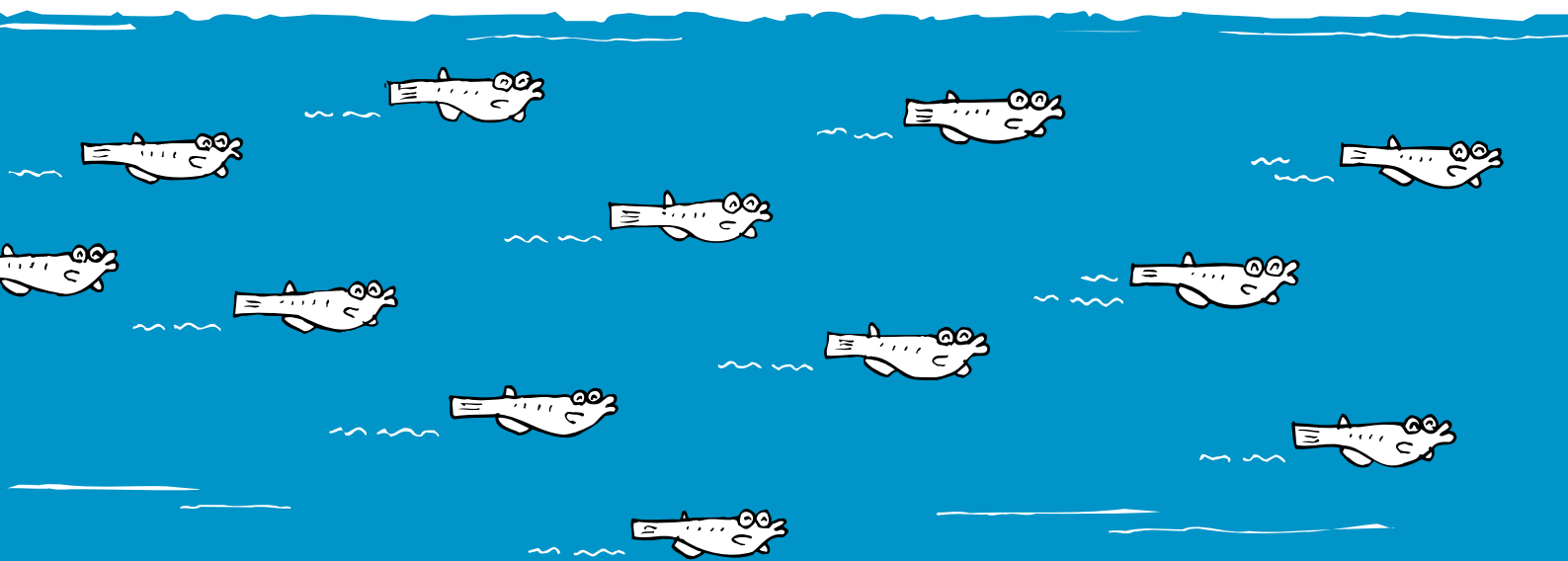


ENVIRONMENTAL
REPORT
2002



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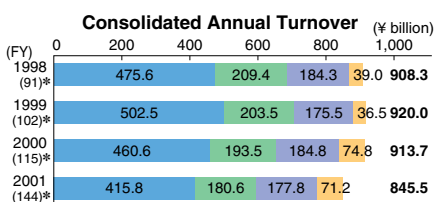
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Profile of the Company

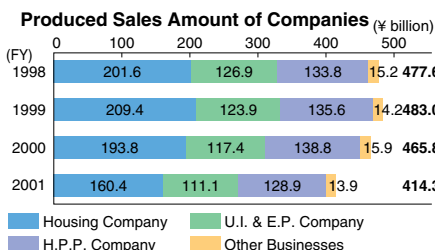
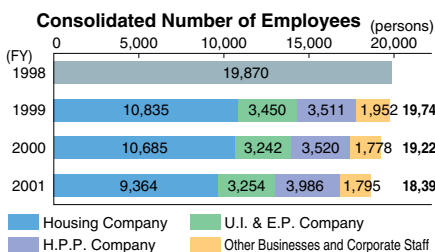
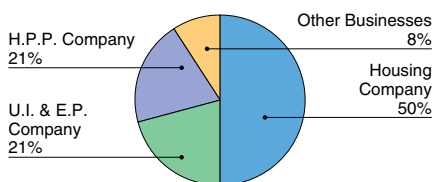
(as of March 31, 2002)

Established on	March 3, 1947	
Domestic Subsidiaries	188 companies	
Overseas Subsidiaries	26 companies	
Main Business Indices (FY 2001)	consolidated (144 companies)	non-consolidated
Annual Turnover	¥845.5 billion	¥409.0 billion
Number of Employees	18,399	3,229
Capital	¥100.0 billion	



*the number of consolidated companies
 Housing Company
 Urban Infrastructure & Environmental Products (U.I. & E.P.) Company
 High Performance Plastics (H.P.P.) Company
 Other Businesses

Consolidated Turnover Ratio per Internal Company



Main Business Areas

(as of March 31, 2002)

Housing Company

Sekisui Heim (steel- framed modular houses)
 Sekisui Two-U Home (wooden-structured modular houses)
 Renovation, Interior/exterior decoration, Realty

Urban Infrastructure & Environmental Products Company

Plastic piping systems, Lined steel pipes, Plastic valves, Plastic pits
 Pipe relining materials and engineering, Garbage treatment systems
 Synthetic lumber, Building materials (rain gutters, roofing tiles, balcony flooring)
 Bath units, Septic tanks, Electric hot water units

High Performance Plastics Company

Interlayer film (for laminated glass for windows of vehicles and buildings), Plasticizers, Adhesives, High performance resins, Adhesive tapes (packaging and industrial use), Engineered fine parts, Foamed polyethylene, Packaging and agricultural film, Plastic containers, Marking film, Plastic home products for cleaning, Bathroom, toilet, kitchen, and storage goods Home chemicals (bath fragrance, soaps, deodorizers), Vacuum blood tubes, Medical tapes, Diagnostics

Other Businesses

New Businesses
 Sound insulation boards, Fireproof sheet, Photovoltaic/Thermal Hybrid System, Nursing rooms for the elderly
 Others
 Molds, Machines and equipment, Financing and leasing, Welfare services, Agricultural and building material supplies



Responsible Care

Responsible Care is the voluntary management of chemical substances through their life cycles, starting from development and continuing through manufacture, use and disposal by the manufacturers or distributors, to ensure safety and environmental conservation. Such management requires planning, annual activities, publication of results and continued efforts for improvement on the part of the participating firms. Sekisui Chemical has been a member of the Japan Responsible Care Council since its start in 1995, and has been continuing the responsible care activities progressively.

Editorial Policy of Environmental Report 2002

- The object period of this report is fiscal 2001 (from April 1, 2001 to March 31, 2002). (Some data may refer to periods prior to or following these dates.)
- Targeted workplaces are introduced in P60 and P61.
- In this report, in addition to environmental matters we have included social aspects such as occupational health and safety and social contribution activities. We have referred to the following materials:
 - "Environmental Reporting Guidelines (FY 2000 Version)" of the Ministry of the Environment of the Japanese Government
 - "Sustainability Reporting Guidelines (June, 2000)" of Global Reporting Initiatives (GRI)
- In order to further clarify up the relationship existing between our operations and the environment, we have structured this report according to the entire Sekisui Chemical Group and the three internal companies respectively.
 Sekisui Chemical Group: Outline of data and activities of Sekisui Chemical Group as a whole.
 Internal Companies: Data and actual examples of activities in each internal company

Message from the President

Now that ten years have passed since the Earth Summit in Rio de Janeiro, response to environmental problems have become increasingly important, and enterprises are required to cope with these issues at an ever higher level.

With our two major business lines of housing and plastics, both of which can have significant environmental impacts, Sekisui Chemical Group is progressing with our response to environmental problems in the following manner. Firstly, we refine the products that we manufacture and market to the extent that they will be totally environment-friendly. In so doing we can be deserving of the trust consumers have in us with regard to the longer life span of our houses, their safe indoor environments and their energy saving features. Secondly, we promote full recycling activities. It is a must to develop technologies and products that will allow for easy recycling, as well as to structure complete recycling systems, in order to establish a recycling-based society. Among others, we are proceeding with the recycling of used PVC pipes and rain gutters, a reuse system for houses by exploiting the merits of our unit housing system and pipe relining systems for the renewal of worn pipelines. Thirdly, our environmental consideration embraces all our plants and house construction sites. The successful continuation of our business operations would not be possible without the highest level of environmental consideration to local communities, such as in zero emission, appropriate management of chemical substances and perfect communication with local communities. The thorough practice and continued growth of these activities, we believe, is the right way to be an environmentally creative organization whose existence is desired and supported by our local communities and society as a whole.

Fiscal 2002 is the final year of "STEP-21" which is our middle term environmental plan. We are devoted to the completion

of this plan, which will then connect to our next middle term plan. Furthermore, fiscal 2001 saw the 55th anniversary of our company. In commemoration of this, we have established Sekisui Chemical Co., Ltd. Research Fund for the Development of Technologies from Nature, as nature holds a countless number of amazing functions that we can hardly begin to imitate with our present technologies. Utilization of the functions of nature, that have enabled survival of the fittest, is prerequisite to structuring a sustainable society. This bears direct relationship to the degree of environment-friendliness of our products.

We trust that this report will be a valuable means for our communication with you, and that it will give you a deep understanding of the environmental conservation activities of our Sekisui Chemical Group. We look forward to receiving your comments and advice.



Naotake Okubo

July 2002

Naotake Okubo
President

Corporate Policy on the Environment and Safety

Acknowledging environment and safety as paramount important issues of our corporate management, we are committed to serving the community by placing priority on the following in the management and activities of our corporation.

- 1. We have utmost concern for the environment and safety of all our products throughout their entire life, from the stages of research and development, through production, distribution and to disposal, and comply precisely with all and every requirement on the issue.**
- 2. We constantly improve our operations to utilize effectively, reclaim, and reuse limited resources, thereby doing everything within our power to reduce the environmental load.**
- 3. We not only observe laws and regulations, but set our own objectives and targets to do our utmost to ensure a better environment and improved safety.**

By acknowledging the importance of and implementing the above stated policy, all our employees, including all contractors, fully meet with the confidence that society places in us.

Established : April 1996 Revised : July 1999

Activity Guidelines

1. Energy/Resources Saving

Effective utilization of the limited resources/energy and introduction/ development of energy saving technologies.

2. Reuse/Recycling

Reduction of waste in production processes and promotion of reuse/recycling. Efforts to collect and recycle the disposed products. Development of reusable/recyclable products.

3. Safety Assurance for Chemicals

Survey and research for effects on the environment of products and materials in use. Positive steps to ensure chemical safety and environmental safety.

4. Harmonization with the Community

Devotion to environmental conservation and human safety/health, paying attention to scientific progress and governmental concerns.

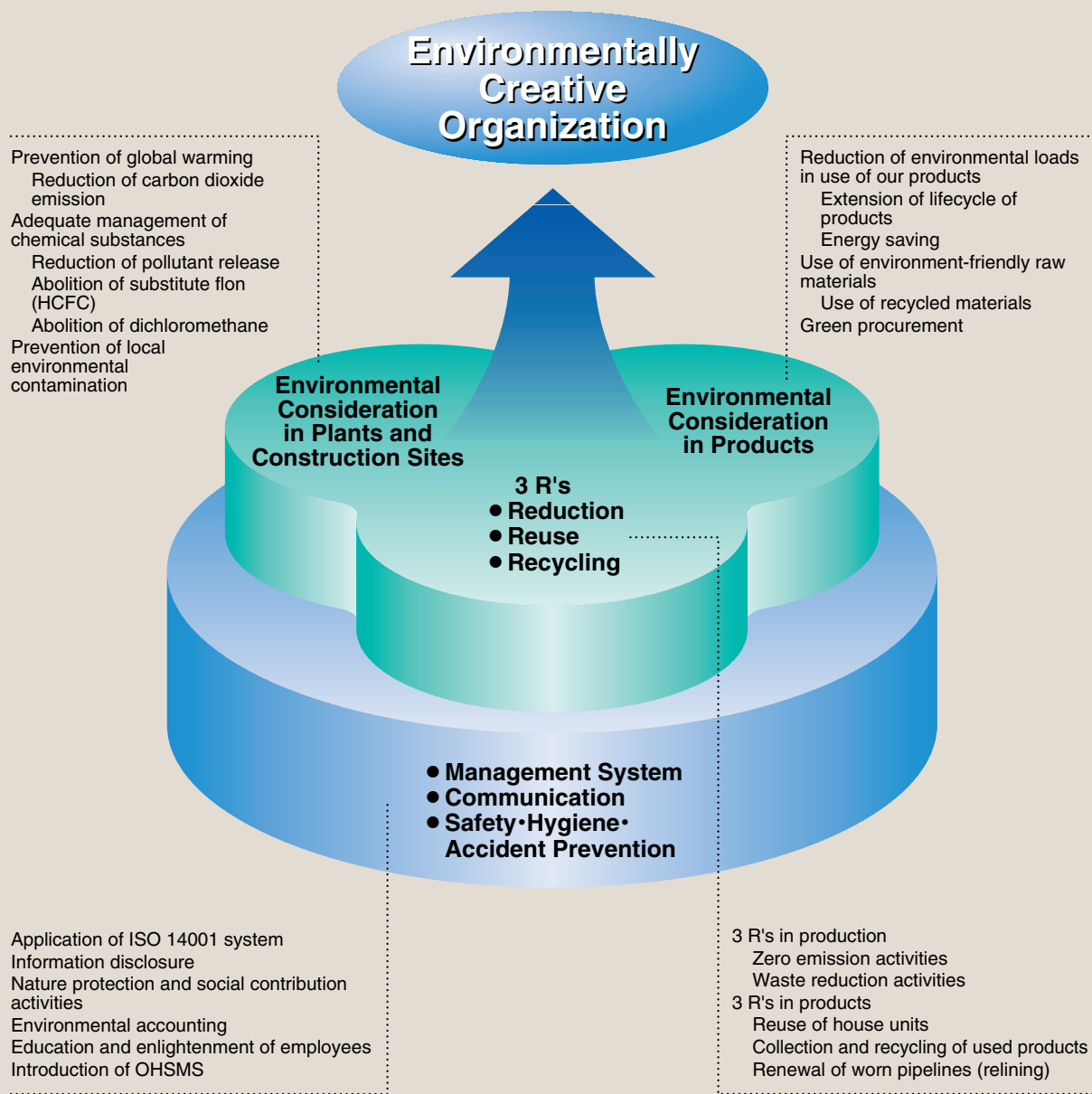
5. Education and Enlightenment

Absorption of international and national information, correct understanding of environmental effects of products and business activities and appropriate education both internally and outside.

Established : April 1996 Revised : July 1999

Sekisui Chemical Group's Involvement in Environmental Affairs

We are aiming at becoming an environmentally creative organization by enhancing our consideration of the environment and safety, throughout our entire business operations from products development to manufacture and sales.



History of Our Environmental Activities

Sep. 1972

Start of company-wide commitment to pollution control. Start of Environmental Management Dept.

Apr. 1980

Start of company-wide commitment to energy saving.

Jan. 1991

Implementation of Environmental Audit System. Start of Environmental Management Committee, and Environmental Management Section in the Safety & Environment Dept.

Jul. 1991

Establishment of the Basic Policies on environmental issues.

Oct. 1992

Start of the Environmental Technology Project for development of recycling and energy saving technologies.

Apr. 1993

Introduction of Evaluation Systems of Products Assessment for Environmental Impacts.

Oct. 1993

Implementation of Voluntary Environmental Plan.

Apr. 1995

Start of Responsible Care Activities. Joined in JRCC (The Japan Responsible Care Council.).

Apr. 1996

Announcement of Top Management Policy for Environment and Safety. Start of ISO 14001 Certification acquisition activities.

Apr. 1998

Start of zero emission activities. Publication of the Leaflet on Environmental Affairs.

Apr. 1999

Start of Middle Term Environmental Plan, "STEP-21".

Jul. 1999

Revision of Corporate Policy on the Environment and Safety. Publication of Environmental Report 1999 (issued annually thenceforth).

Mar. 2000

Achievement of zero emission at 6 plants.

Jul. 2000

Announcement of Environmental Accounting for fiscal year 1999 (published annually thenceforth).

Apr. 2001

Start of zero emission activities at the house construction sites.

Sep. 2001

Achievement of zero emission in all of the house manufacturing plants.

Nov. 2001

Commencement of green procurement.

Mar. 2002

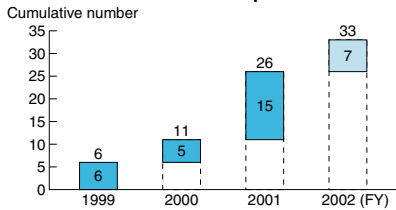
Achievement of zero emission in all of the plants of Sekisui Chemical Co., Ltd.

Results of Main Activities in fiscal 2001

First house manufacturer to achieve zero emission in all plants (P10 & P28)

All plants of Sekisui Chemical Co., Ltd. and all plants of the house production subsidiaries attained zero emission. This brings the cumulative total of zero emission plants to 26, out of the targeted 33. Our house construction sites have commenced their activities aiming at zero emission achievement in fiscal 2002.

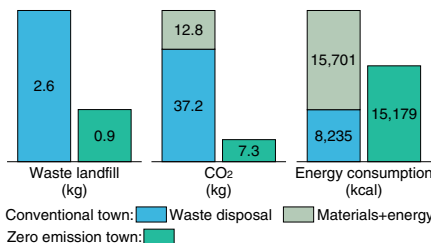
Number of zero emission plants



Zero emission by LCA (P11)

Using the LCA method, we have compared the environmental load in a conventional town with that of a zero emission town where all waste is recycled. We have verified that the environmental load is reduced by a great degree in the latter case compared to the former where incineration and/or landfill are practiced.

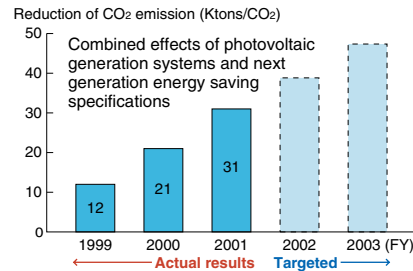
Comparison of environmental impacts



Houses equipped with photovoltaic generation systems number 13,000 (cum. total) (P12 & P24)

By the end of March 2002, we had sold 12,931 of detached houses (cum. total) equipped with photovoltaic generation systems making us the leading seller in this field in Japan. This provides a reduction of 30,000 tons (approx.) per year of carbon dioxide emission when combined with the insulation effects.

Contribution to reduction of CO2 emission



Receipt of 3 prizes for environment-friendly product/systems (P17)

Our Hot Water Unit with CO2 Heat Pump was awarded the Minister of Economy, Trade and Industry Prize in the "Grand Prize for Energy Conservation". Our Photovoltaic/Thermal Hybrid System received the Excellent Technology Prize from the Japan Solar Energy Society. The Free Shape SPR Pipeline Relining System received the 2001 Kanto Regional Invention Prize from the Tokyo Governor.

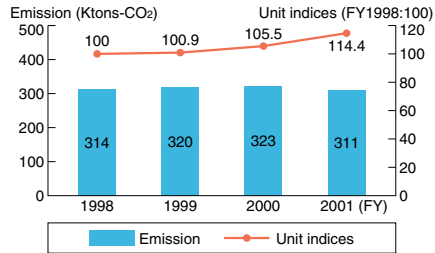


Hot Water Unit with CO2 Heat Pump

Most challenging CO2 reduction activities in plants (P12 & P52)

In FY2001, the total amount of CO2 emission was reduced, but the ex-godown Unit continued to increase. As the most effective countermeasure, it was decided to shift the fuel from heavy oil to city gas and introduce a co-generation system in our Shiga-Minakuchi Plant.

Carbon dioxide emission and ex-godown Unit



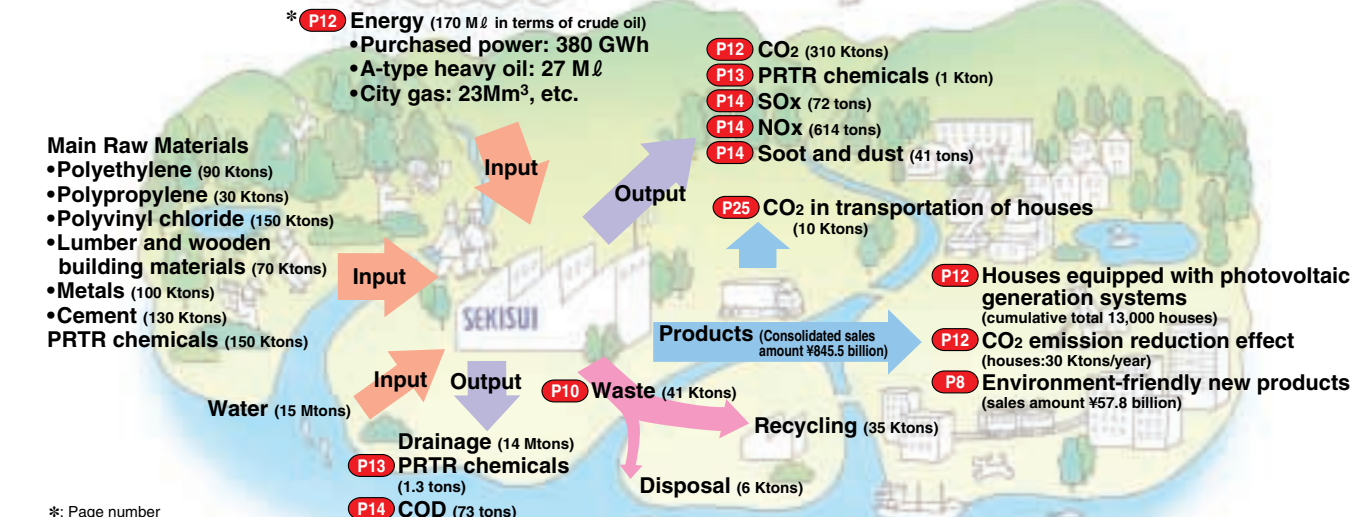
Making of a biotope by and in a workplace (P42)

Kyushu Sekisui Industry Co., Ltd. opened its biotope to the public in April, 2001, and has been continuing various activities together with the local community. Numbers of wild birds and fish have increased there. Saplings have started to sprout naturally, so we have come a step nearer to achieving our aim of bringing back Saga's original scenery.



Aerial view of the biotope (June, 2002)

Annual INPUT and OUTPUT



Our Middle Term Environmental Plan "STEP-21" and its Progress Status

We have achieved our targets in 30 out of 35 items. The 5 remaining include two important areas: the reduction of carbon dioxide emission and of waste. We are energetically tackling these outstanding issues.

Below are our targets and results for fiscal 2001 in "STEP-21" (Sekisui Total Environmental Plan for the 21st Century), our middle term environmental plan, ending in fiscal 2002. We have achieved satisfactory results in zero emission and environment-friendly new products. However, due to a decrease in our produced sales amount which raised the ex-godown Unit, which we use as a parameter, we have not reached our targets in the important areas of carbon dioxide and environmental pollutants emission, nor in waste volume.

Fiscal 2002 is the final year of "STEP-21", and we will strive for improvement in these areas.

In March 2001, we set the targets to be achieved by the end of fiscal 2010, regarding carbon dioxide emission and waste.

Progress Status of our Middle Term Environmental Plan "STEP-21" (1999-2002)

Policy	Items	Targets in fiscal 2002		
POLICY 1 Environmental Conservation	①Promotion of zero emission	Plants	Attainment of zero emission at 33 plants	
		New house building sites (Waste from new house construction)	Attainment of zero emission at construction sites (house sales subsidiaries) throughout Japan	
	②EMS structuring (Acquisition of ISO 14001 Certification)	Waste reduction	Minimum 25% reduction of waste per ex-godown Unit at plants against fiscal 1998	
		③Introduction of green procurement	Acquisition by 77 domestic plants, R&D institutes and house sales subsidiaries, and 6 overseas plants (cum. total)	
		At least 70% green procurement		
POLICY 2 Good Environment Creation	①Promotion of main products collection and recycling	System structuring	System structuring nation-wide and the model districts completed	FRP bathtubs
			Targeted products: FRP bathtubs, rain gutters, roofing tiles, "Hanayaka" PE film for agricultural use	Rain gutters
	Elevation of recycling ratio	PVC pipe & fittings: minimum 80% of materials recycling (fiscal 2005)	Roofing tiles	
		LP pipe: minimum 30% of materials recycling (fiscal 2002)	"Hanayaka"	
	②System structuring for collection and recycling of waste from residential buildings	Completion of recycling system throughout Japan based on the "Construction Materials Recycling Law"		
	③Development of environment-friendly new products	Minimum 150 product items (cum. total) to be put on the market		
Environment-friendly new products to be minimum 30% of the total sales of new products				
④Development of environmental conservation and recycling technologies	Completion of 10 environmental conservation and recycling technologies (cum. total)			
⑤Introduction of LCA (Life Cycle Assessment)	Implementation by each internal company			
POLICY 3 Environmental Symbiosis & Information Disclosure	①Response to environmental subjects	1) Reduction of CO ₂ emission	Minimum 4% reduction of CO ₂ emission per ex-godown Unit against fiscal 1998	
		2) Promotion of green distribution	Completion of model systems	
		3) Promotion of energy saving	Plants	Minimum 4% reduction per ex-godown Unit against fiscal 1998
			Head Offices (reduction of power consumption)	Osaka: minimum 4% reduction against fiscal 1998 Tokyo: minimum 2% reduction against fiscal 2000
			R&D institutes	Minimum 4% reduction of power consumption against fiscal 1998
		4) Increased use of environment-friendly cars	Minimum 50% of the renewed or registered company cars leased from Sekisui Lease Co., Ltd.	
		5) Reduction of pollutants	Minimum 30% reduction per ex-godown Unit of the chemicals designated as Class 1 in PRTR Law against fiscal 1998	
		6) Promotion of package saving	Minimum 20% reduction of per variable cost Unit of the targeted products against fiscal 1998	
		7) Countermeasures against sick house syndrome	Achievement of lower toluene and xylene concentration than the guideline specification at the time of handover to customers	
		8) Total abolition of substitute flon (HCFC)	Aiming at total abolition by the end of fiscal 2005	
	9) Total abolition of dichloromethane for washing use	Total abolition of use for washing purpose		
	10) Survey of soil contamination	Planned implementation of soil contamination survey of plant premises		
	②Nature protection activities	1) Support of nature protection activities	Support in cooperation with Keidanren Nature Conservation Fund	
		2) Nature protection activities in local communities	Achievement of minimum 10 Activity Points at main plants	
			Achievement of 100% employee participation at main plants	
		3) Education of activity leaders on Sekisui Chemical's Nature Study Course	Education of 250 activity leaders (cum. total)	
	4) Biotope construction at our workplaces	Completion of the first biotope with the local community		
	③Information disclosure	1) Practice of environmental accounting	Annual publication	
		2) Publication of Environmental Report	Annual publication, publication on our website, disclosure of information from workplaces	

■Sekisui Chemical Group's Environmental Targets for the end of fiscal 2010

Carbon dioxide emission (total volume)	13% reduction at the plants against FY 2000 (equivalent to 7% reduction against FY 1990 as the benchmark year)
Waste	50% reduction of waste generation from production processes against FY 1998 per ex-godown Unit
	Zero emission at headquarters, branches and R&D institutes
	100% recycling of waste from demolition, construction and renovation

Setsushi Nakamura
Managing Director in Charge of
Environment & Safety



Targets for fiscal 2001		Actual Results in fiscal 2001		Evaluation	Page
22 plants (cum. total)	26 plants (cum. total)	◎	10		
Attainment of zero emission at model sales subsidiaries in Tokyo and Osaka	Completion of recycling routes at the 8 model subsidiaries	○	10		
Minimum 18% reduction	2.1% reduction	×	10		
Acquisition by 84 workplaces (cum. total)	80 workplaces (cum. total) (including 4 workplaces in April, 2002)	○	6		
Start of operation for raw materials, parts and components (Operation started in FY 2000 for office supplies and equipment)	Started in November, 2001	○	9		
Extension of systems	Systems in Kinki and Chubu districts structured	○	11		
Structuring model systems in collaboration with related industrial circles	Test operation started in Ibaraki Prefecture	○	11		
Grasp of status-quo	Completion of status-quo survey	○	11		
Conception review of the systems	Grasp of the trend of industrial circles, and review of conception	○	11		
Implementation of recycling ratio extension measures	Establishment of collection stations throughout Japan	○	11		
Implementation of recycling ratio extension measures	Start of waste collection system	○	11		
Grasp of status-quo at model sales subsidiaries	Setting of the selection guidelines. Grasp of status-quo at the model subsidiaries	○	11		
Minimum 125 items (cum. total) under the new approval criteria	141 items (cum. total)	◎	8		
To be 22% minimum	32.5%	◎	8		
Promotion of themes	Completion of 7 themes (cum. total)	◎	8		
Promotion of study groups' activities	Decision of the model themes in each internal company	○	9		
Minimum 3% reduction	14.4% increase (0.8% reduction in the total amount)	×	12		
Promotion of model activities	Promotion of activities in house units and packaging tape	○	12		
Minimum 2% reduction	15.9% increase (0.6% increase in the total amount)	×	12		
Osaka: minimum 3% reduction (against FY 1998) Tokyo: minimum 1% reduction (against FY 2000)	Osaka: 13% reduction Tokyo: 8% reduction	◎	12		
Minimum 3% reduction	Total 3.1% reduction in 4 R&D institutes	○	12		
Minimum 50% of the company cars renewed or registered in fiscal 2001	71% annual rate	◎	12		
Minimum 22% reduction	7.4% reduction	×	13		
Minimum 15% reduction	Housing Co.: 8.7% reduction in parts and components, U.I. & E.P. Co.: 2.4% increase, H.P.P. Co.: 12.3% reduction	×	—		
Achievement of lower formaldehyde concentration than the guideline specification	Achievement of lower concentration than the guideline specification	○	32		
Review of alternative technology	Completion of alternative substances determination	○	13		
Minimum 75% reduction of used quantity against FY 1998	89% reduction	◎	13		
Survey program planning	Survey program planning and implementation of program planning	○	13		
Support in cooperation with Keidanren Nature Conservation Fund	Support of 4 projects	○	15		
Achievement of minimum 7.5 Activity Points	Achievement by 29 workplaces (10 Points or more by 27 workplaces)	◎	—		
Achievement of minimum 75% employee participation	80.8%	◎	15		
210 leaders (cum. total)	207 leaders (cum. total)	○	17		
Continuation of activities at the model workplaces	Start of public opening. Implementation of tree planting and observation events in cooperation with local community	○	15·42		
Annual publication	Publication in Environmental Report 2001	○	7		
Publication in Japanese and English Opening to the public on our website	Japanese: July 2001, English: Oct.2001 Publication on our website (Sept. 2001)	○	—		

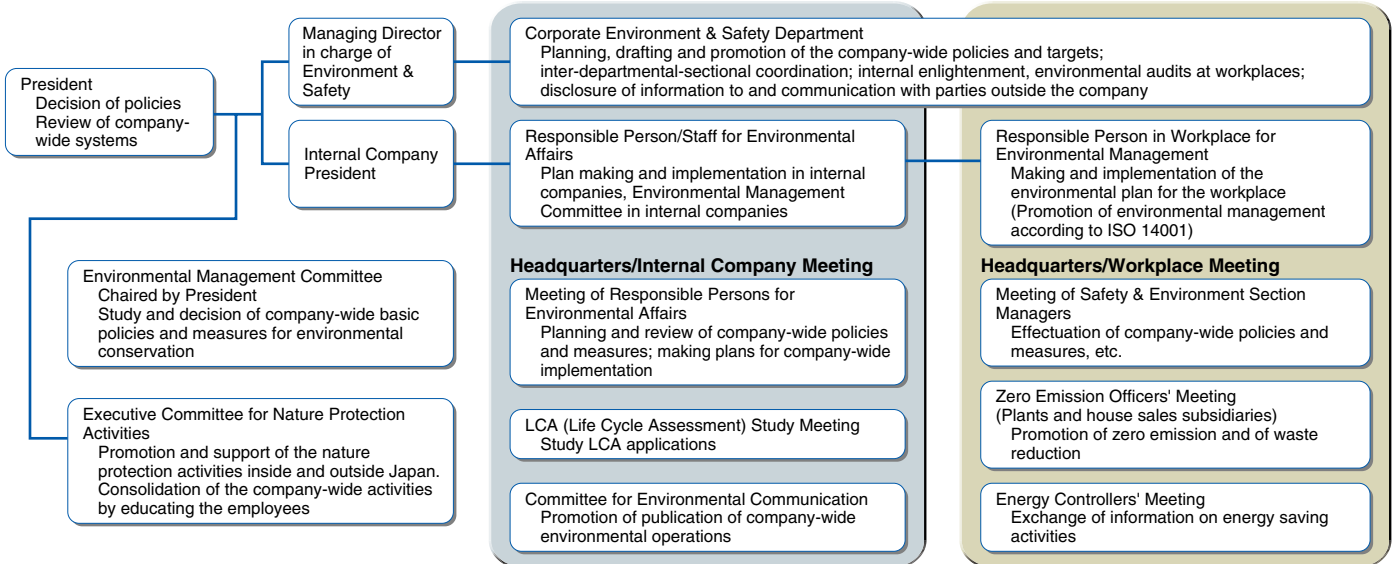
Note: Evaluation standards ◎-Target well achieved ○-Target mostly achieved X-Target not achieved

Environmental Management Systems

We are continuously improving our Environmental Management Systems. 76 workplaces in cumulative total have acquired ISO 14001 which is 94% of our target for fiscal 2002.

■Promotion System and Roles for Environmental Conservation

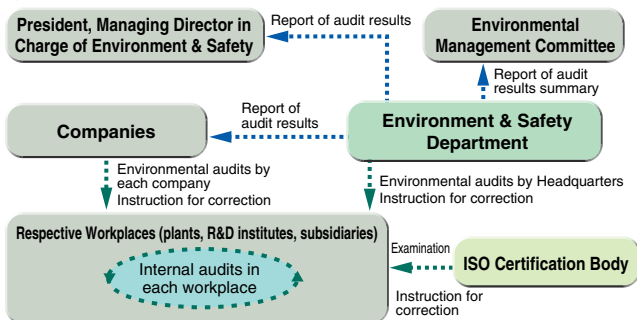
The company-wide basic policies and measures for environmental conservation are studied and decided by the Environmental Management Committee, chaired by the President. The policies and measures thus decided are forwarded through



■System and Results of the Environmental Audits

As well as the internal audits by respective workplaces and audits by the external auditing bodies in accordance with ISO 14001, our Headquarters conduct environmental audits in the workplaces in order to continuously support and enhance the management systems and the environmental performance. Besides auditing the management systems themselves, the environmental audits by the Headquarters focus on laws' and regulations' compliance, improvement of performance, and future planning at each workplace. The results of these audits are reported to the top managements. Items for correction in FY 2001 environmental audits have been corrected, except on such time-taking items as capital expenditures and audits conducted at the fiscal year end.

●System of the environmental audits



■Progress of ISO 14001 Certification Acquisition

In order to effectively implement autonomous environmental pollution prevention and continuous improvement activities, we are aggressive in introducing ISO 14001 systems. Our target workplaces for acquiring ISO 14001 are our plants and house sales subsidiaries, whose environmental impacts and loads are heavy on the surrounding areas. Also we target all our R&D institutes as they are in charge of promoting the environment-friendliness of our products. In fiscal 2001, 25 workplaces, mainly house sales subsidiaries, acquired ISO 14001, bringing the cumulative total to 76 workplaces.

respective companies to their workplaces for implementation and deployment. We also organize meetings for Headquarters and internal companies, as well as those for Headquarters and workplaces, to level up and speed up our activities by information exchange and horizontal deployment of activities.

●Audit results in fiscal 2001

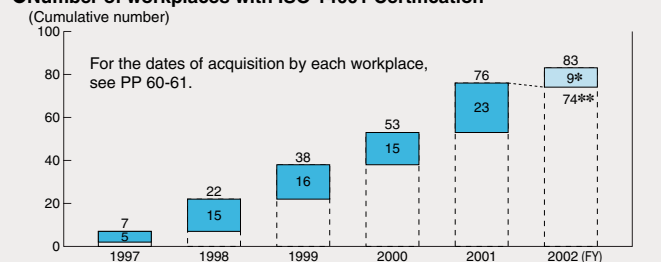
		Number of cases	Correction completed	Correction in progress
Environmental Audits by Headquarters		Pointed items	187	26
		Demanded items	121	48
		Proposed items	33<Note 2>	9
		Total	254	83
Examination by External Parties	Surveillance	Not in conformity (major)	0	0
		Not in conformity (minor)	27	0
		Matters to be observed	102<Note 2>	25
		Total	129	25
	Renewal	Not in conformity (major)	0	0
		Not in conformity (minor)	15	5
Matters to be observed		96<Note 2>	27	
	Total	111	32	
Internal Audits in Workplaces		Not in conformity (major)	1	0
		Not in conformity (minor)	254	23
		Matters to be observed	417<Note 2>	49
		Total	672	72

Note 1: Classification of instructions in the Headquarters environmental audits:

Pointed items: Immediate improvement required
Demanded items: Improvement within 1 year required
Proposed items: Review of improvement recommended or advised

Note 2: The figures include the items that have been labeled as non-conforming, so are greater than the total number of items for correction completed and correction in progress.

●Number of workplaces with ISO 14001 Certification



Environmental Accounting

In fiscal 2001, our Environmental Conservation Expenditure was ¥5.9 billion (Table 1), and the Economical Effects ¥7.0 billion (Table 3). We achieved reduction of the total quantity, but did not improve reduction of CO₂ and energy in terms of ex-godown Unit (Table 2).

■Our Environmental Accounting

Our summation was conducted according to the Environmental Accounting Guideline issued in March 2002 by the Japanese Ministry of the Environment. As regards the economical effects, we have conducted summation by adding our own concepts to the estimated effect items and ex-godown Units used as environmental indices.

■Our Activities and Effects in fiscal 2001

●(Table 1) Our environmental conservation costs totaled ¥5.9 billion, comprising ¥4.6 billion for expenditure and ¥1.3 billion for investment. The main elements in expenditure are the management costs, such as EMS (Environmental Management Systems) maintenance and waste disposal, while the main investment is for research and development, public pollution prevention and energy saving activities.

●(Table 2) Regarding the environmental conservation effects [physical quantity], energy consumption and CO₂ generation were reduced in total. But our targets in terms of ex-godown Units were not achieved in fiscal 2001. This is mainly due to the increase of products with larger ex-godown Units as well as to the decrease of the unit sales price of products. Other items recorded steady improvement.

●(Table 3) The actual economical effects associated with the environmental measures were ¥1.6 billion, to which the expendi-

ture decrease in waste reduction activities contributed greatly. The addition to the estimated effects of ¥5.4 billion brings the total effects to ¥7.0 billion, which, we consider, has well compensated our costs.

■Summation of Environmental Accounting

- (1) Summation Period: April 1, 2001 to March 31, 2002
- (2) Facilities: Targeted workplaces as listed on PP 60-61 + 4 R&D institutes + corporate headquarters + internal company head offices
- (3) Principle of Summation:
 - Depreciation amounts are the same as those of financial accounting.
 - Investment amounts are based on approvals of budget during the fiscal period.
 - Expenditure and investment that contain other than environmental conservation activities are pro-rata distributed by 10% increments.

■Future Proceedings

- (1) With the consolidated basis, we will extend and enhance the summation range centering on our facilities with heavy environmental loads.
- (2) We will continue to review the items and calculation method of the estimated economical effects associated with environmental conservation activities.

■Table 1: Environmental Conservation Expenditure

(Unit: ¥1 Mil.)

Category	Items	Housing Co.		U.I. & E.P. Co.		H.P.P. Co.		Entire Company	
		Expenditure	Investment	Expenditure	Investment	Expenditure	Investment	Expenditure	Investment
1) Within workplaces	Prevention of air pollution, water contamination, noise	144	13	177	45	364	377	810	436
	Prevention of global warming (energy saving)	12	9	11	64	89	70	122	144
	Waste reduction, recycling, disposal, treatment	219	9	228	18	425	86	892	118
2) Up/downstream	Reduction of environmental loads in containers and packaging. Payment difference by green purchase	1	0	35	9	43	0	116	9
3) Management activities	Environmental education, EMS maintenance, information disclosure, personnel	142	0	252	0	262	0	1,205	3
4) R&D	Research and development	27	29	682	209	234	159	1,272	537
5) Social activities	Contribution to society	34	5	88	0	46	0	201	5
6) Environmental	Restoration of nature	0	0	0	0	0	0	0	0
Total		579	65	1,473	345	1,463	692	4,618	1,252
Items		R&D cost	Investment	R&D cost	Investment	R&D cost	Investment	R&D cost	Investment
Total amount of R&D costs and investments in the fiscal period (Note 1)		5,532	2,996	5,937	3,367	8,344	7,516	22,618	14,780
Ratio of amount related to environmental conservation activities to the total (%)		0.5	2.2	11.5	10.2	2.8	9.2	5.6	8.5

Note 1: R&D cost is the total of all consolidated companies; investments are calculated within the summation range.

■Table 2: Environmental Conservation Effects [Physical Quantity]

Category of effect	Classification	Indices representing environmental conservation effects (comparison to FY 2000)						Environmental Indices			Evaluation					
		Housing Co.	U.I. & E.P. Co.	H.P.P. Co.	Entire Company	Page	Items	FY 2000	FY 2001							
Within workplaces	Input of resources	Power consumption (GWh)	-12	+2	-9	-19	12	Ex-godown Units	Energy consumption (Note 3) (power + fuel) (Kℓ/¥1 Mil)	0.369	0.399	×				
		Fuel consumption (Mℓ)	-1	±0	+1	±0	12									
	Environmental loads/waste	CO ₂ generation (Ktons) (Note 2)	-11	±0	±0	-12	12						CO ₂ generation (Tons/¥1 Mil)	0.693	0.751	×
		Pollutant emission (Tons)	-21	-31	-64	-121	13						Pollutant emission (Tons/¥1 Mil)	0.0028	0.0029	○
		Waste generated (Ktons)	-8.4	-2	±0	-10	10						Waste generated (Tons/¥1 Mil)	0.15	0.146	○
	Outside disposal (Ktons)	-2	±0	±0	-2	10	Outside disposal (Tons/¥1 Mil)	0.016	0.014	○						
Up/downstream	Goods and services	CO ₂ emission reduction (Tons) (Note 4)	+8,895	—	—	+8,895	12	CO ₂ emission reduction (cum. tons)	21,406	30,301	◎					
Other environmental conservation effects	No. of workplaces with ISO 14001	New	+21	+1	+1	+23	6	No. of Workplaces with ISO 14001 (cum. number)	53	76	○					
		Renewed	10	5	2	17	—									
		No. of zero emission plants	+5	+7	+3	+15	10					No. of zero emission plants (cum. number)	11	26	◎	

Note 2: Coefficients are officially announced by the Japanese Ministry of the Environment applied in CO₂ conversion.

Note 3: Coefficients are officially announced by the Japanese Ministry of Economy, Trade and Industry applied in crude oil conversion.

Note 4: Due to our photovoltaic generation systems and "next generation energy saving standards".

■Table 3: Economical Effects Associated with Environmental Conservation Measures [Monetary Unit]

(Unit: ¥1 Mil.)

Category of effect		Housing Co.	U.I. & E.P. Co.	H.P.P. Co.	Entire Company	Sources
Income	Income from sales of valuable materials	4	7	52	64	Segregation and recycling of waste
Cost reduction	Cost reduction from package saving	14	164	35	213	
	Cost reduction from energy saving activities	5	260	367	632	
	Cost reduction from waste reduction	23	27	1,386	1,436	Including resources saving activities
	Sub-total (actual effect)	46	458	1,840	2,345	
Contribution portion of environmental conservation activities		566	3,031	2,121	5,718	Added value of facilities
Contribution portion of R&D of environment-friendly new products		2,448	429	416	3,298	(Note 5)
Sub-total (estimated effect)		3,014	3,460	2,537	9,011	
Total		3,060	3,918	4,377	11,356	

Note 5: Environment-friendly new products sales × ratio of environmental R&D expenditure to total R&D expenditure.

Development of Environment-friendly Products and Technologies

As manufacturers, the development of technologies and products with minimal environmental loads is our most important mission. In fiscal 2001, we had 141 environment-friendly new products on the market, which equals 32.5% of the total sales amount of our new products.

Direction of our Environment-friendly Products Development in each Business Segment

Each of our internal companies is committed to developing and supplying environment-friendly products and services.

	Direction of Environmental Consideration in Products	Pages
Housing Company	<ul style="list-style-type: none"> Reduction of CO₂ emission from households Extension of lifespan and reuse 	24 - 27
Urban Infrastructure & Environmental Products Company	<ul style="list-style-type: none"> Response to demand for next generation infrastructure Use of recycled materials Environmental purification and energy saving 	40 - 41
High Performance Plastics Company	<ul style="list-style-type: none"> Products that can contribute to customers' environmental considerations 	48 - 49
Headquarters	<ul style="list-style-type: none"> Utilization of natural energy (Photovoltaic / Thermal Hybrid System, etc.) 	24

Environmental Conservation and Recycling Technology

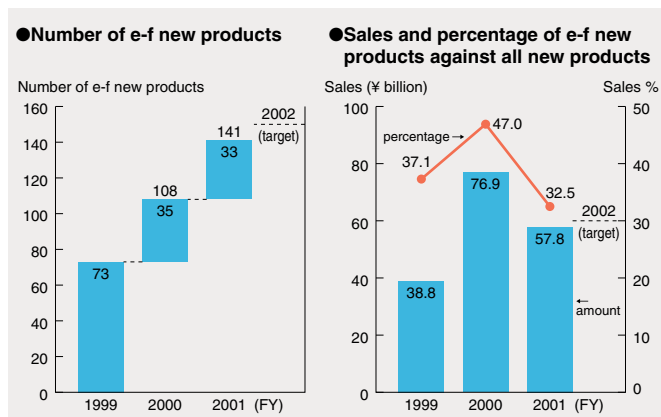
We are developing new technologies to help solve environmental problems such as global warming and waste disposal and to create a better environment, utilizing and upgrading our basic molding and composite technologies. The target for fiscal 2001 to 2002 is to develop 10 technologies. Examples of the technologies developed in fiscal 2000 are shown below:

	Environment-friendly technologies	Outline	Page
Housing Company	Tool for analysis of lot environment	Software to estimate sunshine, wind direction and velocity from the data of the site location and architectural plan	25
Urban Infrastructure & Environmental Products Company	SPR System	No-dig method to form a resin layer onto the inside surface of worn sewer pipes, etc.	40
	Omega Liner		
	Aggregate made from waste plastics	Waste plastics recycling, by applying special coating onto crushed plastics surface for excellent bonding with concrete cement	41
High Performance Plastics Company	Extrusion of 3-layer products with foam interlayer	Single process to extrude 3-layer products by foaming recycled material in the middle layer	41
	Sandwich injection molding	Injection molding of 3-layer products with recycled material used for the inside layer	48
Headquarters	Photovoltaic/Thermal Hybrid System	Effective utilization of solar energy by integrating photovoltaic generation module and solar heat collector	24

Results of our Efforts for Environment-friendly (e-f) New Products

A target to introduce a total of 150 environment-friendly new products by our three internal companies to the market, equal to 30% or more of new product sales, was set for the four years of fiscal 1999 through fiscal 2002.

Our efforts resulted in 141 items, and 32.5% respectively in fiscal 2001, showing smooth progress in this particular regard.



$$\text{Percentage of sales of e-f new products} = \frac{\text{Sales of e-f new products in FY 2001}}{\text{Sales in FY 2001 of all new products introduced FY 1999 to 2001}}$$

$$\text{Sales of e-f new products} = \frac{\text{Percentage of sales of e-f new products} \times \text{Sales in FY 2001 of all new products introduced FY 1999 to 2001}}{100}$$

Sekisui Chemical Co., Ltd. Research Fund for the Development of Technologies from Nature:

Utilization of biomass which requires futuristic technological development and designing technology for functional materials is in growing demand to reduce environmental loads.

Based on the scientific knowledge which has been accumulated through studies of nature, we have set up a program to aid research which utilizes natural functions.

We financially assist the pursuit of biomimetics, biotechnology, materials science which utilizes recyclable resources and all their related technologies which conserve the global environment, substitute depleted subterranean resources, and will play important roles in achieving a high quality life style for society in the future.

Publication of fund program

Selection of themes under advice from external specialists

1 year research grant awarded per theme

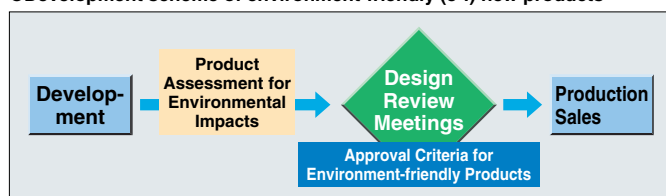
Presentation of the study results

Contact:
Sekisui Integrated Research Inc.
e-mail: shizen@sirnet.co.jp

■Scheme of Environmental Consideration for Products

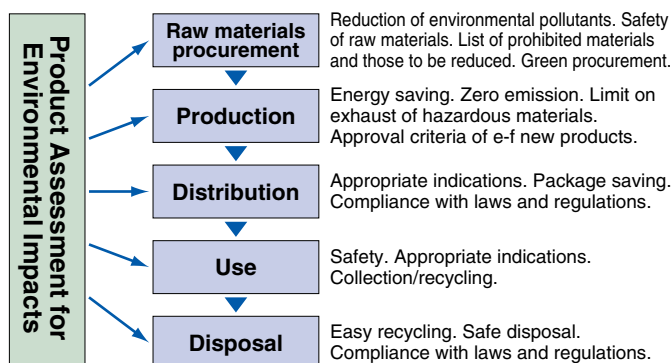
The environment-friendliness of our products is checked prior to marketing based on our Product Assessment for Environmental Impacts and in accordance with our Approval Criteria for Environment-friendly Products at Design Review (DR) Meetings held at each internal company.

●Development scheme of environment-friendly (e-f) new products



●Product Assessment for Environmental Impacts

We have continued Product Assessment for Environmental Impacts since fiscal 1993. At each step of research and development, trial mass production and actual production, we assess the environmental impacts of our products throughout their entire life cycles, from raw material procurement to disposal, thereby reducing the environmental loads of all our products.



●Approval criteria for our environment-friendly new products

Products we introduce to the market announced as "environment-friendly" must be in conformity with our own approval criteria as follows.

Classification	Approval Criteria		Standard Value	
Products to achieve or support reduction of environmental loads, effective utilization of resources and contribution to a healthy environment	Promotion of resource conservation, utilization of recycled materials, reduction of environmental loads, improvement of waste disposal and recycling		—	
Products approved or registered as environment-friendly by independent institutions	Products with the Eco Mark. Products commended for energy saving. Products approved by relevant NGO's or consumer associations		—	
Products contributing to landscape conservation and a green environment	Contribution to conservation or improvement of landscape or green scenery		—	
Products that meet a minimum of one item of the standard values in the right column, compared to the status-quo of our and other manufacturers' conventional products, or products already publicly known to be of acceptable standards	Attention to product design	Saving of resources	Reduced amount of raw materials	Savings of 30% or more
			3 other criteria	
	Attention to product design	Utilization of recycled materials	Addition of recycled materials	Use of 50% or more
			3 other criteria	
	Attention to use	Reduction of environmental loads	Reduced energy consumption	Savings of 20% or more
			5 other criteria	
	Attention to use	Utilization of natural energy	Utilization of clean energy	In standard specifications
			Another criterion	
Attention to disposal	Easy treatment and disposal	Use of biodegradable materials	100% of main materials	
		4 other criteria		
Attention to disposal	Easy recycling	Less composite material	Adoption of 50% or less	
		5 other criteria		

●Green procurement

Having conducted a survey, based on the Green Procurement Standards, as mentioned below, of our main suppliers and the products they supply to us, we started our operation in November, 2001. Our green procurement rate in FY 2001 was 66.4% on a monetary basis.

●Outline of Green Procurement Standards

Supplier Standards		Product Standards	
ISO 14001 Certification holders		Product assessment	3 criteria, e.g. assessment at the stage of product development
Organization	5 criteria, e.g. appointment of environmental control personnel	Performance in use / disposal	9 criteria, e.g. longer life cycle than the conventional products
Law abidance	5 criteria, e.g. awareness of environmental laws in relation to business	Design/structure for recycling	5 criteria, e.g. use of recyclable materials
Control system	5 criteria, e.g. internal audits	Information disclosure	2 criteria, e.g. availability of information/precautions regarding environmental consideration
Voluntary activities	8 criteria, e.g. proposals accepted for environmental load reduction	Packaging	8 criteria, e.g. reduced packaging materials compared to conventional method
Information disclosure	Disclosure of environmental conservation information of the company		

	Scope of application of Green Procurement Standards	Exemption from Green Procurement Standards
Procuring sectors	<input type="radio"/> Headquarters, internal companies, plants (including subsidiaries)	<input type="radio"/> Sales subsidiaries, construction subsidiaries and offices
Suppliers	<input checked="" type="checkbox"/> Materials/parts suppliers, trading companies, importers, and production consignees <input checked="" type="checkbox"/> Equipment manufacturers (including installation contractors)	<input checked="" type="checkbox"/> Service industry, e.g. office supplies, software supplies, printing companies, etc. <input checked="" type="checkbox"/> Consignees to whom Sekisui supplies or specifies all the raw materials

●Quantitative assessment by LCA method

We are using the LCA (Life Cycle Assessment) method to implement quantitative assessment of the entire life cycle of a product. Results of our housing assessment, for example, showed that energy consumption is greatest during the household stage. These data are reflected in our energy saving specifications (P24). The LCA method will be incorporated in our Product Assessment for Environmental Impacts, in order to implement, at the development stage, precise assessment of the entire life cycle of our products.

3R's (P2) : Contribution to a Resource Recycling-based Society

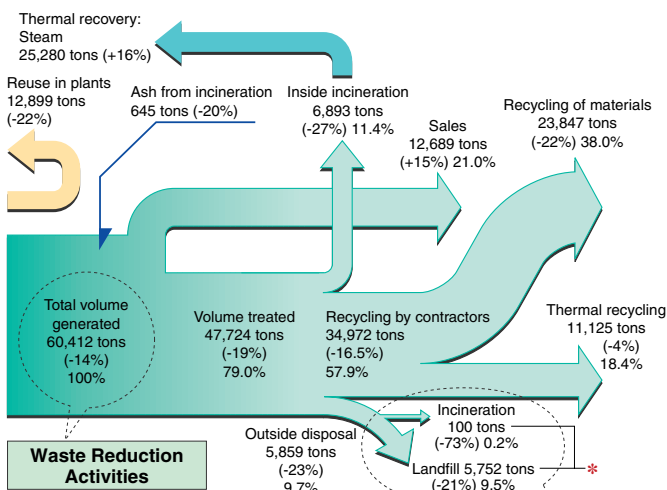
We are promoting our activities for zero emission and waste reduction at our plants and house construction sites. Our 26 plants had achieved zero emission by the end of fiscal 2001. However our waste reduction per ex-godown Unit was merely 2.1% against our targeted 18%.

■3 R's at the Production Stage: Zero Emission Activities

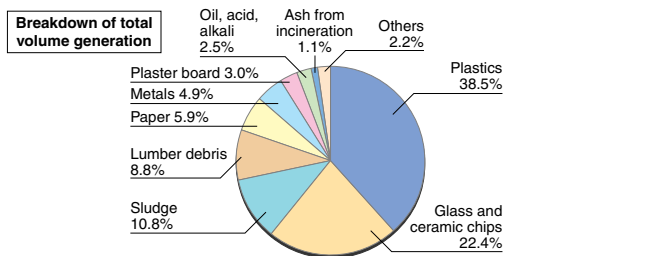
We manufacture products which use depletive resources, therefore the most effective utilization of resources is one of our major targets. For this purpose zero emission is of utmost importance and we are making great efforts to achieve waste reduction, reuse and recycling of resources.

●Status of waste generation and treatment (at plants in FY 2001)

(±%): Ratio against FY 2000

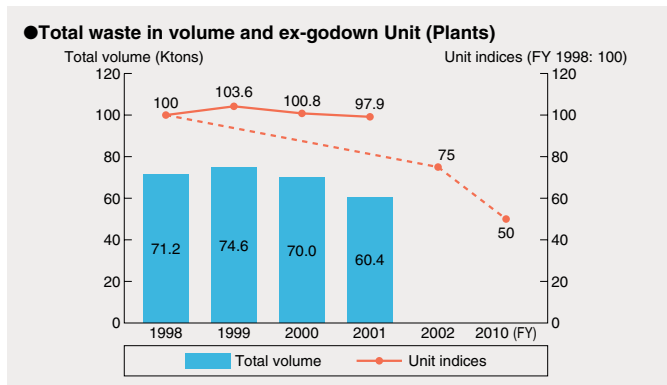


*Out of these figures 5,712 tons have been recycled since April 2002.



●Activities for waste reduction

Our target is a 25% reduction per ex-godown Unit to be achieved by the end of fiscal 2002 against fiscal 1998. In fiscal 2001, we achieved waste reduction of 14% in volume over the previous year, by reducing debris generation and by recycling recovered materials at our plants. However, the reduction per ex-godown Unit was only 2.1% compared to fiscal 1998. We are now reviewing the situation, focusing on particular production processes, for further reduction of waste generation.



●Activities for reuse and recycling

In fiscal 1998 we started zero emission activities such as aiming at the reuse and recycling of all wastes. We are aiming at zero emission achievement by the end of fiscal 2002 at 33 plants, which will also include those of our subsidiaries, and at the construction sites of all our house sales subsidiaries.

Zero Emission Achievement Criteria

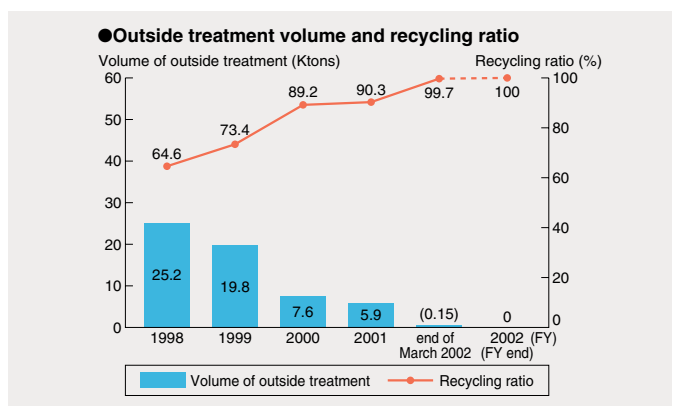
- ① Recycling ratio must be 100% (no landfill outside or inside of facilities, contracted incineration must involve thermal recycling only).
 - ② Contractors must be specified and recycling methods be made precise.
- Waste includes that generated in offices and welfare facilities.

We have also established uniform evaluation criteria named "The Zero Emission Achievement Evaluation List." In addition to the above standards, we conduct our internal examination according to this list on strict observance of related laws and regulations, complete rules and systems for waste segregation as well as clearly legible signs, adequate facilities for waste treatment and planning for and control of waste reduction. Only those that have achieved the designated level are certified as zero emission workplaces. We are further promoting zero emission activities at these certified workplaces in such a way that they will be clearly visible to visitors.

<Plants>

With the achievement of zero emission by 15 workplaces in fiscal 2001, all plants of Sekisui Chemical Co., Ltd. and all house production subsidiaries could achieve the target. Sekisui Chemical Group is the first major house construction company in Japan to achieve zero emission at all plants.

Targeted Workplaces	Targeted Number	Cumulative total of target achieved workplaces			
		FY 1999	FY 2000	FY 2001	FY 2002
Plants of Sekisui Chem. Co., Ltd.	7	2	4	7 (completed)	7 (maintained)
House production subsidiaries	10	2	5	10 (completed)	10 (maintained)
Resin processing subsidiaries	16	2	2	9	16 (under completion)
Production workplaces total	33	6	11	26	33 (under completion)



<House construction sites (P30) >

In fiscal 2001, we carried out trial activities in 8 sales subsidiaries in the Tokyo, Osaka and Kyushu districts, and, in each, recycling routes have almost reached completion. Based on this, we are aiming for achievement of zero emission in all 39 house sales subsidiaries in fiscal 2002.

■3 R's at other Stages

At all other stages, from new product development to eventual disposal of used products, we are promoting collection and recycling to contribute to a recycling-based society.

●Development of products and technologies

Reduction	Reuse	Recycling
<ul style="list-style-type: none"> • Long-term support systems (P27) • Longer life span of houses (P26) • Pipe relining systems (P40) (SPR, Omega Liner) 	<ul style="list-style-type: none"> • House unit reuse system (P27) 	<ul style="list-style-type: none"> • Recycled PVC Pipe, 3-layer Foamed Core PVC Pipe (P41) • Aggregate from plastic waste (P41) • Pit cover from recycled PET (P41) • Sandwich injection molding (P48)

●Progress status of collection and recycling of used products

	Products	Progress status
Housing Company	Waste from demolition	Segregation guidelines established, and under trial in selected sales subsidiaries.
Urban Infrastructure & Environmental Products Company	PVC pipe & fittings	Partaking in the total recycling system operation set up by the Japan PVC Pipe & Fitting Association. The association's recycling ratio was 46% in FY 2001.
	LP pipe	Partaking in the recycling system operation set up by the Japan Water Steel Pipe Association. The association's recycling ratio was 12.7%.
	FRP bathtubs	Structured our own recycling system in the Kinki and Chubu districts.
	Rain gutters	Started a model system in November, 2001, in Ibaraki Prefecture, as part of the activities of the PVC Rain Gutter Association.
	Roofing tiles	Status-quo survey completed.
High Performance Plastics Company	Agricultural PE film "Hanayaka"	Planning in progress for a recycling system, by collecting information on recent developments in the industry.

Is "Zero Emission" really environment-friendly?

LCA (Life Cycle Assessment) of zero emission: A joint study with the Institute of Industrial Science, University of Tokyo

Aiming at becoming a recycling-based society, recycling activities have been on the increase in recent years, such as the passing of laws related to recycling. We have been promoting our activities for zero emission at our plants and house construction sites. However, is recycling of all waste really environment-friendly? We set up a virtual town with zero emission through total segregation and recycling of waste, as presented in our leaflet, "Think it over. You can be a Leader in creating your Town" (*trans.*) 2001. The question arose as to whether a zero emission town could be truly environment-friendly. To answer this, with the supervision of Professor Itaru Yasui, Institute of Industrial Science, University of Tokyo, we applied the LCA method to it, and also applied the LCA method to an actual town of conventional life style with incineration and landfill of wastes, as a point of comparison. The results showed us that the zero emission town is indeed environment-friendly, in that there is minimal landfill and carbon dioxide emission.

Furthermore, it realizes lighter environmental loads in terms of raw materials and also energy, in that the energy required for recycling in the zero emission town is less than the energy required for new raw material usage in the conventional town. We intend to deploy this result in our zero emission activities and assessment of product development, in order to develop business operations with lighter environmental loads.

●Assumed waste generation

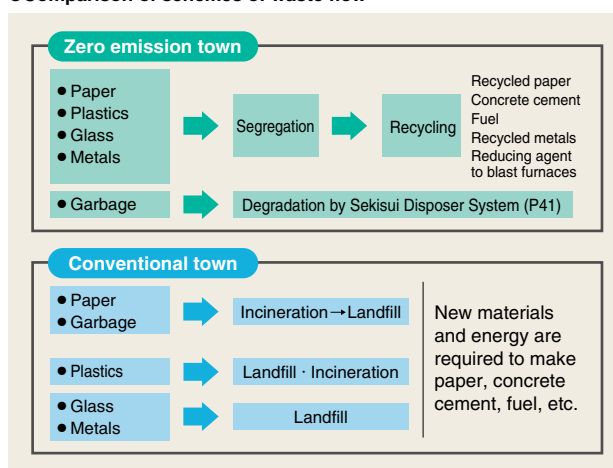
(Data from 23 Wards of Tokyo Metropolis, FY 2001)

Unit: kg/person-month

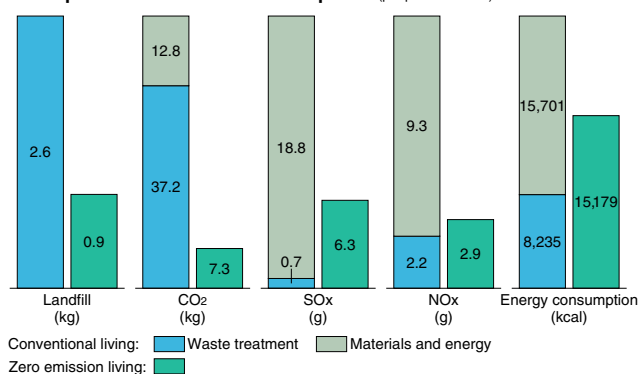
Waste	Garbage	Paper	Glass	Metals	Plastics	Total
Generated volume	6.00	8.86	0.79	0.84	7.27	23.76

(Excluding bottles, cans and home electric appliances already segregated for recycling, and large item waste separately collected)

●Comparison of schemes of waste flow



●Comparison of environmental impacts (per person-month)



Prevention of Global Warming

Our carbon dioxide emission was reduced by 0.8% in total, but increased by 14.4% in ex-godown Unit, compared to that of fiscal 1998. In fiscal 2002, we focus our activities on achieving a 4% reduction in ex-godown Unit over fiscal 1998.

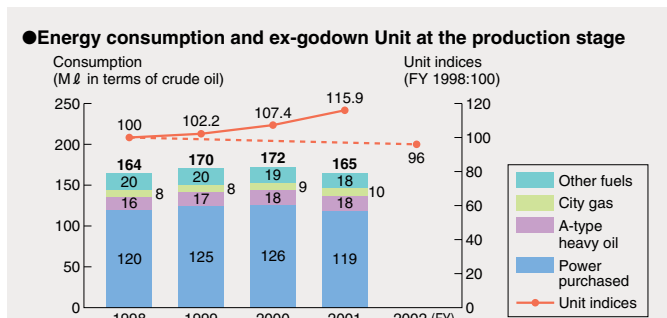
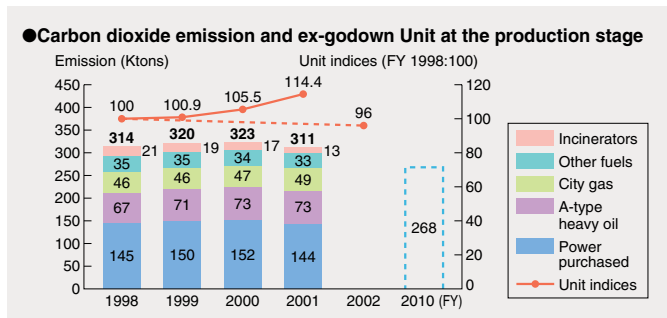
Reduction of Carbon Dioxide Emission at the Production Stage

For reduction of carbon dioxide emission from our production operations, we are promoting our activities focusing on energy saving at respective workplaces. Our fiscal 2001 results showed a 3.6% reduction of carbon dioxide emission and a 4.1% reduction of energy consumption, compared to fiscal 2000. In comparison to fiscal 1998, however, they remained on the same level. In terms of ex-godown Unit per produced sales amount, the results did not meet the targets of our Middle Term Environmental Plan, showing a 14.4% and a 15.9% increase in carbon dioxide emission and energy consumption respectively over fiscal 1998.

This is largely due to the fact that, compared to fiscal 1998, despite the increase of product items requiring more energy consumption at the production stage, the sales of our Housing Company, the energy consumption of which is relatively small in view of produced sales amount, decreased.

As a countermeasure for this, we are shifting from heavy oil to city gas for large-size boilers and introducing a co-generation system in our Shiga-Minakuchi Plant, in addition to energy loss diagnosis and other countermeasures.

By these, we aim at a 12 thousand ton reduction per year.



Energy Saving Activities at Headquarters and R&D Institutes

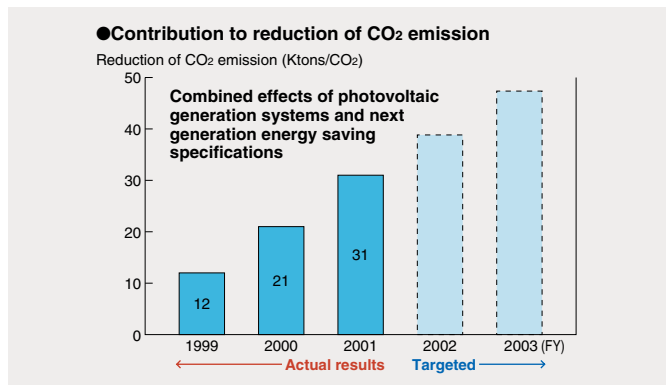
As well as at our plants we have set concrete targets to substantially reduce power consumption at our corporate headquarters and R&D institutes.

Workplaces	Power consumption (MWh)		Increase / decrease	
	FY 1998	FY 2001	Actual result	Target
Osaka Headquarters	812	708	-13%	-3%
Housing Technology Institute	5,052	4,244	-16%	
Kyoto Institute	7,098	7,123	+0.4%	
Minase Institute	3,375	3,679	+9%	
Total	16,337	15,754	-3.6%	
Tokyo Headquarters	1,720 (FY 2000)	1,579	-8%	-1%

Reduction of Carbon Dioxide Emission by Households

With respect to housing, the main target is reduction of energy consumption by households.

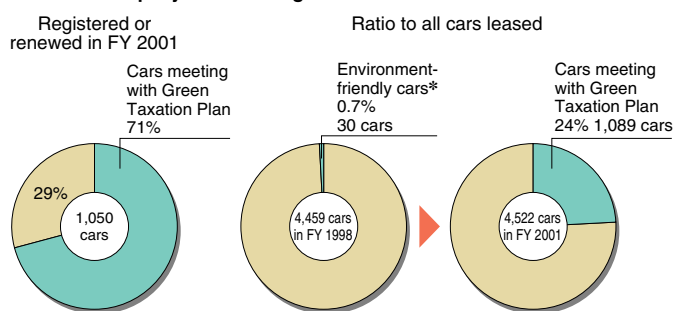
For our Sekisui Heim and Two-U Home, we have established standardization of next generation energy saving specifications, and popularized energy saving houses equipped with our photovoltaic generation systems. By March 31, 2002, we had sold 12,931 detached houses (cum. total) equipped with our photovoltaic generation systems making us the leading seller in this field in Japan. This provides a reduction of 30,000 tons (approx.) of carbon dioxide emission when combined with the insulation effects.



Increased Use of Environment-friendly Cars meeting with the Green Taxation Plan

With respect to company cars leased from Sekisui Lease Co., Ltd., we have been shifting to energy saving cars and low polluting cars. In fiscal 2001, 71% of our registered or renewed company cars met with the requirements of the Green Taxation Plan, which was far above the yearly target of 50% for fiscal 2002.

Ratio of company cars meeting with the Green Taxation Plan



*Previous to FY 2001, our own criteria were used.

Green Distribution

The transportation of our products is entrusted to contractors. However, reduction of environmental loads in product transportation is also one of our important targets. Our products are many and diversified, so the transportation methods differ according to the product type. By determining model products as mentioned below, we are making efforts to reduce environmental loads through effective transportation, in cooperation with our transporting agents.

- Effective transportation of house units (P25)
- Combined delivery of packaging tape (P53)

Appropriate Management of Chemical Substances

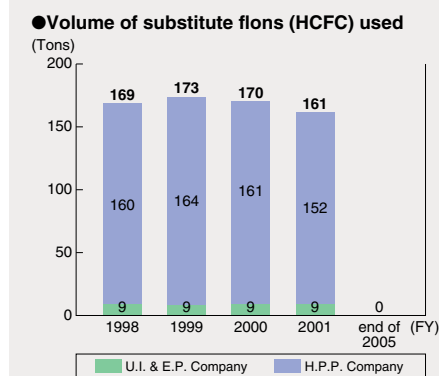
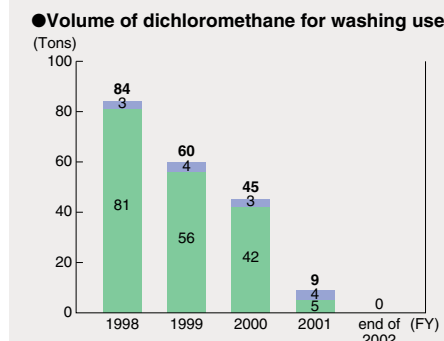
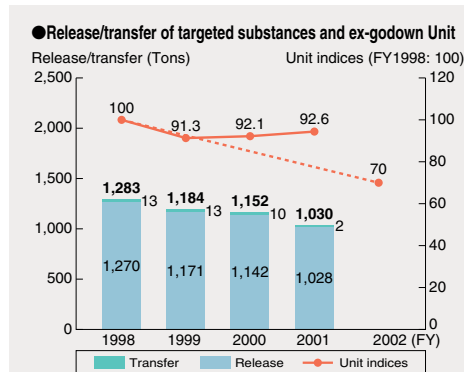
In fiscal 2001, we reduced release and transfer of targeted pollutants by 253 tons compared to fiscal 1998, which was a 7.4% reduction in terms of ex-godown Unit. We also reduced dichloromethane for washing use by 89% (75 tons).

Reduction of Release and Transfer of Pollutants

With respect to release of chemical substances, and transfer of their non-recyclable waste specified as Class 1 in the Japanese PRTR Law, we are implementing various methods for improvement with the target of a 30% reduction in fiscal 2002 over fiscal 1998 in terms of ex-godown Unit. In fiscal 2001 we reduced the release and transfer by 253 tons. However, the reduction in ex-godown Unit was only 7.4%, due to a decrease in our Hous-

ing Company's produced sales amount, whose release and transfer of pollutants are relatively small.

Further, we reduced the use of dichloromethane for washing use by 89% (75 tons) in fiscal 2001 compared to fiscal 1998, aiming at complete abolition in fiscal 2002. For substitute flons (HCFC), we have finished selection of alternative materials. We will implement the change step by step to realize its total abolition in fiscal 2005.



Summation results according to PRTR Law

Used volume minimum 1 ton at each targeted workplace (PP 58-59)

No.*	Chemical Substances	Used volume (Produced volume)	Release				Transfer			Innocuous treatment
			To atmosphere	To water	To soil**	**Landfill	Sewerage	Transfer as waste Disposal	Recycling	
3	Acrylic acid monomer	87.6	0.0004	0	0	0	0	0	5.7	0
4	Ethyl acrylate monomer	6.6	0.0020	0	0	0	0	0	0	0
7	Acrylonitrile monomer	5.0	0.1	0	0	0	0	0	0	0
9	Bis (2-ethylhexyl) adipate	7.4	0	0	0	0	0.0070	0	0	0
11	Acetaldehyde	157.8	0.10	0	0	0	0	0	0	47.1
25	Antimony compounds	17.3	0	0	0	0	0	0	2.1	0
30	Bisphenol A type epoxy resin (liquid)	244.8	0	0	0	0	0	0	0	0
43	Ethylene glycol	4.6	0	0	0	0	0	0	0	0
45	Ethylene glycol monomethyl ether	3.6	0	0	0	0	0	0	0	0
63	Xylene	160.4	63.0	0.08	0	0	0	0	12.0	43.0
77	Vinyl chloride monomer	118,647.0	8.4	0.11	0	0	0	0	0	0
84	HCFC-142b	81.9	81.9	0	0	0	0	0	0	0
85	HCFC-22	38.2	38.2	0	0	0	0	0	0	0
86	HCFC-124	16.0	16.0	0	0	0	0	0	0	0
100	Cobalt compounds	1.5	0	0	0	0	0	0	0	0
102	Vinyl acetate monomer	3,008.8	1.3	0	0	0	0	0	0	0
132	HCFC-141b	24.7	5.6	0	0	0	0	0	0.15	0
145	Dichloromethane	664.5	64.4	0	0	0	0	0	5.0	0
172	N,N-dimethylformamide	3.0	0	0	0	0	0	0	0	0
176	Organic tin compounds	61.1	0	0.072	0	0	0	0.19	0.10	0
177	Styrene monomer	3,665.5	74.2	1.0	0	0	0	0	0	0
197	Decabromodiphenyl ether	68.8	0	0	0	0	0	0	8.3	0
205	Terephthalic acid	71.3	0	0	0	0	0	0	0	0
227	Toluene	2,549.5	671.9	0	0	0	0	0	122.8	426.3
230	Lead compounds	731.4	0.0004	0.0056	0	0	0.0001	1.4	0.66	0
242	Nonylphenol	2.4	0	0	0	0	0	0	1.2	0
243	Barium compounds (water-soluble)	5.9	0	0	0	0	0	0.012	0.0080	0
270	Di-n-butyl phthalate	108.6	0.15	0	0	0	0	0	0	0
272	Bis (2-ethylhexyl) phthalate	56.0 (39,048.0)*	1.5	0	0	0	0	0.047	1.7	0
304	Boron compounds	1.5	0	0	0	0	0	0.24	0	0
307	Poly (oxyethylene) alkyl ether	4.4	0	0.011	0	0	0	0	0	0
309	Poly (oxyethylene) nonylphenyl ether	1.7	0	0.0043	0	0	0	0	0	0
310	Formaldehyde	4.4	0	0	0	0	0	0	0	1.9
314	Methacrylic acid monomer	31.5	0	0	0	0	0	0	0	0
320	Methyl methacrylate monomer	136.5	0.10	0	0	0	0	0	0	0
312	Phthalic anhydride	18,786.0	0.0014	0	0	0	0	0	0	0
	Total	188,515.2	1,026.8	1.3	0	0	0.0001	1.9	159.6	518.3
179	Dioxins (unit:mg-TEQ)		1,204.1	10.8	0	0	0	25.3	1,668.2	0

*Specification No. **On the premises

Surveys of Soil Contamination

We are autonomously and systematically conducting surveys of soil contamination in our plants where the chemical substances specified in "Guidance to Prevent Soil and Ground Water Contamination" were handled in the past or are handled now. Having made up our survey plans in fiscal 2001, we are going to conduct the surveys in and after fiscal 2002 as follows.

Targeted Plants for Survey in fiscal 2002

Sakai Plant
Sekisui Technol Molding East Japan Co., Ltd., Head Office Plant
Sekisui Film Co., Ltd., Daito Plant
Shiga-Minakuchi Plant

Main Targeted Plants for Survey in and after fiscal 2003

Housing Company	Urban Infrastructure & Environmental Products Company	High Performance Plastics Company
<ul style="list-style-type: none"> ● Higashinohon Sekisui Industry Co., Ltd. ● Kansai Sekisui Industry Co., Ltd. ● Chugoku Sekisui Industry Co., Ltd. ● Nishinohon Sekisui Industry Co., Ltd. ● Sekisui Board Co., Ltd., Gunma Plant 	<ul style="list-style-type: none"> ● Shiga-Ritto Plant ● Gunma Plant ● Tokyo Plant ● Sekisui Chemical Hokkaido Co., Ltd. ● Toto Sekisui Co., Ltd. ● Vantec Co., Ltd. ● Okayama Sekisui Industry Co., Ltd. ● Shikoku Sekisui Industry Co., Ltd. 	<ul style="list-style-type: none"> ● Amagasaki Plant ● Musashi Plant ● Minase Research Laboratories ● Sekisui Film Kyushu Co., Ltd. ● Tokuyama Sekisui Industry Co., Ltd.

Environmental Conservation in Local Communities

We are making every effort possible to prevent environmental contamination in local communities. However, should any contamination occur we will act appropriately to limit and intercept contamination.

Emergency Management

For prevention of environmental contamination and its expansion in cases of accident or natural disaster, each workplace regularly trains designated employees for proper response. The number of main training sessions held in fiscal 2001 are shown below.

Imagined state of emergency and response training

Imagined state of emergency	Number of training sessions
Leak/outflow of oil, etc.	41
Solvent emission to atmosphere	9
Fire	70
Earthquake	78

Training examples



Nishinohon Sekisui Industry Co., Ltd.
Prevention of heavy oil outflow



Kansai Sekisui Industry Co., Ltd.
Fire extinguishing

Environment-related Complaints (and Mishaps)

No mishaps in fiscal 2001.

In one workplace there was a complaint from nearby residents regarding noise during a test run of new equipment. This problem was solved by making the necessary adjustment to the equipment.

Abolition of Incinerators

Among our plants, 13 were operating incinerators in fiscal 2001. By the end of March 2002, 7 of these had abolished incinerators. 4 further plants will abolish such incineration by the end of 2002, leaving only 2 still operating incinerators. The volume of waste incinerated on our premises in fiscal 2001 was reduced by 5,100 tons (approx.) which was a 42% reduction against that of fiscal 1998.

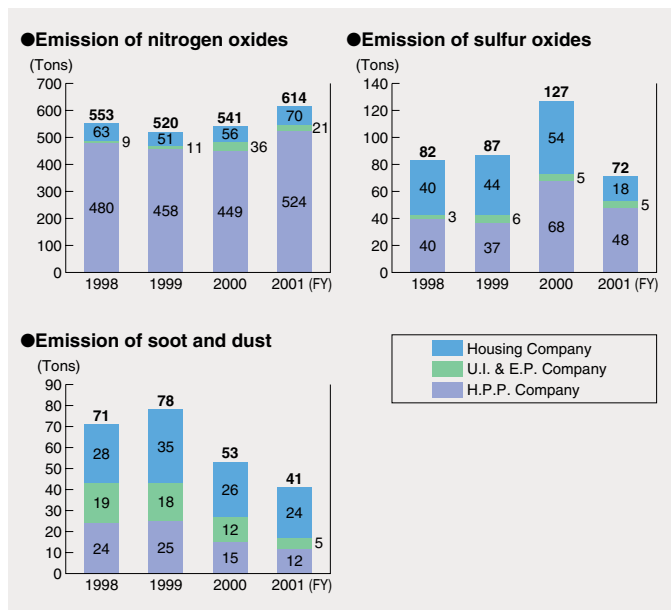
Use and Storage of Apparatus containing PCB

There is apparatus containing PCB stored in 16 of our plants, e.g. transformers, and 2 plants use fluorescent lamp stabilizers, all of which we strictly control. We will continue to keep them under strict guard and seek for proper treatment methods as soon as possible.

Air Pollution Control

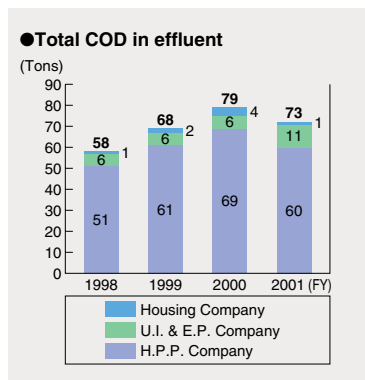
By our proper maintenance of every facility and periodic checking, we are steadily meeting all legal requirements for air pollution control, and making efforts to further reduce air pollutants' emission. In fiscal 2001, we cleared all legal requirements related to air pollution.

NOx emission showed a slight increase attributed to an increase in the co-generation system operating hours. On the other hand, SOx was largely reduced by changing from conventional A-type heavy oil to a lower sulfur content type. Soot and dust emission also decreased by the abolition of incineration on many premises.



Water Pollution Control

We have installed equipment to eliminate pollutants in effluent and to prevent contamination. In fiscal 2001, however, four plants reported incidents of pollutant emission above the maximum limits in some types of discharge (PP 56-57). Taking immediate appropriate action we solved the problem. We are installing improved treatment equipment to prevent recurrence. COD emission, which had shown an increasing tendency, was reduced slightly in fiscal 2000.



Nature Protection and Social Contribution Activities

We are promoting social contribution actively with nature protection activities as the main pillar.

In commemoration of the company's 50th anniversary in 1997, we placed our nature protection activities as the main pillar of our social contribution activities. We organized the "Executive Committee for Nature Protection Activities" in the company, which has been aggressively promoting these activities both inside and outside Japan.

■Support to NGO's Nature Protection Activities

In cooperation with Keidanren Nature Conservation Fund (a charitable trust), we are supporting nature protection activities conducted by environmental NGO's. In fiscal 2001, we made financial contributions to 4 projects, as shown below, including marine conservation and diverse creature survey activities in Indonesia. We also continued the assignment of one of our employees to work full time with Nippon Keidanren Committee on Nature Conservation, trustee of Keidanren Nature Conservation Fund.

●Projects we supported in FY 2001

Areas	Projects	NGO's
Indonesia	Development of a Marine and Coastal Conservation Center in Bali, Indonesia	The Nature Conservancy (TNC)
China and Indonesia	Biodiversity survey and protected area planning	Wild Bird Society of Japan
Asia	Development of a Field survey Training Program for Conserving The Natural Environment of the Subtropics for Asian NGOs	LEADERSHIP for ENVIRONMENT and DEVELOPMENT (LEAD) Japan
Kushiro Wetland (Japan)	Urgent investigation for conservation of biodiversity in the lakes of Kushiro Wetland	Marimo Research Association

■Making a Biotope, Space for Wild Fauna and Flora

Kyushu Sekisui Industry Co., Ltd. opened a biotope on its premises to the public in April, 2001. The employees are continuing activities in cooperation with the local community (P42).

We also started to make miniature sanctuaries at other workplaces to provide spaces for wild birds. To provide similar spaces for wild fauna and flora, staff are engaged in the physical work of preparing smaller plots of land at some workplaces through Sekisui Chemical's Nature Study Course. (P17)



Making a miniature sanctuary (Sekisui Chemical's Nature Study Course at our Frontier Technology Institute)

■Nature Protection Activities in Local Communities

Local workplaces of Sekisui Chemical Group are taking part in social activities for nature protection in conjunction with local communities. In fiscal 2001, various activities were conducted widely, such as local cleansing operations, forest conservation and the cleansing of rivers and streams. The number of participants from our concerned workplaces since fiscal 1999 became 4,528 (80.8%) in cumulative total.

●Making "Sekisui Forest"

Having rented 1,000m² of the municipality-owned woodland, our employees of Tokuyama Sekisui Industry Co., Ltd., as volunteers, are caring for it semiannually to make a "forest for observation" where local people can enjoy observing wild birds and insects.



●Participation in forest conservation activities

In fiscal 2001, employees of Higashinihon Sekisui Industry Co., Ltd., Shinshu-Takatoo Plant of Sekisui Film Co., Ltd. and Tokuyama Sekisui Industry Co., Ltd. participated as volunteers in the forest conservation activities conducted by the relevant organizations in their respective local communities.

●Participation in local beautification campaigns and conducting nearby area cleaning activities

Our employees at 14 workplaces are cooperating in local beautification, by participating in cleaning campaigns held by respective municipalities, or conducting cleaning activities autonomously in the areas nearby their workplaces.



Amagasaki Plant
Cleaning nearby the plant



Osaka Headquarters
Participating in Osaka City total cleaning campaign

■House Making Course for Children

Using "Heim, Jr." which is a 1/24 miniature of Sekisui Heim, we started a test introduction of "Learning with House Making as an Educational Tool," for junior high school students.

In fiscal 2001, we implemented it with 1st grade students of Chigasaki Municipal Nishihama Junior High School in Kanagawa Prefecture, and 2nd grade students of the Junior High School attached to Nippon Institute of Technology, utilizing their hours for "comprehensive learning." A team of about 10 people from Sekisui, comprising house sales persons and volunteers, visited the respective classrooms. They thought about housing and made miniatures, together with the children. Some of them were made out of wonderful ideas, or valued as having a high level of sophistication.

We intend to extend this activity step by step, aiming at holding a nation-wide contest in the future.



Miniature house building according to their own ideas

Sekisui Heim salesmen explaining house making



Communication

Through various activities and community events, we can provide our knowledge of environmental affairs to concerned bodies and to the general public.

■Communication with the Outside

●Guided plant tours

Our presentations made to the plant visitors were as follows:

- Zero emission: 11 occurrences, 324 persons
- Environmental activities in plants: 24 occurrences, 1,176 persons
(to grammar, junior high and high school students)
- Environmental activities in general: 12 occurrences, 322 persons
- Plant and production processes (excluding house production): 366 occurrences, 3,020 persons

●Interaction with local communities

Interaction sessions and participation in events: 6 occurrences
(e.g. Chubu Sekisui Industry Co., Ltd. to Toyohashi Flower Festival)

●Invitation Lectures held outside

We made presentations on the following subjects at lecture/study meetings held outside our premises:

- Aim and editing of "Environmental Report": 4 occurrences by Corporate Environment & Safety Group
- Zero emission activities: 7 occurrences by Kyushu Sekisui Industry Co., Ltd., Shiga Minakuchi Plant and Corporate Environment & Safety Group
- Activities for safety and accident prevention: Amagasaki Plant and Corporate Environment & Safety Group
- Environmental conservation activities of an enterprise: Corporate Environment & Safety Group

●Exhibitions

We exhibited panels and products at "Eco-Products 2001", where we had the opportunity to give environmental explanations to school children of all ages as well as to the public. We also participated in "Enviro Shiga 2001", the 5th International Environmental Business Exhibition of products and technology.

●Publications

- "Environmental Report 2001"
- Environmental Report 2001 (Housing Company) (*trans.*)
- Think it over. You can be a Leader in creating your Town (*trans.*)
- Environment-friendly Housing (*trans.*)
- Sekisui Heim Environmental Series: Cherish our Earth (*trans.*)

●Product information presentation

● MSDS (Material Safety Data Sheet)
This paper explains the hazards and toxicity of products and sets out precautions for handling.
363 MSDS's were newly issued or revised in fiscal 2001.

● Yellow Card

This paper describes emergency measures for accidents during transportation of hazardous products and is handed to truck drivers at the time of shipping. A total of 6,410 cards were handed out in fiscal 2001.



Cooperation in the study of countermeasures against global warming, sponsored by JICA (Japan International Cooperation Agency)



Students visiting our booth as a part of their overall study program (Eco-Products 2001)



Toyohashi Flower Festival (Chubu Sekisui Industry Co., Ltd.)



*Think it over.
You can be a Leader
in creating your Town
(published December,
2001)



*Sekisui Heim
Environmental Series
(published February,
2002)



*Environment-friendly
Housing
(published October,
2001)

*These publications (in Japanese) are available free of charge.
Please contact: <http://www.sekisui.co.jp>

■Commendations, Awards and Prizes

The environmental conservation activities and products of Sekisui Chemical Group were awarded the following commendations and prizes.

Fiscal 2001 Grand Prize for Energy Conservation, Minister of Economy, Trade and Industry Award

.....Hot Water Unit with CO₂ Heat Pump

Excellent Technology Prize for FY 2001 by Japan Solar Energy Society

.....Photovoltaic/Thermal Hybrid System

The Kanto Area Invention Prize for FY 2001, The Governor of Tokyo Prize

.....The Free Shape SPR System

5th Environmental Report Awards, Excellence Prize

.....Environmental Report 2001, Sekisui Chemical Co., Ltd.

Consumer Oriented Excellent Company Commendation

.....Sekisui Chemical Co., Ltd.

Nara City Global Environment Prize

.....Sekisui Chemical Nara Workplace (Ryuseki Jubi Industry Co., Ltd. & Sekisui Life-Tec Co., Ltd.)

FY2001 Recycle Promotion Commendation for Valuable Activities

by the Chairman of the Recycle Promotion Council

.....Amagasaki Plant, Sakai Plant, Kitanihon Sekisui Industry Co., Ltd.,

Tokyo Sekisui Industry Co., Ltd., Chubu Sekisui Industry Co., Ltd.

Commendation by Saga Prefecture for Meritorious Services in establishing a Pleasant Environment

.....Kyushu Sekisui Industry Co., Ltd.



5th Environmental Report Award, Awards Ceremony

■Education of Employees

Various educational activities are available to all employees in order to promote the environmental conservation effectively. For example, the Basic Training in Environmental Technology course is available to engineers early in their careers, so that they will pay attention to the environment during the course of development work. The EMS Internal Auditor Training course is available to responsible persons of environmental control at individual facilities or offices. In addition, information is distributed to the whole of Sekisui Chemical Group on the intranet and utilized by every workplace for its own environmental education programs.

●Environmental education and enlightenment conducted in fiscal 2001

Courses	Available to:	Month	Number of attendants	Cumulative number
New Employee Training	New employees	May	16	94
Basic Training in Environmental Technology	Intermediate staff	August	6	58
EMS Internal Auditor Training, in-company	Management / intermediate staff	5 times / year	116	375
EMS Internal Auditor Training, ex-company	Management / intermediate staff	As needed	4	90
Sekisui Chemical's Nature Study Course	Management / intermediate staff	May, Sept., Nov.	26	207
Company Journal, Lectures / Seminars	All in Sekisui Chemical Group	Apr., July, Oct., Jan.	All in Sekisui Chem. Grp.	—
Kaizen Reporting Conference for Safety and Environment	Intermediate staff / new employees	November	48	348
OHSMS (P18) Internal Auditor Training	Management / intermediate staff	November, January	53	53

●Publicly Certified Specialists (as of March 31, 2002)

Fields		Staff certified in FY 2001	Total certified staff
CEAR* Registered Examiner	Chief Examiner	2	5
	Examiner	0	3
	Assistant Examiner	3	7
Pollution Controller	Air Pollution Classes 1 to 4	1	44
	Water Contamination Classes 1 to 4	2	114
	Noise	0	46
	Vibration	0	18
	Dioxin	1	2
Energy Controller (Heat, Power)		9	51
High Pressure Gas Safety Controller, Classes 1 to 3		3	236
Environmental Counselor		2	3
2nd Class Biotope Construction Controller		1	2
Advisory Specialist for Consumers' Affairs		18	62

*Center of Environmental Auditors Registration (CEAR) in Japan Environmental Management Association for Industry

■Sekisui Chemical's Nature Study Course: Leadership Training for Nature Protection

In order to train leaders at our workplaces who promote nature protection activities in their respective local communities, we periodically hold sessions under "Sekisui Chemical's Nature Study Course" with the cooperation of the Wild Bird Society of Japan. This started in 1997 and by fiscal 2001, 207 employees had attended the sessions. By the end of fiscal 2002, we expect this number will have increased to 250.

Originally this course was held only at the beginner level, but in fiscal 2001, we started advanced sessions for the attendants to study for taking positions of leadership in this field. The program includes making nest boxes for birds, together with school children, under the theme of miniature sanctuary, and to learn how to guide children to observe nature in a biotope.



Challenge to make nest boxes



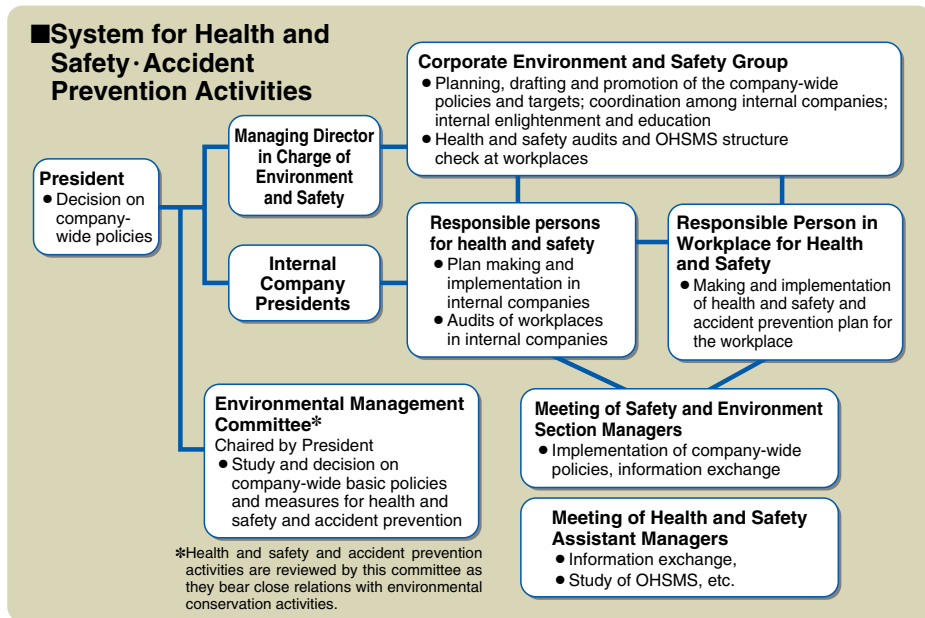
Tree planting with children

Occupational Health and Safety · Accident Prevention

Based on our concept that safety is fundamental to business activities, we are aiming at zero danger in every section of our workplaces by structuring and operating OHSMS (Occupational Health and Safety Management System).

As safety is fundamental to business activities we operate under the guidelines of our 4-zeros: zero loss time from accidents, zero incident in equipment, zero accident during commuting, and zero long term sickness and injury. Our efforts have resulted in a steady upgrading of our health and safety management level every year. Accidents have also been decreasing year by year, but near-accident cases and small injury accidents

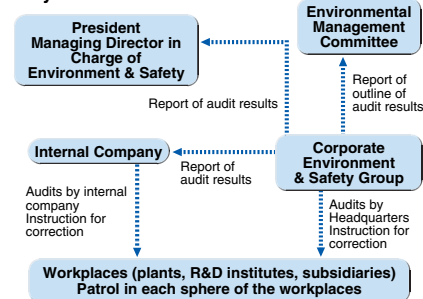
are still reported from our workplaces. We are yet to thoroughly erase the underlying potent of danger. To counter this situation, we have been continuing, since fiscal 1999, to structure and operate OHSMS at each workplace for further improvement of our occupational health and safety and accident prevention activities, aiming at realizing "Zero Danger Work Sites".



Health and Safety and Accident Prevention Audits

To realize our management policy on environment and health and safety, we perform health and safety and accident prevention audits at our 39 plants and R&D institutes, as deemed necessary, by the Headquarters.

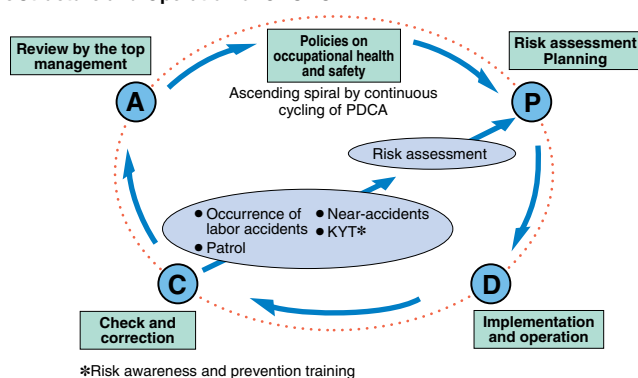
System of the Audits



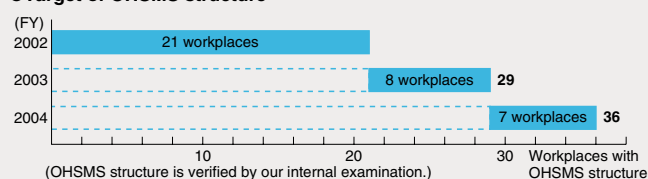
Promotion of OHSMS Structure and its Operation

To cycle P-D-C-A and implement continuous and autonomous management of health and safety and accident prevention, we are promoting the structure of OHSMS. OHSMS is not intended to introduce an entirely new management system, but aims at defining the health, safety and accident prevention function of management to be implemented at each of our workplaces.

Structure and Operation of OHSMS



Target of OHSMS structure

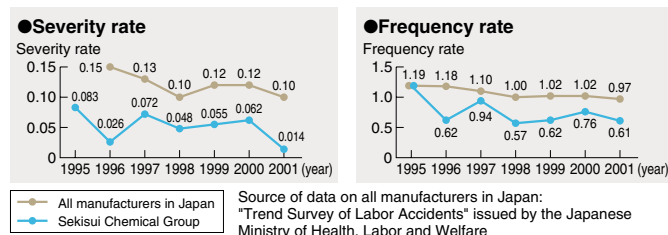


Results of Health and Safety and Accident Prevention Activities

In fiscal 2001, we promoted our activities under the company-wide slogan, "Absolute penetration of health and safety by risk management throughout every workplace". We will realize zero danger in every section of our workplaces by implementation of this program.

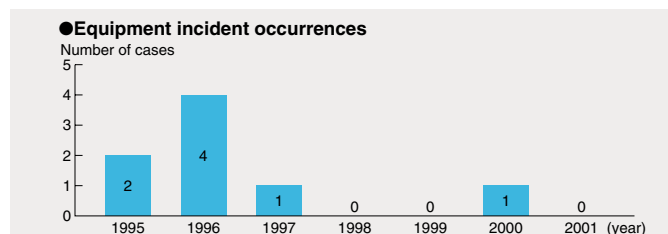
Workplace accidents

In fiscal 2001, the severity rate was much improved, but the number of occurrences and their frequency rate showed only slight improvement.



Equipment incident

No equipment incident occurred in fiscal 2001. This is due to our prior inspection of all equipment at introduction, periodic detection of danger sources and effectuated equipment management.



HOUSING COMPANY



Tomohiko Yasuda

President
Housing Company

A leader in environmental conservation

The global population of 1.5 billion at the beginning of the 20th century has continuously increased to reach today's population of 6 billion. It is still increasing in many countries and this population explosion and the resulting increased consumption of energy and natural resources, coupled with the rising accumulation of carbon dioxide and nitrogen oxides in the atmosphere, constitute an imminent environmental crisis.

Some scientists have even predicted that mankind's survival is under threat. Faced with such ominous conditions, it is the responsibility of all people, and particularly those of us engaged in manufacturing industries, which very much affect the global environment, to ensure that the environmental conditions are improved and conserved in order that future generations can live on a clean, safe and beautiful planet.

Residential houses are used for long periods, often for generations, therefore their impacts on the environment can be enormous. It is, then, the mission of our Housing Company to develop and popularize houses of low environmental loads that are built to be comfortably lived in for generations. This theme, Building a Good Environment, along with our theme of Better Customer Satisfaction, takes top priority in our business policy.

As a leader in environmental conservation in the housing industry, we are making available environment-friendly houses that have a life span of at least 60 years. We have attained virtually all our targets such as the acquisition of ISO 14001 Certification by all our business units, the attainment of zero emission by all our plants, and the availability of such energy saving houses represented by our totally insulated houses and our houses equipped with photovoltaic generation systems. In the year 2000, we received the New Energy Award for our Photovoltaic/Thermal Hybrid System and in 2001 we received the Grand Prize for Energy Conservation for our Hot Water Unit with CO₂ Heat Pump from the Japanese Minister of Economy, Trade and Industry. In 2002 we are continuing our efforts to popularize energy saving houses, to attain zero emission by all our sales

companies and most importantly to develop the system for reuse of the units of our houses which will more than comply with the requirements of the Construction Materials Recycling Law.

In the 21st century no business will be able to grow without environmental management. Already our company is giving top priority to environmental management beyond that which is required by the relevant laws. With these principles we have full confidence in the future development of our business.

ENVIRONMENTAL POLICY

Our Basic Concept

Our Housing Company contributes to the society with our environment-friendly residential houses that can be lived in safely and comfortably for at least 60 years.

Activity Guidelines

1. To offer houses with low environmental loads:

We are dedicated to the continual improvement of the durability and the comfort of our houses and to the utilization of natural energy and materials with low environmental loads, so that we can supply residential houses with healthy conditions which have minimum impact on the environment.

2. To build resources/energy saving houses:

We pay full attention to achieving the most effective use of resources and energy, to the promotion of waste reduction and material recycling and to the development of a resource-recycling-based housing system.

3. To supply houses that best suit their surrounding communities:

We minimize the environmental impacts of construction and development on residential areas and fully observe all laws, paying efforts to develop excellent relations with local communities.

February 1, 2002

Environmental Consideration in our Businesses

Our unique Unit Technology provides various environment-friendly systems throughout the life cycle of our houses.

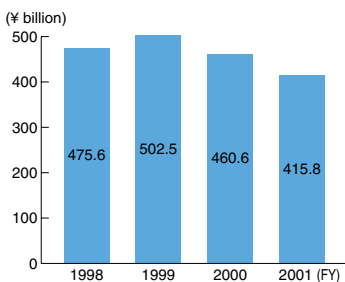
Since the development of the original "Heim M1" in 1970, we have continuously devoted efforts to improve the quality of our modular houses for their popularization in society. The basic principle of factory-built houses makes possible the maximization of productivity, the shortening of construction periods, the reduction of cost, the saving of energy in assembly, in painting and in other production processes and the minimization of waste of building materials in construction; all of which are essential in providing environment-friendly houses.

Our company provides all customers with long term support plans, renovation plans and reuse plans as required. Our R&D, our reliable production and construction technology and our long term support options assure a better environment for future generations.

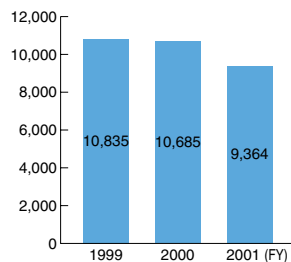
Businesses of our Housing Company:

- Steel-framed modular houses, "Sekisui Heim",
- Wooden-structured modular houses, "Sekisui Two-U Home",
- Renovation,
- Interior decoration/exterior decoration,
- Realty.

Sales*

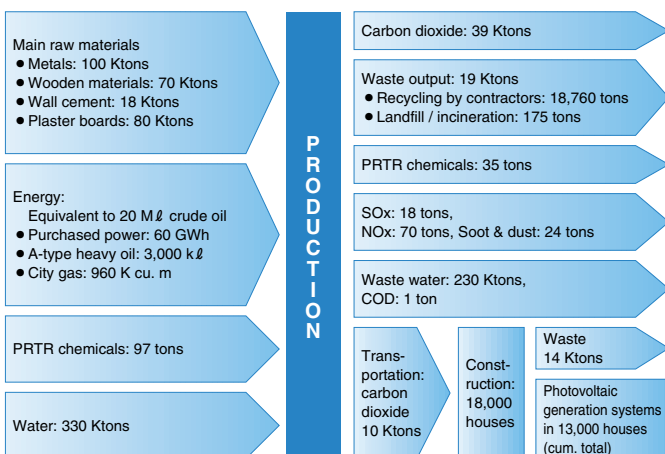


Number of employees*



*Figures are for Housing Company only, which are consolidated in the account of Sekisui Chemical Co., Ltd. (Contents page)

Annual INPUT and OUTPUT



Steel-framed



Parfe JX



Domani JX



Desio JX

Wooden-structured



Miolo



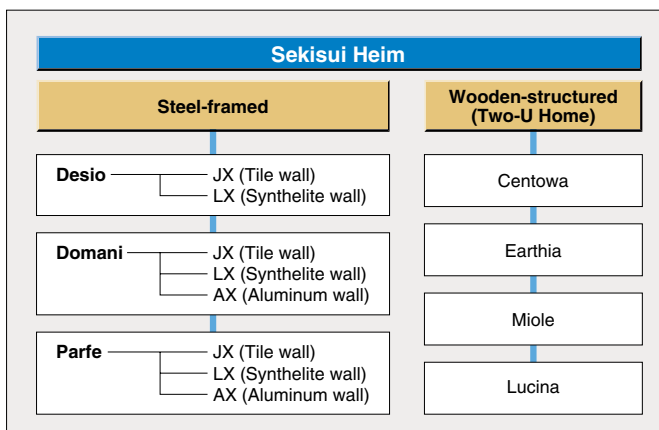
Earthia

Apartment House



Letoit

Detached House Series



Realization of safe and comfortable living. Control of carbon dioxide emission and waste disposal throughout the life cycle of our houses. Harmonization of these is the challenge we have taken up as a builder of modern houses.

To be friendly to the global environment

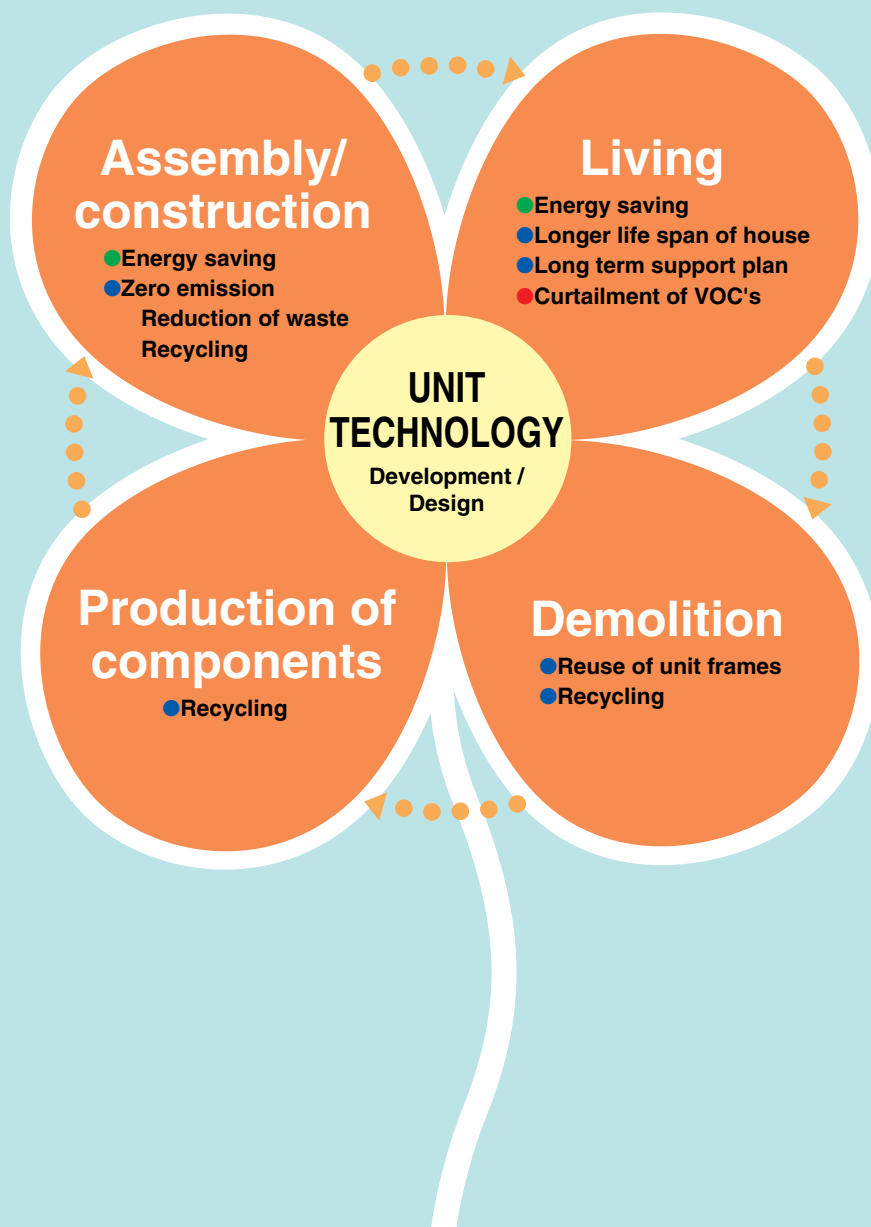
→ Reduction of carbon dioxide emission

To use resources effectively

→ Longer life span and reduction of waste

To realize safe and comfortable living

→ Highly controlled management of hazardous chemicals (VOC's)



Results of our Activities in fiscal 2001

We achieved success in 13 out of 17 targets.

The Middle Term Environmental Plan "STEP-21" (1999~2002) and its Progress Status

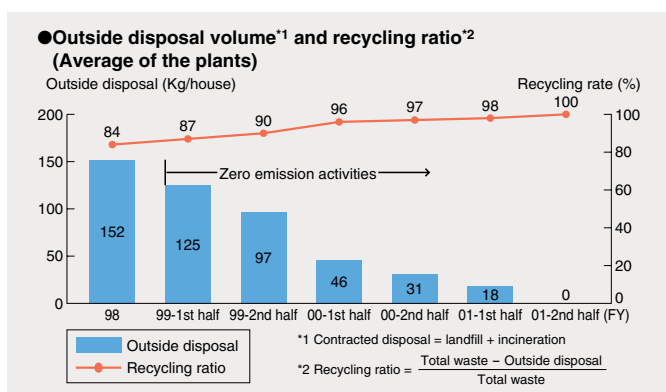
We achieved excellent results in zero emission, by meeting the targets in September 2001 in all the 10 plants, consisting of 8 assembly and 2 wall manufacturing factories. However, the targets for the waste curtailment and carbon dioxide emission reduction were not attained. These are being pursued in fiscal 2002.

Policy	Items		Targets for fiscal 2002	Targets for fiscal 2001	Actual Results in fiscal 2001	Evaluation	
POLICY 1 Environmental Conservation	Promotion of zero emission	Plants	Maintenance of zero emission	Attainment of zero emission at all plants	Attained by all 10 plants	◎	
		New house construction sites	Attainment of zero emission by all sales subsidiaries	Zero emission by the model sales subsidiaries in Tokyo and Osaka	Completion of preparation of recycling routes for the model subsidiaries and Kyuseki Sekisui Heim Co., Ltd.	○	
		Waste reduction	25% reduction per production Unit (against FY 1998)	18% reduction	7.8% increase	×	
	EMS structuring		Completion in all sales companies & Housing R&D	In 51 workplaces (cum. total)	Completion in 48 workplaces (See note below)	○	
	Introduction of green procurement		At least 70% green procurement	Preparation in first half and execution in latter half	Execution started	○	
POLICY 2 Good Environment Creation	System structuring for collection and recycling of waste from residential buildings		Total segregation of waste from demolition. Compliance with law on recycling percentages	Implementation	Segregation guidelines provided. Preparation for compliance with Construction Materials Recycling Law	○	
	Development of environment-friendly new products	Minimum 30% of total sales of new products		22% minimum	29.1%	◎	
		Minimum 15 items put on market in cumulative total		Minimum 10 items	13 items	◎	
	Development of environmental conservation and recycling technologies		Completion of 4 projects	Promotion of projects	Completion of 1 project	○	
Introduction of LCA (Life Cycle Assessment)		Practice in a model project	Study meetings	Start of meetings	○		
POLICY 3 Environmental Symbiosis & Information Disclosure	Response to environmental subjects	Reduction of carbon dioxide emission		4% reduction per production Unit (against FY 1998)	3% reduction	13.6% increase (5.4% reduction against FY 2000)	×
		Promotion of green distribution		Completion of a model system	Promotion in a model case	Trials in housing unit delivery	○
		Energy saving	Plants	4% saving per production Unit (against FY 1998)	3% saving	22.1% increase (0.4% increase against FY 2000)	×
			R&D Institute	4% saving in power consumption (against FY 1998)	3% saving	16.1% saving	◎
		Reduction of pollutant release		30% reduction per production Unit (against FY 1998)	22% reduction	28.4% reduction	○
		Countermeasures against sick house syndrome		Assurance of toluene/xylene concentration below the guideline level at the time of transfer to customer	Assurance of formaldehyde concentration below guideline level at the time of transfer to customer	Attained a level below the guideline	○
		Package saving (of parts and components)		20% reduction per variable cost Unit	15% reduction	8.7% reduction	×

Note: Including 4 workplaces which received ISO 14001 Certification in April 2002. (Examination for registration was conducted in March 2002.)
Evaluation Standards: ◎-Attained the target, ○-Almost attained the target, X-Failed.

■Attainment of Zero Emission at all Plants (P28)

We attained zero emission of waste, which means recycling of all waste, at all 10 plants (8 assembly and 2 wall factories) by September 2001. In 2002 we are reducing the volume of waste generated.



■Zero Emission Activities at Construction Sites (P30)

In order to raise the recycling ratio, model sites of house construction for zero emission were selected in Tokyo, Osaka and Kyushu districts to pursue:

Reduction Exact estimation of materials needed at site, Simplification of component packaging

Reuse Use of excess materials

Recycling Routine process for segregation, collection and recycling of waste

At these model sites, the routine process for recycling was satisfactorily established by March 2002 and we are extending the project nation-wide.

For demolition sites, we now provide a reporting process for the house owners and segregate and recycle the designated construction materials (concrete, asphalt, lumber, etc.), in compliance with the Construction Materials Recycling Law.

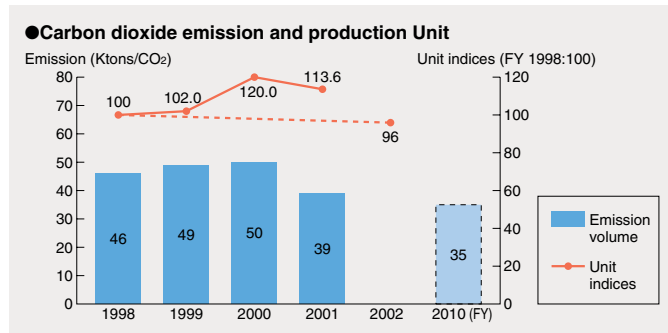
■Zero emission in our Housing Company specifies as a first step, zero landfill inside and outside the facilities, zero incineration without thermal recovery outside the facilities and 100% recycling of waste; and as a second step, the substantial reduction of waste generation.

Reduction of Carbon Dioxide Emission (P25)

For the reduction of carbon dioxide emission in the production processes, we focus our efforts on energy saving.

We succeeded in reducing the carbon dioxide emission of 10 plants by 5.4% per production Unit against fiscal 2000, by means of rearrangement of production lines, minimization of incineration or abolition of incinerators and other activities.

Initially the decrease of production pushed up the emission per production Unit. However, we succeeded in reducing it finally.



Abolition of Incinerators

4 plants abolished incinerators in 2001 and the remaining 3 are abolishing incinerators in 2002, resulting in total abolition of incinerators in our Housing Company.

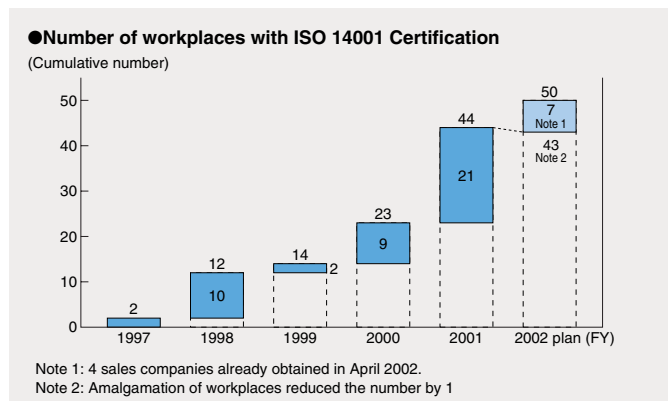
Abolition in 2001	Higashinohon Sekisui Ind. Co., Ltd. Kanto Sekisui Ind. Co., Ltd. Chugoku Sekisui Ind. Co., Ltd. Sekisui Board Co., Ltd., Gunma Plant
Abolition in 2002	Tokyo Sekisui Ind. Co., Ltd. Chubu Sekisui Ind. Co., Ltd. Kansai Sekisui Ind. Co., Ltd.

Acquisition Status of ISO 14001 Certification

Environment-oriented business management is required in the 21st century. We are promoting our activities to obtain ISO 14001 Certification.

Tokyo Sekisui Industry and Kansai Sekisui Industry obtained the certification in 1997, followed by all other plants by fiscal 1999, the total being 10 plants (8 assembly and 2 wall manufacturing plants).

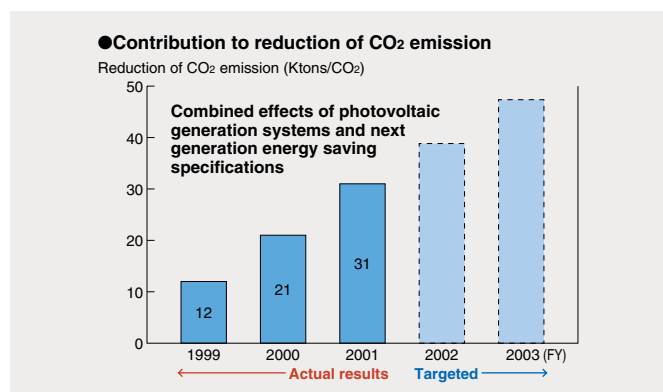
Most of our sales subsidiaries started activities in 2001 to acquire the certification.



Houses equipped with Photovoltaic Generation Systems number 13,000 (cum. total) (P24)

In order to reduce CO₂ emission from households, we are popularizing our energy saving houses by setting next generation specifications for energy saving as well as promoting the use of our photovoltaic generation systems in Sekisui Heim and Sekisui Two-U Home.

By the end of March 2002, we had sold 12,931 detached houses (cum. total) equipped with photovoltaic generation systems, making us the leading seller in this field in Japan. This provides a reduction of 30,000 tons (approx.) per year of carbon dioxide emission when combined with the insulation effects.



Start of Green Procurement

Preparatory surveys of the suppliers and their products were conducted referring to the Green Procurement Standards shown below, before the start of the system in November 2001.

Outline of Green Procurement Standards

Supplier Standards		Product Standards	
EMS	ISO 14001 Certification	Product assessment	3 criteria, e.g. assessment at the stage of product development
Organization	5 criteria, e.g. appointment of environmental control personnel	Performance in use/disposal	9 criteria, e.g. longer life cycle than conventional products
Law abidance	5 criteria, e.g. awareness of environmental laws in relation to business	Design/structure for recycling	5 criteria, e.g. use of recyclable materials
Control system	5 criteria, e.g. internal auditing	Information disclosure	2 criteria, e.g. availability of information/precautions regarding environmental consideration
Voluntary activities	8 criteria, e.g. proposals accepted for environmental load reduction	Information disclosure	2 criteria, e.g. availability of information/precautions regarding environmental consideration
Information disclosure	Disclosure of environmental conservation information of the company	Packaging	8 criteria, e.g. reduced packaging materials compared to conventional method

Reduction of Pollutant Release and Transfer

Release and transfer (disposal) volume of the Class 1 chemicals designated by the Japanese PRTR Law was 33.1 tons in fiscal 2001, which was a 41% reduction from the fiscal 2000 volume. No dioxins will be released in 2003 due to the abolition of all incinerators.

Unit: Tons (except dioxins in mg-TEQ)

No.*	Chemicals	Used volume	Release				Transfer		
			To atmosphere	To water	To soil**	Land-fill**	Sewer	Waste Disposal	Recycling
30	Bisphenol A type epoxy resin (liquid)	59.7	0	0	0	0	0	0	
43	Ethylene glycol	1.4	0	0	0	0	0	0	
63	Xylene	14.4	13.8	0	0	0	0	0.56	
227	Toluene	20.1	19.2	0	0	0	0	0.84	
270	Di-n-butyl phthalate	1.5	0.15	0	0	0	0	0	
Total		97.0	33.1	0	0	0	0	1.4	
179	Dioxins	—	452.7	0	0	0	1.9	1,610.0	

*Specification No. **On the premises

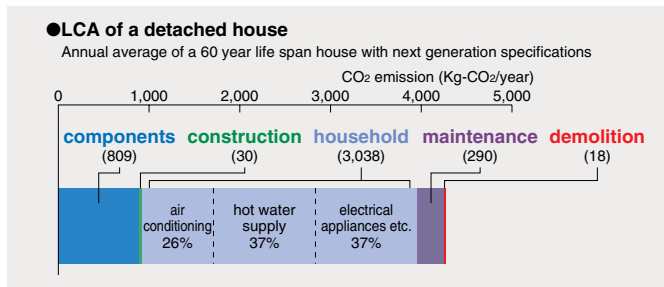
To be friendly to the Global Environment: Reduction of CO₂ Emission

We greatly reduce carbon dioxide emission from households, by our next generation energy saving specifications and photovoltaic generation systems for detached houses, as the leading supplier in Japan.

Reduction of CO₂ Emission from Households

CO₂ emission from residential houses

Most of the CO₂ emission from residential houses is attributed to energy consumption by air conditioning, hot water supply and electrical appliances. Needless to say, reduction of such energy usage is of help in the prevention of global warming.



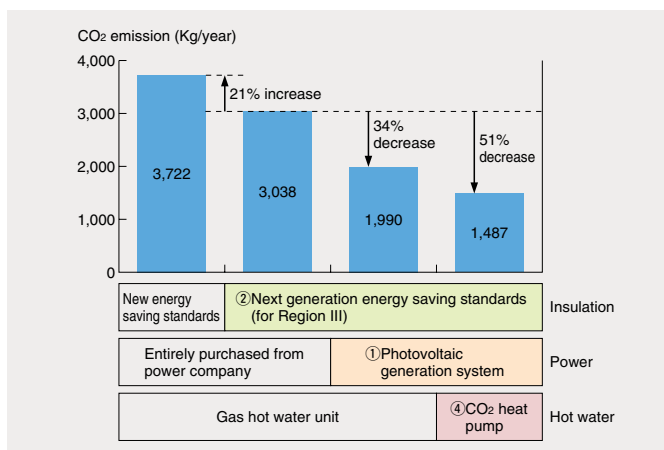
Efforts to reduce CO₂ emission

Focusing on three categories of energy usage by households, we are developing houses with the following specifications that enable the reduction of CO₂ emission.

Mode of Saving	Category			Technical Method	Design & Engineering
	Air cond.	Water heating	Appliances		
Reduction of energy consumption	○			Insulation, air-tightness	② Standardization of next generation energy saving specifications
Efficient use of energy	○			Highly efficient devices	④ Hot Water Unit with CO ₂ Heat Pump ● Air conditioning with high energy-efficient ventilation
		○			
Utilization of natural energy	○			Use of natural environment	⑤ Heat retaining flooring ⑥ Tool for analysis of lot environment ● Ventilation windows
			○	Photovoltaic generation	① Photovoltaic generation system
		○	○	Solar hot water & photovoltaic system	③ Photovoltaic/Thermal Hybrid System

Reduction of CO₂ emission by combination of various specifications

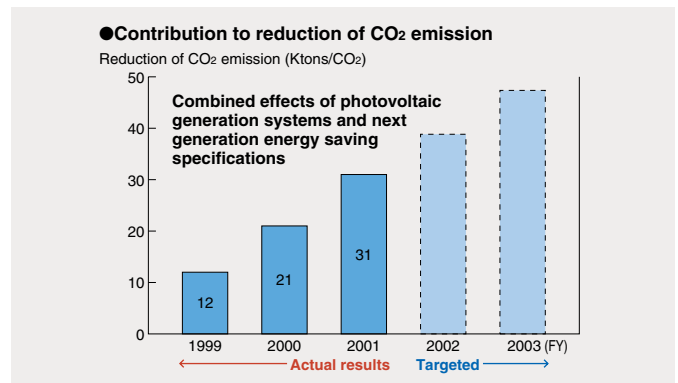
We can further reduce CO₂ emission by 51% with the combination of the standard next generation energy saving specifications and the photovoltaic generation system, etc.



Actual reduction of CO₂ emission

- ① Installation of photovoltaic generation systems
- ② Standardization of next generation energy saving specifications

Houses equipped with photovoltaic generation systems totaled 12,931 in March 2002. We also include the next generation energy saving standards in the standard specifications for our houses. This resulted in a 30,000 tons (approx.) reduction of CO₂ emission in fiscal 2001, which is almost equivalent to the annual emission volume of our 10 plants (39,000 tons).



Examples of performance of energy saving houses:

Q-value (thermal loss coefficient) Unit: W/m²K

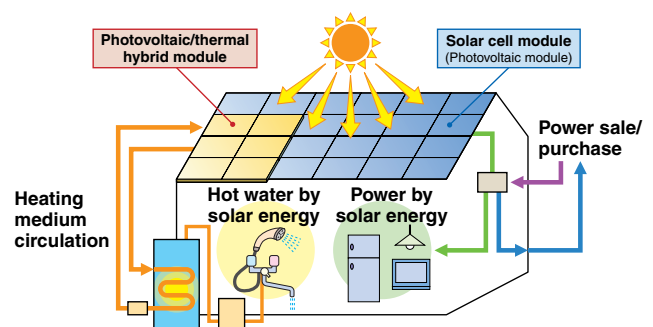
Region (as examples)	Next generation energy saving standard	Sekisui Heim	Sekisui Two-U Home
II (Aomori, Akita)	1.9 or below	1.9	1.9
III (Miyagi, Nagano)	2.4 or below	2.3	
IV (Tokyo, Osaka)	2.7 or below	2.7	
V (Kagoshima)			

Other provisions

③ Photovoltaic/Thermal Hybrid System

We are the first house manufacturing company in Japan to develop a system that utilizes to the maximum solar energy and to make it available to residential houses.

A standard photovoltaic system converts about 15% solar energy to power, while our efficient Photovoltaic/Thermal Hybrid System converts an additional 40% solar energy to heat. The total conversion rate is 50 to 55%. Conventional solar hot water devices provide hot water for bathroom use only, but our system heats tap water for general household use by circulating the heating medium.

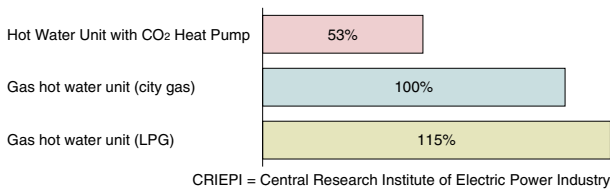


④ Hot Water Unit with CO₂ Heat Pump

A high performance hot water unit was developed to reduce CO₂ emission by half and at the same time to increase the capacity for heat energy creation.

By drawing thermal energy from the air, this unit transfers energy to water in 3 times as much electric energy as needed to operate the unit, thus reducing CO₂ emission by 47% compared to that from a city gas hot water unit. Our unit does not use any flon gases that destroys the ozone layer or any substitute flons (HFC) that have large global warming coefficients.

● Comparison of CO₂ emission (Data from CRIEPI)



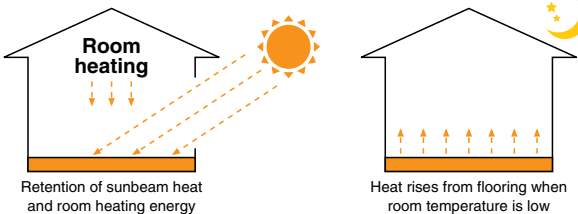
⑤ Heat retaining flooring

The new idea of heat retention enables clean heating and reduction of CO₂ emission.

Sunbeam heat and room heating energy is retained by the heat retaining material in the floor and given off at night. This system moderates the morning chill and helps save fuel in the winter. Solar energy through windows on fine days or room heating energy on cloudy days will give substantial retention of heat.

● Principle of the heat retaining flooring

A setup where sunbeam heat and room heating energies are stored in the daytime and given off at night.



⑥ Tool for analysis of lot environment

By analysis of sunshine, wind direction and natural factors, the optimum plan of a house to be built on a specific lot is designed.

This easy-to-use tool takes meteorological data from AMeDAS* to find characteristics of sunshine, wind direction and velocity influencing the building lot. The house plan is input and a survey of sunshine, seasonal or hourly wind etc. can be made available in order to establish the optimum plan.

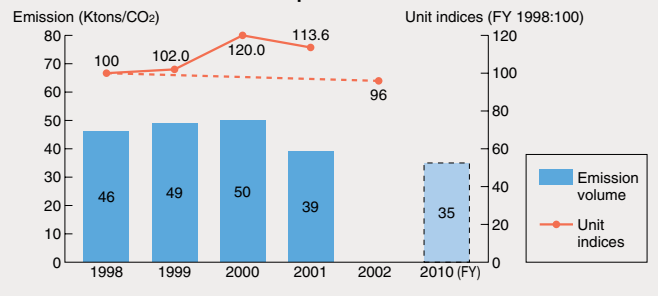


*AMeDAS: Automated Meteorological Data Acquisition System

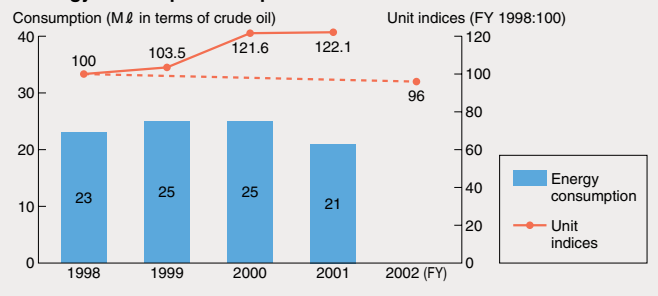
■ Reduction of CO₂ Emission from Production Processes

Our modular houses are 80% factory-built. Understanding the fact that the production and assembly processes require energy and consequently emit CO₂, we promote energy saving at the production stages. In fiscal 2001 we succeeded in saving energy to the amount of 4,500 Kℓ crude oil equivalent, by means of the rearrangement of production lines, abolition of incinerators and other activities. Initially the decrease of production pushed up the emission per production Unit. However, we succeeded in reducing it finally.

● Carbon dioxide emission and production Unit



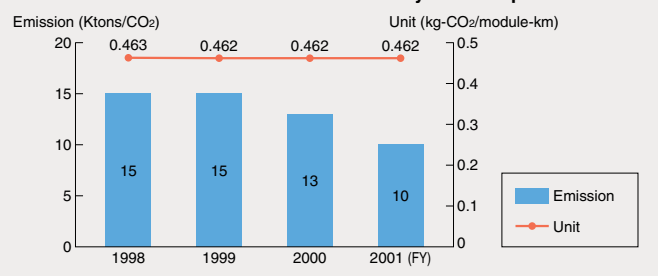
● Energy consumption and production Unit



■ Green Distribution

Module delivery is undertaken by contractors, and we can estimate the volume of CO₂ emission, taking into account the number of trucks and delivery distances. The results are shown in the graph below. We see the indices per module-km are almost constant, because shipment is made module by module on standard trucks. Now we are planning to make transportation more effective by using larger trucks or changing dimensions of the modules, in order to carry more modules on a truck.

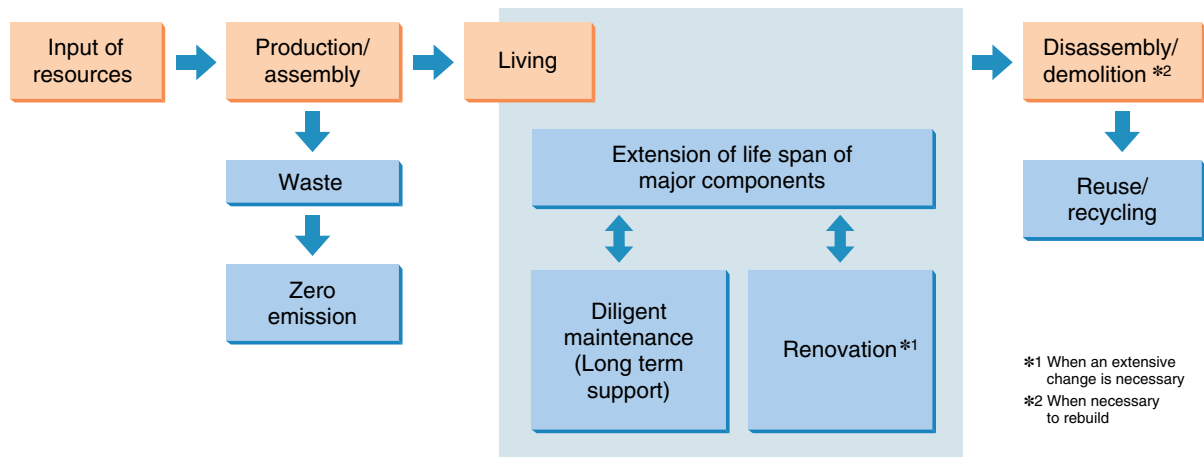
● Carbon dioxide emission of module delivery and Unit per module-km



To use Resources effectively: Extension of Life Span and Reuse

We are extending the life of our houses to optimize the use of resources by initiating a new building system for modular houses which involves remodeling and reuse of modules.

To utilize limited resources most effectively, we strictly control the input of resources and the generation of waste. We are extending the life span of houses to decrease rebuilding, and promoting reduction, recycling and reuse of waste.



Waste Reduction and Resource Saving

Average volume of waste of a demolished detached house is about 40 tons. Lessening the frequency of demolition will reduce the load on the environment from waste materials.

So, we have developed long life exterior walls and roofs, which can be used for a variety of house structures and can accommodate any changes in the life style of the residents and any interior renovations. We are continuing to develop better parts and support systems.

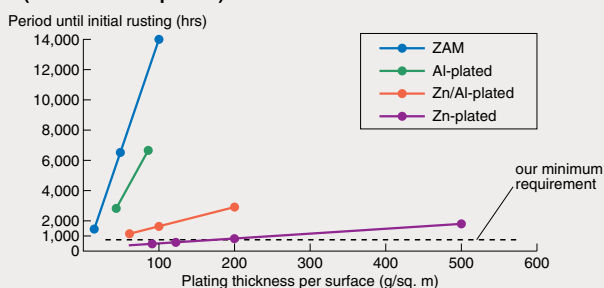
<Durable Parts & Long Term Support Systems>

●"ZAM" (anti-corrosive dip-plated steel)

Highly corrosion resistant steel is used to build the structural frame of Sekisui Heim.

ZAM is dip-plated steel of Zinc/Aluminum/Magnesium alloy, which is the 4th generation material after ①Zn-plated, ②Zn/Al-plated and ③Al-plated steel. ZAM has 10 to 20 times as much corrosion resistance on a flat face as Zn-plated steel and 5 to 8 times as much as Zn/Al plated steel. The corrosion resistance on a cut section is also higher. These are the key points to making parts more durable, contributing to lighter environmental loads, e.g. resource saving and energy saving.

●Results of test for corrosion resistance under salt water spraying (untreated test pieces)



●Stainless steel roofing

For flat roofs, we use SUS445 stainless steel which is one of the most durable stainless steels available, such as used in Tokyo Big Sight, Osaka Dome, Saitama Super Arena and Seibu Dome in order to reduce maintenance expense.

●Result of test for exposure for weather (10 years, 30 m from the Okinawa shoreline)



SUS304
Small amount of red rust
(No effect to the function)



SUS445
Signs of corrosion just beginning to appear

●Durable exterior coating

Exterior walls coated with a compound of acrylic resin usually require re-painting at least every 10 years. We have developed a highly durable waterborne coating compound of fluoro-resin, which reduces re-painting frequency, resulting in resource saving.

Characteristics of our fluoro-resin paint

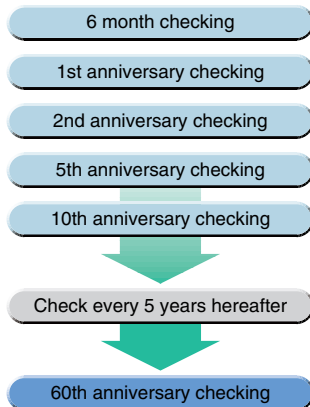
1. The strong coagulation force of the fluoro-resin prevents contaminants from invading the coating film.
2. This paint has double the life span of conventional acrylic paints and maintains an attractive appearance for many years.
3. It is highly resistant to acids and alkalis. Acid rain or air pollution has little effect on the coating, which is also detergent-washable.
4. It is an environment-friendly paint because it does not emit organic solvents into the atmosphere.

●Long term support systems

To maintain house quality it is essential for a house to receive periodic checking to find any fault at an early stage. We have started customer support systems to plan for maintenance. We always try to improve the quality and durability of our modular houses and at the same time offer long term guarantee and checking plans.

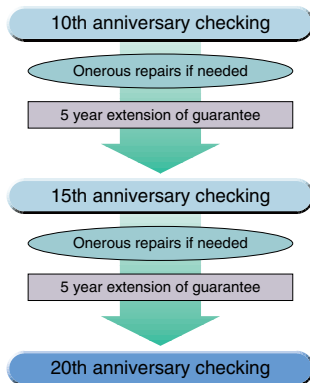
60-year checking system

This is a unique system to check our houses, both interior and exterior, every 5 years for a period of 60 years, starting 5 years after hand-over according to our after-sales service standards. This is in addition to our original checking system which provides checks, both interior and exterior, three times within 2 years from hand-over. The new prolonged system which entails exact investigative checking, enables maintenance work to be planned in good time to ensure that the living conditions of the residents can continue at a consistently high level of comfort.



20-year guarantee system

This system is proof of the high quality and long durability of our modular houses. Regarding the guarantee of the structural frames and/or waterproofing, should any defect occur in the 10 years after hand-over, we carry out repairs free of charge. Should a need for repairs to or preventive measures against deterioration of these appear out of the 10 and 15 year checks, we carry out the necessary work according to the customer's agreement who will bear the cost. The guarantee period for these is then extended for 5 years.



■Renovation Systems

We can offer various plans and flexible ideas for renovation, because our Unit Technology uses steel structural frames of high endurance, the walls and interiors of which can be replaced. Renovation can include installation of state-of-the-art equipment and, of course, renewal and repair of damages incurred over the years.

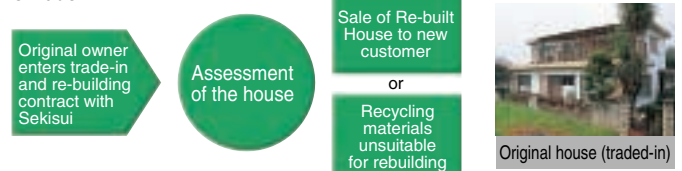


■Resource Saving by Reuse

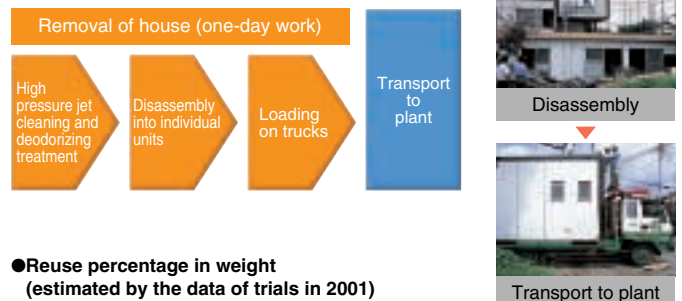
●Re-building system for Sekisui Heim
Our unique Unit Technology enables 70% of a disassembled house to be used in the construction of a new house on a different site.

Reuse is defined as repeated use of used products, basically in their original configuration, with or without retouching. We employed this idea of reuse which reduces the environmental loads and put on the market "Rebuilt House" in May 2002. Rebuilt House is a newly conceived of environment-friendly house that is constructed through the following 3 processes: ①Trade-in from an old customer, ②Disassembly, ③Reuse. After signing a re-building contract with the new customer, we disassemble the house to transport the units and parts back to our factory and divide them into a reuse group and a recycle group. The units and exterior parts for reuse will be inspected and repaired as necessary (cleaning, replacement of parts, painting, etc.) to be sent to the new lot. By this method, a substantial portion (up to 70% in weight of the old house) can be used again, resulting in a great saving of resources and reduction of waste.

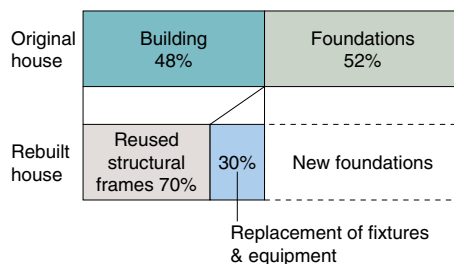
●Trade-in



●Disassembly



●Reuse percentage in weight (estimated by the data of trials in 2001)



Rebuilt House was the winner of the 2002 Designing Competition of the Architectural Institute of Japan, in the category of Zero Emission Residential House.

To use Resources effectively: Zero Emission Activities at our Plants

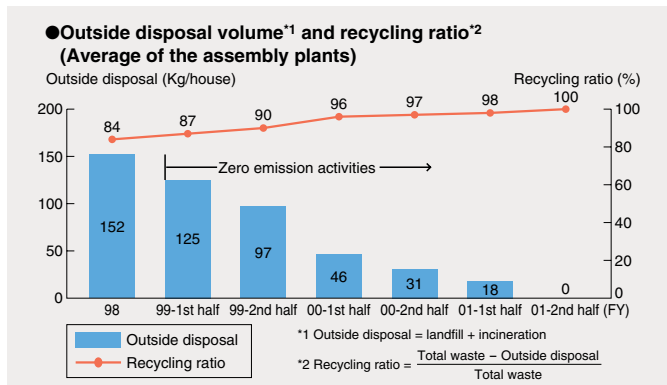
Zero emission was attained at all our plants by September 2001. We are upgrading our activities by reducing waste to half that of the period from April to September 2000.

Zero Emission Activities at our Plants

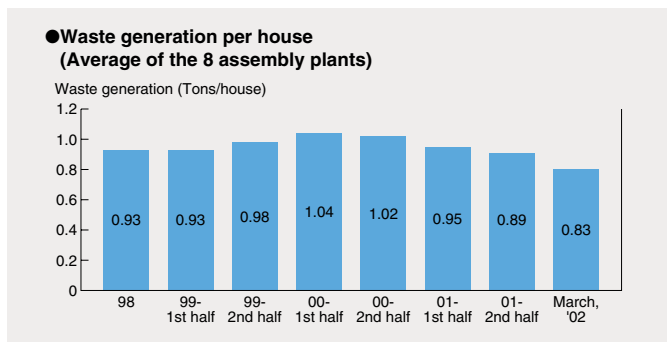
In conventional house construction waste is generated mainly at the site. However with our Unit Technology, a high percentage of construction is completed in plant; therefore a relatively small amount of waste is generated at the site. At present the average amount of waste generated by construction per our unit house is 1.9 tons approx., of which 0.9 ton is in plant and 1.0 ton is at the site.

Promotion of our Zero Emission Activities

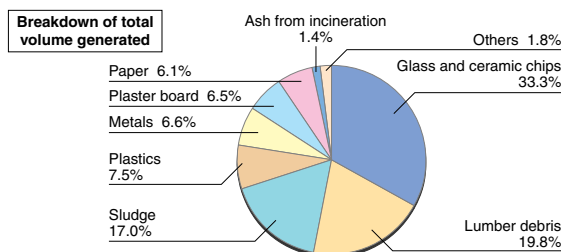
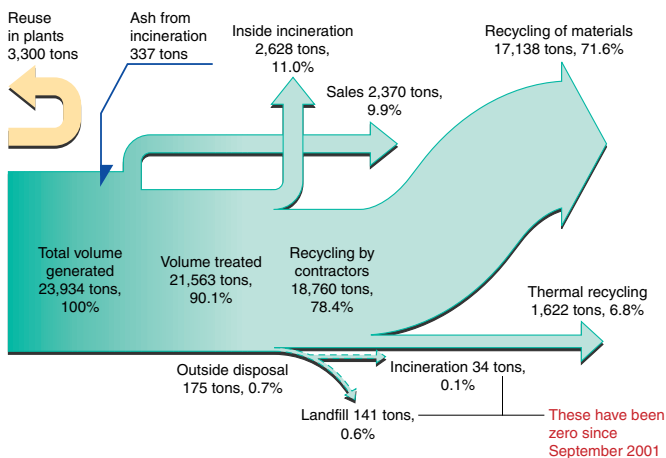
As a first step zero emission was attained at all 10 plants (8 assembly and 2 exterior wall manufacturing) by September 2001.



Our second step is to reduce the volume of waste, on which we are now concentrating efforts. As of March 2002, the generation ratio was brought down to 80% of the level of the 1st half of fiscal 2000. We aim at bringing this to the 50% level by the end of fiscal 2002. We also plan to abolish all incinerators and intend to convert thermal recycling to material recycling.



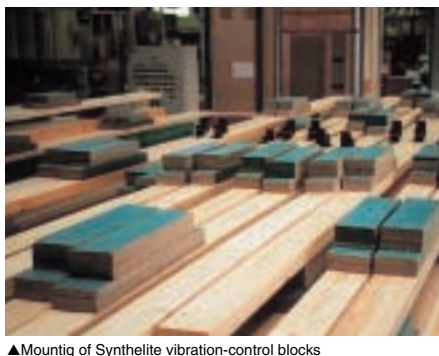
Waste generation and treatment (Total of the 10 plants)



Zero Emission attained by all our Plants

Plants		Date Attained
Assembly plants (8)	Nishinohon Sekisui Industry Co., Ltd.	March 2000
	Kitanihon Sekisui Industry Co., Ltd.	March 2001
	Tokyo Sekisui Industry Co., Ltd.	
	Chubu Sekisui Industry Co., Ltd.	
	Kansai Sekisui Industry Co., Ltd.	August 2001
	Higashinohon Sekisui Industry Co., Ltd.	September 2001
	Kanto Sekisui Industry Co., Ltd.	
	Chugoku Sekisui Industry Co., Ltd.	
Exterior wall manufacturing plants (2)	Sekisui Board Co., Ltd., Minakuchi Plant	March 2000
	Sekisui Board Co., Ltd., Gunma Plant	September 2001

Higashinohon Sekisui Industry Co., Ltd.



Chugoku Sekisui Industry Co., Ltd.



Higashinihon Sekisui Industry Co., Ltd.



Takao Saino
Assist. Mgr.
Gen. Affairs Sec.
Gen. Affairs Dept.

In our zero emission activities, a major challenge was the abolition of our incinerator without raising the recycling costs. We were fortunate to find a contractor who incinerates, at low cost, waste for thermal recycling, and so we abolished our incinerator. Ash from our past incineration which had been chemically analyzed was recycled to a foundation material for road construction. By converting cut-offs of the Synthelite exterior walls for Two-U Home to vibration-control blocks, we reduced waste generation and the material cost of parts as well. Waste generated during production is collected in bins according to classification of type. Any waste which seems not to be covered by the classifications is collected in a "miscellaneous" bin with an accompanying questionnaire filled out by the responsible staff. This questionnaire is dealt with by the personnel in charge of environmental affairs.

Kanto Sekisui Industry Co., Ltd.



Masaru Kaneko
Subhead
Environment/Safety Group
Technology Dept.

Our main material is lumber and our initial target for zero emission was to recycle the cut-offs. In the past those shorter than 300 mm were discarded but, after some study, we decided to use them as spacers and as other short parts. This recycling activity reduced the wooden waste per unit to 30 kg from more than 50 kg. As for support blocks used for the transportation of plaster board, these have been made from cut-offs of plaster board. We have persuaded our supplier to use blocks made from our wooden cut-offs instead, which have a longer life. This is now in progress.

Kansai Sekisui Industry Co., Ltd.



Hiroyuki Tokuyasu
Manager
(to President)

Our zero emission activities have been focused on the material recycling. It took us a long time to find a contractor who has the technology to extract the zinc for recycle from the crumbs of the rust proof coating we use for the welded lines of Heim's structural frame. The metal clasps on polypropylene strapping bands have to be removed prior to recycling. Therefore, with the cooperation of our supplier, we now use PP clasps instead. To achieve total material recycling, we use all the means we can for thorough segregation. 450 photographs are carried in our segregation manual, and, at the collecting stations, signs and photographs are erected for easier segregation.

Chugoku Sekisui Industry Co. Ltd.



Toshihiko Yamaguchi
Manager
Environment/Safety
Technology Dept.

We needed time to decide how to deal with composite material waste. For example, lumber to which plaster board is adhered can be recycled if it is separated, but this is a difficult and time-consuming process. The degree of acceptable separation was agreed upon with the recycling contractor and photographs of this standard are carried in the segregation manual.

Regarding all types of waste, after trial and error, 8 bins are provided in optimum locations and sizes, around the plant and are labeled according to type of waste.

The corrugated cardboard boxes used for delivery of parts are reused as protectors of parts at construction sites, and cut-offs of Synthelite are made into vibration-control blocks.

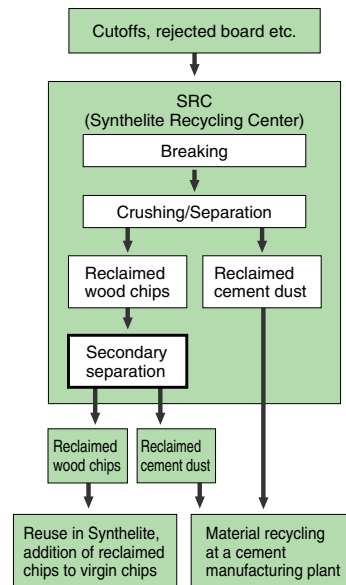
Sekisui Board Co., Ltd., Gunma Plant



Hidetoshi Chuma
Manager
Environment/Safety/QC

We produce exterior walls for Sekisui Heim and Two-U Home. In 1997, we disposed of 4,000 tons of waste by incineration and landfill. Our zero emission activities started in 1998 to recycle and reduce waste volume. Most of our waste comprises cut-offs and debris of wood-chip-filled cement board (Synthelite). In the past a special crusher/separator was used to separate chips from cement for reuse, but reclaimed chips retained some cement on them, limiting the reuse in board formulation. This meant that more waste was generated than consumed in reuse. We had to send some waste outside for disposal in 1999. The solution was brought about by the introduction of a secondary separator in January 2001 to clean the reclaimed chips, so that double the volume of chips could be reused. The mountain of several thousand tons of board waste became lower and finally disappeared in January 2002.

●Synthelite recycling flow



Kansai Sekisui Industry Co., Ltd. (Example of resource recycling)



Sekisui Board Co., Ltd.

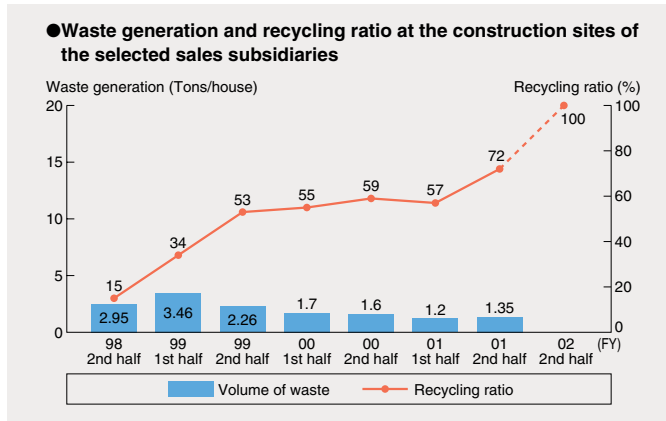


To use Resources effectively: Zero Emission Activities of the Construction Group

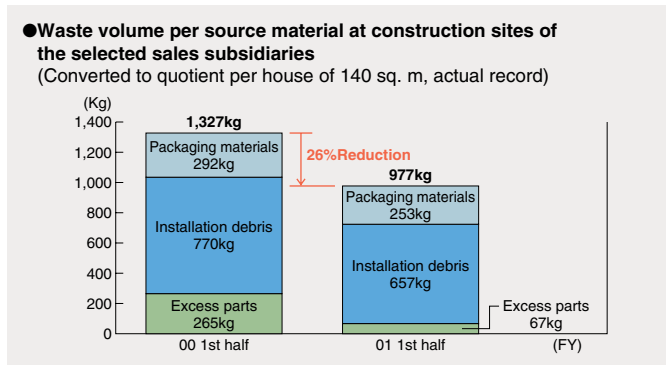
We are reducing waste and recycling resources at construction sites. Zero emission will be attained at all construction sites by the end of fiscal 2002.

Zero Emission Activities at House Construction Sites

These activities were started by selected sales subsidiaries in fiscal 2000. In these subsidiaries the recycling routes were most-ly established by March 2002.

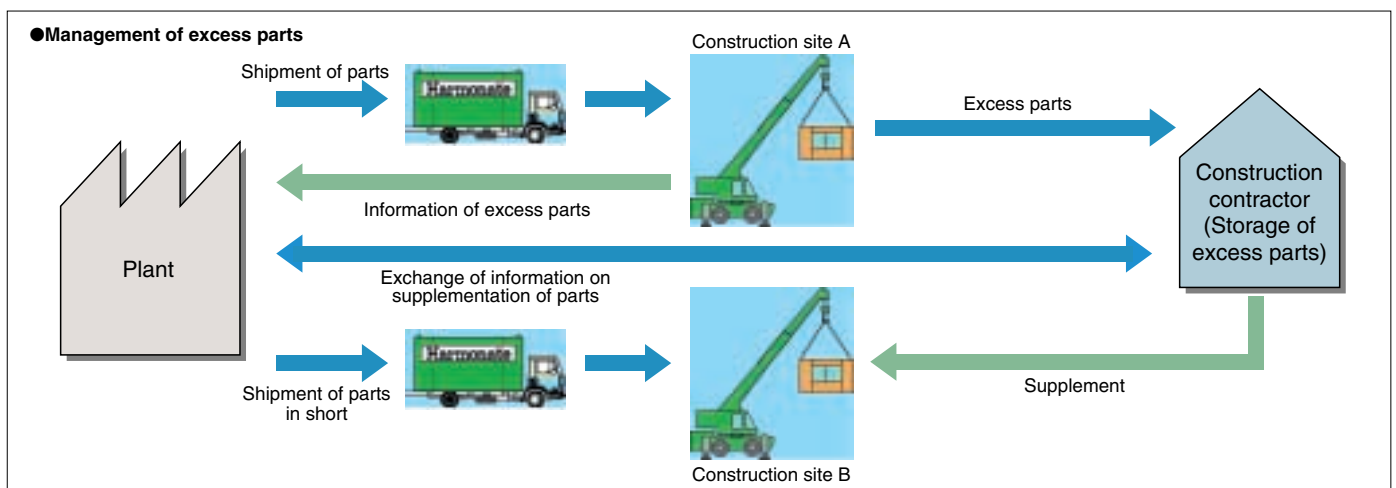


Close cooperation with the production group to limit excess parts, installation debris and packaging materials, along with extensive reuse of materials at the sites, brought a waste reduction of 26% against the first half of fiscal 2000.



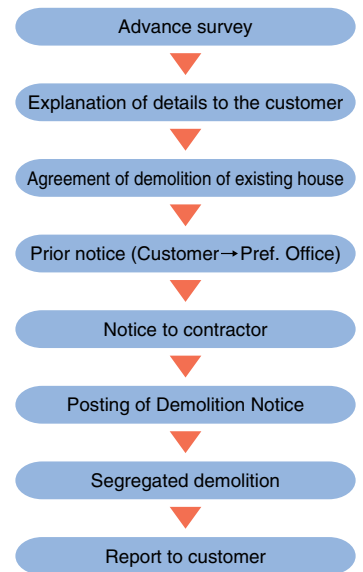
Activities to reduce excess parts and installation debris

Generally manufacturing plants ship parts somewhat in excess of requirements, resulting in left over parts at building sites. A report is made to the plant and the parts are shipped back to the construction contractor where they are stored for use at future sites. Daily shipment of parts for future sites are planned according to parts already held by the construction contractor.



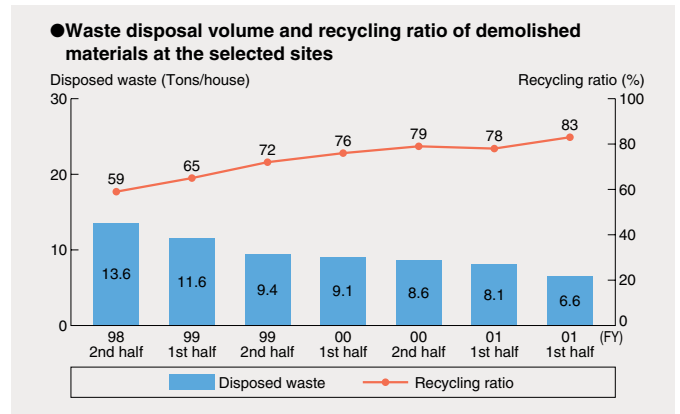
Compliance with the Construction Materials Recycling Law

We now provide Demolition Details and a Report of Completion of Demolition to the customer, to comply with this law.



Waste Disposal and Recycling Ratio of Demolished Materials

We started segregated demolition before the Construction Materials Recycling Law was passed and now the recycling ratio is 83%. On the selected sites, we attain 90% segregation of demolished waste for more than 6 items including 4 construction materials specified by the law.



A case report of zero emission activities of construction sites

Kyuseki Sekisui Heim Co., Ltd.



Hiromi Hirayama
Mgr. Section II
Design & Const. Dept.

To cope with such a large project like zero emission, it is important that all relevant individuals are interested in or at least conscious of the project. Especially the employees who actually do the segregation can not cooperate effectively unless they understand why it should be done and how it helps. Sometimes they are confused because of the changing standards of segregation during the course of project development. Therefore the supervisors in charge of the segregated collection pay effort to explain to individual employees about the changes and provide photos showing the difference of segregation for each purpose of recycling. We now segregate the waste into 13 categories, which I think is the best that can be done. We will all promote this project as a routine task in order that zero emission can become a weapon of the company.



Posted sign for the recycling system

This collecting station is located in the back of a model house and the signs are posted to show customers how we cope with the recycling project, explaining the details of activity.

●Table of segregation for recycling (in Japanese)

＜リサイクル分別一覧表＞

品名	材質	処理	注意事項・備考	備考
1. 石膏ボード	石膏	石膏ボード	石膏ボード	石膏ボード
2. 廃プラスチック類	プラスチック	廃プラスチック類	廃プラスチック類	廃プラスチック類
3. 木材	木材	木材	木材	木材
4. 石膏ボード	石膏	石膏ボード	石膏ボード	石膏ボード
5. 石膏ボード	石膏	石膏ボード	石膏ボード	石膏ボード
6. 石膏ボード	石膏	石膏ボード	石膏ボード	石膏ボード
7. 石膏ボード	石膏	石膏ボード	石膏ボード	石膏ボード
8. 石膏ボード	石膏	石膏ボード	石膏ボード	石膏ボード
9. 石膏ボード	石膏	石膏ボード	石膏ボード	石膏ボード
10. 石膏ボード	石膏	石膏ボード	石膏ボード	石膏ボード
11. 石膏ボード	石膏	石膏ボード	石膏ボード	石膏ボード
12. 石膏ボード	石膏	石膏ボード	石膏ボード	石膏ボード
13. 石膏ボード	石膏	石膏ボード	石膏ボード	石膏ボード

※石膏ボードは石膏ボード専用の回収ボックスに分別して回収してください。石膏ボードは石膏ボード専用の回収ボックスに分別して回収してください。石膏ボードは石膏ボード専用の回収ボックスに分別して回収してください。

Construction site (Primary segregation)



At construction sites, waste is segregated into 13 categories according to the table of segregation designated for each recycling contractor.

Collecting truck

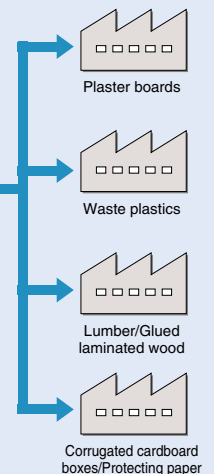


Our own collecting truck driven by our staff who can instruct the builders on improving segregation, transports waste from construction sites to collecting stations. The truck also transports parts to sites for better efficiency of operation.

A collecting station of Kyuseki Sekisui Heim Co.



The collected segregated waste from construction sites is packed separately into containers of the recycling contractors. The containers stay at the station until they are filled to a prescribed level, and are then transported to the contractor.



To realise safe and comfortable Living

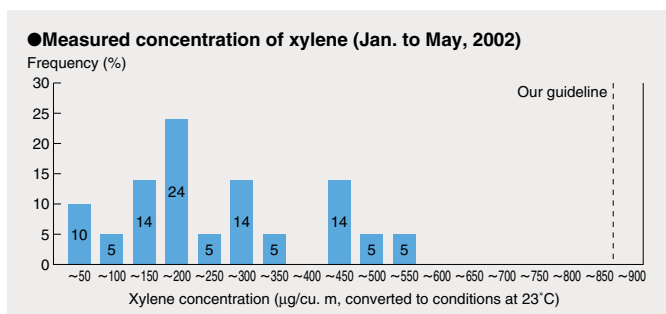
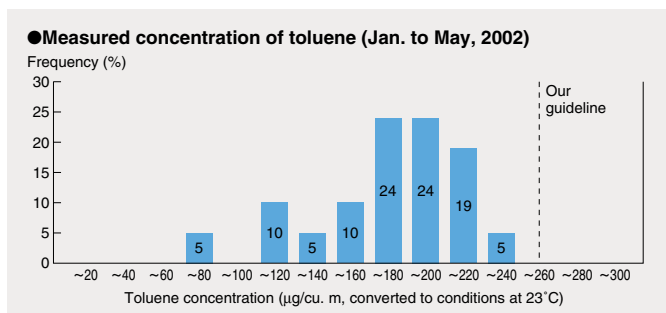
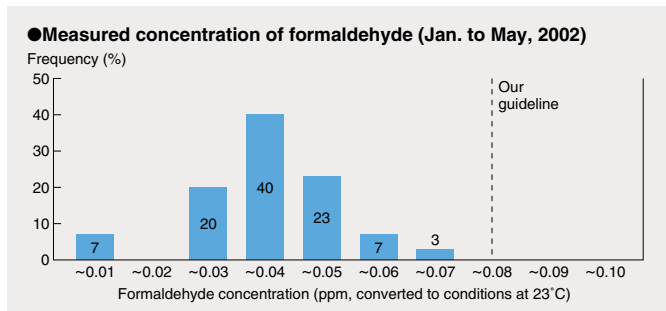
We concentrate our efforts to provide safe and comfortable living.

■A healthy and comfortable indoor Environment

We were on the front line in tackling the sick house syndrome in order to maintain a safe and healthy indoor environment. As to formaldehyde, we put into practice several countermeasures such as ①internal guidelines to limit indoor concentration to 0.08 ppm at 23°C, ②use of formalin-free plaster boards, formalin-free adhesives and plywood/particle boards of Class Fc0 or E0 (the strictest requirements of JIS and JAS), ③standard specifications for a 24 hour ventilation system. By these means, formaldehyde generation and accumulation were very much reduced and the requirements of maximum concentration 0.08 ppm were met.

We also set our own guidelines for other chemicals such as toluene and xylene that cause headaches or dizziness, and banned adhesives, interior finish paint etc. that contain such chemicals, to reduce their concentration in the indoor atmosphere.

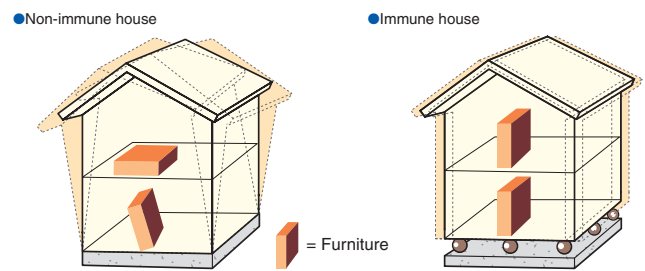
<Guidelines> at 23°C, 50% RH	
Formaldehyde	0.08 ppm (100 µg/cu. m)
Toluene	260 µg/cu. m
Xylene	870 µg/cu. m



■Safety from Earthquake Damages

Vibration resistant structural frames strengthen the building against damages from strong earthquakes. However, as the vibrations of the house can not totally be curbed, secondary damage can result from moving furniture or falling objects. We now offer, in addition to the vibration resistant structural frame, vibration-immunization devices which are placed between the building and the foundations, to substantially reduce the force of the vibrations to the building.

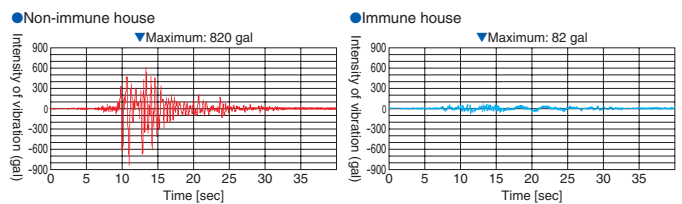
●Vibration of immune and non-immune houses and movement of furniture



In a major earthquake the building vibrates furiously and furniture falls.

In a major earthquake the building is subjected to a slight swaying motion; furniture does not fall and residents are safe from harm.

●Comparison of intensity of vibrations (of the magnitude of Hanshin Earthquake)



■Consideration to Neighbors of Construction Site

Modules of our Unit Technology are all shipped equipped with exterior walls, windows and other fixtures, with delivery to the site taking place within one day. Also interior/exterior finishing work is completed within a short period, so as a whole construction noise is much less compared to other construction methods. We take much care in communicating with the neighborhood regarding the times of trucking and noise in order to keep disturbances at a minimum, and we pay utmost attention to maintaining a quiet and orderly environment in the neighborhood.

URBAN INFRASTRUCTURE & ENVIRONMENTAL PRODUCTS COMPANY



Toyoo Manabe

President
Urban Infrastructure &
Environmental Products Company

The businesses of our company have been built on the products originally developed by Sekisui at its foundation, namely PVC pipes for water and sewage lines and garbage containers. Such products are fundamental to daily human life, and we have developed them in such a way as to contribute to improved living standards and environmental conditions. Among various products and systems, we now provide a pipe relining system for next generation infrastructure and high performance equipment for modern homes.

Our principle is to contribute to the creation of an environment which is friendly to human beings and to the earth, through the manufacturing of environment-friendly products and the structuring of systems by our pioneering technologies. We respond to the expectations of society as regards environmental conservation and creation, and symbiosis, by diminishing to the finest degree possible the impacts of our products on the environment through their entire lifecycles.

All our plants and our Kyoto R&D Institute have acquired ISO 14001 Certification and are continuing to improve the management system (EMS) and performance. Our eight main plants have attained the zero emission target and all the rest will have attained it by the end of fiscal 2002. Furthermore we are reducing our waste volumes to heighten the degree of zero emission.

We provide highly advanced garbage treatment systems and sewage pipe relining to accord with the stringent demands of modern society. Our R&D institute is actively carrying out research into the purification and effective utilization of water, recycling of building waste with focus on lumber, and equipment for generation of energy from alternative sources. We will continue to improve and develop our environmental businesses and related new products.

We are promoting recycling not only through utilization of our own systems but also in cooperation with other systems in, e.g. the collection of our used main products, such as PVC pipe, LP pipe and FRP bathtubs. The collected materials are recycled into PVC pipe such as Foamed Core Three-layer Pipe, Three-layer Pipe and others. The range of our recycling activities are to be extended.

We are devoting utmost efforts to the prevention of air and water pollution, by minimizing the generation of all hazardous substances, including carbon dioxide. We know that this is essential for the sustainable development of our businesses into the future.

Company Policy on the Environment

<Our Basic Concept>

Urban Infrastructure & Environmental Products Company will contribute, with our eminent technologies, to the creation of a living environment which is friendly to human beings and to the earth, through the manufacture of environment-friendly products and the structuring of systems.

<Activity Guidelines>

Our company, while paying consideration to the environment in all its business activities, operates as an environmentally creative enterprise and contributes to structuring a recycling-based society.

1. To maintain business in pursuing environmental conservation:

- We pay attention to the environmental effects and safety of our products through their entire lifecycles, use resources effectively, reduce waste substantially and pursue green procurement.
- We maintain an environmental management system, improving our zero emission and recycling activities to contribute to environmental conservation.

2. To develop businesses which result in good environment creation:

- We respond to the needs of society by offering environment-friendly products and systems for next-generation infrastructure and high performance equipment for modern houses.
- We respond to the expectations of society by developing fundamental environmental technologies and new businesses for local environmental conservation, wood resource recycling, next-generation energy and products for environmental systems.

3. To practice manufacturing while pursuing environmental symbiosis:

- We do our best to reduce environmental loads, ensure environmental conservation and safety, and of course, observe all laws. We also join local environmental conservation activities to keep harmony with local communities.

July 1, 2002

Environmental Conservation in our Businesses

Environmental Products and Utilities' Infrastructures are the core of our business and with them we contribute to the construction of a recycling-based society.

Our company is named after environment and infrastructure because our aim is to contribute to the creation of an environment that is friendly to human beings and the earth. Our business area comprises two sectors: the environmental products and the utilities' infrastructures, in each of which we provide improved and more comfortable living conditions for citizens. We are contributing to the development of a recycling-based society through our technologies for effective use of water resources and recycling of waste.

Businesses of the Urban Infrastructure & Environmental Products Company:

The environmental products business helps to conserve the environment and enrich people's living.

The Divisions and main products are:

Environmental Systems Division --- Residential house appliances, equipment and fixtures

Building Materials Division --- Rain gutters, balcony flooring

Roofing Materials Project --- Roofing tiles

The utilities' infrastructure business constructs utility lines which protect the environment and secure people's living.

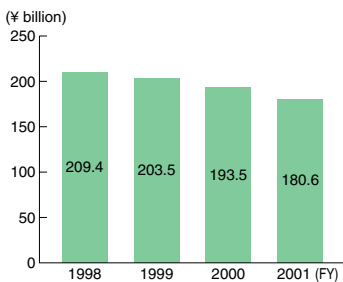
The Divisions and main products are:

Water Supply & Drainage Systems Division --- Products for buildings, water lines and gas lines

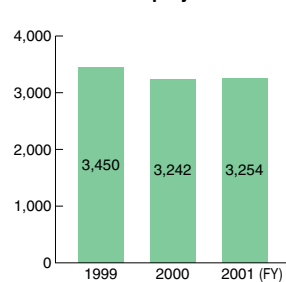
Civil Engineering Systems Division --- Products for sewage lines, agriculture, civil engineering, power lines and communication lines

Industrial Specialties Division --- Plant facilities

Sales*

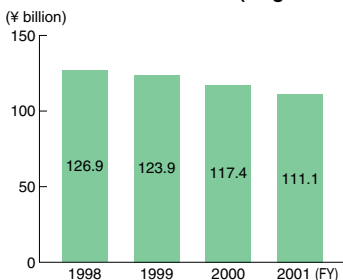


Number of employees*

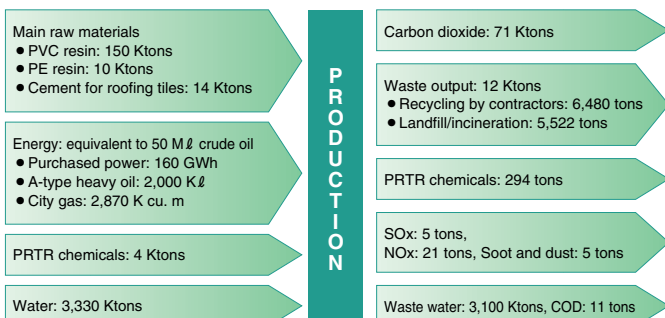


*Figures are for the U. I. & E. P. Company only, which will be consolidated in the account of Sekisui Chemical Co., Ltd. (Contents page)

Produced sales amount (ex-godown basis)



Annual INPUT and OUTPUT



Hot Water Unit with CO₂ Heat Pump



SEKISUI Synclear (garbage disposer)



Electric Hot Water Unit



Bath core



Artface (rain gutter and down spouts)



Cregare (balcony flooring)



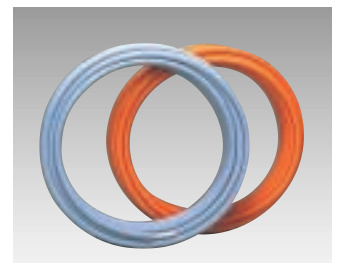
SPR Pipeline Relining System



Roofing Tile 'U'



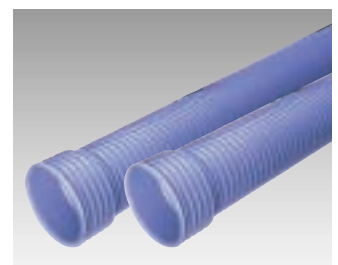
HI Pipe 'Gold'



Eslo PEX



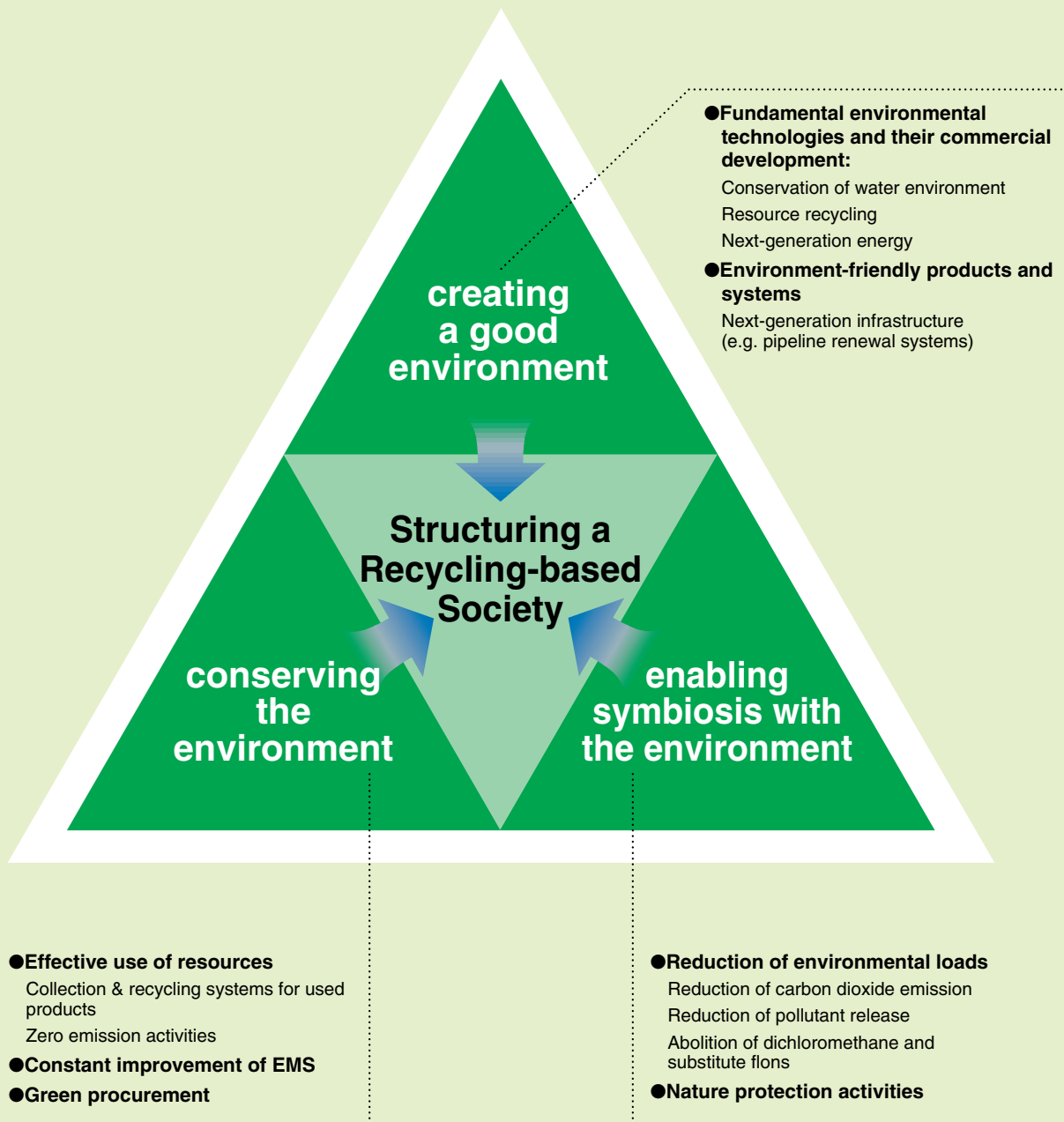
Eslohyper PE



Rib pipe

The products we manufacture and the systems we structure are to support people's daily lives and are closely related to the environment. Therefore it is our responsibility to contribute to the structuring of a recycling-based society by ensuring all our activities are environment-friendly.

Our business activities are:



Results of our Activities in fiscal 2001

We achieved success in 16 out of 21 targets.

Progress Status of our Middle Term Environmental Plan "STEP-21" (1999~2002)

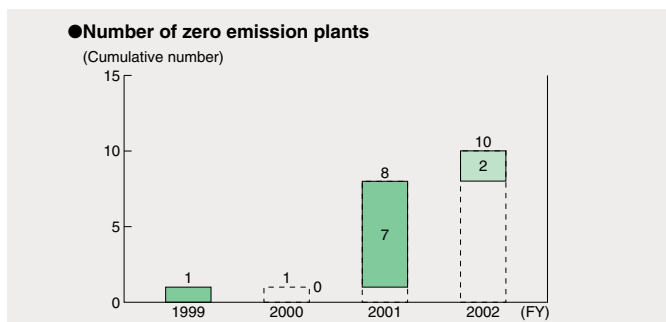
The targets and results are shown in the table below. Zero emission and EMS structuring were completed earlier than scheduled. Although the total volumes were reduced, the targets for the waste curtailment and carbon dioxide emission reduction were not attained per ex-godown Unit.

Policy	Items		Targets for fiscal 2002	Targets for fiscal 2001	Actual results in fiscal 2001	Evaluation	
POLICY 1 Environmental Conservation	Promotion of zero emission	Plants	Attainment of zero emission by all 10 plants	Attainment of zero emission at 5 plants	Attained by 7 plants (8 plants in cum. total)	◎	
		Waste reduction	25% reduction per ex-godown Unit (against FY 1998)	Min. 19% reduction	13.7% reduction	×	
	EMS structuring (ISO 14001 Certification)		Completion of total attainment by all 15 workplaces	Acquisition by a remaining overseas subsidiary	Total attainment completed with acquisition by remaining overseas subsidiary	◎	
	Introduction of green procurement		At least 70% green procurement	Start of execution for raw materials and parts	Execution started in Nov. 2001	○	
POLICY 2 Good Environment Creation	Promotion of main products collection and recycling	System structuring	FRP Bathtubs	Completion of system structuring in model districts or nation-wide	Extension of the system	Setting up of the system in Kinki, Chubu and Kanto districts	◎
			Rain Gutters		System structuring in cooperation with PVC Rain Gutter Association	Test operation of the system in Ibaraki Pref.	○
			Roofing tiles		Investigation of the progress status	Survey conducted	○
	Elevation of recycling ratio	PVC Pipe & Fittings	Recycling ratio 80% (in fiscal 2005)	Increase of the recycling ratio	Completion of installation of 53 recycling stations nation-wide. 46% recycling ratio	○	
		LP Pipe	Recycling ratio 30%	Increase of the recycling ratio	Initiation of a mobile recycling system. 12.7% recycling ratio	○	
	Development of environment-friendly new products		Minimum 40 items in cum. total put on the market	Minimum 30 items	50 items	◎	
				Minimum of 30% of the total sales of new products	22% minimum	20.4%	○
	Development of environmental conservation and recycling technologies		Completion of 5 projects	Completion of 3 projects	Completion of 4 projects	◎	
Introduction of LCA (Life Cycle Assessment)		Practice in a model project	Study meetings	Case study of pipe at the stage of production	○		
POLICY 3 Environmental Symbiosis & Information Disclosure	Reduction of carbon dioxide emission		4% reduction per ex-godown Unit (against FY 1998)	Min. 3% reduction	5.0% increase	×	
	Energy saving	Plants	4% saving per ex-godown Unit (against FY 1998)	Min. 3% reduction	11.6% increase	×	
		Kyoto R&D Institute	4% saving in power consumption (against FY 1998)	Min. 3% reduction	0.4% increase	×	
	Reduction of pollutant release		30% reduction per ex-godown Unit (against FY 1998)	Min. 22% reduction	23.0% reduction	○	
	Promotion of package saving		20% reduction per variable cost Unit on the specified products (against FY 1998)	Min. 15% reduction	2.4% increase	×	
	Total abolition of substitute flons (HCFC)		Abolition by the end of fiscal 2003 (March 2004)	Survey for substitution	Selection of candidate substitutes completed	○	
	Total abolition of dichloromethane for washing use		Total abolition for washing use. Abolition in production processes	Min. 50% reduction. Total abolition for washing use	64% reduction. Total abolition for washing use attained	○	
	Biotope construction at our workplaces		Completion of the first biotope with the local community	Activities in the model plant	Activities continued in Kyushu Sekisui Industry Co., Ltd.	○	

Note: Evaluation standards ◎-Attained the target, ○-Almost attained the target, X-Failed.

■Attainment of Zero Emission by further 7 Plants (P38)

Zero emission, in which all waste generated in a facility is recycled, was attained by 8 plants (cum. total), including 7 more plants in fiscal 2001. The remaining 2 plants will attain this in fiscal 2002. While maintaining zero emission we will also endeavor to reduce the volume of waste generated.



■Energy-saving Award (P41)

Hot Water Unit with CO₂ Heat Pump which does not use flon gas and reduces CO₂ emission by 47%, received the 2001 Grand Prize for Energy Conservation from the Japanese Minister of Economy, Trade and Industry.



Hot Water Unit with CO₂ Heat Pump

■Invention Prize (P40)

Free Shape SPR Pipeline Relining System received the 2001 Kanto Regional Commendation for Invention from the Governor of Tokyo. The system which repairs pipelines and revives pipelines in service without the need of digging, is applicable to non-circular pipe such as rectangular or horseshoe shaped pipe.



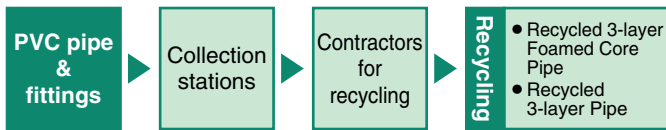
SPR Pipeline Relining System

■Structuring of Recycling Systems for used Products

●PVC pipe and fittings

The Japan PVC Pipe and Fittings Association, of which we are a founding member, has completed an integrated recycling system. 53 collection stations were established throughout the nation and a number of contractors for recycling had been assigned by the end of fiscal 2001. This resulted in a recycling ratio of 46% among the members of the association in fiscal 2001.

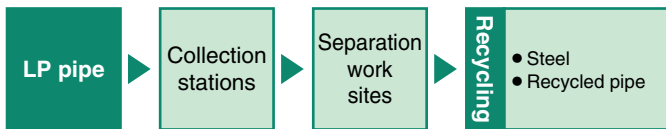
Our company uses the recycled material to make Recycled 3-layer Pipe and Recycled 3-layer Foamed Core Pipe.



●LP Pipe

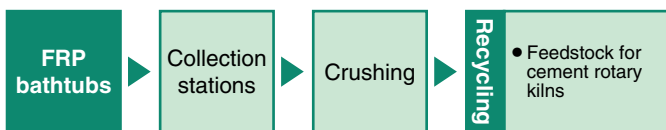
The Japan Water Steel Pipe Association, of which we are a member, has structured a recycling system. The recycling ratio in 2001 was 12.7% among the members of the association in fiscal 2001.

Sekisui Chemical Hokkaido Co. and Shikoku Sekisui Industry assume the role of collection stations and Risseki Industry in our Shiga-Ritto Plant carry out separation of collected waste pipe.



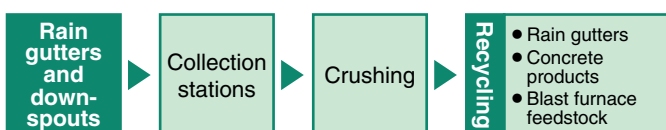
●FRP bathtubs

We established our own recycling systems in the Kinki and Chubu districts. In the Kanto district, we are cooperating with The Japan Reinforced Plastics Society to structure a recycling system.



●Rain gutters & downspouts

The PVC Rain Gutter Association, of which we are a member, started a model recycling system in November 2001 in Ibaraki Pref. Solutions to problems will be found and improvements will be made during experimentation in order to structure an optimal recycling system.



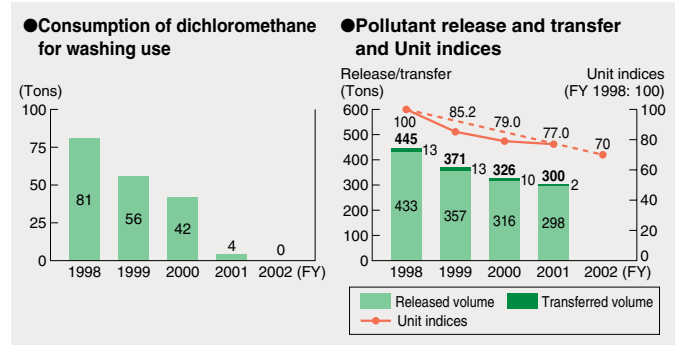
■Pollutant Reduction Activities

●Abolition of dichloromethane for washing use

We abolished dichloromethane for washing use by the end of fiscal 2001. We continue our efforts to abolish it completely in production processes e.g. as contained in adhesives.

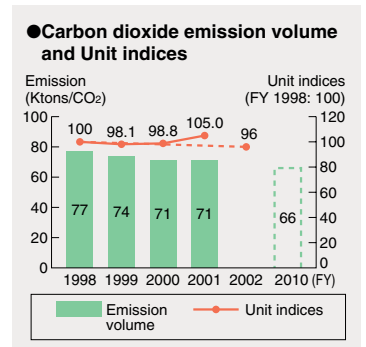
●Reduction of pollutant release

The released and transferred volume of Class 1 chemicals as classified by the Japanese PRTR Law was reduced by 23.0% in ex-godown Unit compared to 1998. The reduction activities are progressing satisfactorily.



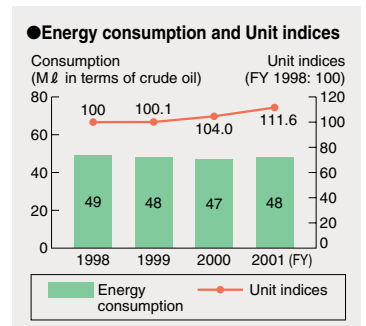
■Carbon Dioxide Emission

In spite of our efforts to save energy, to reduce waste incineration and to abolish incinerators, the CO₂ emission in fiscal 2001 was increased by 6.3% per ex-godown Unit against the previous year and increased 5.0% against 1998. However, the net volume of CO₂ emission showed an 8.1% reduction against 1998.



■Energy Saving

Every plant carries out energy saving activities but the 2001 result showed an 11.6% increase per ex-godown Unit against 1998 due to an increase in the volume of products, the production of which is energy intensive. However, the net total energy consumption was reduced by 2.3% against 1998. We are continuing to promote every minor saving such as inverter control of motors, steam leak prevention and waste heat recycling among others.



■Abolition of Incinerators

In each of our 7 plants the incinerator was abolished by the end of fiscal 2001.

Conserving the Environment: Zero Emission Activities

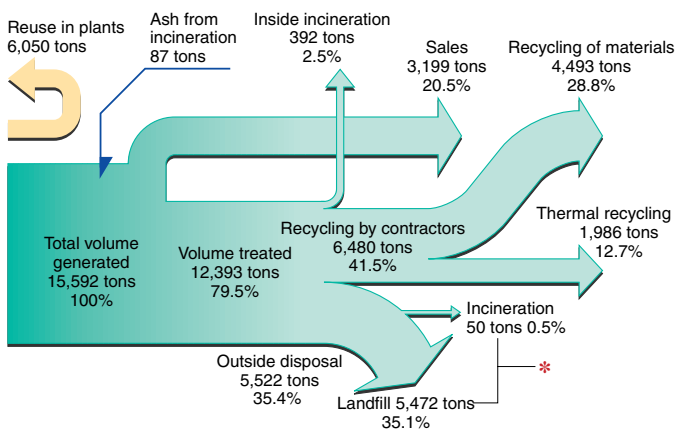
In fiscal 2001, zero emission was achieved by seven plants. In fiscal 2002, we are promoting zero emission activities aiming at achievement by all plants.

We have been promoting zero emission activities since 1998 to recycle all waste from our plants. In March 2000 Kyushu Sekisui Industry Co., Ltd. achieved zero emission, the first of our companies to do so.

Zero emission is defined as ①"Recycling ratio of 100%. (Contracted incineration must involve thermal recycling only, not landfill inside or outside of facilities.)" and ②"Contractors must be specified and recycling methods be made precise".

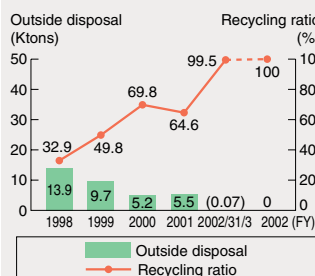
The target waste is not only that from production processes but also such waste as generated by staff such as disposable paper cups, cigarette butts, etc. Owing to these activities, seven plants achieved zero emission in fiscal 2001, including three that achieved it half a year to one year ahead of their original schedule, making eight plants in cumulative total. In fiscal 2002 we aim at the achievement by all plants including the remaining two.

●Status of waste generation and treatment (FY 2001)

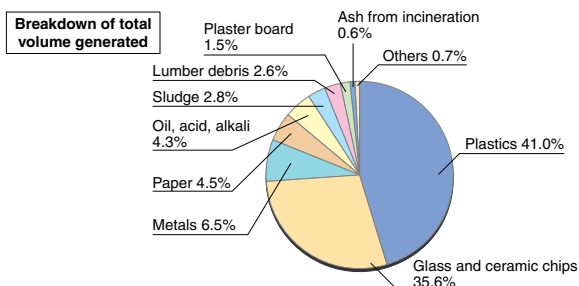
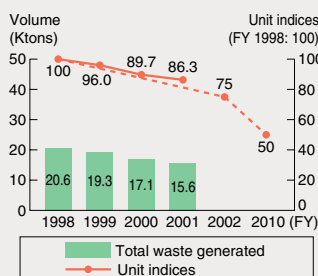


*Out of these figures 5,450 tons have been recycled since April 2002.

●Outside disposal volume and recycling ratio of waste



●Total waste generation in volume and per ex-godown Unit



Gunma Plant



Takashi Inoue
Manager
Piping Material
Production Section

Main Products: Rigid PVC pipe, PE pipe, PVC fabricated fittings, PE EF fittings
Waste Generation: 360 tons approx. per year
Main Waste: Plastics 81%, paper 8%, wooden chips 3%, metals 3%

Recycling Examples of Waste:

- Plastics** Recycled pipe or fuel for electric power generation
- Paper** Recycled paper for toilet paper, etc.
- Wooden chips** Floor materials for livestock, and fertilizer

We have eagerly promoted zero emission activities, achieving it half a year ahead of the target which was the end of fiscal 2001. We started with segregation of general waste from offices, setting up collection stations for each section. Before the system became well-established, departments took turns in patrolling the stations daily and made improvements when any faults were found. We have placed emphasis on material recycling. At present the thermal recycling ratio is a little less than 10%. In fiscal 2002, we aim at a 20% reduction of total waste generation compared with that in fiscal 2001 and also at the reduction of waste treatment costs.

Shiga-Ritto Plant



Shigeji Nishikawa
Assistant Manager
Environment & Safety Section
Facilities/Environment &
Safety Department

Main Products: Rigid PVC pipe, PE pipe, reinforced plastic composite pipe (RCP), light weight non-corrosive structural material (FFU)
Waste Generation: 4,000 tons approx. per year
Main Waste: Plastics 58%, acid 9%, paper 5%, sludge 4%

Recycling Examples of Waste:

- Plastics** Recycled raw materials, road base material
- Acid** Recycled acid
- Sludge** Fuel for cement production

Our zero emission activities promotion committee is made up of members designated from each department. Lists are made of all waste generated from each department and segregation is controlled according to the relevant treatment methods which are explained so that everyone can responsibly participate in the activities. As we simultaneously proceeded with the recycling of our special composite materials mixed with PVC and also the abolition of the incinerator, it was not so easy to carry out the segregation and labeling of waste and the enforcement of the operational rules for general waste, but we could achieve zero emission by successfully recycling all waste. We will devote further efforts to reduce the total volume of waste and treatment costs, aiming at being a plant where our zero emission activities are clearly visible to all visitors.

Tokyo Plant



Masayoshi Hara
Manager
Maintenance, Environment &
Safety Section

Main Products: Rigid PVC fittings, valves, pits and manholes, rain gutters, bath units
Waste Generation: 1,800 tons approx. per year
Main Waste: PVC 70%, paper 12%, wooden chips 7%, metals 6%

Recycling Examples of Waste:

- Plastics** Recycled raw materials, auxiliary fuel for steel, fuel for cement production
- Paper** Recycled paper
- Wooden chips** Raw materials for particle boards

The main raw material used at our plant is PVC and 70% of our waste is made up of PVC. We reuse most of the waste PVC and have the rest recycled by contractors. Composite products, which are designed to achieve high performance and high added value, such as PVC combined with other materials, pose a challenge when it comes to recycling them. Such materials are treated by thermal recycling and the resulting chlorine gas also undergoes treatment. We will continue our efforts to convert from thermal recycling to material recycling in future and also to reduce the total volume of waste generation.

Activity Examples



EC Pipe (Sekisui Chemical Hokkaido Co., Ltd.)

Recycled pipe made of waste PVC material. By the reuse of waste PVC for EC pipe production, the volume of waste PVC has been drastically reduced.



A waste segregation station (Shiga-Ritto Plant)
A panel showing the pictures of waste items is put up so that the segregation criteria and proper containers for each item can be fully understood.



Cushioning material (Shikoku Sekisui Industry Co., Ltd.)

Cutoffs of foamed products are reused.



Compact collection center at each site (Okayama Sekisui Industry Co., Ltd.)

Containers are clearly distinguished according to waste.

Shikoku Sekisui Industry Co., Ltd.



Shigenobu Imai
Manager
Environment & Safety/Quality
Control Department

Main Products: Rigid PVC & PE pipe, covered steel wire, decorative flooring material, foamed products

Waste Generation: 380 tons approx. per year
Main Waste: Foamed plastic 58%, metals 14%, PP and PE 7%, paper 6%, wooden chips 5%

Recycling Examples of Waste:

- **Plastics** Auxiliary fuel for a cement kiln
- **Foamed PE** Cushioning material (bagged chips)
- **Metals** Steel raw materials after melting

We have conducted our activities to achieve zero emission one year ahead of the target. A segregation station was installed at each section and all waste was collected in accordance with our Procedures for Segregation and Collection of Waste guideline. We made contracts with ten recycling contractors to recycle all wastes. We plan to increase items for material recycling. In fiscal 2002, we are doing our best to reduce the total volume of waste generation and also to reduce recycling costs by 10%, aiming at becoming a plant where our zero emission activities are clearly visible to all visitors.

Sekisui Chemical Hokkaido Co., Ltd.



Naoshi Hiraishi
Assistant Manager
Technology Group
Environment &
Safety/Maintenance Section

Main Products: Rigid PVC pipe & fittings, PE pipe, extruded profile for window frames

Waste Generation: 240 tons approx. per year

Main Waste: PVC 53%, polyolefin 10%, paper 7%, wooden chips 3%, metals 6%

Recycling Examples of Waste:

- **PVC** Recycled raw materials, raw materials for cement
- **Polyolefin** Solid fuel

We have conducted our activities to achieve zero emission one year ahead of the target. We first organized project teams that conducted the analysis of waste components and established segregation procedures. Regarding the location of our collection station, we had to plan for heavy snowfall and harmony with the surrounding environment. As shown in our environmental policy, we are making great effort to reduce the total volume of waste and recycling costs, attaching most importance to the conservation of the natural environment in Hokkaido.

Okayama Sekisui Industry Co., Ltd.



Shingo Kohara
Assistant Manager
Environment & Safety Section

Main Products: FRP Bathroom floors, FRP bathtubs, flame retardant interior materials, fittings, reinforced cement roofing tiles

Waste Generation: 5,600 tons approx. per year

Main Waste: Sludge 4%, plastics 2%, interior materials 17%, roofing tile 69%

Recycling Examples of Waste:

- **Sludge** Raw materials for cement
- **Plastics** Fuel
- **Interior materials** Raw materials for cement
- **Roofing tiles** Road base material

To achieve zero emission in our company there were two problems which had to be solved. We were to discontinue large volume landfill and to recycle the wastes peculiar to our company (waste from cement calcium silicate board, waste from organic fiber reinforced cement roofing tiles, and cement sludge). Landfill was discontinued and after some time we found recycling contractors to recycle such waste as raw materials for cement, and so forth. We distributed to all employees an "Environment and Safety Notice", which showed our segregation methods with pictures for total clarity. We will now make efforts to simplify the segregation methods and reduce the total volume of waste and recycling costs.

Nara Control Center



• Ryuseki Jubi Industry Co., Ltd.
• Sekisui Life-Tec Co., Ltd.

Nagatoshi Yamaguchi
Group Leader
Facility/Environment &
Safety Group

Main Products: Injection molded household goods, bathtubs and wall panels for bath units

Waste Generation: 700 tons approx. per year

Main Waste: FRP 40%, metals 20%, plaster board 15%, plastics 8%

Recycling Examples of Waste:

- **FRP** Fuel for cement
- **Plaster board** Raw material for plaster board
- **Plastics** Fuel for electric power generation

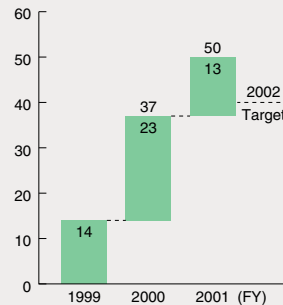
The former Nara Plant was separated into Sekisui Life-Tec Co., Ltd. and Ryuseki Jubi Industry Co., Ltd. in April 2001. During the planning and subsequent separation our zero emission activities were continued in the same manner as in the former Nara Plant. Cutoffs, faulty products, etc. from production are recycled mainly as raw materials. In 2001 we achieved zero emission by thoroughly examining about 500 kinds of waste and segregating them into 19 categories for recycling. In future each company will make efforts to manage and improve these activities independently.

Creating a good Environment: Environment-friendly Products

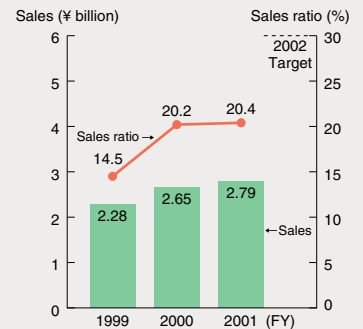
We supply products and systems for next generation infrastructure and also new products and systems to support material recycling, energy saving, natural resource saving and waste treatment.

Urban Infrastructure & Environmental Products Company develops environment-friendly (e-f) new products. Our aim was to have 40 kinds (cumulative) of such products on the market by the end of fiscal 2002 with their sales ratio being a minimum of 30% of all new product sales. Already in fiscal 2001 the actual number of items on the market reached 50 items (cumulative), which is well over the targeted number for fiscal 2002. The sales ratio reached 20.4%. Below-mentioned are some of our main environment-friendly products that were put on the market by the end of fiscal 2001.

●Number of e-f new products



●Sales and sales ratio of e-f new products



Products and Systems for Next Generation Infrastructure

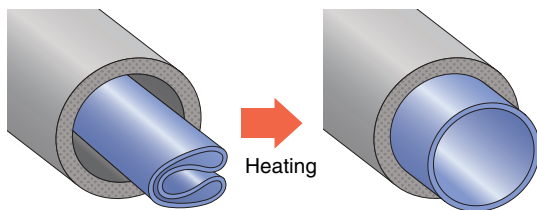
A variety of relining systems for worn pipelines and non-corrosive piping materials have been developed.

Relining Systems

We have developed systems to reline/renew worn pipelines without digging, which result in minimum environmental impact on the surroundings, such as low waste generation, noise pollution, and traffic buildup, and so forth.

"Omega Liner" relining pipe

PVC pipe, that has the property of shape memory, is folded in a Ω (omega) shape, which returns to a round shape when heated at the site and thus relines worn pipes.



SPR System for renewal of worn pipelines

A strip of PVC profile is spirally wound and makes a pipe inside an existing pipe. This system can be carried out without stopping water flow, and is applicable not only to round pipes but also to rectangular or horseshoe shaped pipes.



SPR System received the 2001 Kanto Regional Commendation for Invention from the Governor of Tokyo.

Non-corrosive Pipes and Conduits for Landscape Protection

Power/communication cable conduit

We supply various kinds of power and communication cable conduits for underground use. By laying various kinds of cables underground, more space is made available for traffic, the risk of disasters from cable damage is decreased, and a safer and more pleasant environment is provided.



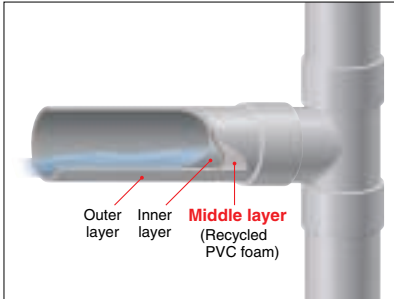
IT Box



C.C. Box

Products made from Recycled Raw Materials

We have been developing new products utilizing recycled raw materials from used products and reusable wastes.



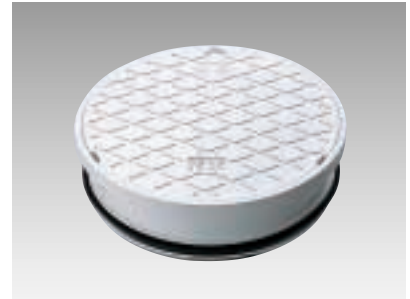
Recycled PVC pipe

Three-layer pipe, the middle layer of which is made from wastes collected from the work sites.



Water penetration paving blocks (Utilization of our technology to make aggregate)

Aggregate made from the waste of PVC pipe and FRP bathtubs can be used in concrete cement products.



Eslon PET sewer pit cover

100% recycled PET is used.

Energy Saving and Resource Saving Products

We have been developing such products that help to save energy and to make the best use of resources.

• Energy saving



Hot Water Unit with CO₂ Heat Pump

No chlorofluorocarbon media is used. Carbon dioxide emission is 47% less than that of a city gas hot water unit.

• Water saving

"My Rainer" (Rainwater storage tank)

Rainwater can be collected for any household use except drinking.

Bathwater Recycling System

66 tons of water can be saved a year in a four-member family. (Water saving rate: 15~20%)



• Extended life of products



"Artface" rain gutter

Surface discoloration has been reduced to one third, extending the life of the product from 3~5 years to 10~15 years.

Waste Treatment

We have been developing such products that help to conserve the environment, including highly efficient waste water treatment systems.



SEKISUI "Synclear"

A disposer that treats garbage at home and reduces the garbage incineration.



Sewage and waste water septic tank

This septic tank can treat sewage and domestic waste water at the same time.

Dustbins

We have lined up dustbins in small to large sizes to make segregation and collection of wastes easy.



"Eslote"

Water treatment equipment with a three-fold capacity per unit area over the conventional type

Enabling Symbiosis with the Environment: Biotope

We are extending our nature protection activities in cooperation with local communities. We are pioneering biotope establishment as an example of our love for the natural environment.



fish, crucian carp and white mullet in the ponds and more than 70 kinds of wild grasses in the field. Around the edge of the ponds saplings have started to sprout naturally, including such as 5 Chinese tallow, 3 muku, mallotus japonicus and aphanthe aspera. This is just what we had hoped for. No doubt the seeds were carried there by wild birds.

We give nature "a helping hand".

Although it is said "nature should be left alone" it is also true that human hands can support the healthy development of nature. By cutting undergrowth, new grass and plants may shoot out buds to flower beautifully the following spring. There is no end to structuring a biotope. We are still considering the extent to which we may extend our helping hands to nature, and to what extent nature should be left alone, and how we should let the biotope develop to be most suited to the natural environment of Saga.

Biotope Report

The first anniversary of the public opening

Kyushu Sekisui Industry Co., Ltd. has been developing a biotope aiming at becoming a plant symbiotic with the natural environment. We hereunder introduce how the biotope has grown since it was opened to the general public one year ago, from the viewpoint of a person who has played a leading role in its development.



Hotsumi Oda
Chairman of Biotope Committee
Managing Director
Kyushu Sekisui Industry Co., Ltd.
(Qualification of biotope establishment and management level II)

"Home Town Woods" and "Communion Square" have taken root in the local community.

One year has already passed since we opened the biotope to the public on April 14, 2001. To commemorate this anniversary it was decided to name the biotope "Home Town Woods" and the small field enclosed in the biotope "Communion Square". These names were suggested by

Mika Akiyoshi, a 5th grade pupil of Chiyoda Central Elementary School. More than 500 people have visited Home Town Woods since the opening, including members of the general public and visitors to the plant. As the biotope grows in popularity in Saga Prefecture more people are visiting it. Tree planting was conducted four times with local children, and this biotope has become one of their favorite playgrounds. We take pride in having developed the biotope with the close cooperation of the local community.

Wild birds, wild grasses, fish and naturally growing plants are thriving.

As well as becoming closer to the people in the local community through the biotope, we have also developed a communion with nature. In March and April 2002, we planted 30 trees of about 5 meters in height, which have much improved the scenery of the area, and many wild birds have gathered there. Gray herons, little egrets, Siberian meadow buntings and gray starlings fly from tree to tree and to the water edges. We have confirmed breeding of tree sparrows, magpies and little ringed plovers. There are not only birds in the trees but also such fish as killi-

■Award for our meritorious Activities

In February 2002 Kyushu Sekisui Industry Co., Ltd. was one of the recipients of the Meritorious Activity Commendation for Fiscal 2001 awarded by the Saga Prefectural Committee for the Promotion of Environment-friendly Activities chairman: Mr. Isamu Imoto, Governor of Saga Prefecture. We received the award for our activities aiming at coexistence with nature and harmony with the local community, such as our biotope establishment and promotion of such environmental-friendly activities as collection of discarded drink cans, etc. The local town of Chiyoda-cho, where our biotope is located, recommended us for the award.

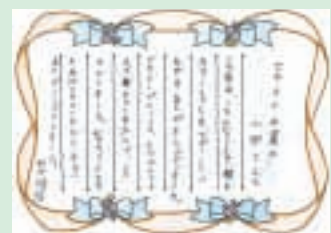


■Letters from Children

Our biotope is featured in the studies by children at local elementary schools. The pupils of Chiyoda East Elementary School visited our Home Town Woods on their program, "Things that our Town can be proud of". After their visit, we received letters of thanks from the 4th grade pupils. Here are two of them.



From Hideki Takayama



From Ayaka Nonaka

HIGH PERFORMANCE PLASTICS COMPANY



Gen Endo

President
High Performance Plastics Company

High Performance Plastics Company gives utmost consideration to the environment in every aspect of our business activities under our slogan, "Chemistry for Your Win". With our cutting edge products and our unique service systems, we provide total solutions to our customers complying with their needs, by supplying them with our technology packages based on our core technologies, namely, material technology, molding and fabrication technology and evaluation technology.

Our products range from IT related products to consumer goods. We implement our diverse activities based on environmental consideration in accordance with the Corporate Policy on the Environment and Safety and the Corporate Activity Guidelines of Sekisui Chemical Co., Ltd. Our guiding principle is the reduction of environmental loads and all our operations are carried out in such a way as to totally comply with this on the basis of a steady implementation of the corporate middle term environmental plan, "STEP-21".

All of our domestic plants have acquired the ISO14001 management system certification, and 7 plants have attained zero emission. The remaining 5 plants will achieve zero emission by the end of fiscal 2002. Shiga-Minakuchi Plant is shifting boiler fuel to city gas and is going to introduce co-generation, which will reduce the company's carbon dioxide emission by about 7%. We are also changing the production method of Kraft tape during fiscal 2002, which will reduce the company's solvent emission by 30%.

Our sales of environment-friendly products have made steady growth and reached 5 billion yen in fiscal 2001. We have put on the market such environment-friendly products as "S-lec Solar Heat Control Film" and "Sekisui-e-Container", both of which contribute to energy/resource saving, and "Micropearl SOL" and "Eco-Palette Haru-Color", both of which give minimal environmental loads when disposed of.

We will continue full utilization of our core technologies and provide customers with technology packages of our unique nano-technology, control technology of adhesion strength, highly effective function technology of material surfaces, and so forth. We believe it is our role to make available the merits of our cutting edge technologies to our customers enabling them to achieve environment-friendliness.

Environmental Consideration in our Businesses

We utilize our technology to supply products with low environmental loads in order that our customers can realize environment-friendliness.

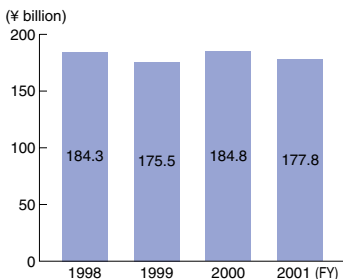
Our company deals with a wide variety of products ranging from IT related products to consumer goods. We assess environmental loads from the selection of materials through to product disposal. We are engaged in the diversified research and development work in line with the environmental standards set by Sekisui Chemical Co., Ltd.

Each plant has acquired the ISO 14001 Certification and continues activities to achieve the goals of our middle term environmental plan, "STEP-21".

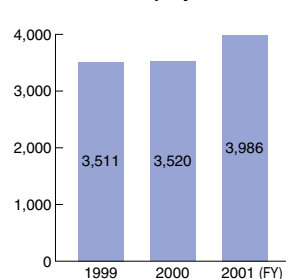
Our Main Products

- Adhesives
- High performance resins (ceramics binder, functional beads, etc.)
- Interlayer film (for laminated glass for windows of vehicles and buildings)
- Engineered fine parts, Plastic containers
- Adhesive tapes (for packaging, industrial use)
- Marking film, sheets for decorative purposes
- Foamed polyethylene
- Packaging & agricultural film
- Plastic home products for cleaning
- Bathroom, toilet, kitchen and storage goods
- Home chemicals (bath fragrance, soaps, deodorizers)
- Vacuum blood tubes, Medical tapes, Diagnostics
- Plasticizers (*withdrew from this business at the end of March 2002*)

Sales*

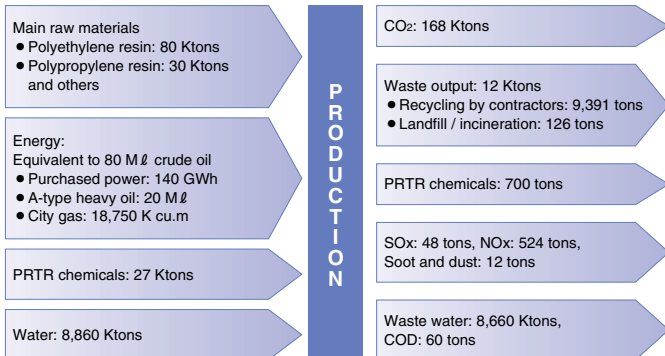


Number of Employees*



*Figures are for the High Performance Plastics Company only, which will be consolidated in the account of Sekisui Chemical Co., Ltd. (Contents page)

Annual INPUT and OUTPUT



Adhesives



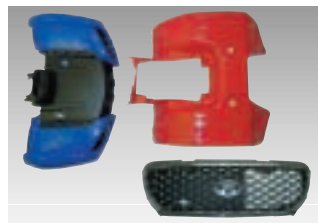
Chemical specialty products (high functional resin)



Fine chemicals "Micropearl"



Interlayer film



Industrial precision products (Injection molded products for vehicles)



Packaging tapes



Industrial tapes (protection tape and film)



Sign systems ("Tack-Paint")



Functional material (Heat insulation pipe cover, "Softlon S")



Films



Lifetec (PE dust bin)



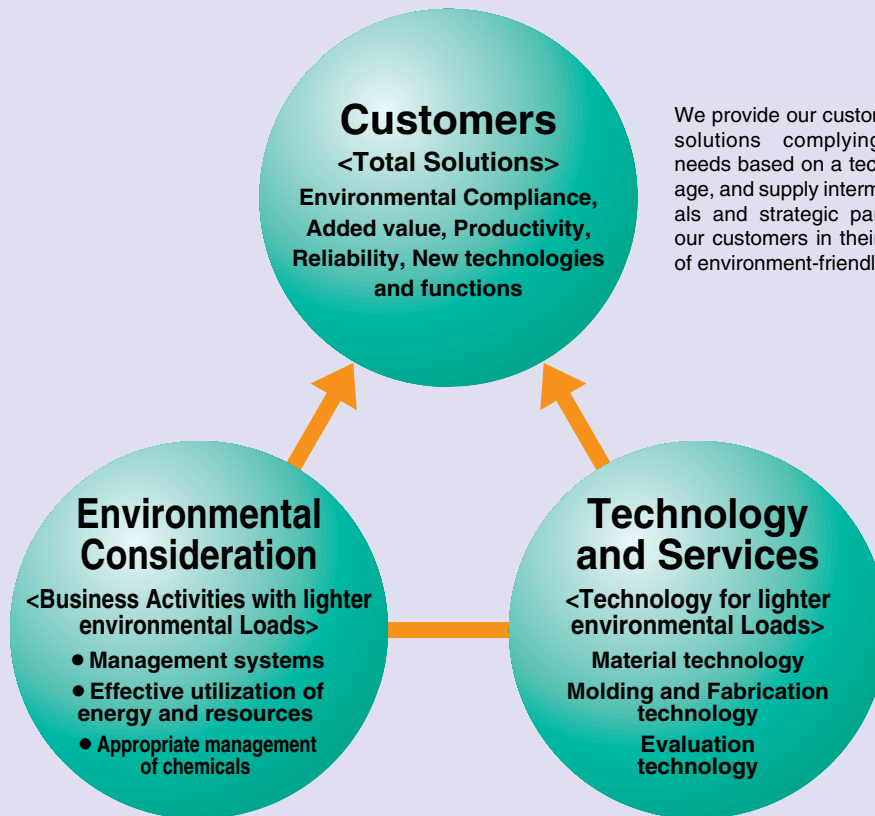
Home chemical products (A gift set of Peter Rabbit soaps)



Medical products (Vacuum blood tubes)

The Concept of Performance Plastics Company is "Chemistry for Your Win".

Utilizing our unique technologies we provide our customers with best solutions.



We provide our customers with total solutions complying with their needs based on a technology package, and supply intermediary materials and strategic parts to support our customers in their development of environment-friendly products.

All our operations, from material selection to production, transportation and material recycling of wastes, are carried out in accordance with our aim to reduce environmental loads. Our production is governed by our management systems complying with the ISO 14001 standard in order to continue our efforts for reduction of carbon dioxide emission and of waste generation.

We aim at developing technologies with lighter environmental loads to protect the air, water, and soil of the earth. We will continue our full utilization of the core technologies of material, molding/fabrication and evaluation technology and offer to customers technology packages of our unique nano-technology, control technology of adhesion strength, highly effective function technology of material surfaces, among others.

Results of our Activities in fiscal 2001

We achieved success in 11 out of 17 targets.

Progress Status of our Middle Term Environmental Plan "STEP-21" (1999~2002)

We achieved the targets in zero emission and in the development of environment-friendly products, but could not achieve the targets in the reduction of waste generation, carbon dioxide emission and energy saving.

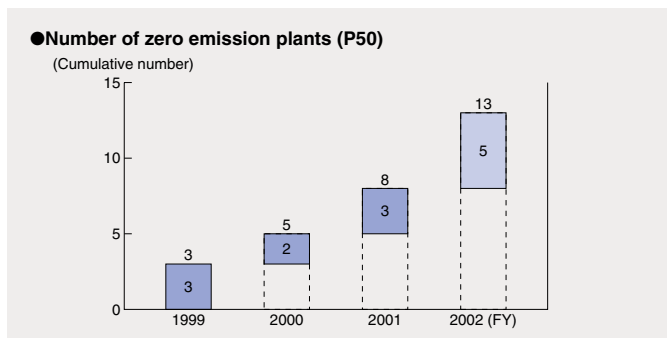
Policy	Items	Targets for fiscal 2002	Targets for fiscal 2001	Actual results in fiscal 2001	Evaluation
POLICY 1 Environmental Conservation	Promotion of zero emission	Attainment of zero emission in every plant, 13 plants cumulative total	6 plants in cumulative total in FY 2001 and activities for attainment by all plants	Attained by 3 plants, 8 plants in cumulative total	○
		25% reduction per production Unit (against FY 1998)	18% reduction	3.4% reduction	×
	EMS structuring (ISO 14001 Certification)	2 overseas plants	1 overseas plant	zero plants	×
	Introduction of green procurement	At least 70% green procurement	Start of execution for raw materials and parts	Execution started in Nov. 2001	○
POLICY 2 Good Environment Creation	Structuring of collection system for agricultural film, "Hanayaka"	Structuring of a model recycling system	Planning of collection system	Collected information in the industry and planned a recycling system	○
	Development of environment-friendly new products	85 items in cumulative total Sales of ¥7.7 billion Sales ratio of minimum 30%	65 items in cumulative total Sales ¥5.6 billion Sales ratio minimum 30%	78 items in cumulative total (19 items put on the market) Sales ¥5 billion Sales ratio 36%	○
	Development of environmental conservation and recycling technologies	Study for operation of the sandwich injection molding	Attainment of practical use of molding technology	Confirmed readiness for practical use of injection molding technology and attained the targets for properties/productivity	○
	Introduction of LCA	Completion of 1 theme	Set up 1 theme	Started LCA of protective film	○
POLICY 3 Environmental Symbiosis & Information Disclosure	Energy saving at plants	4% reduction per production Unit (against FY 1998)	1% reduction	8% increase	×
	Reduction of carbon dioxide emission	4% reduction per production Unit (against FY 1998)	± 0%	10.2% increase	×
		Continue study on energy saving equipment such as CGS	Study for introduction of CGS	Commenced investment for shift from heavy oil to city gas for boiler use	○
	Promotion of green distribution	Extension of districts for joint distribution of packaging tape	Execution of joint distribution	Commenced joint distribution by 3 companies (Kanto/Kinki districts)	○
	Reduction of pollutant release	30% reduction per production Unit (against FY 1998)	20% reduction	7.5% reduction	×
		Full-scale production of Kraft tape without solvent usage	Introduction of equipment enabling non-solvent usage	Installed such equipment and conducted test operations	○
	Total abolition of dichloromethane for washing use	Total abolition	Study on its substitute	Found a prospective substitute and completed study	○
	Total abolition of substitute flons (HCFC)	Total abolition by the end of fiscal 2005. Feasibility study for investment in equipment for organic foaming agents	Study for substitution technology	Completed study for technology and equipment to substitute an organic foaming agent for flon	○
Promotion of package saving	20% reduction per variable cost Unit on the specified products (against FY 1998)	15% reduction	12.3% reduction	×	

Note: Evaluation standards: ○-Almost attained the target, ×-Failed.

■Zero Emission Activities (P50)

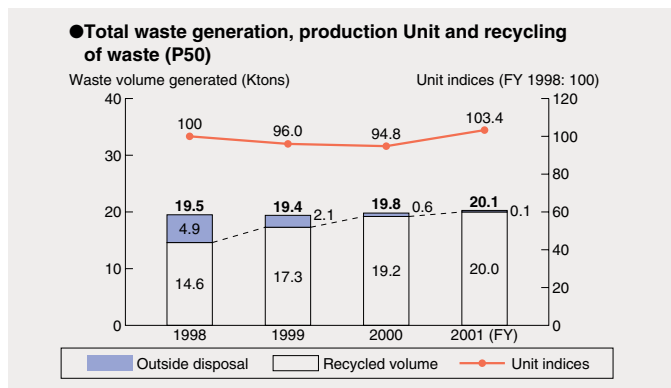
●3 plants newly achieved zero emission.

In fiscal 2001 zero emission was achieved by Nagoya Plant of Sekisui Film Co., Ltd., Tokuyama Sekisui Industry Co., Ltd. and Sekisui Life-Tec Co., Ltd., bringing the total to 8. In fiscal 2002 the remaining 5 plants, including Shinshu-Takato Plant of Sekisui Film Co., Ltd. which has now started zero emission activities, will attain zero emission, resulting in all plants attaining zero emission. We will also continue our efforts to reduce the volume of waste generation.



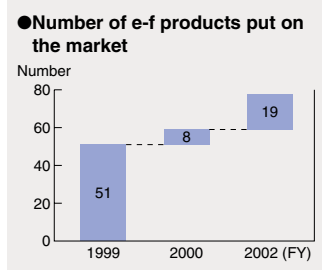
●Reduction of waste generation by volume and per production Unit (P50)

The volume of generated waste slightly increased. The waste generation per production Unit increased due to the decrease in the total production quantity. The recycling ratio of waste reached 99.6% at the end of March 2002.



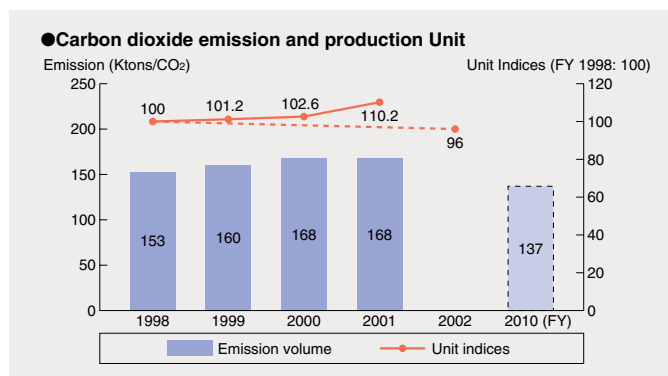
■Expansion Range of Environment-friendly (e-f) New Products (P48)

In fiscal 2001 we put on the market such environment-friendly new products as Micropearl SOL, S-1ec Solar Heat Control Film, Sekisui-e-Container, Recycled PET Cloth Tape, Eco-Palette Haru-Color, Advancel (foamed particles for eco-wallpaper), CS Film (clear soft film) for sign boards and Can Sealing Tape (polyolefin type), bringing the total environment-friendly new products to 78 items. The total sales of these products in fiscal 2001 reached ¥5 billion.

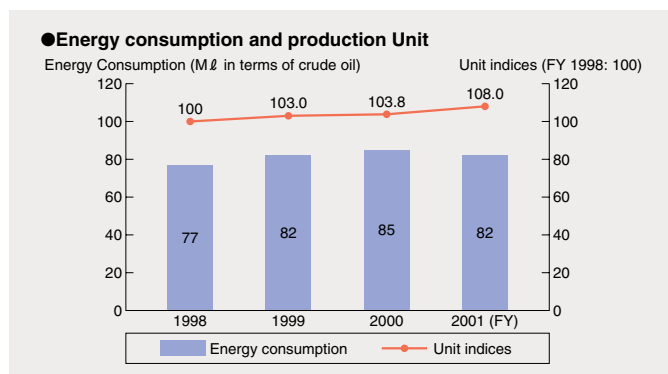


■Carbon Dioxide Emission (P52)

The volume of carbon dioxide emission stayed at the same level as fiscal 2000. The production Unit increased. Shiga-Minakuchi Plant decided to shift from heavy oil for boilers to city gas and to introduce co-generation, by which carbon dioxide emission will be reduced by about 7% for the whole company.



Our plants continued their activities for energy saving, and their energy consumption slightly decreased, but the production Unit increased for the reason that the ratio of the products that consumed more energy per production Unit increased.

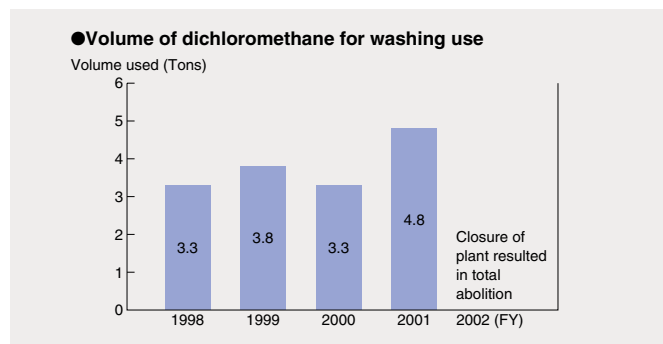


■Reduction of Release of Pollutants (P53)

We have reduced the release of the chemical substances designated by the Japanese PRTR Law by 7.8% compared with that in fiscal 1998. Musashi Plant is changing its Kraft tape production method to one that does not use any organic solvent. In fiscal 2001 a new machine was installed and test runs commenced. We will complete this changeover by the end of fiscal 2002. By this, we expect to drastically reduce the release of toluene, resulting in a reduction of 30% (approx.) of the total release by the company.

■Total Abolition of Dichloromethane for Washing Use

A variety of substitutes for dichloromethane as a cleaning agent, were surveyed and assessed, with good prospects for abolishing its use. However, due to the closure of the Head Office Plant of Sekisui Technol Molding East Japan Co., Ltd., the use of dichloromethane has come to an end in our company.

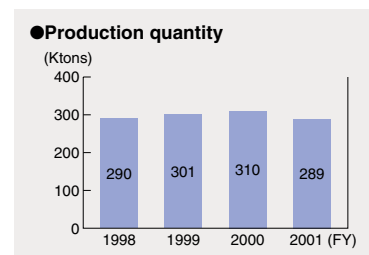


■Green Distribution (P53)

As our green distribution activities we have started the joint distribution of our packaging tapes with two other affiliates in the Tokyo and Kinki districts for more efficient trucking and reduction of exhaust gas and carbon dioxide emission.

Production quantities by the target plants

These figures are used as denominators in calculation of production Units.



Environment-friendly New Products

We aim at developing technologies with minimal small environmental loads to protect the air, water and soil of the earth. Based on such technologies we provide our customers with products that will enable them to achieve environment-friendliness.

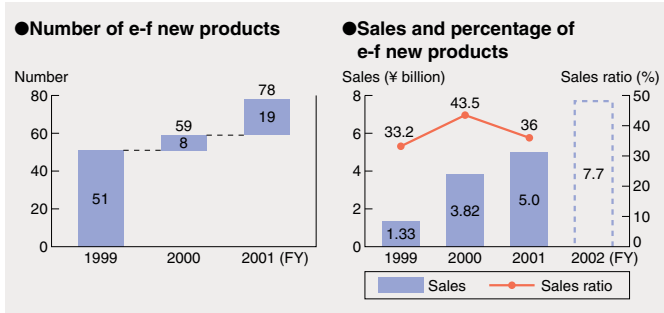
Interaction with Customers to assist in their Achievement of Environment-friendliness

The slogan of our company is "Chemistry for Your Win", which means that we provide our customers with the best solutions for them to win against the severe competition in this field. In order to do so we are developing cutting edge technologies in materials, molding/fabrication and production.

New Product Development for Environment-friendliness (e-f)

At each stage of product development (i.e. survey and planning, development, trial mass production, and commencement of full scale production) we carry out DR (design review) in order to make environmental assessment based on our corporate criteria, "Product Assessment of Environmental Impacts", as well as to assess the functionality, performance, and economic features of the products.

We have successfully put 78 environment-friendly new products on the market (cumulative total), including 19 new items in fiscal 2001, with our sales amount reaching ¥5 billion for that year.

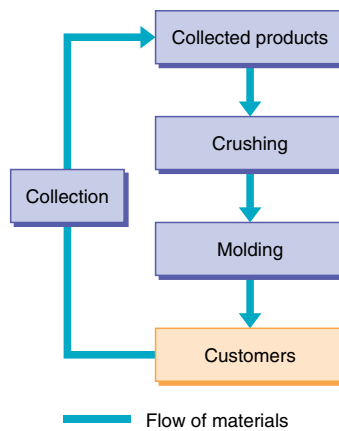


Development of Recycling Technology: Sandwich Injection Molding Technology

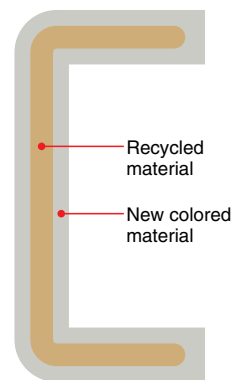
We have developed a three-layer injection molding technology to use recycled materials in the sandwiched layer.

We collect used plastic products from customer, and process them into recycled raw materials, which are used for the sandwiched layer in three-layer injection molded products. We have proposed to our customers that they structure a resource circulation system with us by which we will collect the used products from them for recycle into new products for future supply to them.

Resource circulation system to be structured with our customers



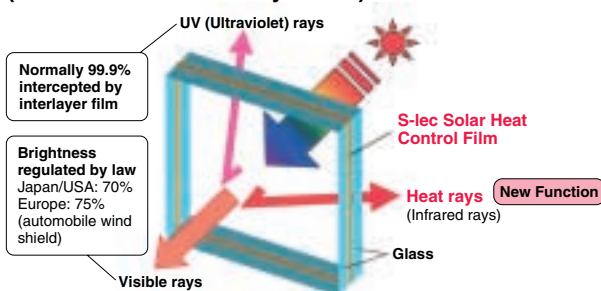
Sandwich injection molding



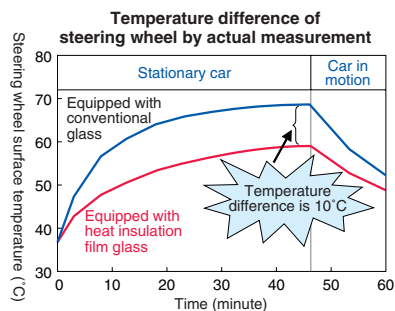
Environment-friendly New Products put on the Market in fiscal 2001

Energy saving/Resource saving Products

S-lec Solar Heat Control Film (Heat insulation interlayer film)



We have developed a PVB interlayer film with heat insulation properties by uniformly dispersing a heat ray shielding agent in it. The use of this laminated glass in cars will alleviate extreme heat accumulation resulting in decreased usage of coolers.



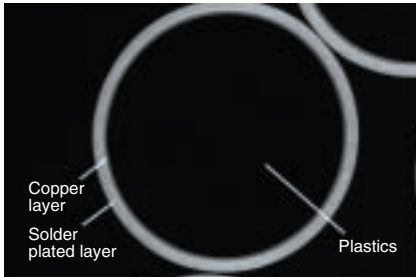
Sekisui-e-Container (Returnable heat insulated containers)



This product is light-weight and has excellent heat insulation properties with a hard outer surface and an inner insulation layer, which are formed in one process by our new technology. As the outer surface and the inner layer are made of the same polypropylene material, it is easily recyclable. Being durable and washable, Sekisui-e-Containers, are suitable for repeated use, unlike conventional foamed polystyrene containers.

Reduction of harmful Substances

Micropearl SOL



These are spherical fine particles of plastics plated with solder, which are used as parts to mount IC chips on substrates. They have the excellent property of stress relaxation, containing uniform plastic cores. We have solved the problems related to conventional solder balls that were apt to crack or have irregular spacing, and so forth. The use of such conventional solder balls can now be abolished. We also supply a lead-free type in response to customers' environmental considerations.

Products from recycled Materials

Recycled PET Cloth Tape, No. 601S



Recycled PET fibers made from disposed PET bottles, etc. are used for the tape base. The reels for these tapes are made of recycled paper. The properties of this product are equivalent to conventional cloth tapes.

Products that generate fewer harmful Substances in Incineration

Meeting customers' demands, we have developed and put on the market polyolefin products.

Eco-Palette Haru-Color, Environment-friendly Type



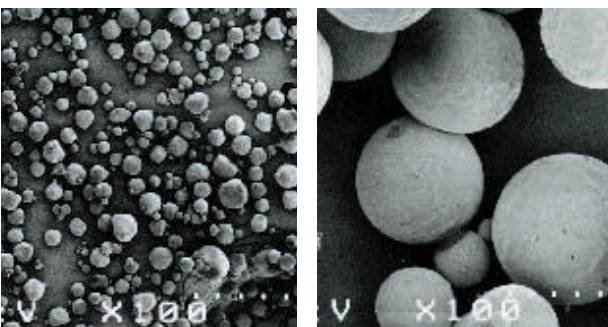
This is a marking film for signs and decorative purposes, utilizing special olefin group materials.

Sealing Tape for Cans, No. 458H (Polyolefin Type)



This is a damp-proof tape to seal cans. Special materials in the polyolefin group are used for the tape base.

Advancel (foamed particles used for environment-friendly wallpaper)



▲Before foaming

▲After foaming

Making use of our multiple-layer technology for fine particles, we developed fine particles that can be foamed. These fine particles are used as a foaming agent for polyolefin type wallpapers. These can also be applied to lighten a variety of materials and parts.

CS Film



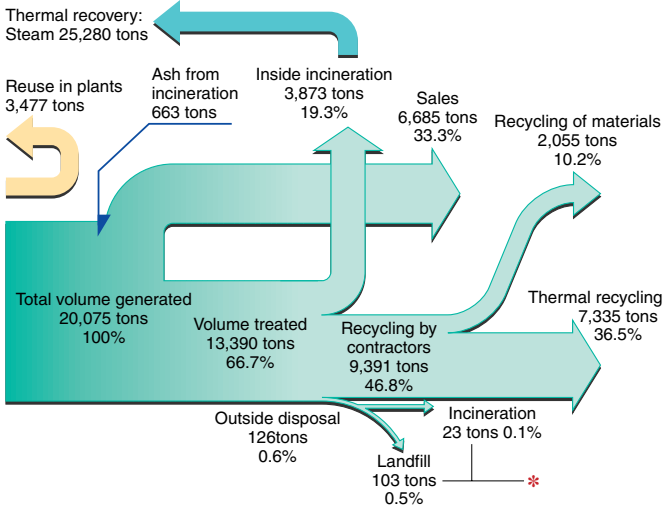
CS Film (clear soft film) is a multi-layer film made of special polyolefin, having the excellent features of gloss, clearness, softness, flexibility and comfort to the touch. It is little affected by changes in temperature and moisture, and is easy to fabricate. In fiscal 2001, we put a signboard type on the market. (The picture shows an apron made of this film).

Effective Utilization of Resources

In fiscal 2001, 3 more plants achieved zero emission. We are dedicating efforts for all our plants to achieve zero emission, and for reduction of waste and promotion of material recycling.

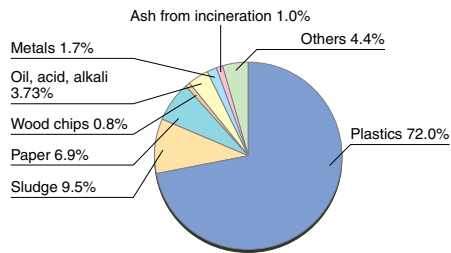
The status of our waste generation and treatment is shown below. The ratio of waste plastics is very high as shown in the breakdown. We will continue our efforts to convert thermal recycling to material recycling.

●Status of waste generation and treatment (FY 2001)



*Out of these figures 51 tons have been recycled since April 2002.

Breakdown of total volume generated



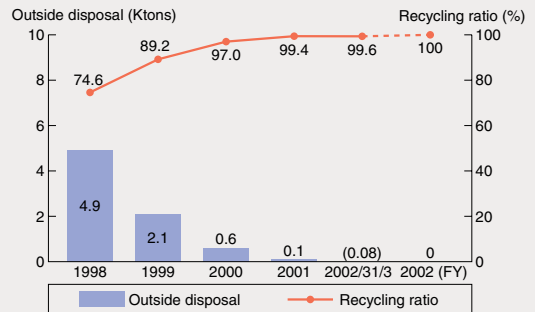
■Zero Emission Activities penetrate the Company

All of our plants have actively participated in zero emission activities, and the amount of waste treated by landfill or by incineration has been reduced. In fiscal 2001, Nagoya Plant of Sekisui Film Co., Ltd., Sekisui Life-Tec Co., Ltd. and Tokuyama Sekisui Industry Co., Ltd. newly achieved zero emission.

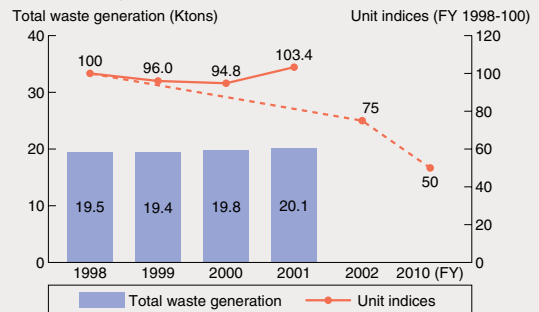
Those plants that have not yet achieved zero emission realized a recycling ratio of more than 90%. However, the total volume of waste generation increased slightly and the waste generation per production Unit also increased. This was because the ratio of products that generate relatively more waste increased as we extended production to meet new market demands.

We will continue our efforts for all of our plants to attain zero emission in fiscal 2002, and to reduce the total volume of waste generation.

●Outside disposal and recycling ratio



●Total waste generation and production Unit



Introduction of Environment-friendly Products

Series of Segregation Dustbins



We support waste segregation and promote recycling.

Ecora Pack Kraft Tape, No. 501



These tapes are composed of 40% recycled paper, and bear the Eco-mark.

Ecora Pack Recycle Kraft Tape, No. 500 RC



These tapes are no longer laminated with polyethylene on the surface and water-soluble adhesives are used, therefore used cartons can be recycled with these tapes adhered to them. These tapes are labeled with the Eco-mark.

Plants that achieved Zero Emission in fiscal 2001

Nagoya Plant, Sekisui Film Co., Ltd.



Hitoshi Miyamoto
Assistant General Manager
Facility Control Department

We started our zero emission activities in 1999 and attained zero emission in March 2002, one year ahead of schedule. For our unique types of waste, cutoffs of laminated film and cutoffs of FS (glass fiber reinforced sheeting), we worked hard to find recycling contractors to treat at low cost or to buy them. In fiscal 2001, we could save our waste treatment costs by ¥4 million compared with fiscal 2000 and by ¥20 million compared with fiscal 1998, owing to our sale of FS waste and the abolition of our incinerator. These are the fruits of our zero emission activities. We will continue our efforts to reduce waste generation and at the same time to look for contractors to treat our waste at lower cost or to buy them for their material recycling.

Main Products: Laminated products, plastic films for sanitary use, vehicle interior parts, etc., sheet products

Waste Generation: 1,600 tons approx. per year

Main Waste: Plastics 96%, metals 1%, paper 1%, oil 1%

Recycling Examples of Waste:

- Plastic (laminated film) Pallet, fuel for cement production
- Plastic (film) Recycled raw material
- Plastic (foam) Recycled raw material
- Plastic (FS) Trunk partitions for vehicles, pallet protection sheets, sound-proof sheets

Sekisui Life-Tec Co., Ltd.

*See P39, Nara Control Center

Tokuyama Sekisui Industry Co., Ltd.



Tatsuro Oda
Manager
Environment and Safety/Quality Assurance Section
Planning and Control Department

We conducted our zero emission activities in such a way as to achieve zero emission one year ahead of the targeted date and were successful in doing so. We placed emphasis on three main areas of activities; the complete segregation of waste, the careful selection of treatment methods and choice of recycling contractors, and the reduction of waste generation. As there are located on our site the R&D laboratories of Sekisui Chemical Co., of the PVC Material Center of Urban Infrastructure & Environmental Products Company, and of the Medical Development Group of High Performance Plastics Company, as well as our own production facility, the waste generated is very varied. However, we have succeeded in total recycling of wastes by thorough segregation under the slogan "Segregation makes wastes valuable!" We will in future continue our efforts to reduce the volume of wastes and treatment costs.

Main Products: PVC resin, CPVC resin, vacuum blood tubes, column for medical tests

Waste Generation: 700 tons approx. per year

Main Waste: PVC 65%, plastics 12%, sludge 11%, metals 4%, ash 2%

Recycling Examples of Waste:

- Plastics (PVC, etc.) Feedstock for electric furnace
- Plastics (Blood collection tube with serum separator) Fuel for cement rotary kiln
- Sludge, ash Raw materials for cement
- PVC Material for flooring, floor tiles



Examples of Recycling

For the achievement of zero emission, it was a major problem for Nagoya Plant of Sekisui Film Co., Ltd. to recycle the waste containing glass fiber, which was generated during the production of interior materials for vehicles. After joint studies with fabricators we could successfully recycle waste and produce trunk partitions for vehicles, pallet protection sheets and sound-proof sheets. For example, at Nagoya Plant, the sound-proof sheets are applied to a fence surrounding the power supply station to reduce the noise of transformers from 52dB to 50dB. (See pictures right.)



Cross-Wave (Underground rainwater storage system)



This is a storage system for rainwater collected underground, for example under a parking lot, under a road in a facility, under a school playground, etc. The special feature of this system is the structure which can bear the load of vehicles passing overhead.

Eco-Palette Tack-Paint



This is a marking film for outdoor use, made of polyolefin resin, a unique material we developed to meet the demand of the market.



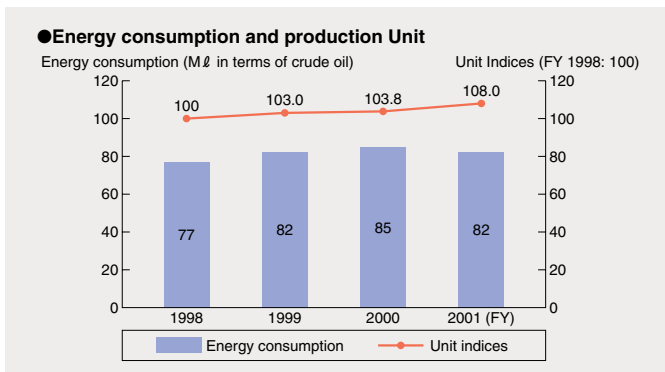
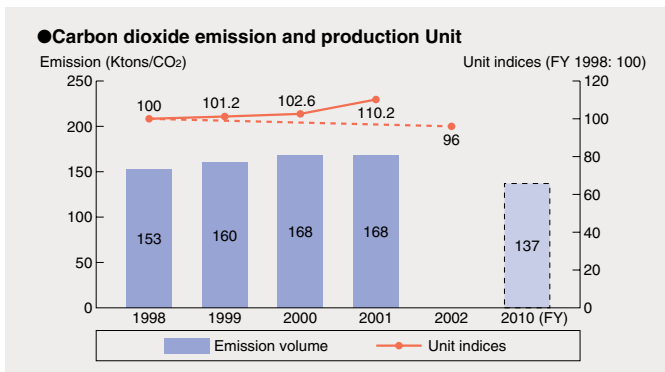
Reduction of Environmental Loads

High Performance Plastics Company consumes relatively large amounts of energy and deals with a variety of chemical substances. We are studying and taking measures on each subject to reduce environmental loads.

■Activities for Reduction of Carbon Dioxide Emission and Energy Saving

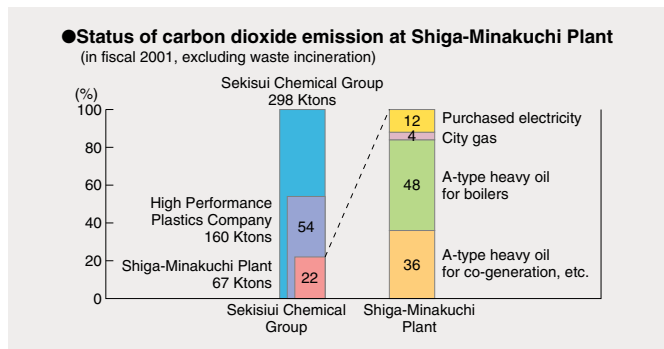
The volume of carbon dioxide emission in fiscal 2001 stayed at the same level as of fiscal 2000. Our energy consumption slightly decreased in fiscal 2001 but both the production Unit of carbon dioxide emission and that of energy consumption increased due to an increase of production of the items that consume relatively more energy.

In future we will continue our efforts to promote our energy saving activities and take drastic measures for a significant reduction of carbon dioxide emission.



■Example of our drastic measures for reduction of carbon dioxide emission

Shiga-Minakuchi Plant, one of the main plants of our company, consumes the most energy among all plants in Sekisui Chemical Group and its carbon dioxide emission has reached about 40% of our company and about 22% of all Sekisui Chemical Group. About 50% of its carbon dioxide emission derives from the usage of oil for boilers. We therefore have decided to take the following measures.

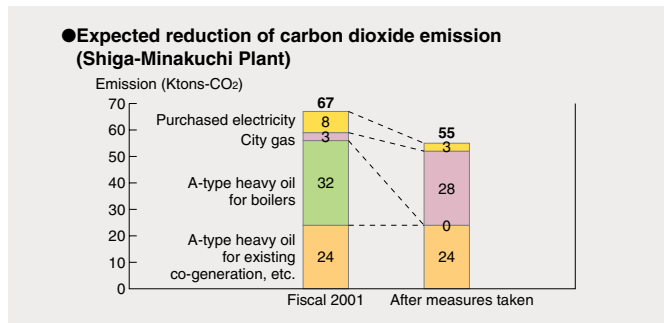


● Shift from heavy oil to city gas

We are changing our boiler fuel from A-type heavy oil to city gas for boilers to reduce carbon dioxide emission.

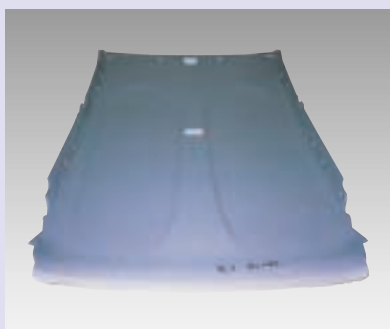
● Introduction of co-generation system

We will introduce a city gas fueled co-generation system in fiscal 2003 in addition to the use of city gas for boilers. By these measures we will be able to reduce carbon dioxide emission by 12,000 tons a year, which will equal a reduction of 7% approx. in our company.



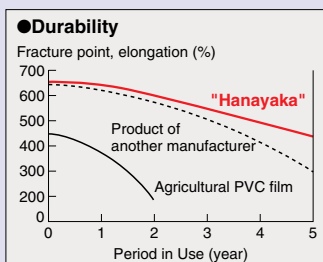
Introduction of Environment-friendly Products

DST III (ceiling materials for vehicles)



This material is made by monolithic molding which eliminates the separate stage of skin lamination. As it is composed of polyolefin only, it is unique in the industry and easily recycled.

Vegitalon Hanayaka

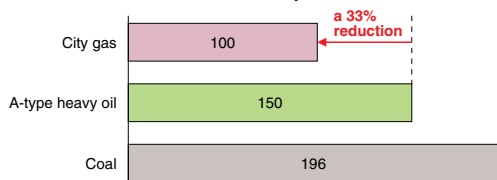


This agricultural film which forms the roofs and walls of green houses has excellent properties in its durability, heat insulation, easiness of water drops to drain, and dust-proofing, owing to a special surface coating on polyolefin base film. Its long life contributes to a more effective use of resources.

●CO₂ emission is reduced by the shift to city gas

City gas is mainly composed of natural gas, the main component of which is methane (CH₄). Methane contains less carbon than coal or petroleum fuel does in any given weight, and methane generates more calories than the same amount of other fuels. To obtain the same calorific output, methane emits much less carbon dioxide.

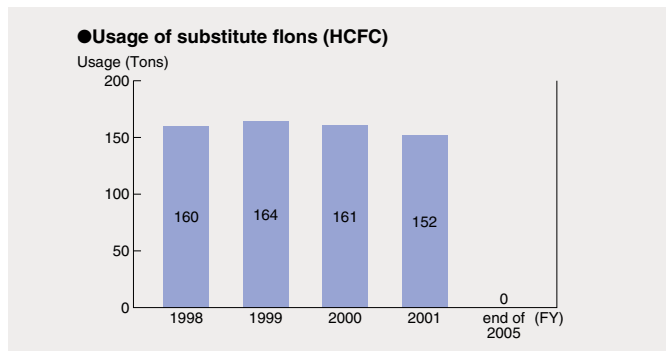
●Ratio of CO₂ for the same calorific output



City gas contains a very small quantity of sulfur (S) and nitrogen (N), therefore emission of SO_x and NO_x can be reduced to a large extent. (P14)

■Total Abolition of Substitute Flons (HCFC)

Regarding the substitute flon that is currently used as a foaming agent in the production of PE foam, we are developing production technology and equipment that do not require the use of substitute flons. Our studies on the use of an organic foaming agent are almost completed and we aim to develop the necessary production equipment in order to totally eliminate the use of substitute flons by fiscal 2005.



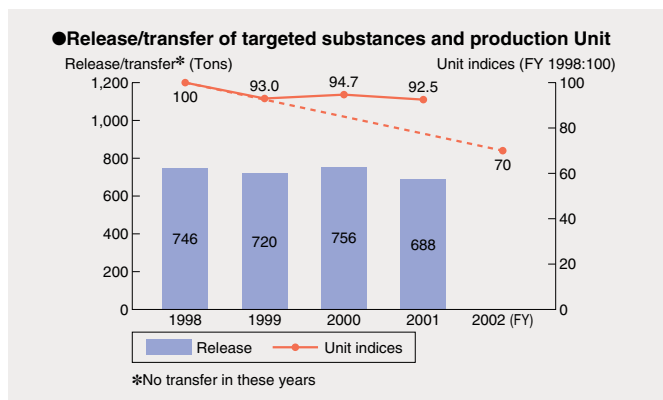
Sekisui Modified Silicone Sealant/Adhesive



Environment-friendly sealant/adhesive, that does not contain formalin, organic solvent, etc., gives good bonding properties to a variety of materials and is easy to use.

■Reduction of Release/Transfer of Pollutants

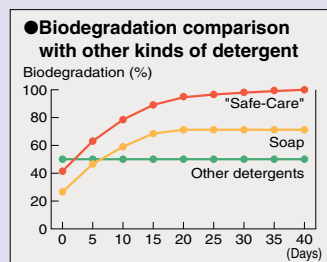
Our company manufactures chemical products of highly functional plastics and deals with a variety of chemical substances. We also use a large amount of organic solvents and so forth in our production processes, and our release and transfer of these substances are large among Sekisui Chemical Group. In fiscal 2001, we reduced our release by 7.7% and the production Unit by 7.5% compared with those in fiscal 1998. The production method of Kraft tape, the main item of our adhesive tape products, is at present under the process of changing over to a new method (hot-melt method) that does not use organic solvents for adhesive coating. By this change, our company expects to reduce our release by 30% approx.



■Green Distribution

With Sekisui Jushi Corporation and Sekisui Seikei, Ltd. we have started a joint distribution system by which our packaging tapes along with products of these two companies such as PP bands, plastic ropes and so forth are delivered to distributors, using the same trucks and depots. We thus reduce emission of exhaust gas and carbon dioxide. Our distributors also benefit as they can save handling on receipt of the goods. This system started in the Tokyo and Kinki districts in fiscal 2001 and will gradually extend to other areas in future.

Safe-Care (industrial detergent)



This product is a detergent made from 100% vegetable raw materials derived from soybeans, potatoes, apples, grapefruits, etc. It removes stains by a different mechanism from conventional detergents using surfactants and is 99% biodegraded in 28 days after drainage. (No longer on the market.)

A Third Party Examination Report

Sekisui Chemical Co., Ltd. underwent an examination by the Wild Bird Society of Japan*, the largest environmental NGO in Japan, on our environmental activities and this Environmental Report 2002.

In order to confirm whether there was any important omission or inadequacy in our environmental activities, which we considered were proper, and whether our activities and results were

appropriately described in this Environmental Report 2002, we had them independently assessed from the viewpoint of the environmental NGO as a third party.

Third Party Examination Report on the Environmental Report 2002 of Sekisui Chemical Co., Ltd.

June 28, 2002

Mr. Naotake Okubo
Representative Director and President
Sekisui Chemical Co., Ltd.

Takashi Kosugi (Sealed)
President
Wild Bird Society of Japan

In response to your request for a third party examination of your "Environmental Report 2002", we, Wild Bird Society of Japan, have conducted this examination by which we can contribute to the elevation of our own activities regarding environmental conservation, in accordance with the importance of enhancing the cooperation between environmental NGO's and enterprises for this common objective.

We hereby submit the summary of our examination and related comments from each committee member as our third party examination report.

1. Purpose of Examination

To frankly assess from the viewpoint of an NGO whether the management's intentions and philosophy on the environment are thoroughly carried out by all workplaces in the company, and how these environmental activities shape the actual business operations of the headquarters and workplaces.

2. Examination Procedures

①A committee was formed by the following members, specialists in the field of environmental conservation, and they conducted the examination.

Chairman: **Masayuki Seto**, Professor, Tokyo University of Agriculture and Technology, (Ecological Conservation)

Member: **Shunichi Teranishi**, Professor, Graduate School of Hitotsubashi University, (Ecological Economics)

Member: **Tokutaro Ozawa**, Environmental Advocate, (Environmental Affairs)

Member: **Osamu Kobayashi**, Director General, Wild Bird Society of Japan

②At the beginning of the examination, a consultation was held with Mr. Naotake Okubo, President of Sekisui Chemical Co., Ltd., on the performances of the company regarding environmental issues. We received explanations from and exchanged views with staff of the headquarters responsible for environmental management on several occasions. We enhanced our comprehension of the actual status by visiting and inspecting some plants.

③After a full exchange of opinions among the committee members, each member conducted the examination from his specialist standpoint. This report is based on a summary of their examinations.

Opinions written by each member were also added to this report.

3. Summary of Results of Examination

Sekisui Chemical Co., Ltd. has achieved a variety of excellent results, aiming at the conservation of the environment in its business operations; for instance, the achievement of zero emission by its plants, the development of energy saving type Hot Water Units with CO₂ Heat Pump, the development of houses of long life span, the development of utilities' infrastructure with excellent durability and performance, the environmental training of employees through the in-house "Executive Committee for Nature Protection Activities", the participation in, and support of, NGO/volunteer activities to establish nature sanctuaries overseas, among others. These excellent results have been highly evaluated by external organizations as shown, for example, in the acquisition of ISO14001 Certification by its plants and the receipt of the "Grand Prize for Energy Conservation" from the Minister of Economy, Trade and Industry. In the meeting with Mr. Okubo we were made aware of his dedication to structuring a sustainable society and the activities in operation to achieve this target. These are clearly displayed in the highly systematized operations of Musashi Plant, in the unique displays at Tokyo Sekisui Industry's Information Hall for Better Living and at other sites.

The environment-friendly business operations collectively described in the "Environmental Report" can be assessed from the viewpoint of whether a particular business operation is contributing to the structuring of a sustainable society through complete material circulation. Assessment may differ depending on whether it is made from a narrow, short term viewpoint or from a wide, long term viewpoint. However, in the final analysis, it is the long term viewpoint that is most valid.

Zero emission aiming at 100% recycling ratio has been achieved by almost all plants. In this, Thermal Recycling (recycling of heat) is included, but Material Recycling should be given priority to Thermal Recycling, avoiding incineration as much as possible. As heat does not recycle, it is not proper to call it recycling, although official organizations also use the term in this context.

Furthermore, sales of waste (about 20%) are also included in zero emission but how will such waste be utilized after it has been sold? Merely selling waste is not taking full responsibility for it. From a long term viewpoint, it will be necessary for the company to follow up the destination of this waste.



The consultation with President Okubo



Plant inspection

It is stated that the emission/transfer of dioxins was 3.0 grams in total in fiscal 2001. Dioxins remain for a long time in the environment, and are harmful to health even in a minute quantity. It is recommended that the company set a quantitative target for reduction and attain it. Restraining the emission of dioxins is ultimately more effective than devising methods to remove emitted dioxins from the environment.

The efforts to totally abolish the use of flon, dichloromethane for washing use, are highly evaluated. However, a substantial quantity of dichloromethane is still used for purposes other than washing. Formaldehyde, xylene, toluene and other organic solvents, and such plasticizers as phthalic acid are still used in large quantities. These substances could be harmful to health in various ways, for example, causing allergic reactions. It is important to study and develop environment-friendly materials and products, in order to pave the way to conducting business in a sustainable society in future. One choice in house building may be to return to the use of natural materials, as untreated as possible.

4. Suggestions arising

A booklet "Think it over. You can be a Leader in creating your Town" (trans) 2001, issued by Sekisui Chemical Co., Ltd. sets out a vision of a sustainable future society, in an imaginary town, in harmony with the local climate and nature. We believe that Sekisui Chemical Co., Ltd., being devoted to advanced research work, development and enlightenment in this direction, paying full consideration to environmental conservation, should and can display its leadership in this respect.

Would it be possible, for instance, to draw up in the middle term plan following "STEP-21" a new business of the nature conservation type, aiming at such building supply, town building and activation of local communities that will be materialized in close cooperation with local forest owners, contractors and residents? Japan could be self-sufficient in timber, but as domestic timber is no longer used much, forests are on the decline due to lack of support and so too are the related local communities.

In the evaluation of the manufacture of long-life products and short-life products, it appears that long-life products are more energy consuming. However, from the long-term viewpoint, such products, e.g. houses of long life span will consume less energy in actual use and will emit much less carbon dioxide. Therefore they are evaluated highly from the long term viewpoint. Business development from a long term viewpoint is what the society and local communities are expecting from Sekisui Chemical Co., Ltd. and we believe this is the right direction for the company to take in its future business development.

5. Comments from each Committee Member



M. Seto
Chairman

investigating the causes and searching for solutions. In the next issue of Sekisui Chemical Company's environmental report, I hope to see a page, headed "Problem-solving in Cooperation with local Citizens".



S. Teranishi
Committee Member

It is highly evaluated that Sekisui Chemical Co., Ltd. has thoroughly reported its policies, targets, results and data regarding its environmental activities. However, I would request that an improvement be made in its environmental accounting, which, in this report complies with the guidelines of the Ministry of the Environment and others, but it is an estimated balance of the expenses and the economical effects (profit of the enterprise) spent for and gained from its environmental activities in a narrow sense, which is simply a statement of Cost and Benefit inside the company. In reality, environmental accounting must show to the general public the accountability of the whole of the business activities of a company from the environmental aspects. I strongly hope that Sekisui will do this in future environmental accounting.



T. Ozawa
Committee Member

The objective of an enterprise is to create a market. To achieve this objective, an enterprise engages in technological innovation and marketing through which it seeks for its development and sustainment, and contributes to society. The aim of environment-friendliness (reduction of environmental loads) is not the marketing of a large volume of environment-friendly products, but to decrease the consumption of resources and energy. Attention must be paid to the reduction of total energy consumption and to increased utilization of renewable energy. The judgment criteria on energy saving and CO₂ emission are primarily the reduction of total volume, and production/ex-godown Units are secondary.



O. Kobayashi
Committee Member

1. It is commendable that a great amount of environmental data was arranged in order and that a great effort was made to make the expressions understandable to a wide readership. However, key points must stand out and not be buried under the rich range of contents.
2. The corporate management policy and activity guidelines on the environment are well-arranged and easy to understand, but the consistency among those of the three internal companies should be clarified.
3. It may be necessary for readers to be informed that the environmental activities were carried out under severe economic circumstances with declined sales and a reduced number of employees, for instance, effects on the environmental accounting, and the relation between the production/ex-godown Units and total volume.

*The Wild Bird Society of Japan is an environmental NGO whose activities focus on concern for and protection of wild birds, with the aim of creating a sustainable society where human beings and nature can coexist forever.

Response from **Setsushi Nakamura** M.D., Environment and Safety
In this third party examination, our activities to achieve zero emission, to develop houses with long-life spans and such were highly evaluated. However, we have learned, among others, that from the viewpoint of an environmental NGO it is necessary to improve the contents

of zero emission, and carry out our business activities in such a way as to contribute to a better environment from a long term viewpoint. We accept the results of this examination sincerely, and by making the most of the advice for our future activities, we will make sure that our activities are continued to be accepted by society.



Measurement Results of the Items regulated by the Laws and Regulations on Air and Water Quality

We disclose the status of our observance of the laws and regulations on air and water quality at each plant. At five plants we found excesses over the limits. Appropriate countermeasures were immediately taken and are being maintained.

- Due to limited space, only the representative items are listed. There is no excess over the regulated values in items that are not listed here.
- The mark "—" shows that there is no regulated value or there is no such facility. The value in () shows that there is no regulated value but we autonomously took measurements for our control.

Items		Unit	Frontier Technology Institute / Housing Technology Institute		Kitanihon Sekisui Industry Co., Ltd.		Higashinihon Sekisui Industry Co., Ltd.		Kanto Sekisui Industry Co., Ltd.		Tokyo Sekisui Industry Co., Ltd.		Chubu Sekisui Industry Co., Ltd.		Kansai Sekisui Industry Co., Ltd.			
			Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.
Emitted Gases	Boiler, etc.	SOx (Sulfur Oxides)	K value	—	—	—	—	—	—	—	—	—	—	2.34	0.281	—	—	
			Nm³/hr	—	—	0.8	0.12	0.65	0.12	7	0.023	1.452	0.026	—	—	—	—	
			ppm	180	72	180	42	180	74	180	91.9	230	130	260	79	—	—	
		Soot and dust	g/Nm³	0.3	<0.005	0.3	<0.01	0.3	0.073	0.3	0.052	0.35	0.011	0.15	0.011	—	—	
	Incinerator	SOx (Sulfur Oxides)	K value	—	—	—	—	—	—	—	—	—	—	2.34	0.2	—	—	
			Nm³/hr	—	—	—	—	—	—	—	—	7.992	0.196	—	—	9.81	Not Detected	
			ppm	—	—	—	—	—	—	—	—	250	120	250	77	(250)	41	
			Soot and dust	g/Nm³	—	—	—	—	—	—	—	0.35	0.102	0.25	0.016	0.25	0.059	
			HCl (Hydrogen Chloride)	mg/Nm³	—	—	—	—	—	—	—	500	140	100	71	700	6.8	
			Dioxins	ng-TEQ/Nm³	—	—	—	—	80	—(*3)	80	—(*3)	80	0.54	80	3.8	80	0.66
Drained Water Quality	Public Water Area	pH (Hydrogen Ion)	—	5.8-8.6	5.5-7.3(*1)	—	—	5.8-8.6	7.3	—	—	(5.8-8.6)	7.3	6.0-8.5	7.8	5.6-8.6	8.1	
			BOD (Biochemical Oxygen Demand)	mg/l	10	25(*2)	—	—	20	19	—	—	25	5.6	10	14(*4)	70	1.8
			COD (Chemical Oxygen Demand)	mg/l	10	32(*2)	—	—	—	—	—	—	(160)	8.5	10	9.2	(160)	8.3
			SS (Suspended Substance)	mg/l	15	56(*1)	—	—	25	22	—	—	60	<2.0	10	0.5	100	5.3
			n-Hexane extract	Mineral oil	mg/l	5	<0.1	—	—	—	—	—	—	—	—	—	—	—
				Animal & vegetable oil	mg/l	5	<0.1	—	—	—	—	—	(5)	<1.0	1	0.5	(5)	0.8
			Nitrogen content	mg/l	—	—	—	—	—	—	—	—	(120)	1.2	120	1.6	—	—
			Phosphorus content	mg/l	—	—	—	—	—	—	—	—	(16)	0.5	16	0.04	—	—
			Coliform group number	Pcs./cm³	—	—	—	—	—	—	—	—	—	—	1,500	30	—	—
			Dioxins	pg-TEQ/l	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Sewerage	pH (Hydrogen Ion)	—	5.0-9.0	7.1-8.2	(5.0-9.0)	8.7	—	—	—	—	(5.0-9.0)	8.6	—	—	5.0-9.0	—(*5)	
			BOD (Biochemical Oxygen Demand)	mg/l	600	150	(600)	42	—	—	—	—	600	290	—	—	1,500	79.3
			SS (Suspended Substance)	mg/l	600	50	(600)	150	—	—	—	—	600	404	—	—	1,500	49.6
			n-Hexane extract	Mineral oil	mg/l	5	<1.0	(5)	0.7	—	—	—	—	—	—	—	—	—
				Animal & vegetable oil	mg/l	30	3.7	(5)	0.7	—	—	—	(30)	13	—	—	5	—(*5)
			Nitrogen content	mg/l	—	—	—	—	—	—	—	—	(150)	54.8	—	—	—	—
			Phosphorus content	mg/l	—	—	—	—	—	—	—	—	(20)	6.66	—	—	—	—

Notes *1: Since the roofs of the buildings were cleaned and measures were taken against pigeons' droppings, pH has been kept below 6.3 and SS below 1. *2: Since cleaning the pipelines the water used for paint washing after its treatment, but it has been kept at 4.3 after modification of the equipment. *3: Nara City conducts the water quality tests, but did not test in fiscal investigation. *4: This has been reported and acknowledged by Kyoto City Local Government.

Items		Unit	Kyushu Sekisui Industry Co., Ltd.		Vantec Co., Ltd. Chiba Plant		Shikoku Sekisui Industry Co., Ltd.		Ryuseki Jubi Industry Co., Ltd. / Sekisui Life-Tec Co., Ltd.		Amagasaki Plant		Musashi Plant		Shiga-Minakuchi Plant				
			Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	
Emitted Gases	Boiler, etc.	SOx (Sulfur Oxides)	K value	—	—	—	—	3.5	0.35	—	—	—	—	—	—	—			
			Nm³/hr	—	—	—	—	—	—	17.5	3.04	11t/Y	0t/Y	5.625	0	28.3	0.95		
			ppm	—	—	—	—	180	45	—	—	15.95t/Y	6.9t/Y	70	49	950	937		
		Soot and dust	g/Nm³	—	—	—	—	0.3	<0.01	—	—	—	—	0.05	0.002	0.1	0.013		
	Incinerator	SOx (Sulfur Oxides)	K value	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
			Nm³/hr	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
			ppm	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
		Soot and dust	g/Nm³	—	—	—	—	—	—	—	—	—	—	—	—	—			
	HCl (Hydrogen Chloride)	mg/Nm³	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
	Dioxins	ng-TEQ/Nm³	—	—	—	—	—	—	—	—	—	—	—	—	80	0.96			
Drained Water Quality	Public Water Area	pH (Hydrogen Ion)	—	5.8-8.6	8.0	5.8-8.6	8.4	5.8-8.6	7.0-7.7	—	—	—	—	6.5-8.5	8.0	6.0-8.5	7.4		
			BOD (Biochemical Oxygen Demand)	mg/l	120	1.7	160	1	160	5.3	—	—	—	—	5	5.2(*9)	20	12	
			COD (Chemical Oxygen Demand)	mg/l	—	—	160	2.1	160	7.8	—	—	—	—	—	—	20	12.6	
			SS (Suspended Substance)	mg/l	150	5.2	200	1.6	200	1.0	—	—	—	—	50	<10	70	6.6	
			n-Hexane extract	Mineral oil	mg/l	(4)	Not Detected	30	Not Detected	5	<0.4	—	—	—	—	Not Detected	Not Detected	5	<0.5
				Animal & vegetable oil	mg/l	—	—	—	—	—	—	—	—	—	—	—	—	20	<0.5
			Nitrogen content	mg/l	(60)	0.75	120	1.7	120	6.1	—	—	—	—	18	4.2	8	0.7	
			Phosphorus content	mg/l	(8)	1.19	16	0.21	16	0.13	—	—	—	—	1.5	0.81	1	0.1	
			Coliform group number	Pcs./cm³	(2,400)	150	—	—	—	—	—	—	—	—	—	—	—	—	
			Dioxins	pg-TEQ/l	—	—	—	—	—	—	—	—	—	—	—	—	50	1.7	
	Sewerage	pH (Hydrogen Ion)	—	—	—	—	—	—	—	—	—	5.7-8.7	6.3-7.8	5.0-9.0	8.2	5.0-9.0	7.8		
			BOD (Biochemical Oxygen Demand)	mg/l	—	—	—	—	—	—	—	300	169	600	126	600	119		
			SS (Suspended Substance)	mg/l	—	—	—	—	—	—	—	300	232	600	56	600	30		
		n-Hexane extract	Mineral oil	mg/l	—	—	—	—	—	—	—	—	—	—	—	—	5.0	<0.5	
			Animal & vegetable oil	mg/l	—	—	—	—	—	—	—	5	<2	30	<2.5	30	<0.5		
	Nitrogen content	mg/l	—	—	—	—	—	—	—	—	—	—	120	17	(60)	4.5			
	Phosphorus content	mg/l	—	—	—	—	—	—	—	—	—	—	16	3.7	(10)	0.3			

*9: Since cleaning the tanks and manholes, the value has been 3.7. Cleaning will be conducted periodically. *10: This is considered to be a sampling mistake. The second measurement is

- In the case that there are multiple facilities for regulation, the following values are listed.

Emitted gasses: the value in the facility that emitted most in the year. Emitted water: the highest measured value. In the case that the regulated values for these facilities are different, the measured values that are closest to the regulated values are listed.

Chugoku Sekisui Industry Co., Ltd.	Nishinon Sekisui Industry Co., Ltd.	Sekisui Board Co., Ltd.				Shiga-Ritto Plant	Gunma Plant	Tokyo Plant	Kyoto R&D Institute	Okayama Sekisui Industry Co., Ltd.	Toto Sekisui Co., Ltd., Ota Plant	Sekisui Chemical Hokkaido Co., Ltd.	
		Minakuchi Plant		Gunma Plant								Reg. V.	Msd.V.
Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.
—	—	—	—	—	—	—	—	—	—	—	—	—	—
1.09	0.024	—	—	—	—	2.23	1.269	—	—	—	—	—	—
150	48	—	—	150	40.1	180	110	150	39.6	—	—	—	—
0.25	0.065	—	—	0.1	<0.01	0.15	0.01	0.1	<0.01	—	—	—	—
—	—	—	—	—	—	—	—	8.76	0.16	—	—	—	—
1.567	0.2	—	—	—	—	—	—	—	—	—	—	—	—
250	65	—	—	—	—	—	—	250	9	—	—	—	—
0.25	0.009	—	—	—	—	—	—	0.5	0.13	—	—	—	—
700	16	—	—	—	—	—	—	700	100	—	—	—	—
80	—(*3)	—	—	—	—	—	—	80	9.2	—	—	—	—
5.6-8.6	6.4	—	—	—	—	(6.5-8.5)	7.9	6.0-8.0	6.7-7.1	6.5-8.5	7.0	—	—
60	0.5	—	—	—	—	(10)	8	15	3.4	10	4	—	—
—	—	—	—	—	—	—	—	15	3.4	—	6	—	—
90	16	—	—	—	—	(10)	8	20	9.3	10	1	—	—
5	Not Detected	—	—	—	—	(3)	<2	3	2	3	1	—	—
—	—	—	—	—	—	—	—	8	5	—	—	—	—
—	—	—	—	—	—	—	—	0.5	0.4	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	5.0-9.0	7.0	5.0-9.0	7.3	—	—	5.0-9.0	6.8-8.2	—	—	(5.5-8.8)	6.4
—	—	600	101	600	95	—	—	600	210	—	—	(600)	347
—	—	600	12.8	600	100	—	—	600	150	—	—	(600)	151
—	—	—	—	5	1.6	—	—	5	2	—	—	(4)	<2.5
—	—	30	0.9	30	0.5	—	—	30	24	—	—	(25)	100(*6)
—	—	—	—	60	17	—	—	60	33	—	—	—	—
—	—	—	—	10	1.5	—	—	10	4.4	—	—	—	—

in the kitchen, BOD has been kept below less than 2.9 and COD 7.4. *3: As incineration has been abolished, no measurement was conducted in FY 2001. *4: This value was measured in 2001. *6: This value has been 13 after improvement of the kitchen facilities. (an autonomous test item) *7: This value was measured in April, but the cause could not be clarified after

Sakai Plant	Minase Research Laboratories	Sekisui Technol Molding East Japan								Sekisui Film Co., Ltd.								Sekisui Film Kyushu Co., Ltd.	Tokuyama Sekisui Industry Co., Ltd.
		Head Office Plant		Nara Plant		Sendai Plant		Nagoya Plant		Shinshu-Takato Plant		Taga Plant		Reg. V.	Msd.V.				
Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.	Reg. V.	Msd.V.		
—	—	1.75	0.07	—	—	—	—	0.76	0.14	1.75	0.52	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	2.8	0.09	—	—	—	—		
—	—	180	38	—	—	—	—	—	—	180	88	250	100	—	—	—	—		
—	—	0.3	0.002	—	—	—	—	—	—	0.3	<0.002	0.3	0.005	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
80	0.023	—	—	—	—	—	—	—	—	—	—	80	0.055	—	—	—	—		
5.8-8.5	7.2-7.9	5.8-8.6	7.6-7.9	(6.0-8.5)	7.0-7.5	—	7.6-7.7	5.8-8.6	8.0	5.8-8.6	7.7-8.0	5.8-8.6	8.5	—	—	5.8-8.6	7.7		
25	2.0	80	15.9	(8)	6.4	(120)	176(*10)	20	1.5	15	3.4	60	3.7	—	—	160	<0.5		
25	3.9	30	5.1	—	—	(120)	97	—	—	15	5.1	—	—	—	—	160	0.9		
25	1	110	<5	(100)	4.0	(150)	46	25	2.6	15	7	90	<1	—	—	200	4.8		
3	0.5	20	<0.5	—	—	(25)	6	—	—	—	—	5	<1	—	—	5	<0.5		
45	1.7	60	11	—	—	(5)	<5	—	—	—	—	—	—	—	—	30	5.7		
3	0.76	4	0.88	—	—	—	—	—	—	—	—	—	—	—	—	16	0.2		
—	—	—	—	—	—	—	—	—	—	1500	110	—	—	—	—	—	—		
50	0.042	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
—	—	—	—	—	—	—	—	5.7-8.7	8.5	—	—	—	—	5.0-9.0	7.0-8.6	—	—		
—	—	—	—	—	—	—	—	300	24	—	—	—	—	600	72	—	—		
—	—	—	—	—	—	—	—	300	18	—	—	—	—	600	58	—	—		
—	—	—	—	—	—	—	—	5	0.5	—	—	—	—	30	7.2	—	—		
—	—	—	—	—	—	—	—	20	9.5	—	—	—	—	60	52	—	—		
—	—	—	—	—	—	—	—	30	0.85	—	—	—	—	10	3.2	—	—		

being conducted (an autonomous test item).

PRTR Data at each Workplace

The results of workplaces handling more than one ton of Class 1 Chemicals as designated by the Japanese PRTR Law (more than 0.5 ton of the Specified Class 1 Chemicals).

Unit: kg (dioxins mg-TEQ)

	Workplace	Specification No.	Chemicals	Used Volume (Produced volume)	Release				Transfer			Innocuous treatment	
					To atmosphere	To water	To soil*	Landfill *	Sewerage	as waste			
										Disposal	Recycling		
Housing Company	Higashinihon Sekisui Industry Co., Ltd.	179	Dioxins (unit:mg-TEQ)	—	0.9	0	0	0	0	1.1	0	0	
		63	Xylene	5,403	5,403	0	0	0	0	0	0	0	0
	Kanto Sekisui Industry Co., Ltd.	227	Toluene	5,403	5,403	0	0	0	0	0	0	0	0
		179	Dioxins (unit:mg-TEQ)	—	25	0	0	0	0	0.063	0	0	0
	Tokyo Sekisui Industry Co., Ltd.	30	Bisphenol A type epoxy Resin (liquid)	3,152	0	0	0	0	0	0	0	0	0
		63	Xylene	3,943	3,943	0	0	0	0	0	0	0	0
		227	Toluene	1,160	1,160	0	0	0	0	0	0	0	0
	Chubu Sekisui Industry Co., Ltd.	179	Dioxins (unit:mg-TEQ)	—	96	0	0	0	0	1.3	0	0	0
		63	Xylene	2,106	2,085	0	0	0	0	0	0	0	0
		227	Toluene	4,647	4,601	0	0	0	0	0	0	0	0
	Kansai Sekisui Industry Co., Ltd.	179	Dioxins (unit:mg-TEQ)	—	293	0	0	0	0	0	1,610	0	0
		270	Di-n-butyl phthalate	1,500	150	0	0	0	0	0	0	0	0
		179	Dioxins (unit:mg-TEQ)	—	23	0	0	0	0	0.029	0	0	0
	Chugoku Sekisui Ind.	Head Office Plant	179	Dioxins (unit:mg-TEQ)	—	0	0	0	0	0	0.93	0	0
			Kuban Plant	179	Dioxins (unit:mg-TEQ)	—	23.1	0	0	0	0	0.18	0
	Nishinihon Sekisui Industry Co., Ltd.		63	Xylene	1,202	1,202	0	0	0	0	0	0	0
			227	Toluene	6,320	6,320	0	0	0	0	0	0	0
	Sekisui Board Co., Ltd.	Gunma Plant	63	Xylene	1,712	1,152	0	0	0	0	0	560	0
			227	Toluene	2,568	1,728	0	0	0	0	0	840	0
Minakuchi Plant		30	Bisphenol A type epoxy Resin	56,500	0	0	0	0	0	0	0	0	
		43	Ethylene glycol	1,400	0	0	0	0	0	0	0	0	
Urban Infrastructure & Environmental Products Company	Shiga-Ritto Plant	63	Xylene	36,497	31,217	0	0	0	0	0	5,280	0	
		100	Cobalt compounds	1,516	0	0	0	0	0	0	0	0	0
		145	Dichloromethane	46,760	41,760	0	0	0	0	0	5,000	0	0
		176	Organic tin compounds	15,700	0	0	0	0	0	34	0	0	0
		177	Styrene monomer	1,622,000	44,000	0	0	0	0	0	0	0	0
		227	Toluene	89,863	89,863	0	0	0	0	0	0	0	0
		230	Lead compounds	168,170	0	0	0	0	0	435	0	0	0
		272	Bis (2-ethylhexyl) phthalate	2,760	0	0	0	0	0	0	1,380	0	0
	179	Dioxins (unit:mg-TEQ)	—	380.1	0	0	0	0	20.8	0	0	0	
	Gunma Plant	176	Organic tin compounds	12,708	0	0.3	0	0	0	5.5	2.7	0	0
		230	Lead compounds	80,863	0	1.8	0	0	0	32	16	0	0
	Tokyo Plant	63	Xylene	2,800	289	0	0	0	0	0	0	0	0
		132	HCFC-141b	8,710	1,310	0	0	0	0	0	150	0	0
		176	Organic tin compounds	25,000	0	0	0	0	0	148	30	0	0
		227	Toluene	3,427	349	0	0	0	0	0	0	0	0
		230	Lead compounds	166,700	0.4	0.1	0	0	0.1	346	240	0	0
	243	Barium compounds (water-soluble)	5,910	0	0	0	0	0	12	8.0	0	0	
	Ryuseki Jubi Industry Co., Ltd.	177	Styrene monomer	425,000	5,570	0	0	0	0	0	0	0	0
	Okayama Sekisui Industry Co., Ltd.	63	Xylene	15,800	15,800	0	0	0	0	0	0	0	0
		177	Styrene monomer	526,200	21,000	0	0	0	0	0	0	0	0
		205	Terephthalic acid	71,300	0	0	0	0	0	0	0	0	0
		227	Toluene	23,000	23,000	0	0	0	0	0	0	0	0
		242	Nonylphenol	2,400	0	0	0	0	0	0	1,200	0	0
		270	Di-n-butyl phthalate	5,100	0	0	0	0	0	0	0	0	0
	179	Dioxins (unit:mg-TEQ)	—	55.0	0	0	0	0	0.87	0	0	0	
	Ota Plant, Toto Sekisui Co., Ltd.	63	Xylene	1,000	990	0	0	0	0	0	10	0	0
		145	Dichloromethane	6,704	6,704	0	0	0	0	0	0	0	0
		176	Organic tin compounds	1,200	0	0	0	0	0	6	0	0	0
		227	Toluene	10,900	10,572	0	0	0	0	0	328	0	0
		230	Lead compounds	85,500	0	0	0	0	0	427	0	0	0
272	Bis (2-ethylhexyl) phthalate	1,205	0	0	0	0	0	6	0	0	0		
Chiba Plant, Vantec Co., Ltd.	145	Dichloromethane	3,900	3,290	0	0	0	0	0	0	0	0	
	176	Organic tin compounds	1,640	0	0	0	0	0	0.4	0	0	0	
	177	Styrene monomer	19,206	756	0	0	0	0	0	0	0	0	
	230	Lead compounds	84,519	0	2.9	0	0	0	18.5	0	0	0	
	304	Boron compounds	1,469	0	0	0	0	0	235	0	0	0	
179	Dioxins (unit:mg-TEQ)	—	1.1	0	0	0	0	0.12	0	0	0		

The workplaces that did not have the object substances: Housing Technology Institute, Kitanihon Sekisui Industry Co., Ltd., Kyoto R&D Institute, Minase Research Laboratories, Sekisui Life-Tec Co., Ltd., Oigawa Plant and Nara Plant of Sekisui Technol Molding East Japan Co., Ltd., Taga Plant of Sekisui Film Co., Ltd. and Frontier Technology Institute

Unit: kg (dioxins mg-TEQ)

	Workplace	Specification No.	Chemicals	Used Volume (Produced volume)	Release				Transfer		Innocuous treatment	
					To atmosphere	To water	To soil*	Landfill *	Sewerage	as waste		
										Disposal		Recycling
Urban Infrastructure & Environmental Products Company (cont.)	Sekisui Chemical Hokkaido Co., Ltd.	177	Styrene (monomer)	2,420	419	0	0	0	0	0	0	0
		230	Lead & its compound	77,690	0	0.8	0	0	0	94	138	0
	Kyushu Sekisui Industry Co., Ltd.	176	Organotin compound	4,900	0	72	0	0	0	0	70	0
		177	Styrene (monomer)	265,000	1,521	0	0	0	0	0	0	0
		230	Lead & its compound	55,400	0	0	0	0	0	0	268	0
	Shikoku Sekisui Industry Co., Ltd.	9	Adipic Acid bis (2-ethylhexyl)	7,410	0	0	0	0	0	7.0	0	0
		84	HCFC-142b	5,920	5,920	0	0	0	0	0	0	0
		85	HCFC-22	3,190	3,190	0	0	0	0	0	0	0
		177	Styrene (monomer)	20,700	21	0	0	0	0	0	0	0
		230	Lead & its compound	12,590	0	0	0	0	0	26	0	0
		272	Bis (2-ethylhexyl) phthalate	41,100	0	0	0	0	0	41	0	0
		314	Methacrylic acid (monomer)	31,490	0	0	0	0	0	0	0	0
		320	Methyl methacrylate (monomer)	80,980	0	0	0	0	0	0	0	0
	Amagasaki Plant	63	Xylene	49,000	0	0	0	0	0	0	6,100	43,000
		227	Toluene	440,000	4,200	0	0	0	0	0	20,000	416,000
	Musashi Plant	3	Acrylic Acid	57,200	0	0	0	0	0	0	5,720	0
		25	Antimony & its compound	17,300	0	0	0	0	0	0	2,100	0
		84	HCFC-142b	76,000	76,000	0	0	0	0	0	0	0
		85	HCFC-22	35,000	35,000	0	0	0	0	0	0	0
		86	HCFC-124	16,000	16,000	0	0	0	0	0	0	0
		197	Decabromo diphenyl ether	68,800	0	0	0	0	0	0	8,300	0
		227	Toluene	558,900	460,300	0	0	0	0	0	98,600	0
	Shiga-Minakuchi Plant	3	Acrylic Acid (monomer)	1,300	0	0	0	0	0	0	0	0
11		Acetaldehyde	157,800	100	0	0	0	0	0	0	47,100	
30		Bisphenol A type epoxy resin (liquid)	185,100	0	0	0	0	0	0	0	0	
45		Ethylene glycol monomethyl ether	3,600	0	0	0	0	0	0	0	0	
63		Xylene	27,300	900	75	0	0	0	0	0	0	
145		Dichloromethane	602,300	8,300	0	0	0	0	0	0	0	
172		N.N.-Ethylene formaldehyde	3,000	0	0	0	0	0	0	0	0	
177		Styrene (monomer)	677,000	900	1,000	0	0	0	0	0	0	
227		Toluene	1,222,100	16,600	0	0	0	0	0	3,000	10,300	
310		Formaldehyde	4,400	0	0	0	0	0	0	0	1,900	
320		Methyl methacrylate (monomer)	47,600	15	0	0	0	0	0	0	0	
179	Dioxins (unit:mg-TEQ)	—	170	11	0	0	0	0	58	0		
Sakai Plant	3	Acrylic acid (monomer)	29,100	0.40	0	0	0	0	0	0	0	
	4	Ethyl acrylate (monomer)	6,600	2.0	0	0	0	0	0	0	0	
	43	Ethylene glycol	3,200	0	0	0	0	0	0	0	0	
	63	Xylene	13,600	0.9	0	0	0	0	0	0	0	
	102	Vinyl acetate	3,008,770	1,338	0	0	0	0	0	0	0	
	227	Toluene	133,500	30	0	0	0	0	0	0	0	
	270	Di-n-butyl phthalate	102,000	0.1	0	0	0	0	0	0	0	
	272	Bis (2-ethylhexyl) phthalate	(39,048,000)	0.6	0	0	0	0	0	0	0	
	307	Poly (oxyethylene) = alkyl ether	4,400	0	11	0	0	0	0	0	0	
	309	Poly (oxyethylene) = nonylphenyl ether	1,700	0	4.3	0	0	0	0	0	0	
	312	Phthalic anhydride	18,786,000	1.4	0	0	0	0	0	0	0	
179	Dioxins (unit:mg-TEQ)	—	136	0.01	0	0	0	0	0.16	0		
Head Office Plant, Sekisui Technol Molding East Japan Co., Ltd.	132	HCFC-141b	16,000	4,240	0	0	0	0	0	0	0	
	145	Dichloromethane	4,800	4,350	0	0	0	0	0	0	0	
Sekisui Film Co., Ltd.	Sendai Plant	227	Toluene	3,160	3,160	0	0	0	0	0	0	
	Nagoya Plant	227	Toluene	33,465	33,465	0	0	0	0	0	0	
	Shinshu-Takato Plant	179	Dioxins (unit:mg-TEQ)	—	0.28	0	0	0	0	0.028	0	
Sekisui Film Kyushu Co., Ltd.	227	Toluene	11,135	11,135	0	0	0	0	0	0		
H.Q.	Tokuyama Sekisui Industry Co., Ltd.	7	Acrylonitrile (monomer)	5,040	123	0	0	0	0	0	0	
		77	Vinyl chloride (monomer)	118,647,000	8,375	112	0	0	0	0	0	
		177	Styrene (monomer)	108,000	38	0	0	0	0	0	0	
		320	Methyl methacrylate (monomer)	7,890	82	0	0	0	0	0	0	
		179	Dioxins (unit:mg-TEQ)	—	1.4	0	0	0	0	0	0.30	0

*On the premises

Object Workplaces of this Environmental Report (Names as of April 1, 2002)

(Dates of and target schedule for our acquisition of the ISO 14001 Certification and attainment of zero emission and our main products)

Blue Letters : The object workplaces for summation of environmental performance data in this report

	Workplace	Corporate Relations <Note 1>		ISO14001 Certification	Zero emission attainment	Address	Main Products in FY 2001	
		◎	*					
Housing Company	Housing Technology Institute	◎	*	FY 2002	FY 2010	32 Wadai, Tsukuba-shi, Ibaraki-ken	—	
	Kitanihon Sekisui Industry Co., Ltd.	○	*	Sept. 1998	Mar. 2001	4-144-1 Higashicho 2-jo, Iwamizawa-shi, Hokkaido	Sekisui Heim, Two-U-Home	
	Higashinihon Sekisui Industry Co., Ltd.	○	*	Aug. 1998	Sept. 2001	55 Aza Dannokoshi, Okumatazawa, Watari-cho Watari-gun, Miyagi-ken		
	Kanto Sekisui Industry Co., Ltd.	○	*	Oct. 1998	Sept. 2001	287 Kitayoshihara, Kasama-shi, Ibaraki-ken	Two-U-Home	
	Tokyo Sekisui Industry Co., Ltd. <Note 2>	○	*	Nov. 1997	Mar. 2001	3535 Oaza Kurohama, Hasuda-shi, Saitama-ken	Exterior walls for Sekisui Heim	
	Chubu Sekisui Industry Co., Ltd.	○	*	June 1998	Mar. 2001	3-22 Akemicho, Toyohashi-shi, Aichi-ken	Sekisui Heim, Two-U-Home	
	Kansai Sekisui Industry Co., Ltd. <Note 3>	○	*	Nov. 1997	Aug. 2001	4-3-1 Nishikujocho, Nara-shi, Nara-ken		
	Chugoku Sekisui Industry Co., Ltd.	Head Office Plant	○	*	Aug. 1998	Sept. 2001	189 Kozujuku, Okayama-shi, Okayama-ken	Sekisui Heim
		Kuban Plant					557-3 Kuban, Okayama-shi, Okayama-ken	Two-U-Home
	Nishinihon Sekisui Industry Co., Ltd.	○	*	June 1998	Mar. 2000	1760 Todorokimachi, Tosu-shi, Saga-ken	Sekisui Heim, Two-U-Home	
	Sekisui Board Co., Ltd.	Minakuchi Plant	○	*	Mar. 1998	Mar. 2000	1259 Izumi, Minakuchi-cho, Koga-gun, Shiga-ken	Exterior walls for Sekisui Heim / Two-U-Home
		Gunma Plant	○	*	Mar. 1999	Sept. 2001	54 Shimofuchina, Sakaimachi, Sawa-gun, Gunma-ken	
	<p>Date of and target schedule for acquisition of the ISO 14001 Certification of house sales subsidiaries</p> <p>Mar. 1999 ○Sekisui Heim Tokyo Co., Ltd. ○Sekisui Heim Kanagawa Co., Ltd. ○Sekisui Heim Chiba Co., Ltd. ○Sekisui Heim Saitama Co., Ltd.</p> <p>Feb. 2001 ○Sekisui Heim Osaka Co., Ltd.</p> <p>Mar. 2001 ○Nagoya Sekisui Heim Co., Ltd. ○Mie Sekisui Heim Co., Ltd. ○Sekisui Heim Keiji Co., Ltd. ○Sekisui Heim Hanna Co., Ltd. ○Okayama Sekisui Heim Co., Ltd. ○Shikoku Sekisui Heim Co., Ltd. ○Kyuseki Sekisui Heim Co., Ltd. ○Nagasaki Sekisui Heim Co., Ltd.</p> <p>Apr. 2001 ○Gunma Sekisui Heim Co., Ltd.</p> <p>May 2001 ○Kumamoto Sekisui Heim Co., Ltd.</p> <p>July 2001 ○Hokkaido Sekisui Heim Co., Ltd.</p> <p>Aug. 2001 ○Kagoshima Sekisui Heim Co., Ltd.</p> <p>Oct. 2001 ○Fukushima Sekisui Heim Co., Ltd. ●Ibaraki Sekisui Heim Co., Ltd. ○Gifu Sekisui Heim Co., Ltd. ○Kitakinki Sekisui Heim Co., Ltd. ○Wakayama Sekisui Heim Co., Ltd. ○Sanin Sekisui Heim Co., Ltd. ●Sekisui Heim Sanyo Co., Ltd. ○Hiroshima Sekisui Heim Co., Ltd.</p> <p>Nov. 2001 ○Oita Sekisui Heim Co., Ltd.</p> <p>Dec. 2001 ○Fukuoka Sekisui Heim Co., Ltd.</p> <p>Jan. 2002 ○Yamaguchi Sekisui Heim Co., Ltd. Kochi Sekisui Heim Co., Ltd.</p> <p>Mar. 2002 ○Tohoku Sekisui Heim Co., Ltd. ○Kitanihon Sekisui Heim Co., Ltd. ○Hokuriku Sekisui Heim Co., Ltd. Tokushima Sekisui Heim Co., Ltd.</p> <p>Apr. 2002 ○Sekisui Heim Nishitohoku Co., Ltd. ●Tochigi Sekisui Heim Co., Ltd. ●Sekisui Heim Shinetsu Co., Ltd. Kagawa Sekisui Heim Co., Ltd.</p> <p>FY 2002 ●Sekisui Heim Tokai Co., Ltd. ○Sekisui Heim Yamanashi Co., Ltd.</p>							

Note 1. ◎Sekisui Chemical's plants/R&D institutes ○Consolidated subsidiaries ●Subsidiaries to which the equity method was applied in consolidation
*Workplaces given internal environmental audit by Headquarters.

Notes 2-10. The business reorganization and so forth brought about the following changes in fiscal 2001 compared with fiscal 2000.

Note 2. Tokyo Sekisui Ind., Co., Ltd. transferred the Two-U-Home production to Chubu Sekisui Ind., Co., Ltd. and Kanto Sekisui Ind., Co., Ltd. (December 2001)

Note 3. Kansai Sekisui Ind., Co., Ltd. transferred the Two-U-Home production to Chubu Sekisui Ind., Co., Ltd. and Chugoku Sekisui Ind., Co., Ltd. (March 2001)

Note 4. Nitta Plant transferred the roofing tile production to Okayama Sekisui Ind., Co., Ltd., closing its plant in June 2001. It returned the ISO 14001 Certification at the same time.

Note 5. Ryuseki Jubi Ind. Co., Ltd. and Sekisui Life-Tec Co., Ltd. are manufacturing companies to which the former Nara Plant transferred its production activities. Nara Control Center has undertaken their controlling work. Ryuseki Jubi Industry Co., Ltd. stopped its production of electric water heater units in March 2002.

Note 6. Shikoku Sekisui Ind., Co., Ltd. stopped production of plastic household goods in February 2002.

Note 7. Amagasaki Plant transferred its production of exterior walls for houses to Tokyo Sekisui Ind., Co., Ltd. and Nishinihon Sekisui Ind., Co., Ltd. (May 2001)

The production of polyethylene foam was centralized to Musashi Plant for intensive production. (August 2001)

Note 8. Sakai Plant stopped production of plasticizer in March 2002, following the withdrawal from the plasticizer business.

Note 9. The head office plant of Sekisui Technol Molding East Japan Co., Ltd. stopped its production activities in March 2002 and closed down the plant in April 2002. The head office has been moved to the former Oigawa Plant.

Note 10. Sekisui Film Co., Ltd. was established in April 2001, by the merger of Sekisui Kako Co., Ltd., Sekisui Film Higashinihon Co., Ltd. and Sekisui Film Nishinihon Co., Ltd.

Basis for Selection of Object Workplaces

1. Basis for selection: From the viewpoint of the scale of environmental loads on and concern for local communities, mainly plants of Sekisui Chemical Co., Ltd. and its subsidiaries were chosen as object workplaces for our environmental management.
2. Object workplaces for summation of environmental performance data in this report: We chose as object workplaces for summation such plants as are nominated in our middle term environmental plan, "STEP-21", for improvement of their environmental performance, newly adding in this fiscal year Chiba Plant of Vantec Co., Ltd. and Shinshu-Takato Plant of Sekisui Film Co., Ltd.
3. Object workplaces for the Headquarters' audit: Mainly plants are the object workplaces for the Headquarters' audit but such R&D institutes that should pay attention to environmental loads in their product development activities are also included.
4. Object workplaces acquiring ISO 14001 Certification: ISO 14001 Certification acquisition started at our plants, but we have extended it to our R&D institutes due to the necessity of environmental concern in their development work, and also to house sales subsidiaries due to the necessity for environmental attention in their design/construction of houses. Outside Japan, the certification acquisition has been promoted mainly by our overseas plants.
5. Object workplaces for zero emission: To promote the recycling of industrial waste, we chose as object workplaces for zero emission plants of Sekisui Chemical Co., Ltd., plants of our consolidated subsidiaries, and new house construction sites of house sales subsidiaries. However, Nitta Plant and the Head Office Plant of Sekisui Technol Molding East Japan Co., Ltd. are not included in the object workplaces as they discontinued production during their zero emission activities.

	Workplace	Corporate Relations <Note 1>	ISO14001 Certification	Zero emission attainment	Address	Main Products in FY 2001	
Urban Infrastructure & Environmental Products Company	Shiga-Ritto Plant	◎ *	Oct. 1998	Feb. 2002	75 Nojiri, Ritto-shi, Shiga-ken	PVC pipe, LP pipe, synthetic wood, balcony flooring	
	Gunma Plant	◎ *	Mar. 1999	Oct. 2001	54 Shimofuchina, Sakai-machi, Sawa-gun, Gunma-ken	PVC pipe, PE pipe	
	Tokyo Plant	◎ *	Oct. 1998	Feb. 2002	3-15-1 Negishidai, Asaka-shi, Saitama-ken	Plastic valves/fittings, pits and manholes, rain gutters	
	Nitta Plant <Note 4>	◎ *	(Oct. 1999)	—	280-1 Oaza Ichinokura, Nitta-cho, Nitta-gun, Gunma-ken	(Roofing tiles)	
	Kyoto R&D Institute	◎ *	Jan. 2000	FY 2010	2-2 Kamichoshicho, Kamitoba, Minami-ku, Kyoto-shi, Kyoto-fu	—	
	Ryuseki Jubi Industry Co., Ltd. <Note 5>	○ *	Dec. 1998	Mar. 2002	4-1-1 Sanjoohji, Nara-shi, Nara-ken	Bath units, electric water heaters	
	Okayama Sekisui Industry Co., Ltd.	○ *	Apr. 1999	Mar. 2002	210 Kozujuku, Okayama-shi, Okayama-ken	Bathroom parts, roofing tiles, fire-proof interior housing materials	
	Toto Sekisui Co., Ltd., Ota Plant	○ *	Apr. 2000	FY 2002	231 Oaza Kanai, Nitta-cho, Nitta-gun, Gunma-ken	PVC pipe & fittings, PE pipe, balcony flooring, interior parts for housing	
	Sekisui Chemical Hokkaido Co., Ltd.	○ *	Feb. 2000	Feb. 2002	234 Higashicho 2-jo, Iwamizawa-shi, Hokkaido	PVC pipe & fittings, plastic window frames	
	Kyushu Sekisui Industry Co., Ltd.	○ *	Mar. 2000	Mar. 2000	225-1 Oaza Yanagishima, Chiyoda-cho, Kanzaki-gun	PVC pipe, septic tanks	
	Vantec Co., Ltd. Chiba plant	○ *	Oct. 2000	FY 2002	2082 Uruido, Ichihara-shi, Chiba-ken	PVC pipe, containers for clean rooms	
	Shizuoka Sekisui Panel Tank Co., Ltd.		July 2000	—	77 Kamionogo, Iwata-shi, Shizuoka-ken	FRP water supply tanks, ice storage tanks, hot water storage tanks	
	Eslon B.V.	○	June 1998	—	Metaalweg 7, 6045 JB, Roermond, The Netherlands TEL +31-475-322851		
	Kleerdex Company Bloomsburg Plant	○	Oct. 2001	—	6685 Low Street, Bloomsburg, PA 17815, U.S.A. TEL +1-570-387-6997		
High Performance Plastics Company	Shikoku Sekisui Industry Co., Ltd. <Note 6>	○ *	June 1999	Mar. 2002	880 Himiotsu, Saijo-shi, Ehime-ken	PVC pipe, flooring material, synthetic wood PE foam, plastic household goods	
	Amagasaki Plant <Note 7>	◎ *	Oct. 1997	Mar. 2001	5-8-6 Shioe, Amagasaki-shi, Hyogo-ken	Adhesive tapes, medical tapes, PE foam	
	Musashi Plant	◎ *	July 1997	Mar. 2000	3535 Oaza Kurohama, Hasuda-shi Saitama-ken	Adhesive tapes for industrial and packaging use, PE foam	
	Shiga-Minakuchi Plant	◎ *	Mar. 1998	Mar. 2000	1259 Izumi, Minakuchi-cho, Koga-gun, Shiga-ken	Interlayer film for laminated glass, adhesives, functional resin, fine chemical products	
	Sakai Plant <Note 8>	◎ *	Sept. 1998	Mar. 2001	3-5-1 Chikuko Shinmachi, Sakai-shi, Osaka-fu	Adhesives, sealing material, plasticizers	
	Minase Research Laboratories	◎ *	Mar. 2000	FY 2010	2-1 Hyakuyama, Shimamoto-cho, Mishima-gun, Osaka-fu	—	
	Sekisui Life-Tec Co., Ltd.	○ *	Dec. 1998	Mar. 2002	4-1-1 Sanjoohji, Nara-shi, Nara-ken	Plastic household goods	
	Sekisui Technol Molding East Japan Co., Ltd. <Note 9>	Head Office Plant	○ *	Sept. 1999	—	333 Mizumori, Fujieda-shi, Shizuoka-ken	Injection molded parts for OA equipment, electrical appliances, office equipment, vehicles
		Oigawa Plant	○		FY 2002	864-1 Hanfuchi, Oigawa-cho, Shida-gun, Shizuoka-ken	
		Nara Plant	○ *	Dec. 2000	FY 2002	1135-5 Oaza Kubota, Ando-cho, Ikoma-gun, Nara-ken	Injection molded products: containers for industrial use, vehicle parts
	Sekisui Film Co., Ltd. <Note 10>	Sendai Plant	○ *	Mar. 2001	FY 2002	1-1 Aza Tanako, Okumakoya, Watari-cho, Watari-gun, Miyagi-ken	Polyolefin films for agricultural and packaging use
		Nagoya Plant	○ *	Dec. 1999	Mar. 2002	2-2 Aza Ichiubara, Ogawa, Higashiura-cho, Chita-gun, Aichi-ken	Laminated products, sanitary film, interior material for vehicles
		Shinshu-Takato Plant	○ *	Dec. 2000	FY 2002	2435-50 Oaza Kamiyamada, Takato-machi, Kamiina-gun, Nagano-ken	Laminated non-woven fabric with fibers in two or three directions
		Taga Plant	○ *	Dec. 1999	Mar. 2000	510-5 Aza Suwa, Oaza Shide, Taga-cho, Inukami-gun, Shiga-ken	Polyolefin films for packaging and sanitary use
	Sekisui Film Kyushu Co., Ltd.	○ *	Oct. 1999	FY 2002	485 Kamichishikicho, Izumi-shi, Kagoshima-ken	Polyolefin films for packaging and agricultural use	
	Sekisui-Alveo B.V.	○	July 1996	—	Montageweg 6, 6045 JA, Roermond, The Netherlands TEL +31-475-354354		
	Sekisui (U.K.) Ltd. Merthyr Plant	○	Jan. 1997	—	Unit 19, Merthyr Tydfil Industrial Park, Cardiff Road, Troedyrhiw, Merthyr Tydfil, South Wales, CF 48 4DR, U.K. TEL +44-1443-690940		
	Sekisui America Corp. [Voltek Division]	Lawrence Plant	○	FY 2002	—	100 Shepard Street, Lawrence, MA 01843, U.S.A. TEL +1-978-685-2557	
		Coldwater Plant	○	FY 2002	—	17 Allen Avenue, Coldwater, MI 49036, U.S.A. TEL +1-517-279-7587	
	Tokuyama Sekisui Industry Co., Ltd.	○ *	Mar. 2000	Mar. 2002	4560 Kaiseicho, Shinnanyo-shi, Yamaguchi-ken	Vacuum blood tubes, medical treatment and examination equipment, PVC resin, functional polymers	
H.Q.	Frontier Technology Institute	◎ *	Mar. 2000	FY 2010	32 Wadai, Tsukuba-shi, Ibaraki-ken	—	

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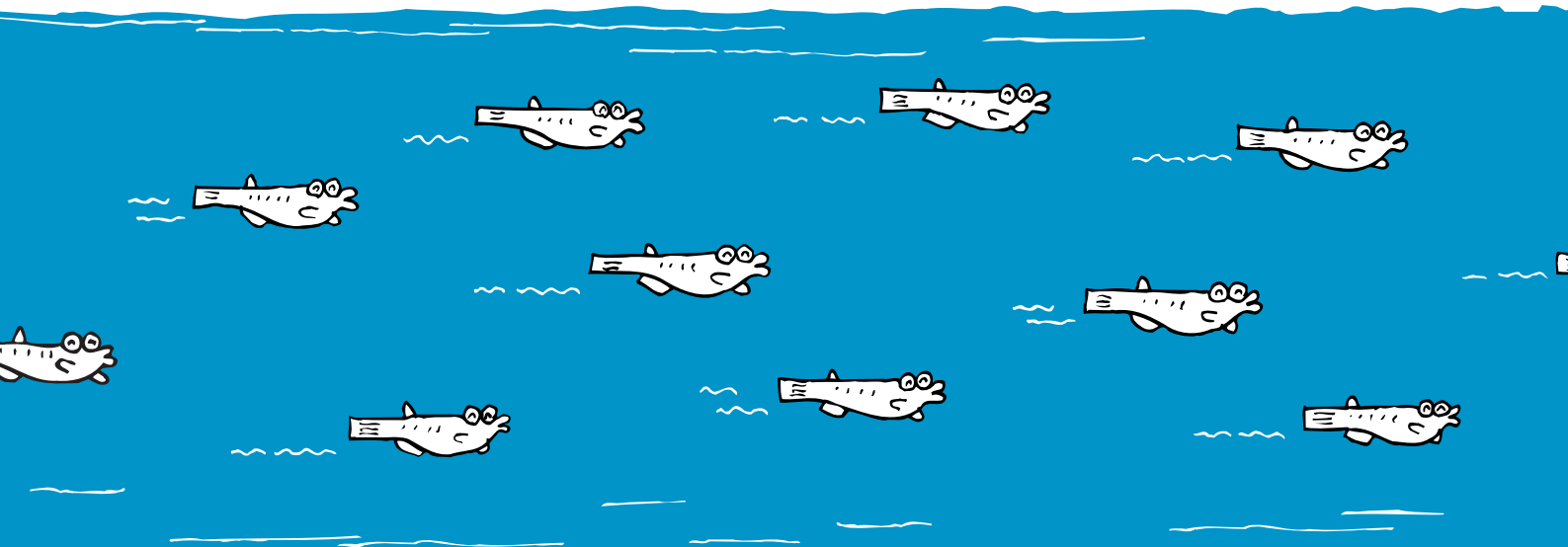
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■Front Cover : Bring Back the Medaka

The sketches on the front cover are of Medaka, fresh water killifish, which until recently could be seen in streams everywhere in Japan. They were so familiar that they feature in a Japanese children's song. Now decreasing in number, they have been designated a "Threatened Species (Category II)" (Red Data Book on threatened species by the Japanese Ministry of the Environment). Water quality degradation by agrochemicals and drainage from residential buildings, and a decrease in spawning areas due to concrete reinforcement of riverbanks, have been cited as causes. We are expressing our strong desire for creating an environment where Medaka can multiply and live vigorously.



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