



**Voices of Concern Raised over Global Environmental Problems**  
**Results of the Tenth Annual**  
**“Questionnaire on Environmental Problems and the Survival of Humankind”**  
**Asahi Glass Foundation**

The Asahi Glass Foundation, chaired by Hiromichi Seya, has conducted a questionnaire survey since 1992 of experts involved with environmental problems from both governmental and non-governmental organizations worldwide to highlight the perceptions of various environmental undertakings. This year's questionnaire focused on the conditions required to implement the Kyoto Protocol with respect to global warming countermeasures, water problems, endocrine disruptors, and predictions for the global environment in 30 years time expressed from our perspective at the dawn of the 21<sup>st</sup> century. It also dealt with issues continued from past surveys, such as the Environmental Doomsday Clock, the state of progress in the Agenda 21 action plan and lifestyle changes. We would like to express our appreciation once again to Professor Akio Morishima, Chairman, Institute for Global Environmental Strategies, for continuing to provide invaluable assistance with the questionnaire.

**Summary of the Questionnaire Results**

*Perception of the Crisis Facing Human Survival — Environmental Doomsday Clock*

- The average time expressed by all respondents for the Environmental Doomsday Clock was 9:08 in the “Extremely Concerned” quadrant. This is the same average as the year before last, signifying that the sense of crisis has intensified again after easing the previous year. The average response in Japan was 9:04, showing a sense of crisis that was slightly below the overseas average of 9:11.

*I Main Focus of the Current Year's Questionnaire*

1. Global Warming Countermeasures

- Among the developed regions of Japan, Western Europe and North America, the condition most selected as important for implementation of the Kyoto Protocol was “Introduction of domestic systems assuring the achievement of reduction targets among developed nations.” In contrast, the developing regions of Asia, Africa and Latin America selected “Additional financial support from developed to developing countries.”
- Among overseas respondents, the countermeasure most often cited as the most useful for greenhouse gas reduction was “Promotion of education and awareness training for the general public.” In Japan, it was the “Greening of industry.”

2. Water Problems

- The responses to the question on water quality for daily use differed remarkably between regions with the respondents from Africa, Asia, the Middle East and North America being most likely to report “Acute problems.”
- Among the overseas respondents, “Pollution from agricultural wastes” was cited as the main cause of poor water quality, while Japanese respondents thought it to be “Pollution from waste water from the general public.”
- Among respondents from Japan, the developing regions and Oceania, “Conservation of water reserve lands” was most often selected as the main way to resolve water quality problems. Respondents from North America and Western Europe thought it to be “Developing technologies to reduce harmful substances in agricultural wastes.”
- More than 70% of respondents from Asia, Africa and the Middle East believed there to be “a water shortage” (includes responses to both the “Acute” and “Mild” categories) in the total water supply for daily use, agriculture and industry.
- The cause of water shortages most often cited by overseas respondents was “Increased water demand due to increased population.” In Japan, it was “Devastation of water reserve lands.”
- The measures most often listed by overseas respondents as the solution to water supply problems were “Developing technologies that improve the efficiency of water usage” and “Promoting more efficient water use and recycling.” In Japan, the responses were overwhelmingly in favor of “Conserving water reserve lands.”

### 3. Endocrine Disruptors

- Almost all respondents were aware of problems with endocrine disruptors and only 4% of overseas respondents and 2% of Japanese respondents selected "I don't sense any urgent hazard."

### 4. 30-Year Prediction for the Global Environment

- Sixty-eight percent of respondents predicted that the state of the environment in 30 years would be "Worse" (combined responses for the "Moderately worse," "Much worse" and "So bad as to imperil human survival" categories). Overseas and Japanese respondents made very similar responses.

## II. Repeat Topics

### 1. Progress toward Agenda 21

- The categories in which progress was thought to have been made by more than 60% of the overseas and Japanese respondents were the "Promotion of environmental education," and "Activities by local governments and citizen's groups." Less than 30% of respondents thought that progress had been made in "Lifestyle alteration" and "Population and poverty problems."

### 2. Changes in Lifestyle

- Among the developing regions, "To introduce environmental taxes" was most often cited as a system for changing lifestyles. "To make it easy for consumers to purchase green products" was the response favored overwhelmingly in all the other regions.

## Facts about the Tenth Annual "Questionnaire on Environmental Problems and the Survival of Humankind"

**Response period:** Questionnaires were sent out in April 2001 with a return deadline of June 2001.

**Questionnaire respondent pool:** Selected from members of GOs, NGOs, and academic and industrial organizations in the databases of the United Nations Environment Program, the United Nations Commission on Sustainable Development and the Asahi Glass Foundation.

**Questionnaires mailed:** 3,938

**Questionnaires returned:** 684

**Response rate:** 17.3%

### Breakdown of respondents by region and occupational affiliation:

Region	Number of responses	Percent of total
Japan	292	42.7
United States & Canada	58	8.5
Western Europe	84	12.3
Asia (outside Japan)	83	12.1
Latin America	35	5.1
Africa	55	8.1
Oceania	30	4.4
Eastern Europe & former Soviet Union	22	3.2
Middle East	22	3.2
No response	3	0.4
(Overseas Total)	(392)	(57.3)
Total	684	100.0

### Occupational affiliation

Central government	129	18.9
Local government	100	14.6
University or research institution	139	20.3
Nongovernmental organization	151	22.1
Corporation	87	12.7
Other	68	9.9
No response	10	1.5
Total	684	100.0

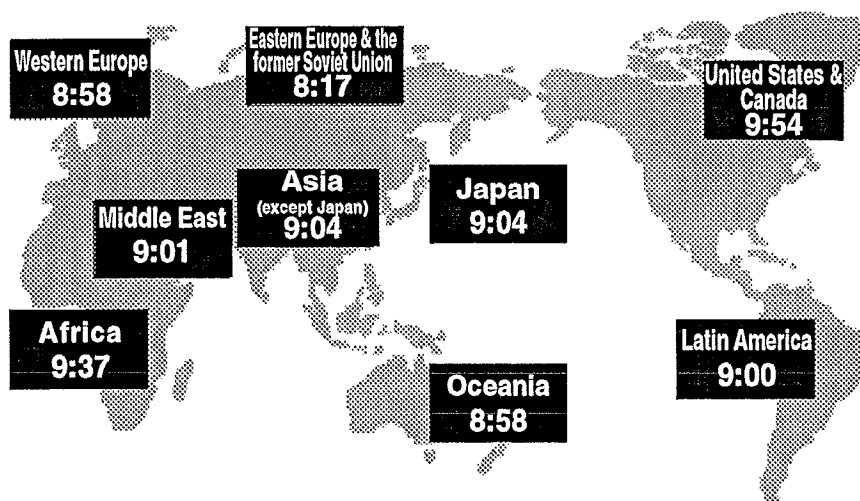
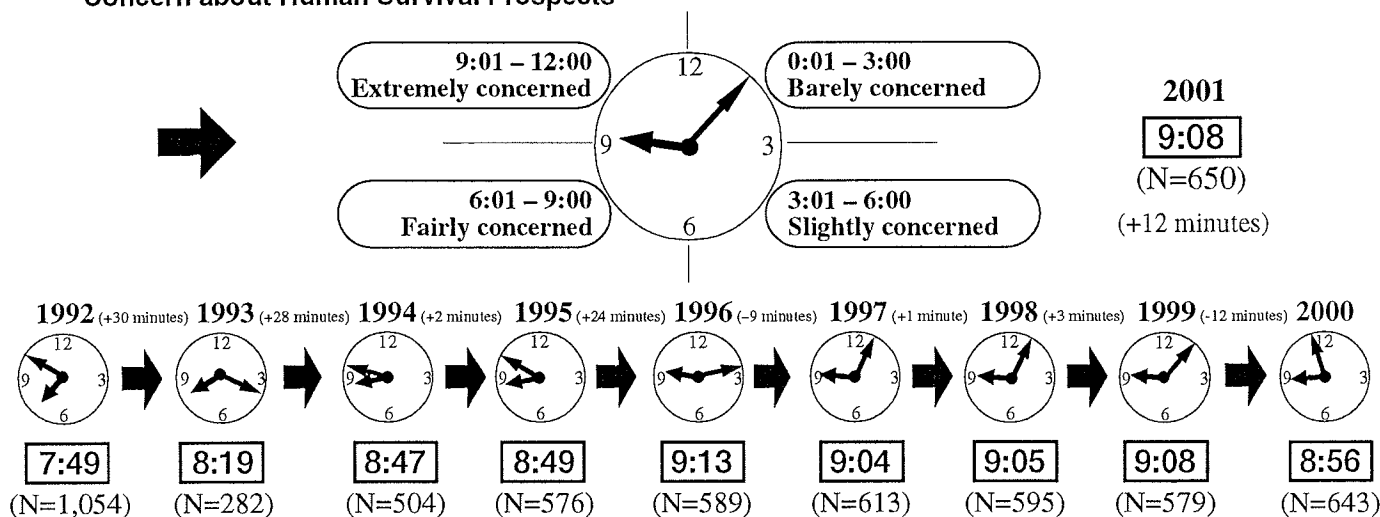
# Perception of the Crisis Facing Human Survival

## (1) Environmental Doomsday Clock

The average time expressed by all respondents for the Environmental Doomsday Clock was 9:08 in the “Extremely Concerned” quadrant. This is the same average as the year before last, signifying that the sense of crisis has intensified again after easing the previous year. The average response in Japan was 9:04, showing a sense of crisis that was slightly below the overseas average of 9:11.

The average time selected by Japanese respondents was 9:04, which indicated a less intense sense of crisis compared with the overseas average, which set the Environmental Doomsday Clock to 9:11. The hands of the clock advanced noticeably in North America from the previous year and this region registered the highest state of alarm. Africa followed it. Eastern Europe and the former Soviet Union demonstrated the lowest sense of crisis.

### Concern about Human Survival Prospects



	Number of respondents	Changes in time from year to year			Changes in average time by region			
		1995	→	2000	→	2001	1995 → 2001	2000 → 2001
Total	650	8:49	→	8:56	→	9:08	+19	+12
Japan	285	8:08	→	8:56	→	9:04	+56	+8
Overseas Total	365	9:22	→	8:56	→	9:11	-11	+15
Industrialized Regions	418	8:23	→	8:53	→	9:09	+46	+16
Developing Regions	160	9:33	→	9:11	→	9:14	-19	+3
Male	516	8:46	→	8:52	→	9:05	+19	+13
Female	113	8:57	→	9:10	→	9:21	+24	+11

(Please see page 5 of the Questionnaire Report for more information.)

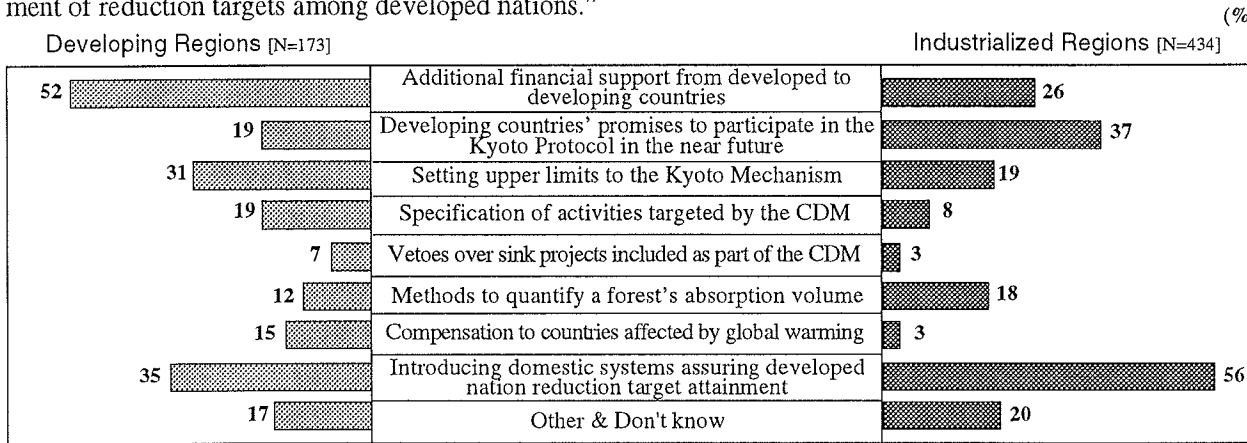
**I. Main Focus of the Current Year's Questionnaire**

**1. Global Warming Countermeasures**

**(1) Conditions Required for Implementation of the Kyoto Protocol**

In developed regions, the "Introducing domestic systems assuring developed nation reduction target attainment" category received the most responses and in developing regions it was the "Additional financial support from developed to developing countries" category.

The second-ranked response in the developed regions was "Developing countries' promises to participate in the Kyoto Protocol" and in the developing regions it was "Introduction of domestic systems assuring the achievement of reduction targets among developed nations."

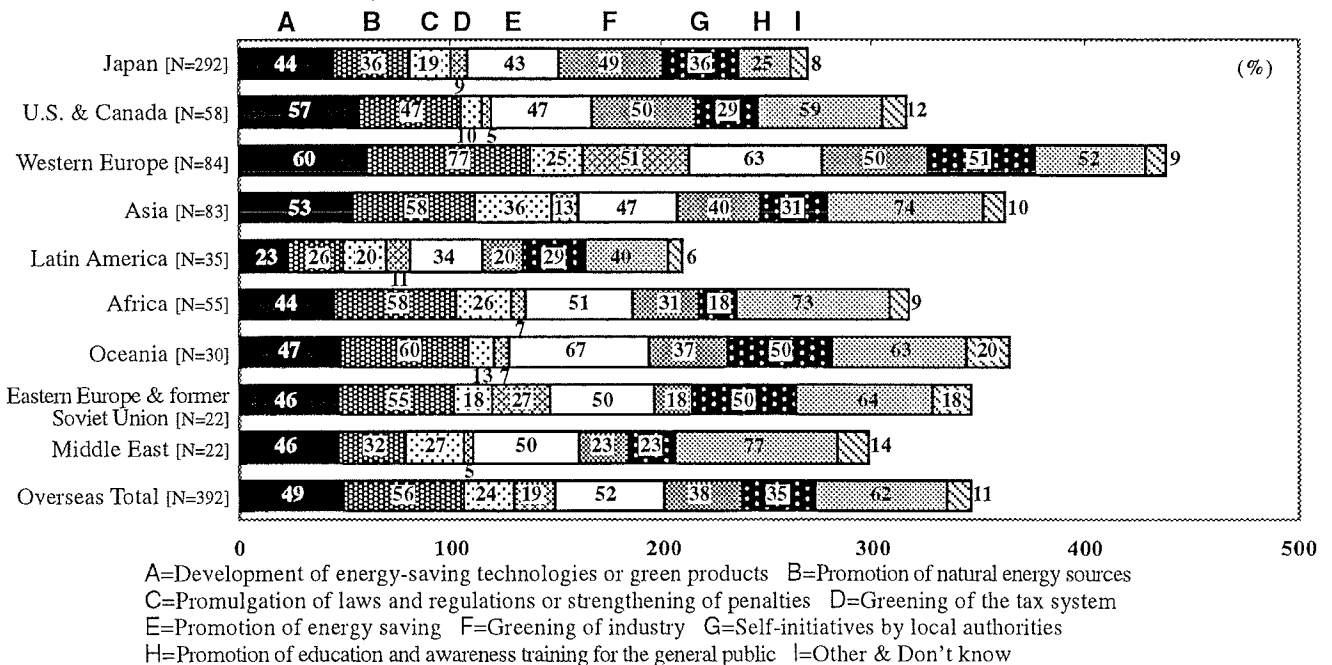


Note: Please note that the totals for the various regions should add up to 200% since respondents were asked to select two items. However, some respondents marked no items or only one item, causing the aggregate total to be less than 200%. (Please see page 6 of the Questionnaire Report for more information.)

**(2) Each Country's Greenhouse Gas Reduction Countermeasures**

Among overseas respondents, the countermeasure most often cited as the most useful for greenhouse gas reduction was "Promotion of education and awareness training for the general public." In Japan, it was the "Greening of industry."

It was noteworthy that, relative to the overseas response, few Japanese respondents selected "Promotion of education and awareness training for the general public."



Note: The figures indicate the number of responses to each item and the percentage of the total respondents. The total percentage is higher in regions in which there were many respondents that could assess multiple items.

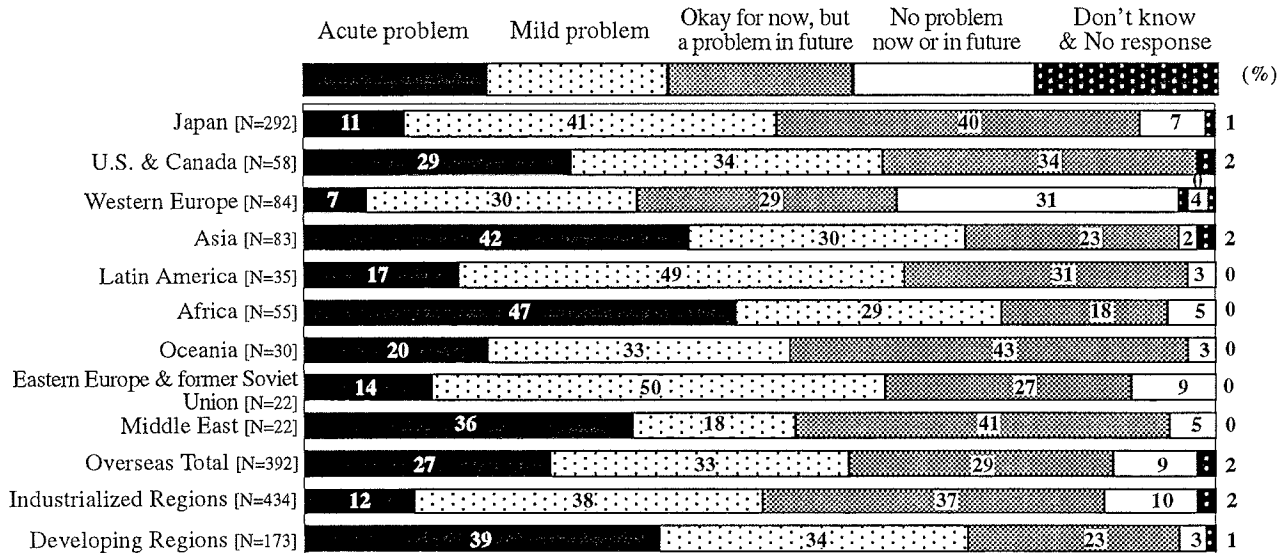
(Please see page 7 of the Questionnaire Report for more information.)

## 2. Water Problems

### (1) Quality of Water Used in Daily Life

The responses to the question on water quality for daily use differed remarkably between regions. Respondents from Africa, Asia, the Middle East and North America were most likely to report "Acute problems."

The regions with the fewest responses of "Acute problems" included Western Europe, Japan and Eastern Europe and the former Soviet Union. Among the regions selecting "No problem," the response from Western Europe was the highest, at 31%.

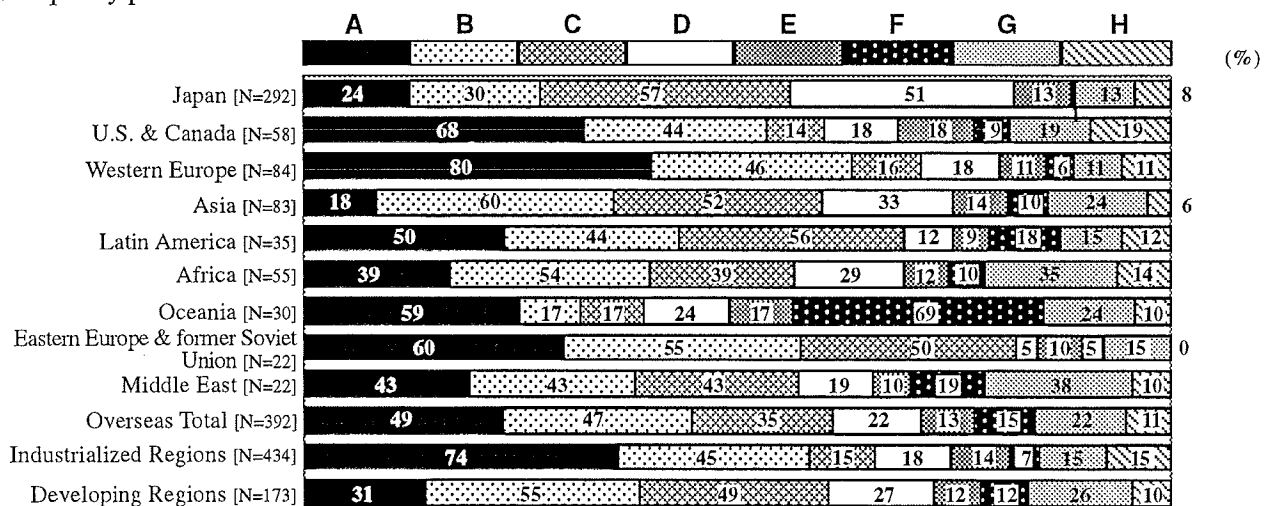


(Please see page 8 of the Questionnaire Report for more information.)

### (2) Causes of Deteriorating Water Quality

Among the overseas respondents, "Pollution from agricultural wastes" was cited as the main cause of poor water quality, while Japanese respondents thought it to be "Pollution from wastewater from the general public." The second-ranked response was "Pollution from industrial wastes" for overseas respondents and "Devastation of water reserve lands" for Japanese respondents.

In North America and Western Europe, the response selected most often was "Pollution from agricultural wastes." In developing regions, it was "Pollution from industrial wastes." In Oceania, it is noteworthy that the cause of water quality problems selected most often was "Salinization."



A=Pollution from agricultural wastes, including harmful substances B=Pollution from industrial wastes, including harmful substances  
 C=Pollution from wastewater from the general public D=Devastation of water reserve lands E=Harmful effluents, including adverse soil effects  
 F=Salinization G=Deterioration of water quality due to reductions in river or lake levels H=Other & Don't know

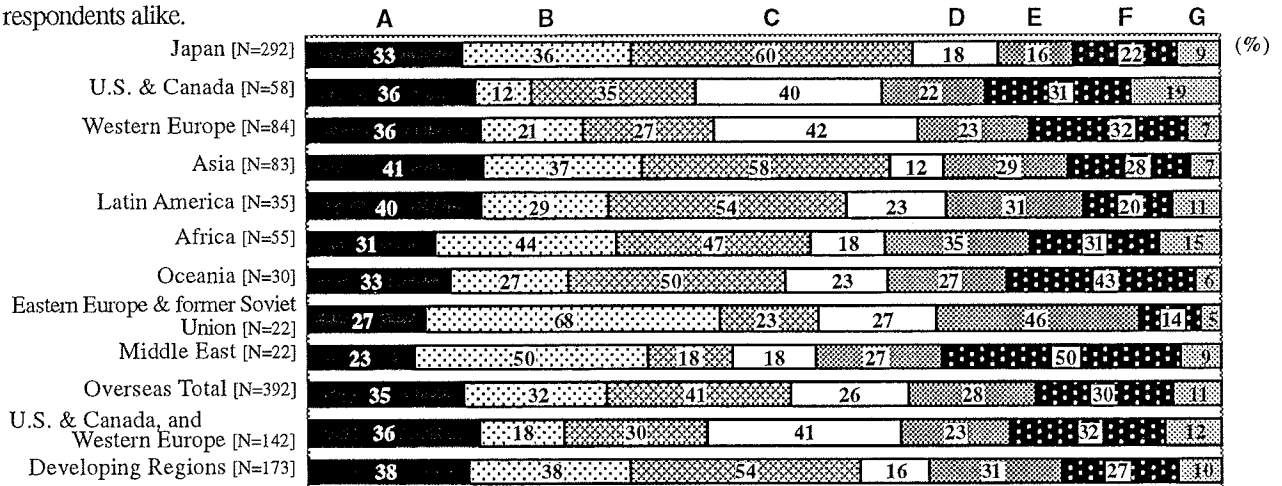
Note: Please note that the totals for the various regions should add up to 200% since respondents were asked to select two items. However, some respondents marked no items or only one item, causing the aggregate total to be less than 200%.

(Please see page 9 of the Questionnaire Report for more information.)

### (3) Method of Resolving Water Quality Problems

Although respondents from Japan, the developing regions and Oceania selected “Conservation of water reserve lands” most often as an important means of resolving water quality problems, respondents from North America and Western Europe thought it to be “Developing technologies to reduce harmful substances in agricultural wastes.”

“Enacting laws and regulations to maintain water quality” and “Building treatment facilities for drinking water and sewage” also received many responses in most regions, with a few exceptions, and ranked third or higher among overseas and Japanese respondents alike.



A=Enacting laws and regulations to maintain water quality B=Building treatment facilities for drinking water and sewage  
 C=Conservation of water reserve lands  
 D=Developing technologies to cheaply reduce pesticides and other harmful substances in agricultural waste  
 E=Developing wastewater treatment technologies to cheaply reduce harmful substances in industrial waste  
 F=Restraining abuses of water use to secure water volume G=Other & Don't know

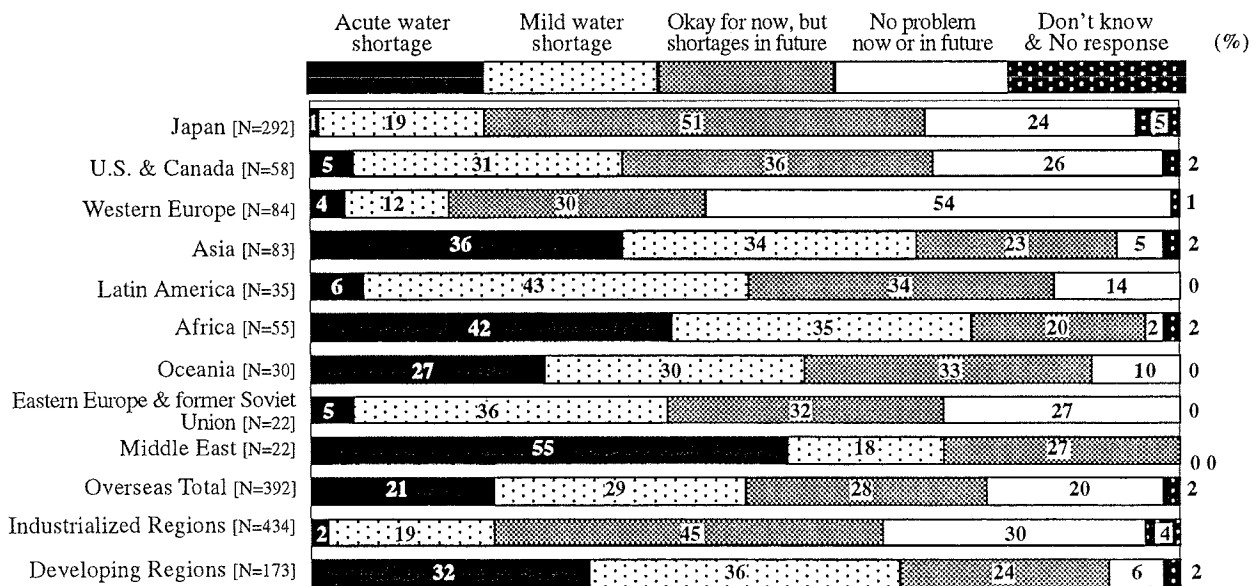
Note: Please note that the totals for the various regions should add up to 200% since respondents were asked to select two items. However, some respondents marked no items or only one item, causing the aggregate total to be less than 200%.

(Please see page 10 of the Questionnaire Report for more information.)

### (4) Combined Supply of Water for Daily Life, Agriculture and Industry

More than 70% of respondents from Asia, Africa and the Middle East believed there to be shortages (includes responses to both the “Acute” and “Mild” categories) in the total water supply for daily use, agriculture and industry.

The responses regarding water supplies differed significantly between regions. The responses for the “Okay for now, but shortages in future” and “shortages” categories were higher than 70% for all regions, excluding Western Europe, and were particularly high in developing nations, at 92% or more.

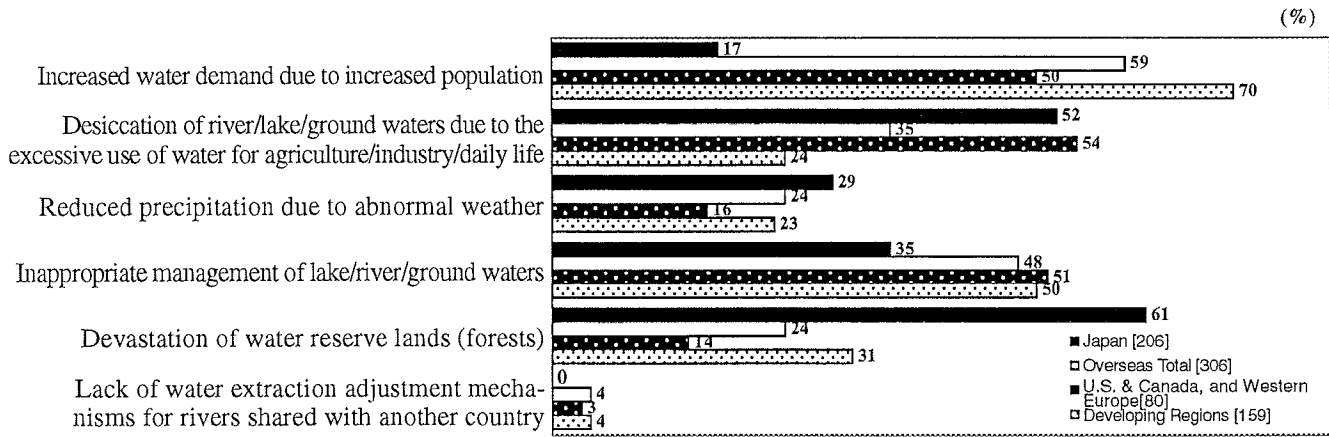


(Please see page 11 of the Questionnaire Report for more information.)

**(5) Cause of Water Shortages**

In contrast to “Increased water demand due to increased population” being cited by overseas respondents most often as the cause of water shortages, Japanese respondents selected “Devastation of water reserve lands” most often.

The second-ranked response among overseas respondents was “Inappropriate management of lake/river/ground waters.” Among Japanese respondents, “Desiccation of river/lake/ground waters” was ranked second, demonstrating a clear difference between the Japanese and overseas responses.



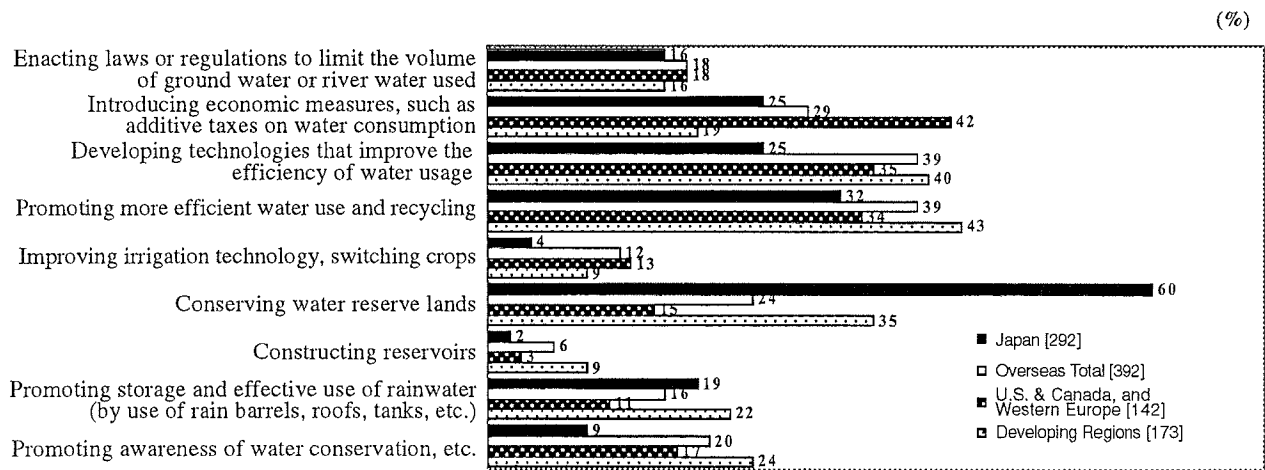
Note: Please note that the totals for the various regions should add up to 200% since respondents were asked to select two items. However, some respondents marked no items or only one item, causing the aggregate total to be less than 200%.

(Please see page 12 of the Questionnaire Report for more information.)

**(6) Measures to Solve Water Shortages**

The measures most often listed by overseas respondents as solutions to water supply problems were “Developing technologies that improve the efficiency of water usage” and “Promoting more efficient water use and recycling.” In Japan, the responses were overwhelmingly in favor of “Conserving water reserve lands.”

While very few Western Europeans and North Americans chose “Conservation of water reserve lands” relative to Japanese respondents, the high number of responses selecting the “Introducing economic measures, such as additive taxes on water consumption” category was striking.

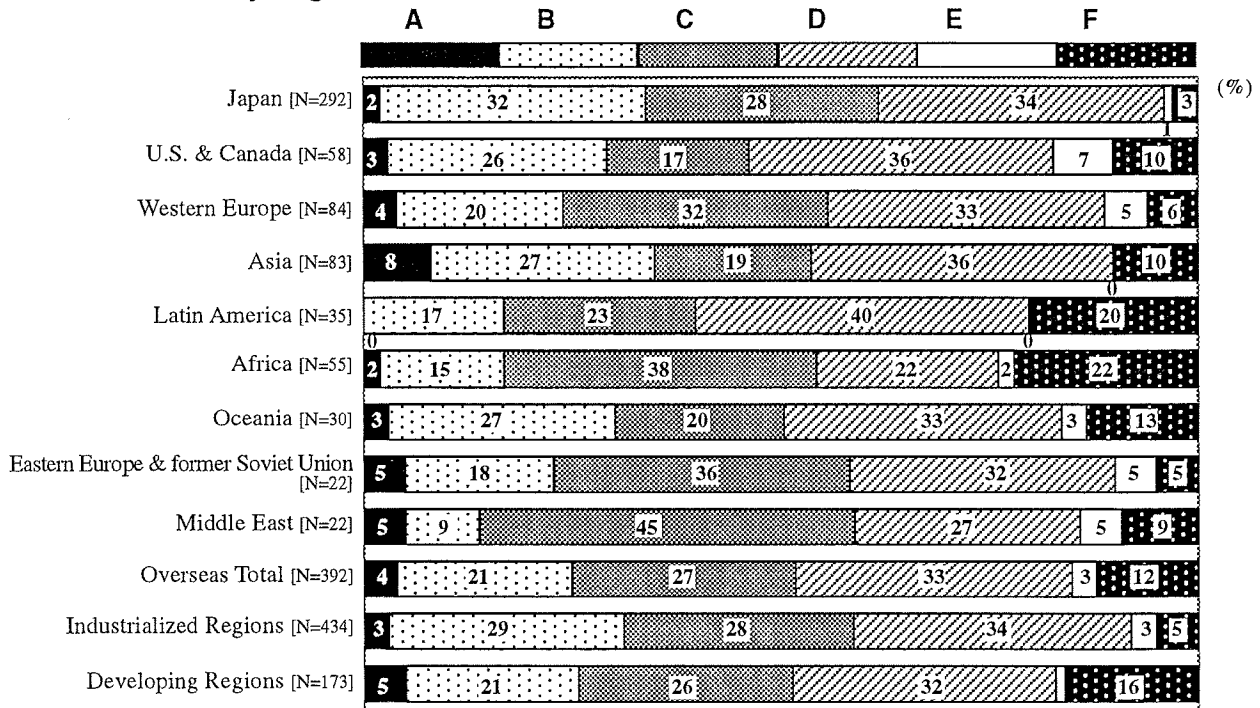


Note: Please note that the totals for the various regions should add up to 200% since respondents were asked to select two items. However, some respondents marked no items or only one item, causing the aggregate total to be less than 200%.

(Please see page 13 of the Questionnaire Report for more information.)

### 3. Endocrine disruptors

Almost all respondents were aware of problems with endocrine disruptors and only 4% of overseas respondents and 2% of Japanese respondents selected "I don't sense any urgent hazard."



A=Since the scientific basis for them is unclear, I don't sense any urgent hazard.

B=Since scientific revelations are ongoing, we should avoid using the chemicals currently thought to pose hazards.

C=It will be too late if we wait for scientific proof, so we should act prudently with regard to all synthetic chemicals.

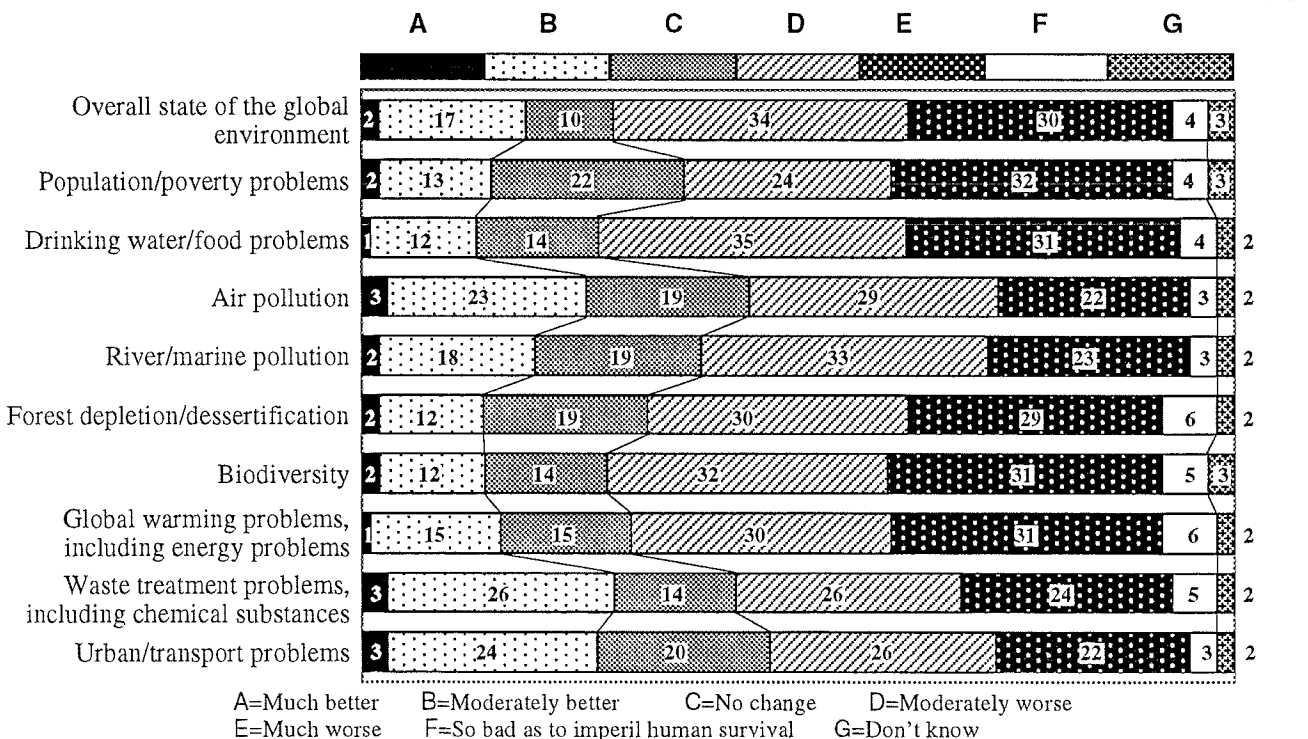
D=We should establish a stricter testing system for all existing and future synthetic chemicals and publish the test results.

E=Other F=Don't know.

(Please see page 14 of the Questionnaire Report for more information.)

### 4. 30-Year Prediction for the Global Environment

Sixty-eight percent of respondents predicted that the state of the environment in 30 years would be "Worse" (combined responses for the "Moderately worse," "Much worse" and "So bad as to imperil human survival" categories).



A=Much better B=Moderately better C=No change D=Moderately worse  
E=Much worse F=So bad as to imperil human survival G=Don't know

(Please see pages 15, 16, 17 of the Questionnaire Report for more information.)



## Indicator for Predictions of the Global Environment in 30 Years

Indicator (%) = (“Moderately worse” + “Much worse” + “So bad as to imperil human survival”) – (“Much better” + “Moderately better”)

Among overseas respondents, the categories for which the indicators were highest, indicating the most severe outlook, were “Global Warming problems” at 55%, followed by “Drinking water/food problems” at 49%. Among Japanese respondents, it was “Biodiversity” at 69%, followed by “Drinking water/food problems” at 67%.

Among North American and Middle Eastern respondents, there were many categories with indicators above 55%, indicating that there were many respondents with pessimistic outlooks for the future. Among respondents from Africa and Eastern Europe and the former Soviet Union, there were many categories with indicators of 25% or less, indicating that there were fewer respondents with pessimistic outlooks than in the other regions.

	Japan (292)	United States & Canada (58)	Western Europe (84)	Asia (83)	Latin America (35)	Africa (55)	Oceania (30)	Eastern Europe & former Soviet Union (22)	Middle East (22)	Overseas Total (392)	Industrialized Regions (142)	Developing Regions (173)	(%)
Overall state of the global environment	53	74	57	29	40	24	67	32	64	47	57	30	
Population/poverty problems	41	79	54	33	49	18	70	0	77	47	49	31	
Drinking water/food problems	67	73	58	41	52	26	53	14	77	49	66	38	
Air pollution	18	60	17	31	52	25	43	18	55	34	23	34	
River/marine pollution	40	54	24	39	51	47	37	5	64	39	39	44	
Forest depletion/dessertification	57	71	45	34	40	47	47	36	64	46	56	39	
Biodiversity	69	71	61	25	31	20	20	23	68	41	68	25	
Global warming problems, including energy problems	44	81	63	39	49	51	47	41	77	55	53	45	
Waste treatment problems, including chemical substances	33	48	11	21	14	22	37	-27	45	21	31	20	
Urban/transport problems	18	59	39	31	0	6	27	14	27	28	27	7	

more than 55%       less than 25%

(Please see pages 15, 16, 17 of the Questionnaire Report for more information.)

## II. Repeat Topics

### 1. Progress toward Agenda 21

The categories in which progress was thought to have been made by more than 60% of the overseas and Japanese respondents were the "Promotion of environmental education," and "Activities by local governments and citizens' groups." The categories thought to have made little progress included "Lifestyle alteration" and "Population and poverty problems," which were selected by less than 30% of respondents.

Perceived Progress\*

	Japan (N=292)	United States & Canada (N=58)	Western Europe (N=84)	Asia (N=83)	Latin America (N=35)	Africa (N=55)	Oceania (N=30)	Eastern Europe & former Soviet Union (N=22)	Middle East (N=22)	Overseas Total (N=392)	(%)
Promotion of environmental education	67	74	81	88	80	84	80	91	77	82	
Activities by local governments and citizens' groups	70	79	80	72	77	65	90	91	64	76	
Environmental measures by industry	68	62	76	47	40	40	60	45	45	55	
Scientific and technological contributions	69	71	63	51	17	42	53	45	36	51	
Formation of recycling systems	66	79	75	42	26	22	73	23	36	51	
Greenhouse gas prevention measures	11	48	51	55	49	65	43	23	45	51	
Conservation of forest resources	11	34	40	55	57	60	50	45	41	48	
Conservation of biodiversity	25	21	49	36	17	22	40	27	14	32	
Population and poverty problems	16	14	24	41	14	38	33	9	45	28	
Lifestyle alteration	7	5	12	27	6	15	33	32	18	17	

○ more than 60%      □ less than 30%

Note: \*Progress is calculated as the combined total of the 'Significant progress' and 'Some progress' categories.

As in past years, the results this year were compared with the 1996 survey results from five years ago. Among overseas respondents, all the categories evaluated as having made progress received less than 4 points, while in Japan the five categories at the top that were evaluated as having made progress received more than 15 points, showing a higher increase. The ratings for "Lifestyle alteration" among both overseas and Japanese respondents worsened this year.

Comparison of Differences between 1996 and 2001

	Japan	United States & Canada	Western Europe	Asia	Latin America	Africa	Oceania	Eastern Europe & former Soviet Union	Middle East	Overseas Total	(%)
Promotion of environmental education	+18	-14	+15	+17	+3	-4	-11	-3	-14	+4	
Activities by local governments and citizens' groups	+17	+3	+1	+7	+3	-10	+4	+22	+9	+3	
Environmental measures by industry	+15	+5	+22	-1	-3	-7	-11	+2	-18	+3	
Scientific and technological contributions	+19	0	+2	-2	-29	-8	-18	-5	-45	-7	
Formation of recycling systems	+18	-15	+5	+6	+3	-13	+16	-9	-9	-3	
Greenhouse gas prevention measures	-3	+13	+13	0	-3	-16	-42	-21	+9	0	
Conservation of forest resources	-5	-15	-1	+9	+6	-15	-17	-11	-23	-3	
Conservation of biodiversity	+6	-11	+23	+4	-6	-25	+2	+2	-5	+1	
Population and poverty problems	+2	-8	+16	-2	-23	-6	+14	-3	+27	+2	
Lifestyle alteration	-9	-24	-14	+6	-14	+2	-10	+13	-9	-7	

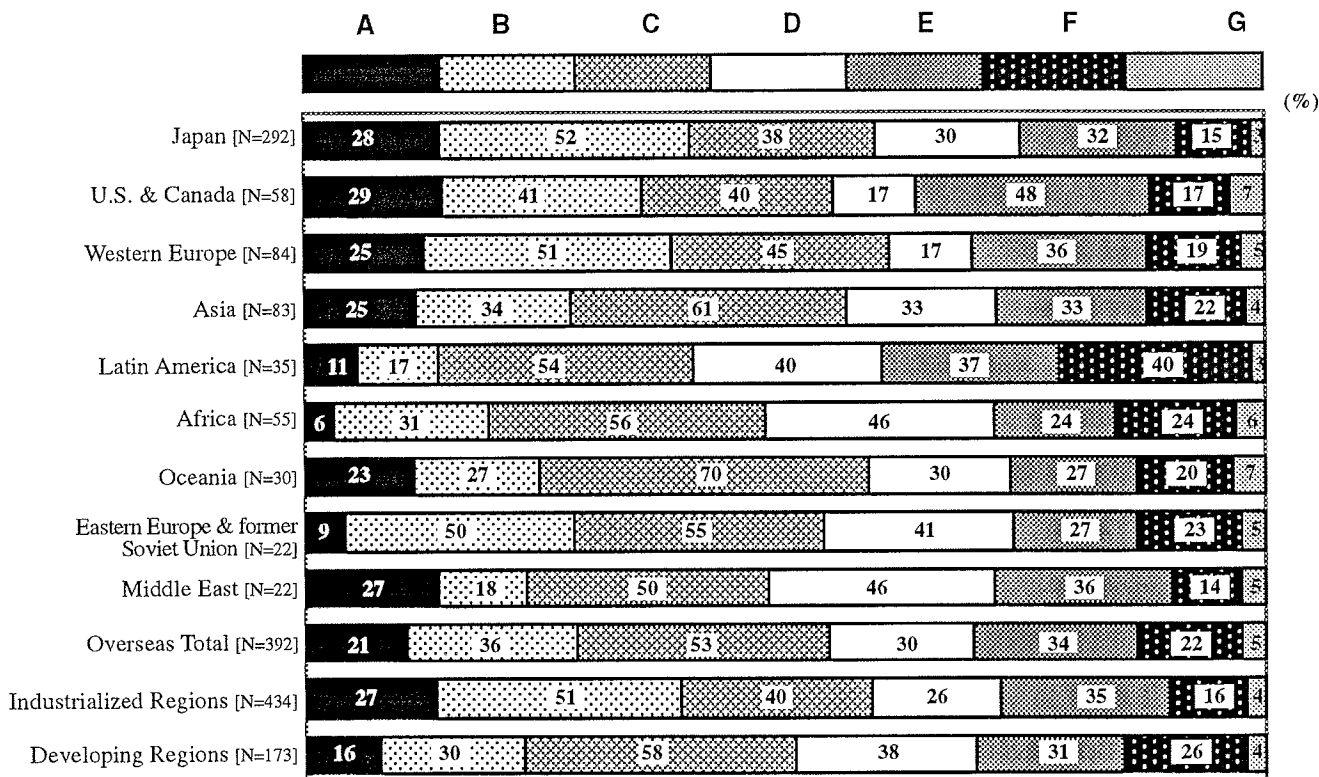
Note: A circle indicates the highest ratings and a square indicates the lowest.

(Please see pages 18 and 19 of the Questionnaire Report for more information.)

## 2. Changes in Lifestyle

Among the developing regions, “To introduce environmental taxes” was most often cited as a system for changing lifestyles. “To make it easy for consumers to purchase green products” was the response favored overwhelmingly in all the other regions.

The fact that a majority of North American respondents selected “To expand transport systems that reduce automobile use” caught our attention.



- A=To make lighting, air conditioning and water, costs progressively higher above a set consumption level
- B=To introduce environmental taxes
- C=To make it easy for consumers to purchase green products
- D=To promote recycling and expand used goods markets
- E=To expand transport systems that reduce automobile use
- F=To introduce incentives for environmentally friendly houses and long-lasting housing
- G=Other

Notes: Please note that the totals for the various regions should add up to 200% since respondents were asked to select two items. However, some respondents marked no items or only one item, causing the aggregate total to be less than 200%.

(Please see page 20 of the Questionnaire Report for more information.)