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**For Immediate Release**

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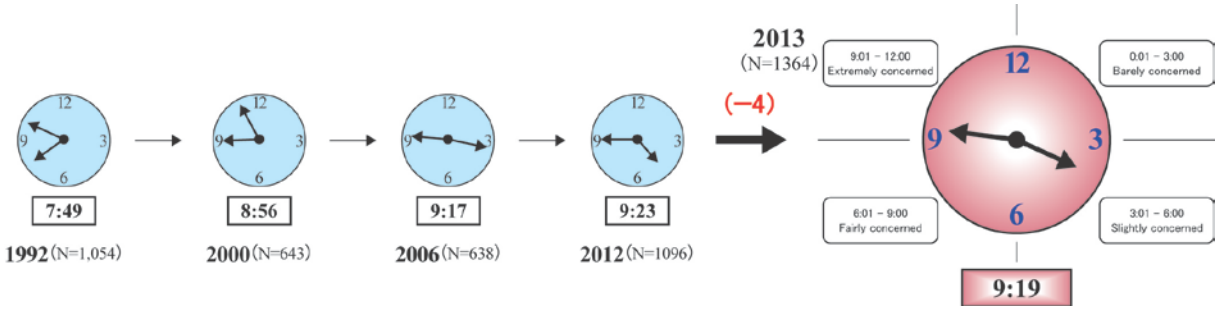
# The Asahi Glass Foundation Announces Results of the 22nd Annual "Questionnaire on Environmental Problems and the Survival of Humankind"

- The average time on the Environmental Doomsday Clock for all respondents was 9:19, indicating a similar level of crisis as last year. Compared to last year, the needle advanced in the United States & Canada, Asia excluding Japan, and Eastern Europe & the former Soviet Union, but in all other regions, the time retreated. Like in previous years, all regions were in the "extremely concerned" quadrant.
- Overall, "climate change" was most frequently selected as the top environmental condition of concern in determining the time on the Environmental Doomsday Clock. "Biodiversity" showed the most advanced time by far among the environmental conditions selected by the respondents.
- On strategies desired of government agencies to alleviate urban environmental problems, respondents most frequently selected regulatory and standards-based solutions, followed by infrastructure improvements.
- Respondents overall most frequently indicated that the most important policy to achieve sustainable cities was "renewable energy technology."
- On the most important approach to urban environmental problems given the increase in the world's urban population, respondents overall most frequently selected "solutions to urban environmental problems that align with developing region realities," while "active involvement of central government and the U.N. on urban environmental problems" attracted the least support.

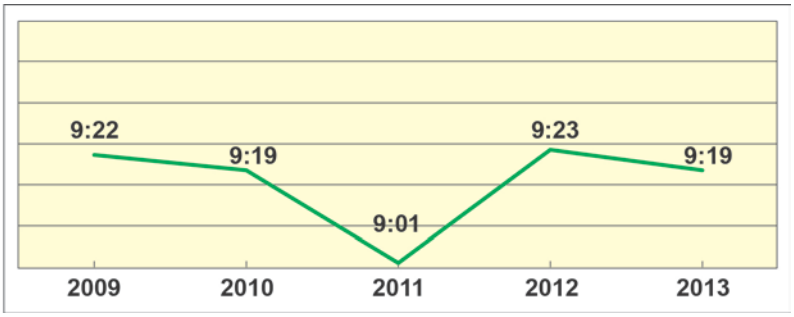
The Asahi Glass Foundation (Chairman: Tetsuji Tanaka) has conducted surveys with environmental experts around the world each year since 1992. This year, the Foundation received 1,364 responses from 56 countries. The following are the major findings of the survey.

## 1. Awareness of the Crisis Facing Human Survival - The Environmental Doomsday Clock

・ The average global time on the Environmental Doomsday Clock was 9:19, a 4-minute reversal from last year, and the same time as in 2010.



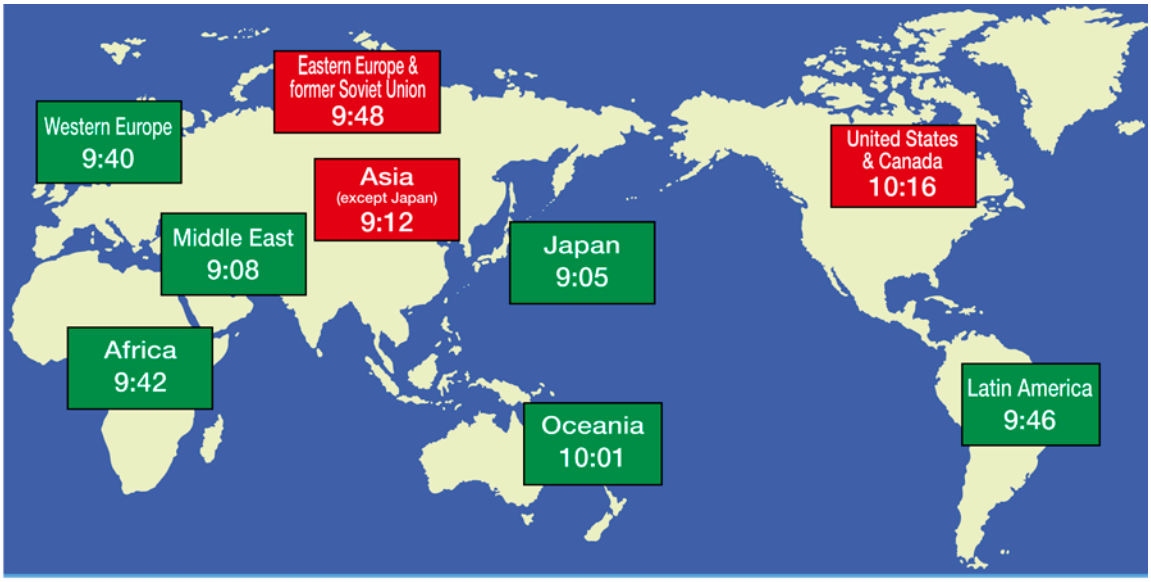

**Change over the years in the Environmental Doomsday Clock**




**The trend in the Environmental Doomsday Clock (2009 – 2013)**

**Regional Times**

・The needle advanced from last year in three regions: 36 minutes in Eastern Europe & the former Soviet Union (9:12 to 9:48), 22 minutes in the United States & Canada (9:54 to 10:16), 9 minutes in Asia excluding Japan (9:03 to 9:12). Of the 9 regions in the survey, 6 saw a reversal in the time, indicating improvements. Yet, all regions were in the “extremely concerned” quadrant.

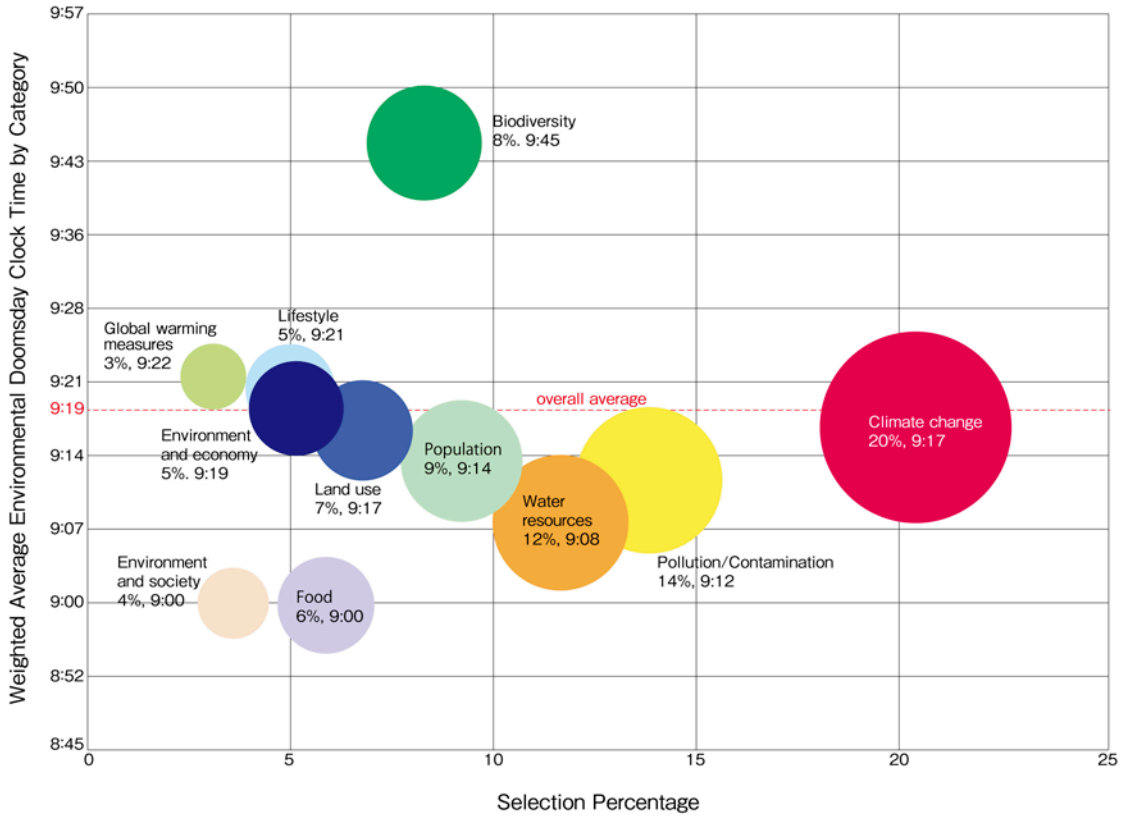



(Red indicates the advancement in time from last year; green indicates reversal)

**Environmental Conditions of Concern**

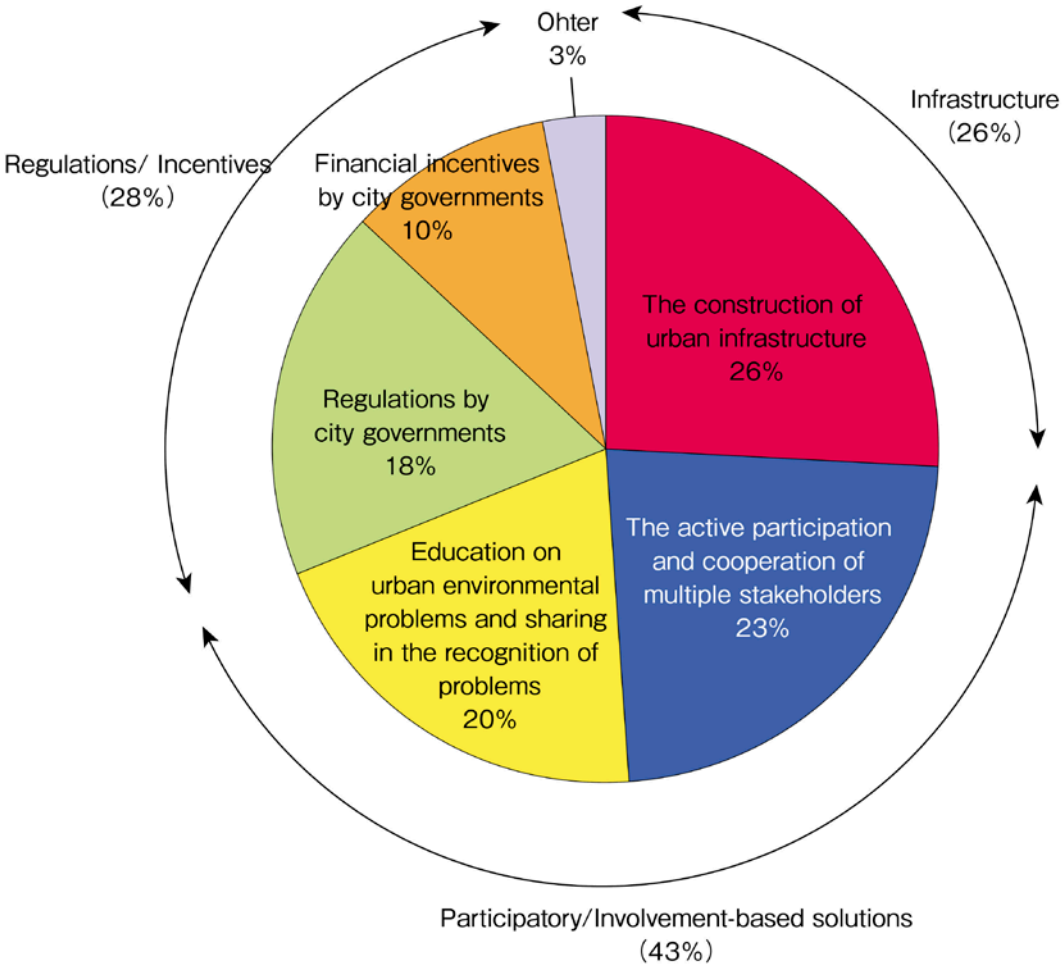
・Regarding the environmental conditions of concern in determining the time on the Environmental Doomsday Clock (ranked 1 – 3), “climate change” was most frequently selected at 20%, followed by “pollution/contamination” at 14%, “water resources” at 12%, and “population” at 9%.

・Of the environmental conditions of concern, “biodiversity” had by far the most advanced time on the Doomsday Clock, at 9:45, followed by “climate change” at 9:22 and “lifestyle” at 9:21. All 11 categories were in the “extremely concerned” quadrant, including the categories associated with the lowest sense of crisis, “environment and society,” and “food.”



## 2. Cities and Environmental Problems

・Respondents selected at similar rates “the construction of urban infrastructure” (26%), followed by “the active participation and cooperation of multiple stakeholders” (23%), and “education and sharing in the recognition of problems” (20%).



1. Elements of Improving the Urban Environment

・By region, respondents in the Middle East, Oceania, Taiwan, United States & Canada, Western Europe, China, and Japan ranked “the construction of urban infrastructure” as the most important element in improving the urban environment. On the other hand, the “active participation and cooperation of multiple stakeholders” was most frequently selected in Eastern Europe & the former Soviet Union, Africa, India, United States & Canada, and the Asian Region, whereas respondents in South Korea most frequently selected “education and sharing in the recognition of problems.”

| | Important Elements in Improving the Urban Environment in the Country or Region | | | | | |
|---|---|---|---|---|---|---|
| | Infrastructure (26%) | Participatory/Involvement-based solutions (43%) | | Regulations/ Incentives (28%) | | Ohter |
| | The construction of urban infrastructure | The active participation and cooperation of multiple stakeholders | Education on urban environmental problems and sharing in the recognition of problems | Regulations by city governments | Financial incentives by city governments | |
| Total | 26 | 23 | 20 | 18 | 10 | 3 |
| United States & Canada | 27 | 27 | 15 | 17 | 8 | 7 |
| Latin America | 24 | 26 | 21 | 14 | 12 | 3 |
| Western Europe | 27 | 23 | 16 | 20 | 8 | 6 |
| Eastern Europe & former Soviet Union | 27 | 39 | 5 | 16 | 11 | 2 |
| Africa | 20 | 31 | 20 | 20 | 6 | 3 |
| Middle East | 38 | 19 | 6 | 19 | 19 | 0 |
| India | 20 | 30 | 20 | 20 | 10 | 0 |
| China | 27 | 22 | 16 | 22 | 12 | 1 |
| Taiwan | 32 | 13 | 24 | 22 | 9 | 1 |
| Korea | 23 | 24 | 30 | 18 | 2 | 1 |
| Japan | 25 | 23 | 24 | 14 | 11 | 4 |
| Asian Region* | 18 | 27 | 21 | 24 | 5 | 5 |
| Oceania | 37 | 23 | 10 | 20 | 7 | 3 |

*With the exception of India, China, Taiwan, Korea, and Japan (Red indicates the top-ranked response while the blue indicates the second-ranked response. However, where two responses tied for the first rank, the second rank is not colored in)

2. Measures and Policies by Government Agencies to Lower Environmental Burdens

・Overall, respondents most frequently selected regulatory and standards-based solutions, at 36%, followed by Infrastructure (27%), the use of natural resources (19%), and other measures (14%).

| | Desirable Elements in Measures and Strategies by Government Agencies to Mitigate Environmental Burden | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Nature (19%) | | Regulations/Standards (36%) | | | | | Infrastructure (27%) | | | Others (14%) | | |
| | Urban planning that strongly incorporates nature | Urban greening (of roofs, walls, train tracks) | Stringent standards regulating discharge of gas, water, and waste from factories, offices, homes | Stringent standards for auto emissions and energy waste | Energy conservation standards for city buildings and structures (insulation of walls, roofs, and windows, greening of roofs) | Incentives for energy conservation products and construction | Labeling energy conservation products | Improvements in electricity infrastructure | Optimization of transportation networks and transportation information systems | Improvements in waste/waste water treatment infrastructure | Strengthening environmental education (energy/resource conservation, pollution prevention) | Strengthening anti-poverty measures | Other |
| Total | 13 | 6 | 12 | 9 | 8 | 5 | 2 | 9 | 9 | 9 | 10 | 4 | 4 |
| United States & Canada | 14 | 5 | 9 | 8 | 11 | 6 | 1 | 10 | 14 | 4 | 6 | 6 | 4 |
| Latin America | 12 | 6 | 11 | 7 | 4 | 5 | 1 | 4 | 16 | 9 | 12 | 12 | 1 |
| Western Europe | 14 | 6 | 10 | 10 | 15 | 4 | 3 | 6 | 10 | 5 | 9 | 5 | 2 |
| Eastern Europe & former Soviet Union | 9 | 9 | 12 | 6 | 12 | 6 | 5 | 5 | 11 | 8 | 8 | 9 | 2 |
| Africa | 10 | 6 | 14 | 3 | 4 | 8 | 3 | 10 | 5 | 9 | 14 | 12 | 0 |
| Middle East | 8 | 4 | 21 | 0 | 8 | 13 | 8 | 8 | 8 | 8 | 4 | 8 | 0 |
| India | 15 | 7 | 15 | 3 | 3 | 3 | 3 | 3 | 5 | 18 | 12 | 8 | 2 |
| China | 10 | 8 | 13 | 16 | 7 | 6 | 1 | 3 | 8 | 14 | 7 | 3 | 0 |
| Taiwan | 15 | 5 | 17 | 8 | 3 | 5 | 7 | 11 | 5 | 9 | 11 | 4 | 0 |
| Korea | 7 | 6 | 19 | 24 | 17 | 4 | 2 | 4 | 3 | 7 | 5 | 2 | 2 |
| Japan | 15 | 6 | 11 | 6 | 8 | 5 | 2 | 14 | 9 | 8 | 11 | 3 | 2 |
| Asian Region* | 11 | 7 | 12 | 5 | 7 | 6 | 1 | 5 | 10 | 14 | 12 | 9 | 1 |
| Oceania | 13 | 2 | 18 | 7 | 16 | 2 | 4 | 13 | 9 | 4 | 4 | 4 | 2 |

*With the exception of India, China, Taiwan, Korea, and Japan (Red indicates the top-ranked response while the blue indicates the second-ranked response. However, where two responses tied for the first rank, the second rank is not colored in)

3. Important Elements in Technologies, Products, and Systems to Achieve Sustainable Cities

・Classifying the responses into broad categories revealed that 45% of the respondents selected solutions related to moving towards a recycling society, and Electricity and power generation (19%), as well as Transportation Systems (19%).

・By individual category, respondents most frequently selected “Recyclable energy technology” (23%).

| | Important technology, product, or system for achieving $CO_2$ reductions and sustainable cities | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Generation/recovery of resources | | | Limiting the use of resources (reduce output) | | | | | | | | |
| | Orienting towards a recycling society (45%) | | | Electricity and power generation (19%) | | | Transportation Systems (19%) | | Other technology (15%) | | | |
| | Recyclable energy technology | Recovering resources from waste from factory/office/home | Recovering exhaust heat from water and gas emissions from factory/office/home | Energy conservation products | Smart grid systems | Home energy storage technology | Public transportation systems | Automotive transportation management systems | Low pollution automotive engines | Insulation technologies | Permeable pavement technologies | Other |
| Total | 23 | 11 | 11 | 9 | 6 | 4 | 14 | 5 | 9 | 4 | 2 | 1 |
| United States & Canada | 24 | 9 | 6 | 8 | 5 | 3 | 18 | 3 | 11 | 5 | 2 | 4 |
| Latin America | 23 | 12 | 7 | 9 | 4 | 1 | 24 | 6 | 13 | 0 | 1 | 0 |
| Western Europe | 23 | 8 | 7 | 10 | 5 | 5 | 22 | 3 | 10 | 7 | 0 | 1 |
| Eastern Europe & former Soviet Union | 21 | 12 | 3 | 12 | 3 | 9 | 12 | 5 | 12 | 6 | 2 | 3 |
| Africa | 25 | 9 | 7 | 15 | 4 | 6 | 14 | 8 | 10 | 0 | 0 | 1 |
| Middle East | 29 | 8 | 13 | 4 | 0 | 4 | 25 | 4 | 8 | 4 | 0 | 0 |
| India | 23 | 15 | 7 | 15 | 2 | 3 | 13 | 3 | 10 | 2 | 2 | 0 |
| China | 21 | 13 | 17 | 9 | 3 | 3 | 11 | 5 | 13 | 2 | 1 | 0 |
| Taiwan | 18 | 5 | 17 | 9 | 7 | 0 | 14 | 6 | 15 | 5 | 4 | 0 |
| Korea | 26 | 15 | 10 | 11 | 2 | 3 | 13 | 2 | 9 | 7 | 0 | 1 |
| Japan | 24 | 12 | 10 | 7 | 9 | 5 | 12 | 5 | 5 | 5 | 2 | 2 |
| Asian Region* | 22 | 13 | 9 | 12 | 3 | 2 | 21 | 7 | 8 | 1 | 2 | 0 |
| Oceania | 20 | 7 | 9 | 13 | 4 | 4 | 22 | 0 | 9 | 4 | 0 | 7 |

*With the exception of India, China, Taiwan, Korea, and Japan (Red indicates the top-ranked response while the blue indicates the second-ranked response. However, where two responses tied for the first rank, the second rank is not colored in)

4. Important Urban Environmental Policies Given Rise in Global Urban Population

Overall, respondents most frequently selected “solutions to urban environmental problems that align with developing region realities” at 25%, while on the other hand, “active involvement of central governments and the U.N. on urban environmental problems” ranked the lowest, at 6%.

| | Important elements when considering future responses to the world's urban environmental problems | | | | | | |
|---|---|---|---|---|---|---|---|
| | Approaches (35%) | | Societal policies (39%) | | Outside aid (24%) | | |
| | Solutions to urban environmental problems that align with developing region realities | Urban environmental governance that sufficiently considers effects on neighboring ecosystems | Solution of urban poverty | Environmental education | Technological transfers and sharing of know-how of excellent environmental and anti-pollution measures | Active involvement of central government and the U.N. on urban environmental problems | Other |
| Total | 25 | 10 | 22 | 17 | 18 | 6 | 2 |
| United States & Canada | 29 | 12 | 20 | 11 | 14 | 4 | 10 |
| Latin America | 26 | 12 | 17 | 21 | 16 | 4 | 4 |
| Western Europe | 28 | 7 | 22 | 17 | 18 | 4 | 5 |
| Eastern Europe & former Soviet Union | 14 | 7 | 23 | 25 | 18 | 11 | 2 |
| Africa | 21 | 8 | 27 | 21 | 18 | 3 | 2 |
| Middle East | 19 | 13 | 19 | 25 | 25 | 0 | 0 |
| India | 20 | 13 | 18 | 20 | 25 | 3 | 3 |
| China | 17 | 12 | 26 | 15 | 25 | 5 | 1 |
| Taiwan | 26 | 16 | 18 | 20 | 15 | 5 | 0 |
| Korea | 36 | 10 | 24 | 9 | 15 | 6 | 0 |
| Japan | 28 | 8 | 20 | 19 | 16 | 8 | 1 |
| Asian Region* | 27 | 10 | 24 | 14 | 17 | 7 | 1 |
| Oceania | 30 | 13 | 20 | 13 | 13 | 7 | 3 |

*With the exception of India, China, Taiwan, Korea, and Japan (Red indicates the top-ranked response while the blue indicates the second-ranked response. However, where two responses tied for the first rank, the second rank is not colored in)

The survey includes a Comments section in which respondents are invited to write about environmental problems in their countries, their opinions, and solutions. This year, we surpassed what was a record year last year in the number of comments we received since the inception of the survey, totaling 280 respondents in 55 countries around the world as well as 296 respondents in Japan, for a total of 578. These comments are published with the full report, “Results of the 22nd Annual Questionnaire on Environmental Problems and the Survival of Humankind.”

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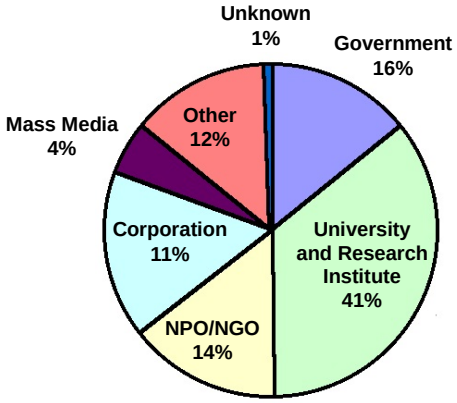
## Appendi x

**• About the "Questionnaire on Environmental Problems and the Survival of Humankind"**

Since 1992, the Asahi Glass Foundation has conducted a survey each year with experts around the world who are knowledgeable and are involved in environmental issues. The respondent pool includes government officials and members of academia and research institutions, nongovernmental organizations, corporations and mass media. These experts are queried about various endeavors to counter environmental problems. (The survey is advised by Professor Akio Morishima, Special Research Advisor of the Institute for Global Environmental Strategies and board member of the Foundation.) The questionnaires are sent out to approximately 9,000 respondents in April and collected by June. After the responses are compiled, compared, and analyzed, the survey results are announced in September. The report is available in Japanese, English, Chinese, and Spanish. The pie chart below shows the affiliation of the questionnaire respondents in descending order. The questionnaire was sent to respondents in 171 countries including Japan, with responses returning from 56countries.




**Number of Countries Surveyed**

| Regions | Countries |
|---|---|
| U.S.A & Canada | 2 |
| Latin America | 29 |
| Western Europe | 21 |
| Eastern Europe & former Soviet Union | 26 |
| Africa | 46 |
| Middle East | 15 |
| Asia | 22 |
| Oceania | 9 |
| Japan | 1 |
| Total | 171 |

**• Facts about This Year's Questionnaire**

Survey period: Questionnaires were sent out in April 2013 with a return deadline of June 2013
Questionnaire respondent pool: Environmental experts selected from members of government organizations, academic and research institutions, NGOs, corporations, and mass media. (based on the Asahi Glass Foundation database)
Questionnaires mailed: 9,027 (7,836 to 171 countries and 1,191 within Japan)
Questionnaires returned: 1,364
Response rate: 15.1%

**Breakdown of respondents by region, gender, and occupational affiliation:**

| Region | Number of responses | Percent of total |
|---|---|---|
| United States & Canada | 107 | 7.8 |
| Latin America (Central, Caribbean, South) | 38 | 2.8 |
| Western Europe | 108 | 7.9 |
| Eastern Europe & former Soviet Union | 22 | 1.6 |
| Africa | 33 | 2.4 |
| Middle East | 8 | 0.6 |
| India | 22 | 1.6 |
| China | 278 | 20.4 |
| Taiwan | 78 | 5.7 |
| Korea | 46 | 3.4 |
| Japan | 566 | 41.5 |
| Asian Region (Except India, China, Taiwan, Korea, Japan) | 40 | 2.9 |
| Oceania | 15 | 1.1 |
| Total (Including three area unknown responses) | 1364 | 100.0 |