



**Results of the 28th Annual  
“Questionnaire on Environmental Problems and the Survival of  
Humankind”**

Report

September 2019

**THE ASAHI GLASS FOUNDATION**

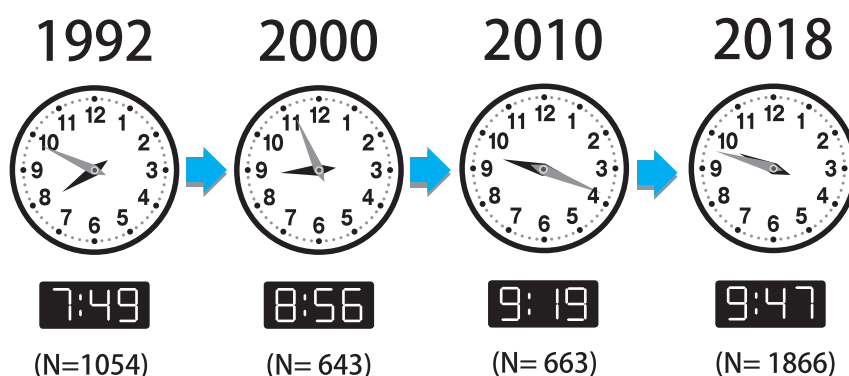
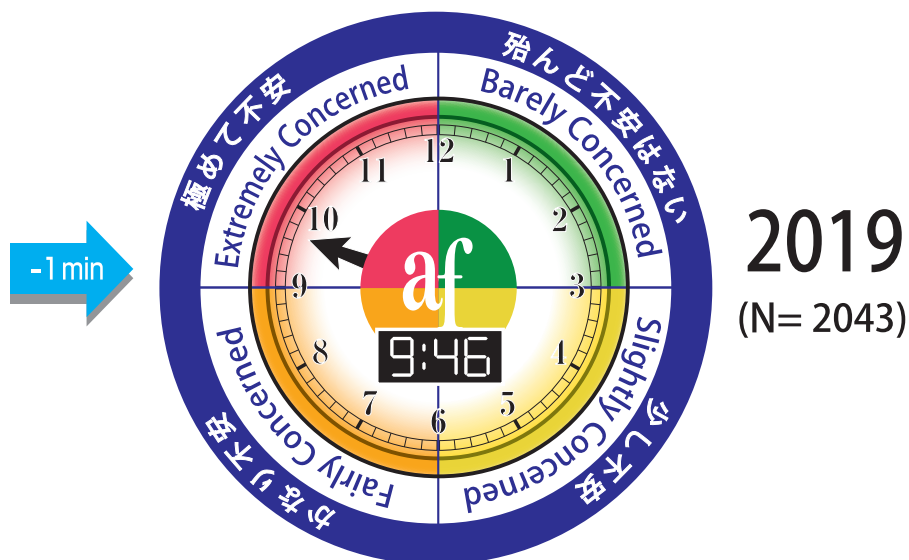


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## The Environmental Doomsday Clock

the sense of crisis felt about the continuance of the human race



## Foreword

This report summarizes the results of the 2019 Questionnaire on Environmental Problems and the Survival of Humankind, a survey conducted annually by the Asahi Glass Foundation since 1992. As in previous years, the Asahi Glass Foundation wishes to continue communicating the current thoughts and opinions of environmental experts around the world on the state of the global environment to as many people as possible.

Thanks to the cooperation of the participants, we received 2,072 responses to the questionnaire this year. (1,866 responses in 2018) We would like to express our gratitude for the opportunity to report once again this year on an environmental survey covering most regions of the world.

This year, the Environmental Doomsday Clock shows 9:46. Last year, it was 9:47, which remains the most advanced time indicated since the start of the questionnaire. The time this year is one minute earlier, but the sense of crisis is at the same level as then.

At the same time, introduced for the first time this year are questions about whether we perceive signs of improvements in terms of approaches to environmental issues, with consideration to “Public Awareness,” “Policies, Legal System,” and “Funds, Human Resources, Technologies, and Facilities” as elements of social infrastructure. We received a large number of responses and almost half of respondents provided strong opinions and comments.

As in the previous fiscal year, we will post comments from respondents in each country on the website of the Asahi Glass Foundation.

<https://www.af-info.or.jp/en/questionnaire/result.html>

Please refer to the views and opinions of environmental experts.

At the Foundation, we sincerely hope that we can contribute to the resolution of environmental problems using this questionnaire to raise environmental interest among as many people as possible, not limited to environmental experts.

Once again, we extend our deepest gratitude to the respondents for taking the time to share their valuable opinions and experience through the survey. In closing, we appeal to readers of this report for advice on how to enhance the survey in the coming years.

The Asahi Glass Foundation  
September 2019

# I. Facts about the 28th Annual “Questionnaire on Environmental Problems and the Survival of Humankind”

**Response period:** Questionnaires were sent out in April 2019 with a return deadline of June 2019.

**Questionnaire respondent pool:** Environmental experts selected from members of government organizations, academic institutions, NGOs, corporations, and mass media (based on the Asahi Glass Foundation database).

**Questionnaires mailed:** 27,642

**Questionnaires returned:** 2,072

**Response rate:** 7.5%

**Table 1. Breakdown of respondents by region, gender, and occupational affiliation:**

<b>Region</b>	<b>Number of responses</b>	<b>Percent of total</b>
Oceania	71	3.4
USA & Canada	232	11.2
Central America, Caribbean countries	64	3.1
South America	115	5.6
Western Europe	224	10.8
Africa	131	6.3
Middle East	40	1.9
Eastern Europe & former Soviet Union	39	1.9
Asia	1156	55.8
<b>Total</b>	<b>2072</b>	<b>100.0</b>

<b>Occupational Affiliation</b>	<b>Number of responses</b>	<b>Percent of total</b>
Central government, Local government	244	11.8
University or research institution	682	32.9
NGO/NPO	438	21.1
Corporation	389	18.8
Mass Media	48	2.3
Other	266	12.8
No response	5	0.2
<b>Total</b>	<b>2072</b>	<b>100.0</b>

\*1 Unless otherwise noted, the questionnaire calculated as 100% the total number of responses received for questions where respondents were only asked to choose one item. For questions with multiple selections, the questionnaire calculated the percentages based on the number of times a valid response was given.

\*2 Figures have been rounded to the first or second decimal places.

\*3 Each question was calculated based on the number of responses to that question and not the number of questionnaires that were returned.

## II. Summary of Questionnaire Results

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

- The average time of the Environmental Doomsday Clock for the whole world is 9:46, which is one minute earlier than last year. Last year’s time represented the highest sense of environmental crisis since the survey began in 1992, and this year’s results are virtually the same.
- Overall, “Climate change” continued from last year to be the most frequently selected “Environmental issues to be taken into account” in determining the time on the Environmental Doomsday Clock. This was followed by “Biosphere Integrity (Biodiversity),” “Society, Economy and Environment Policies, Measures,” “Water Resources,” “Biochemical flows (Pollution/Contamination),” “Population,” “Lifestyles (Consumption Habits),” and “Land-System Change (Land Use).”
- Overall, when arranging the top-ranked “Environmental issues to be taken into account” in descending order of severity on the Environmental Doomsday Clock, “Biosphere Integrity (Biodiversity)” had the most advanced time. It was followed by “Population,” “Lifestyles (Consumption Habits),” “Climate Change,” then “Society, Economy and Environment Policies, Measures,” “Water resources,” and “Biochemical flows (Pollution/Contamination).”
- “Food,” which had significantly advanced since 2016, was 9:39, 33 minutes earlier than in 2018.

### 2. Awareness of Signs of Improvements in the Approach to Environmental Issues: Comparison with Prior to the Adoption of the Paris Agreement and the SDGs in 2015

- We asked about awareness of signs of improvements in the approach to environmental issues under the categories of transition to a decarbonized society and “Environmental Issues to Be Taken into Account,” from the three perspectives of “Public Awareness,” “Policies, Legal System,” and social infrastructure, “Funds, Human Resources, Technologies, and Facilities.”
- With regard to the transition to a decarbonized society, some signs of improvement were noted, but the results showed that the advances for “Policies, Legal System,” and social infrastructure, “Funds, Human Resources, Technologies, and Facilities” were less pronounced than for “Public Awareness.”
- The items most commonly identified as showing signs of improvements were “Climate Change” at 25%, “Society, Economy and Environment, Policies, Measures” at 17%, and “Lifestyles” at 13%. The response “There are no sign of improvements at all” was at 17%.
- There were characteristic differences depending on county or region with regard to the relationship between “Public Awareness” and “Policies and Legal System” for both responses.

### III. Questionnaire Results

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

In Table2(page7), “Environmental issues to be taken into account” are shown. Keeping in mind the problems that the environment faces at a global level, please select the three most pressing issues for the country or the region where you reside. Then, please rank them in the order of importance. Lastly, for each item, select a time using hours and minutes between 0:10 to 12:00, to indicate the level of crisis for that issue. For the purposes of calculating results, please select your times in units of 10 minutes.

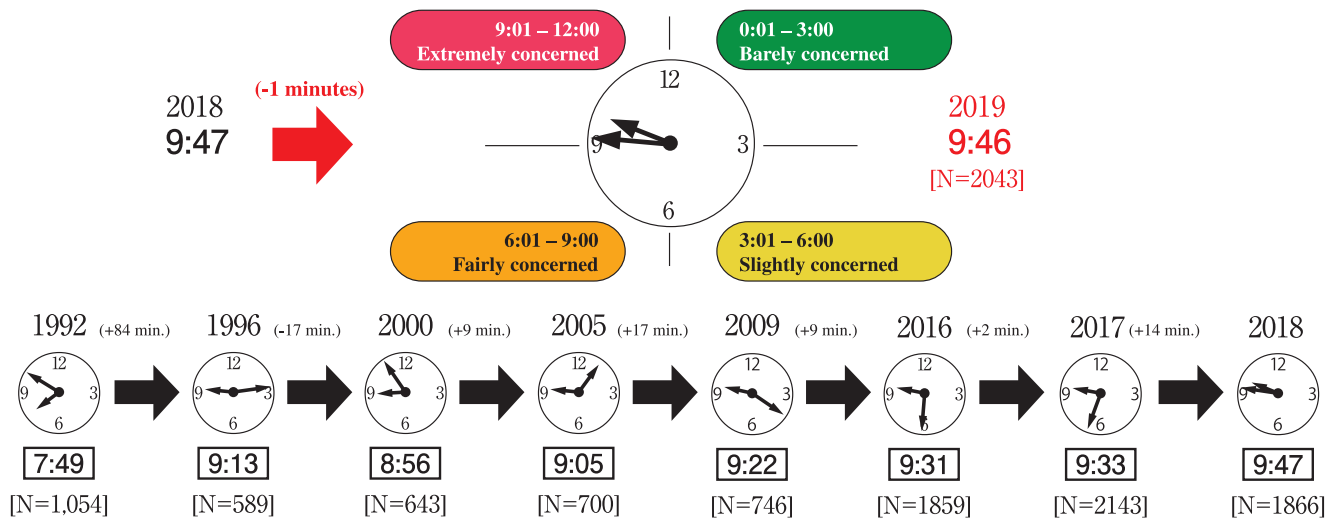
About the calculation of the time on the Environmental Doomsday Clock

The time on the Environmental Doomsday Clock will be determined by taking the weighted average of the data. The issue ranked in first place will be weighted at 50%, second place at 30%, and third place at 20%.

In case of two valid responses, they will be weighted 62.5% and 37.5%, and 100% when it is only one.

#### A-1. The Environmental Doomsday Clock

Fig.1 Concern about Human Survival Prospects



	Changes in time from year to year			Changes in average time by region (min.)	
	'09 → '18	'18 → '19	'19	'09→'19	'18→'19
Total	9:22 → 9:47	9:47 → 9:46	9:46	+24	-1
Oceania	10:10 → 10:03	10:03 → 10:31	10:31	+21	+28
USA & Canada	10:01 → 10:11	10:11 → 10:30	10:30	+29	+19
Central America, Caribbean countries	9:28** → 9:10	9:10 → 9:36	9:36	+8	+26
South America	9:28** → 9:24	9:24 → 9:38	9:38	+10	+14
Western Europe	9:55 → 10:04	10:04 → 10:06	10:06	+11	+2
Africa	10:15 → 9:28	9:28 → 8:59	8:59	-76	-29
Middle East	9:42 → 9:30	9:30 → 9:45	9:45	+3	+15
Eastern Europe & former Soviet Union	10:00 → 8:42	8:42 → 9:13	9:13	-47	+31
Asia	9:04* → 9:48	9:48 → 9:38	9:38	+34	-10

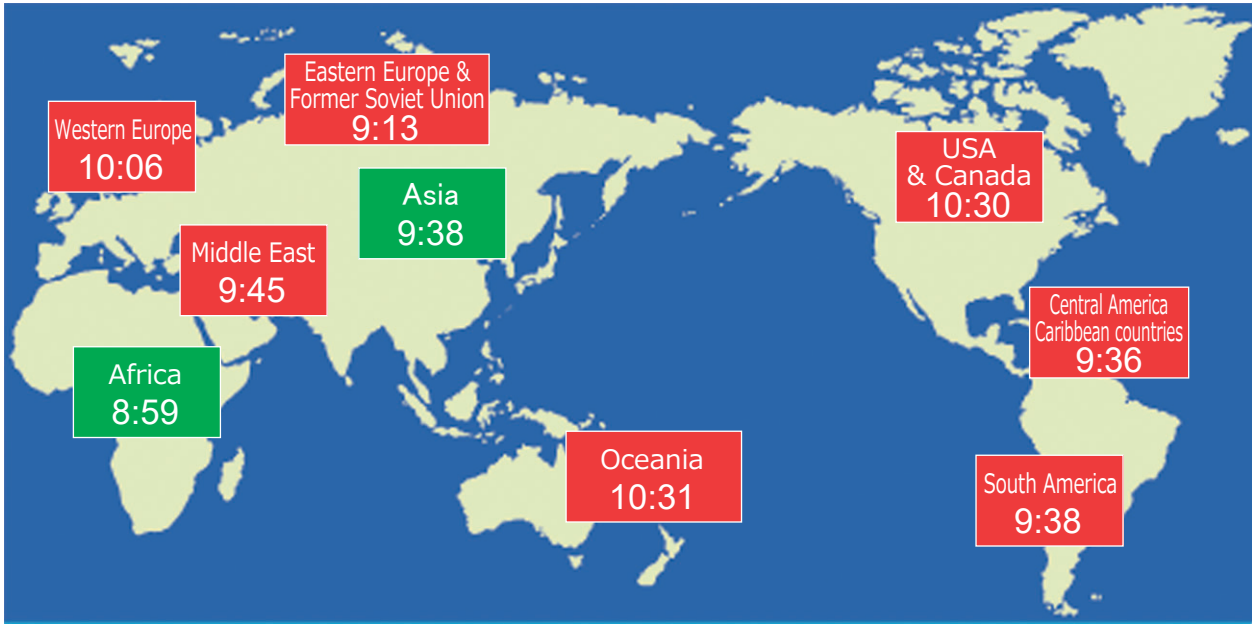
(Red indicates the advancement in time from last year; Green indicates a reversal)

\*\*Central America, Caribbean countries and South America are comparisons with Latin America

\*without Japan

- The average time on the Environmental Doomsday Clock for all respondents was 9:46, which is one minute earlier than last year.

**Fig.2 Regional Times**



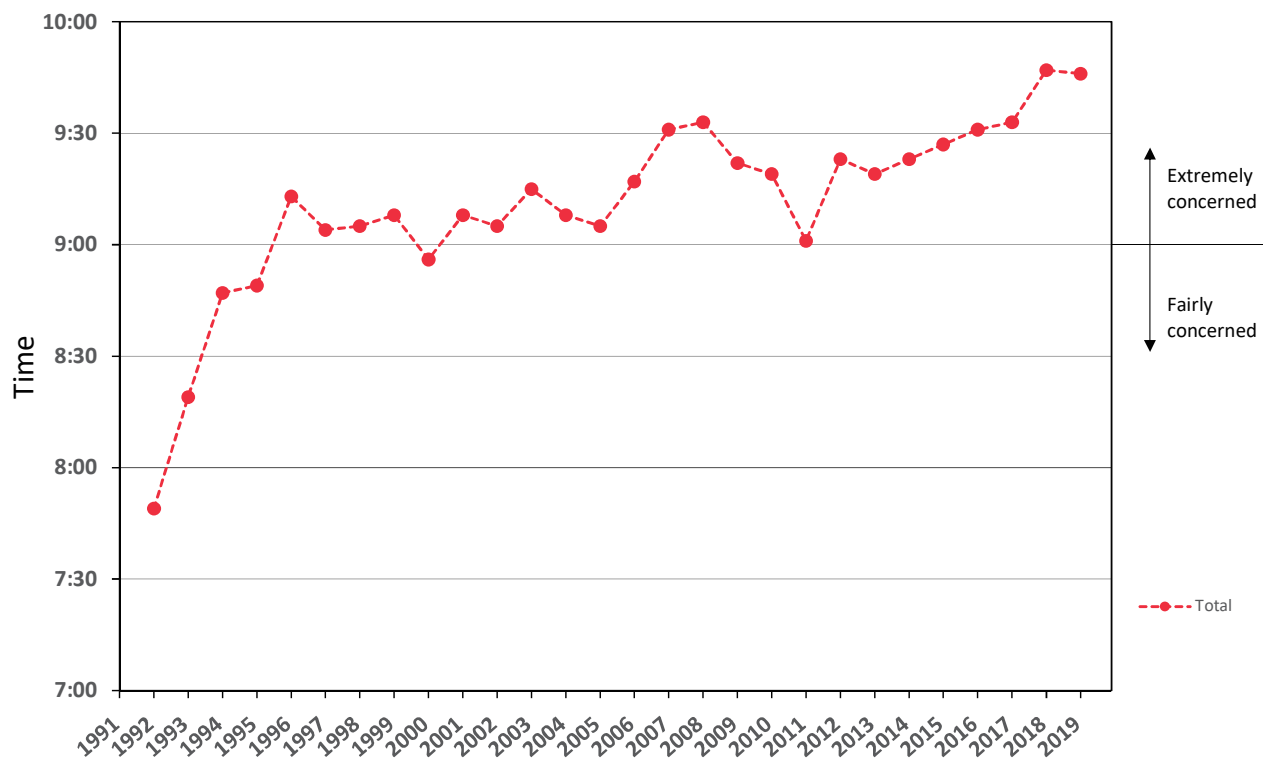
■ Represents regions/countries where the time advanced from last year  
 ■ Represents regions/countries where the time retreated from last year

**Fig.3 Changes in the Environmental Doomsday Clock (Overall)**

1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
7:49	8:19	8:47	8:49	9:13	9:04	9:05	9:08	8:56	9:08	9:05	9:15	9:08	9:05	9:17	9:31	9:33	9:22	9:19	9:01	9:23	9:19	9:23	9:27	9:31	9:33	9:47	9:46

(Total)

Since the inception of the survey, ■ represents the lowest sense of crisis, while ■ represents the highest.





## A-2. Shifts in the Environmental Doomsday Clock Based on Respondent Age (2011 - 2019)

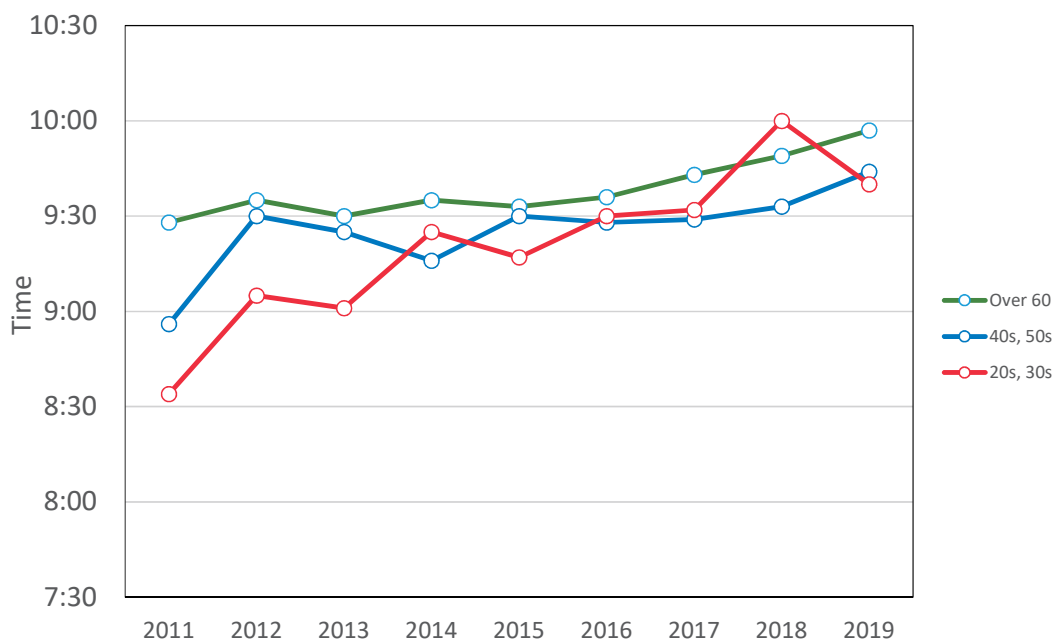
- Survey respondents over the age 60 tended to report the latest times on the Environmental Doomsday Clock. There is a tendency for later times to be reported time to be later the older the respondent. Nevertheless the sense of environmental crisis among young respondents in their 20s and 30s was very high last year, while the time for those in their 40s and 50s remained largely same this year.
- The sense of crisis among respondents over the age of 60 has continued to increase since 2015.

### A-2-1. Shifts in the Environmental Doomsday Clock by Generation

- The times reported by respondents over the age of 60, (the most advanced times of all age groups), remained stable between 9:28 and 9:36, until 2016. However, the clock has moved forward since 2017, reaching 9:57 this year.
- The Environmental Doomsday Clock for respondents in their 40s and 50s has been stable around 9:30 since 2012, with this year being 11 minutes later than last year.
- The Environmental Doomsday Clock for respondents in their 20s and 30s had been increasing from 8:34 (2011) until 2016, and reached about the same level as that for those in their 40s and 50s in 2016 and 2017. Because of the high sense of crisis among Chinese respondents in their 20s and 30s, it was 10:00 last year, but it is 20 minutes earlier this year.

**Fig.4 Shifts in the Environmental Doomsday Clock by Generation**

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Average Time	9:01	9:23	9:19	9:23	9:27	9:31	9:33	9:47	9:46
Over 60	9:28	9:35	9:30	9:35	9:33	9:36	9:43	9:49	9:57
40s, 50s	8:56	9:30	9:25	9:16	9:30	9:28	9:29	9:33	9:44
20s, 30s	8:34	9:05	9:01	9:25	9:17	9:30	9:32	10:00	9:40

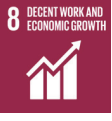


## B. Environmental issues to be taken into account

**Table 2.**

No.	Category	Examples of Observable Changes in the Country or the Region in which You Reside	Planetary Boundaries (PB)
1.	Climate Change	Global warming; CO <sub>2</sub> %, ocean acidification; climatic aberrations (droughts, torrential rains and flooding, severe storms, heavy snow, abnormal temperatures, desertification, etc.)	Climate Change, Ocean Acidification, Atmospheric aerosol loading, Stratospheric ozone depletion
2.	Biosphere Integrity (Biodiversity)	Acceleration of species extinction rate; effects of contamination, climate change, land use	Genetic diversity, Functional diversity
3.	Land-System Change (Land Use)	Change in the amount of forest cover remaining at the tropical, temperate and boreal biomes. Change in the amount of cropland	Land-system change
4.	Biochemical flows (Pollution/ Contamination)	Increase in river, ocean and soil pollution: eutrophication caused by excessive nitrogen and phosphorus and contamination by microplastics and chemical substances; atmospheric pollution: particulates suspended in the atmosphere, soot and chemical substances	Chemical Pollution, Nitrogen & Phosphorous Cycles
5.	Water Resources	Diminution of usable fresh water resources (depletion, contamination) Control and degeneration of Green water quality (water contained in soil and used by plants)	Freshwater Use
6.	Population	Population growth beyond what the Earth can support; aging of the population	Related with almost all the PB
7.	Food	Diminution of food supply from land and oceans	Related with almost all the PB
8.	Lifestyles (Consumption Habits)	Transformation of lifestyles away from excessive consumption of resources like energy	Related with almost all the PB
9.	Society, Economy and Environment, Policies, Measures	Establishing a Green Economy with environmental economics and accounting Environmental awareness at the individual and societal levels, progress of environmental education, Legal system, social foundation; poverty, governance; the status of women	Related with almost all the PB

Category by SDGs # (Sustainable Development Goals: SDGs)

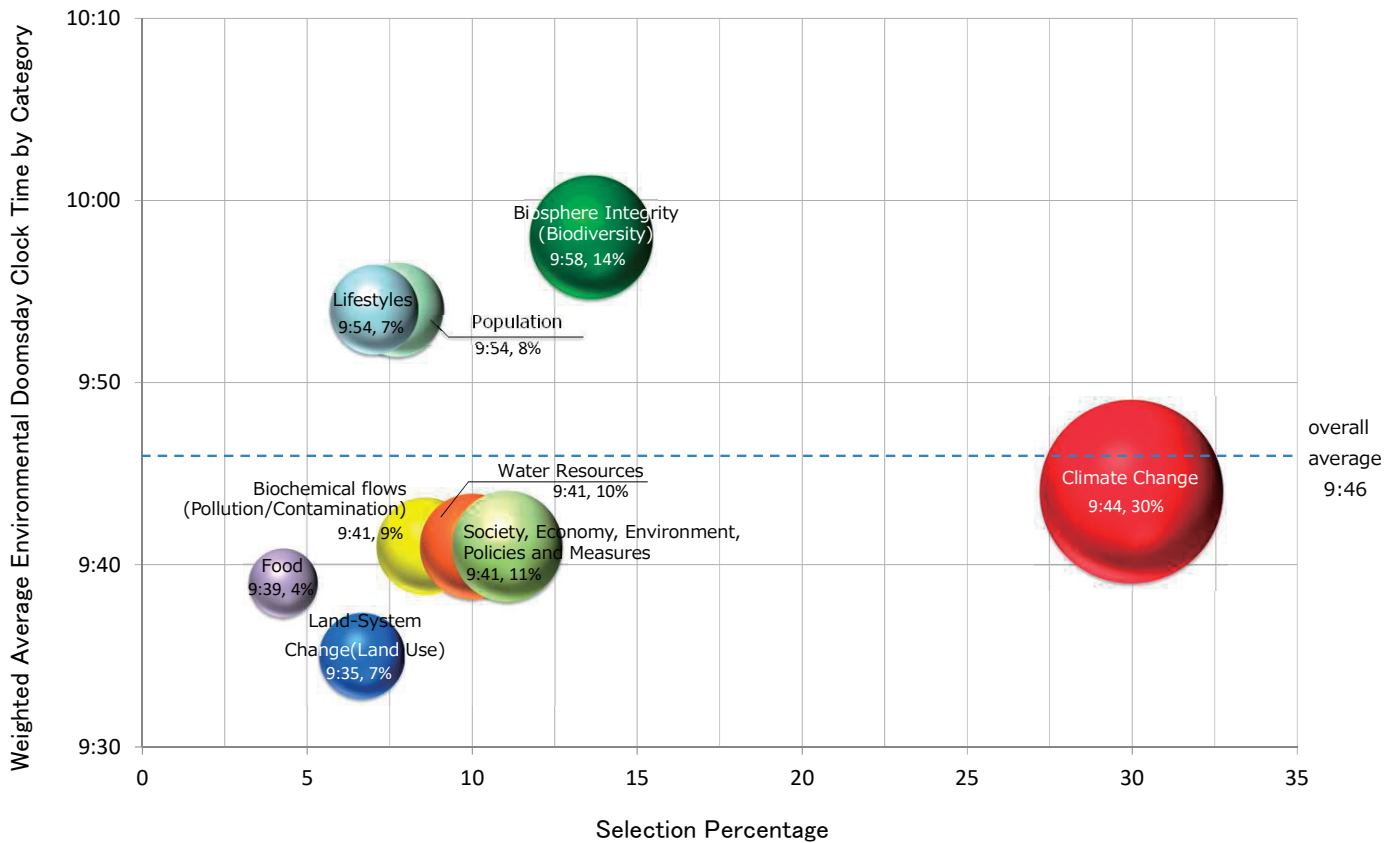


Terms in blue are categories listed in Planetary boundaries:

Will Steffen, Katherine Richardson, Johan Rockstrom et.al. Science 13 Feb 2015 vol. 347, issue 6223

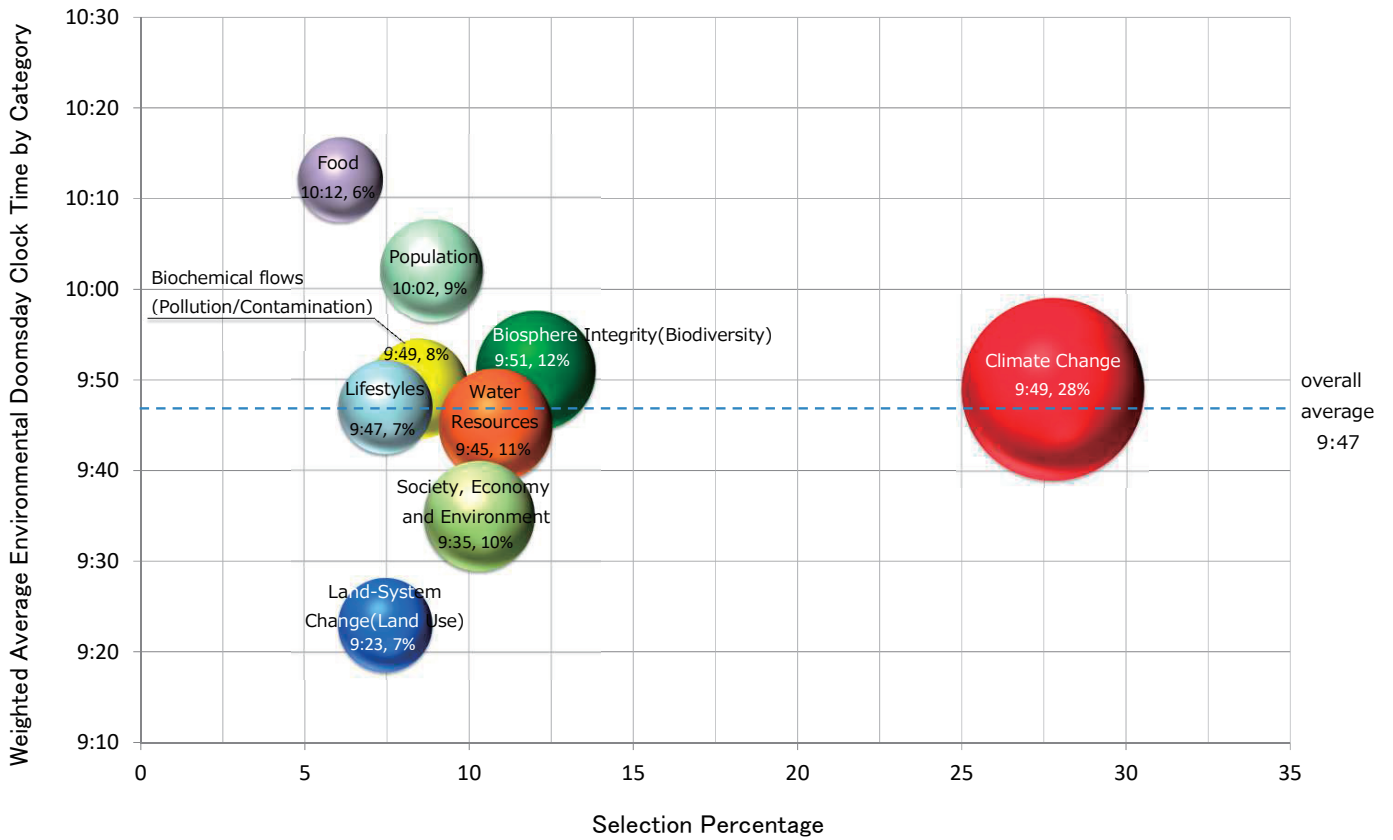
## B-1. Overall Analysis of the “Environmental issues to be taken into account”

Graph 1-1-1. Overall (2019)

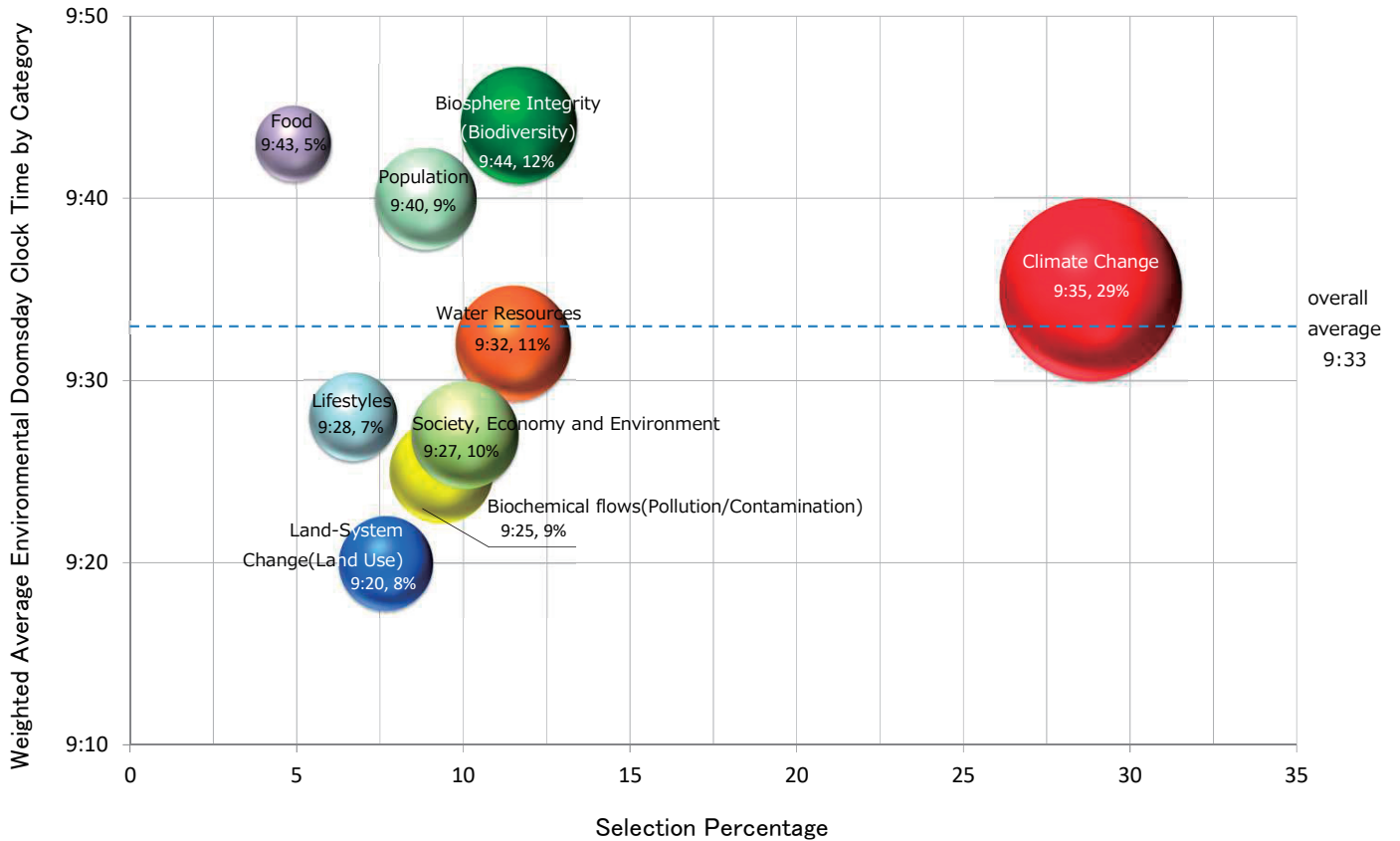


- Looking at “Environmental issues to be taken into account” when determining the world’s overall Environmental Doomsday Clock time, “Climate Change” (30%) was the most frequently selected, as it was last year, followed by “Biosphere Integrity (Biodiversity)” (14%), “Society, Economy and Environment, Policies, Measures” (11%), “Water Resources” (10%), “Biochemical Flows (Pollution/Contamination)” (9%), “Population” (8%), “Lifestyles” (7%), and “Land System Change (Land Use)” (7%).
- Likewise, in terms of “Environmental issues to be taken into account” for the whole world, “Biosphere Integrity (Biodiversity)” (9:58), “Population” (9:54), and “Lifestyles” (9:54) were ahead of the world average, followed by “Climate Change” (9:44), “Society, Economy and Environment, Policies, Measures” (9:41), “Water Resources” (9:41), and “Biochemical Flows (Pollution/Contamination)” (9:41).
- In comparison with 2018, clock times for “Biosphere Integrity (Biodiversity)” “Land-System Change (Land Use)” and “Lifestyles” have advanced, while the sense of crisis for “Food,” “Population,” and “Climate Change” has gone down. (Graph 1-1-4).

**Graph 1-1-2. Reference (2018)**

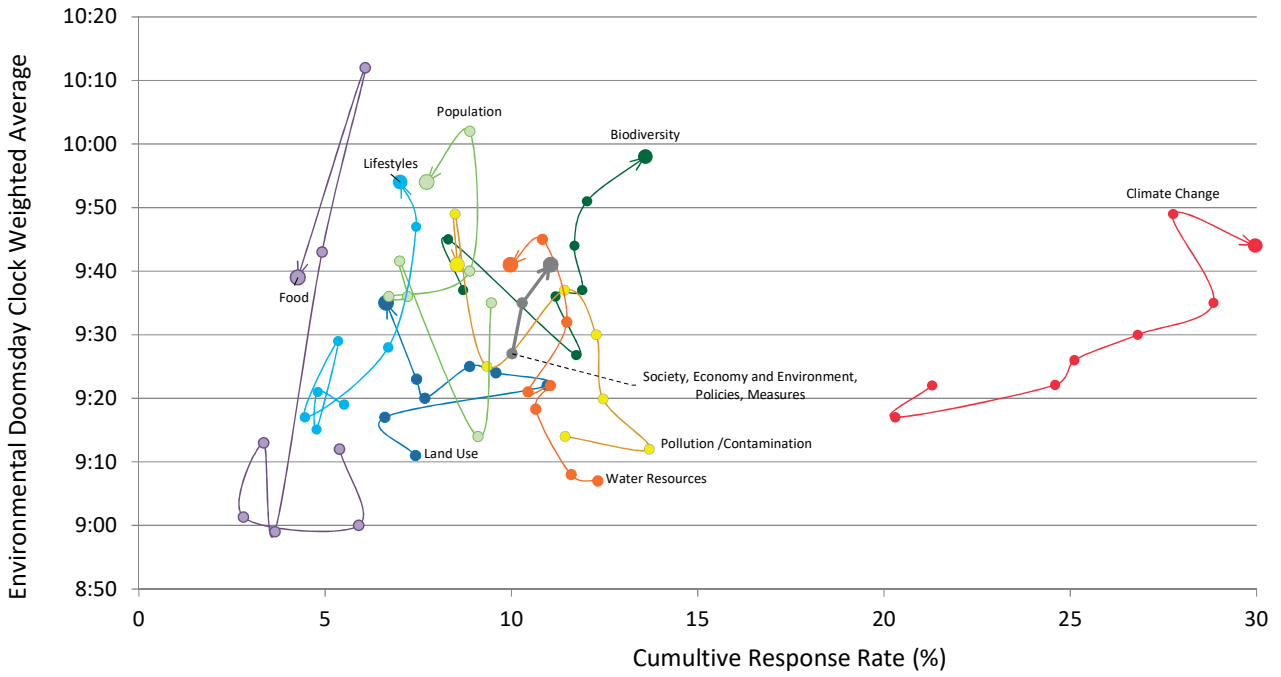


**Graph 1-1-3. Reference (2017)**

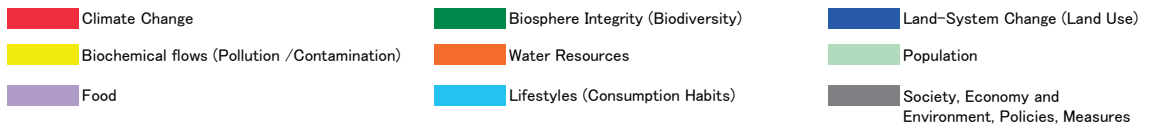


**B-2. Distribution of the Environmental Conditions of Concern (2012 - 2019)**

**Graph 1-1-4.**



※The categories "warming measures" "environment and economy" "environment and society" were deleted from 2017, and "society, economy and environment" have been added.  
 ※"Society, Economy and Environment" was changed to "Society, Economy and Environment, Policies, Measures" from 2019.



### B-3. Selection Patterns for “Environmental issues to be taken into account” By Region

**Table 3.**

	1. Climate Change	2. Biosphere Integrity (Biodiversity)	3. Land-System Change (Land Use)	4. Biochemical flows (Pollution/Contamination)	5. Water Resources	6. Population	7. Food	8. Lifestyles (Consumption Habits)	9. Society, Economy and Environment, Policies, Measures
Global	30.0%	13.6%	6.6%	8.5%	10.0%	7.7%	4.3%	7.0%	11.1%
Oceania	34.2%	23.1%	8.6%	2.0%	5.1%	8.3%	0.4%	6.3%	9.2%
Oceania (Except Australia)	32.1%	17.4%	9.5%	4.2%	6.3%	8.4%	1.6%	7.9%	12.6%
Australia	35.0%	25.2%	8.3%	1.2%	4.6%	8.3%	0.0%	5.8%	7.9%
USA & Canada	38.8%	17.2%	4.9%	3.9%	7.2%	8.4%	0.9%	7.8%	10.0%
Canada	42.8%	21.0%	6.6%	2.8%	5.0%	4.8%	0.4%	9.6%	7.0%
USA	37.7%	16.1%	4.5%	4.2%	7.8%	9.5%	1.1%	7.3%	10.9%
Central America, Caribbean countries	26.1%	17.2%	8.1%	4.2%	15.3%	5.6%	2.7%	3.3%	12.0%
South America	21.6%	18.3%	17.2%	5.2%	9.7%	4.4%	2.6%	7.0%	13.5%
Western Europe	30.9%	22.1%	8.0%	6.7%	4.1%	5.3%	1.3%	10.4%	10.4%
UK	34.0%	26.7%	4.6%	5.6%	1.3%	4.6%	2.5%	10.6%	6.0%
Western Europe (Except UK)	30.1%	20.9%	8.9%	6.9%	4.8%	5.5%	1.0%	10.3%	11.6%
Africa	26.0%	14.7%	12.8%	3.3%	11.3%	8.6%	4.0%	3.1%	13.3%
Middle East	25.0%	15.5%	8.3%	4.3%	25.3%	5.5%	1.8%	4.0%	8.0%
Eastern Europe & former Soviet Union	16.7%	19.0%	14.9%	14.4%	8.2%	1.8%	1.8%	9.5%	13.8%
Asia	29.9%	9.6%	4.4%	11.4%	11.1%	8.6%	6.2%	6.9%	11.0%
Japan	38.7%	12.3%	3.7%	9.9%	4.6%	6.1%	5.1%	6.1%	12.6%
India	28.4%	12.9%	10.5%	6.1%	17.7%	11.0%	1.1%	2.9%	7.7%
China	21.9%	5.5%	2.6%	12.0%	16.5%	12.5%	10.2%	8.0%	10.1%
Taiwan	35.7%	5.3%	3.7%	26.6%	8.9%	3.6%	1.6%	4.1%	10.7%
Korea	41.1%	11.1%	2.8%	8.9%	3.1%	4.7%	1.4%	19.7%	7.2%
Asian Region*	25.9%	18.0%	11.9%	6.0%	11.6%	5.7%	1.9%	6.0%	12.3%

■ Represents the most frequently selected item in the region/country, ■ Represents the second most frequently selected item in the region/country

\*With the exception of India, China, Taiwan, Korea, and Japan

- The most frequently selected of “Environmental issues to be taken into account” was “Climate Change” (30%) unchanged from last year, followed by “Biosphere Integrity (Biodiversity)” (13.6%). This was a trend that could be observed in almost all regions. However, “Water Resources” was the second most frequently selected in India and China, while “Society, Economy and Environment, Policies, Measures,” “Biochemical Flows (Pollution/Contamination),” and “Lifestyles” were the second most selected in Japan, Taiwan, and Korea, respectively.
- “Climate Change” was the most frequently selected across the world as a whole, but “Biosphere Integrity (Biodiversity)” was the most frequently selected in Eastern Europe and the former Soviet Union, and “Water Resources” in the Middle East.

**B-4. Regional Distribution of the Environmental Doomsday Clock Time for “Environmental issues to be taken into account”**

**Table 4.**

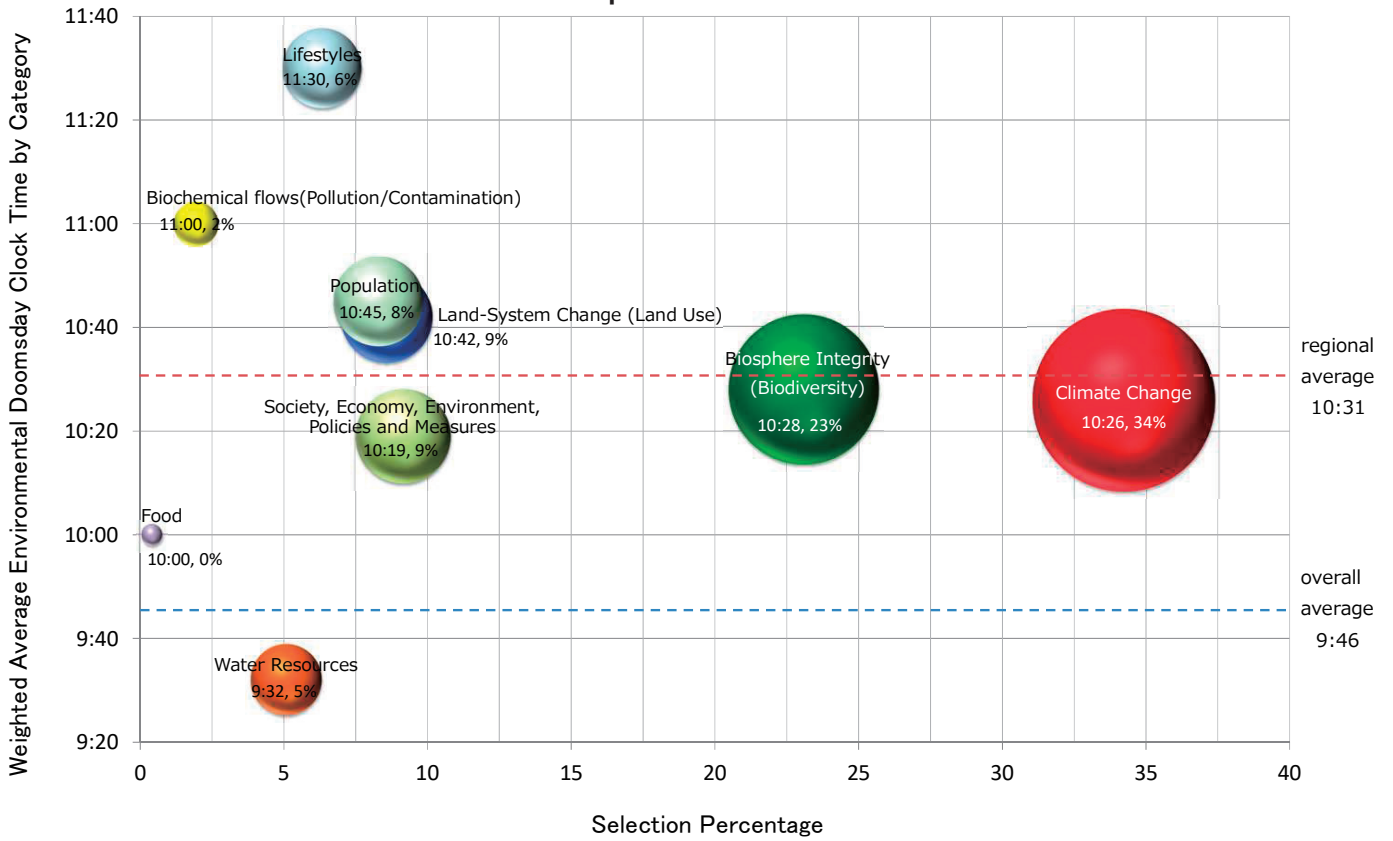
	Total	1. Climate Change	2. Biosphere Integrity (Biodiversity)	3. Land-System Change (Land Use)	4. Biochemical flows (Pollution/Contamination)	5. Water Resources	6. Population	7. Food	8. Lifestyles (Consumption Habits)	9. Society, Economy and Environment, Policies, Measures
Global	9:46	9:44	9:58	9:35	9:41	9:41	9:54	9:39	9:54	9:41
Oceania	10:31	10:26	10:28	10:42	–	–	10:45	–	11:30	10:19
Oceania (Except Australia)	10:16	10:39	8:54	–	–	–	–	–	11:32	10:31
Australia	10:36	10:27	10:38	10:53	–	–	11:14	–	11:32	10:01
USA & Canada	10:30	10:34	10:38	10:10	10:04	10:23	10:17	–	10:39	9:56
Canada	10:30	10:54	10:47	9:14	–	–	10:22	–	10:37	–
USA	10:30	10:32	10:34	10:29	10:01	10:23	10:15	–	10:41	9:55
Central America, Caribbean countries	9:36	9:33	10:08	9:36	9:47	9:32	9:34	–	9:55	9:35
South America	9:38	9:17	10:07	9:58	9:48	10:01	10:06	9:58	9:11	9:29
Western Europe	10:06	10:09	10:11	9:47	9:44	8:52	10:21	10:22	10:27	9:58
UK	10:32	10:47	10:35	11:07	10:17	–	10:32	–	10:16	10:38
Western Europe (Except UK)	9:59	9:59	10:01	9:37	9:35	8:54	10:15	9:33	10:28	9:56
Africa	8:59	8:55	9:19	9:16	8:48	9:25	8:35	7:50	3:55	8:46
Middle East	9:45	9:46	9:54	9:47	9:54	9:40	10:53	–	–	10:19
Eastern Europe & former Soviet Union	9:13	9:12	8:30	9:01	–	9:32	–	–	9:25	10:22
Asia	9:38	9:33	9:42	9:19	9:41	9:43	9:51	9:48	9:44	9:39
Japan	9:39	9:43	9:44	9:27	9:14	9:40	9:41	9:44	9:20	9:40
India	9:04	8:38	9:32	8:08	9:25	9:10	9:55	–	–	8:57
China	10:02	9:57	10:03	9:51	10:04	10:03	10:00	10:01	10:00	10:11
Taiwan	8:53	8:48	–	9:52	9:20	8:28	9:22	8:07	–	9:16
Korea	9:45	–	10:25	8:24	9:13	–	9:41	–	9:53	–
Asian Region*	8:58	8:46	9:29	9:10	8:59	9:07	9:24	9:15	9:37	8:17

■ indicates the 11 o'clock hour, ■ indicates the 10 o'clock hour, □ Indicates the 9 o'clock hour, ■ indicates the 8 o'clock hour, and ■ the 7,6,5 o'clock hour  
 \*With the exception of India, China, Taiwan, Korea, and Japan

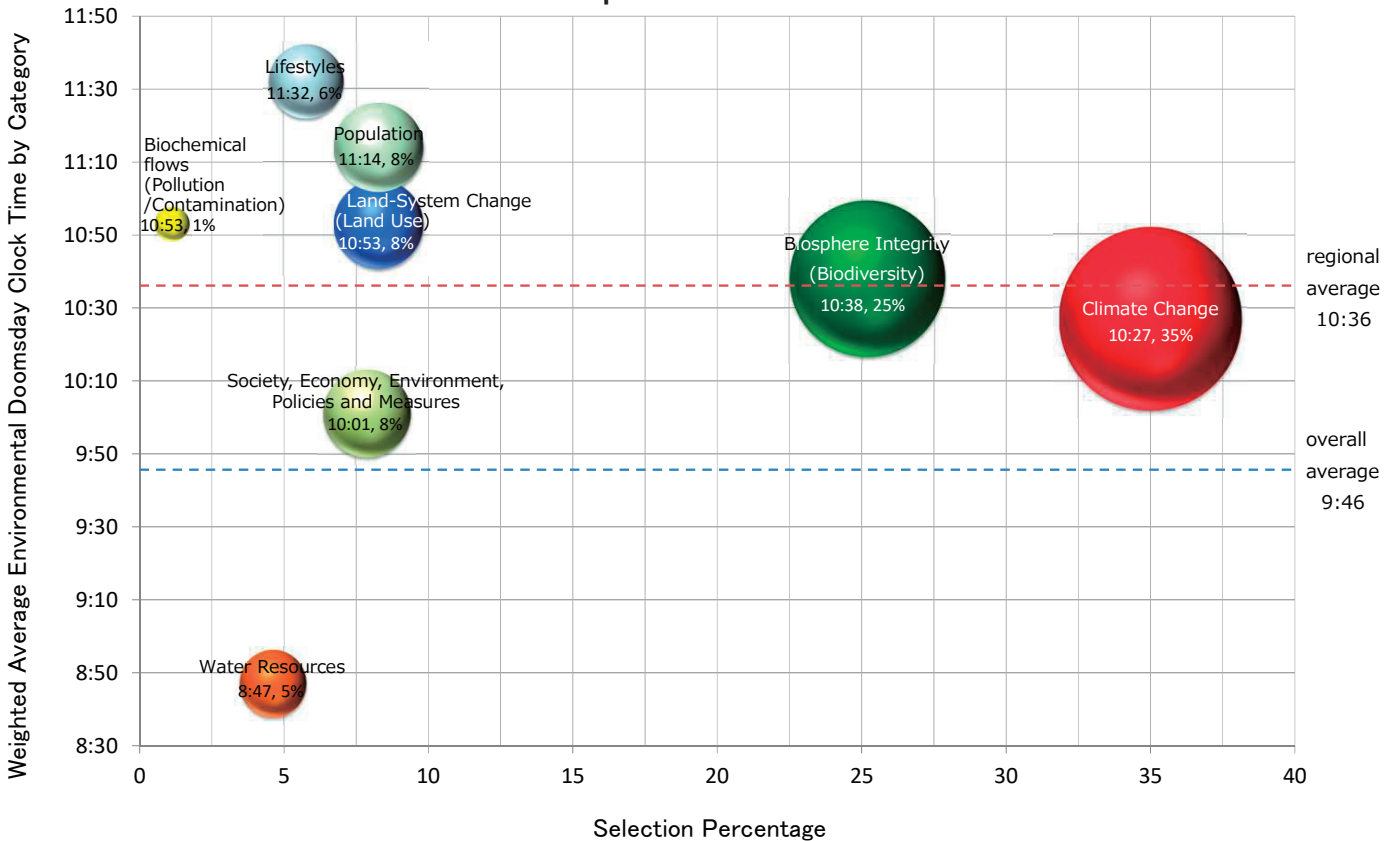
- Overall, all categories exceeded 9:35. This is the first time this has happened since the start of the survey. Moreover, only “Food” (9:39) and “Land System Change (Land Use)” (9:35) scored lower than 9:40, showing that the sense of crisis is high.
- While “Climate Change,” was the most frequently cited condition of concern, its time on the Environmental Doomsday Clock was the fourth most advanced, at 9:44.



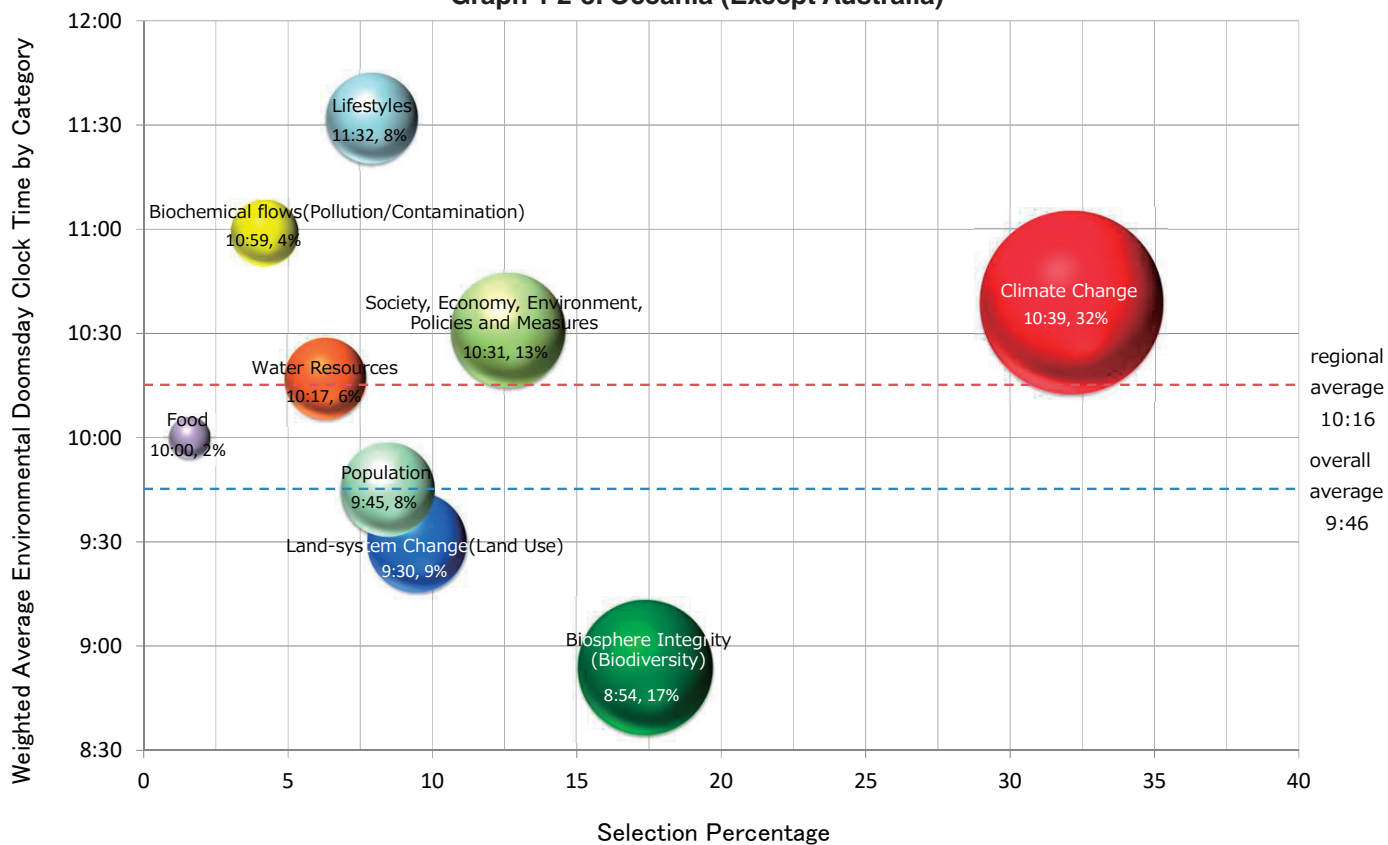
**Graph 1-2-1. Oceania**



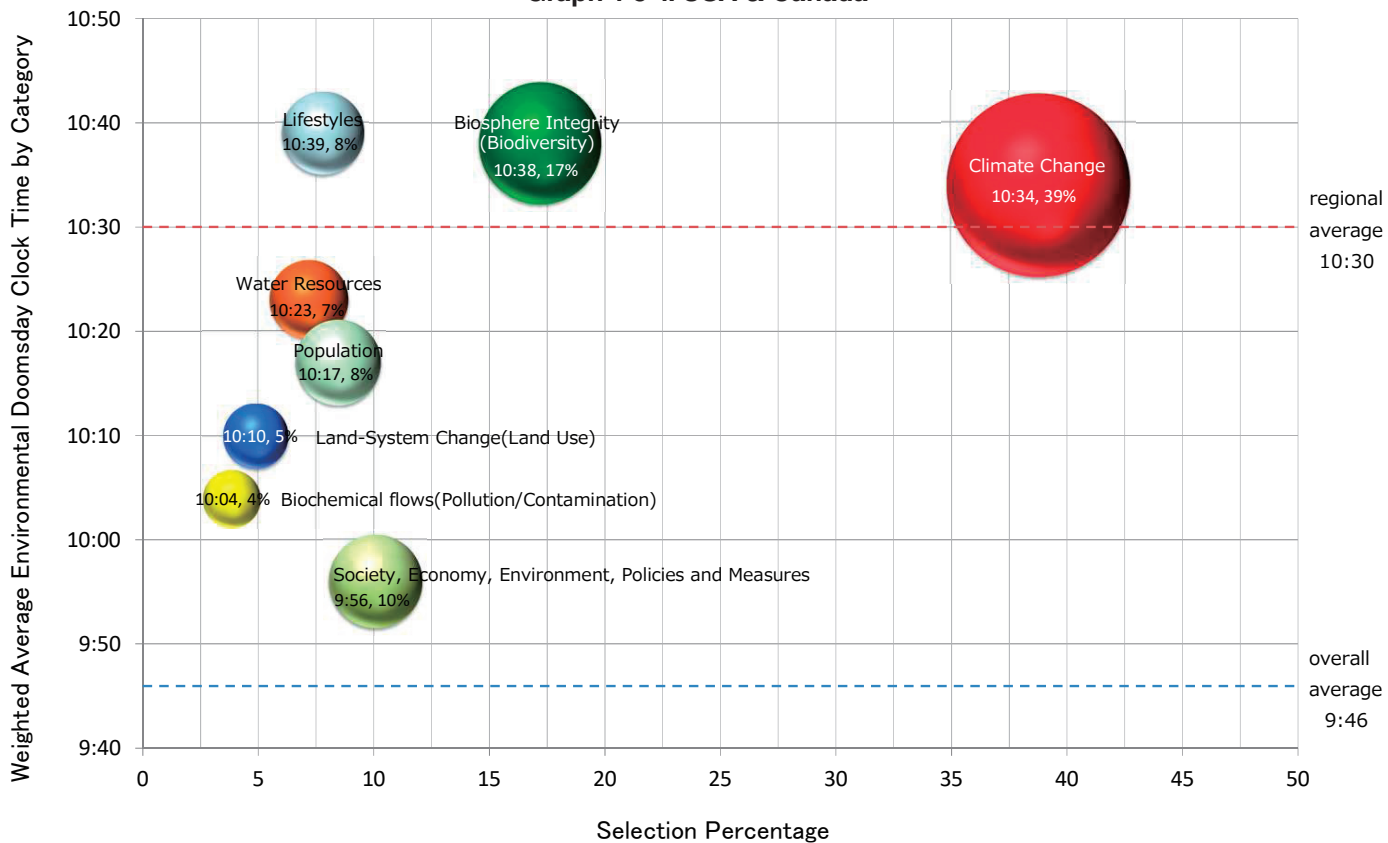
**Graph 1-2-2. Australia**



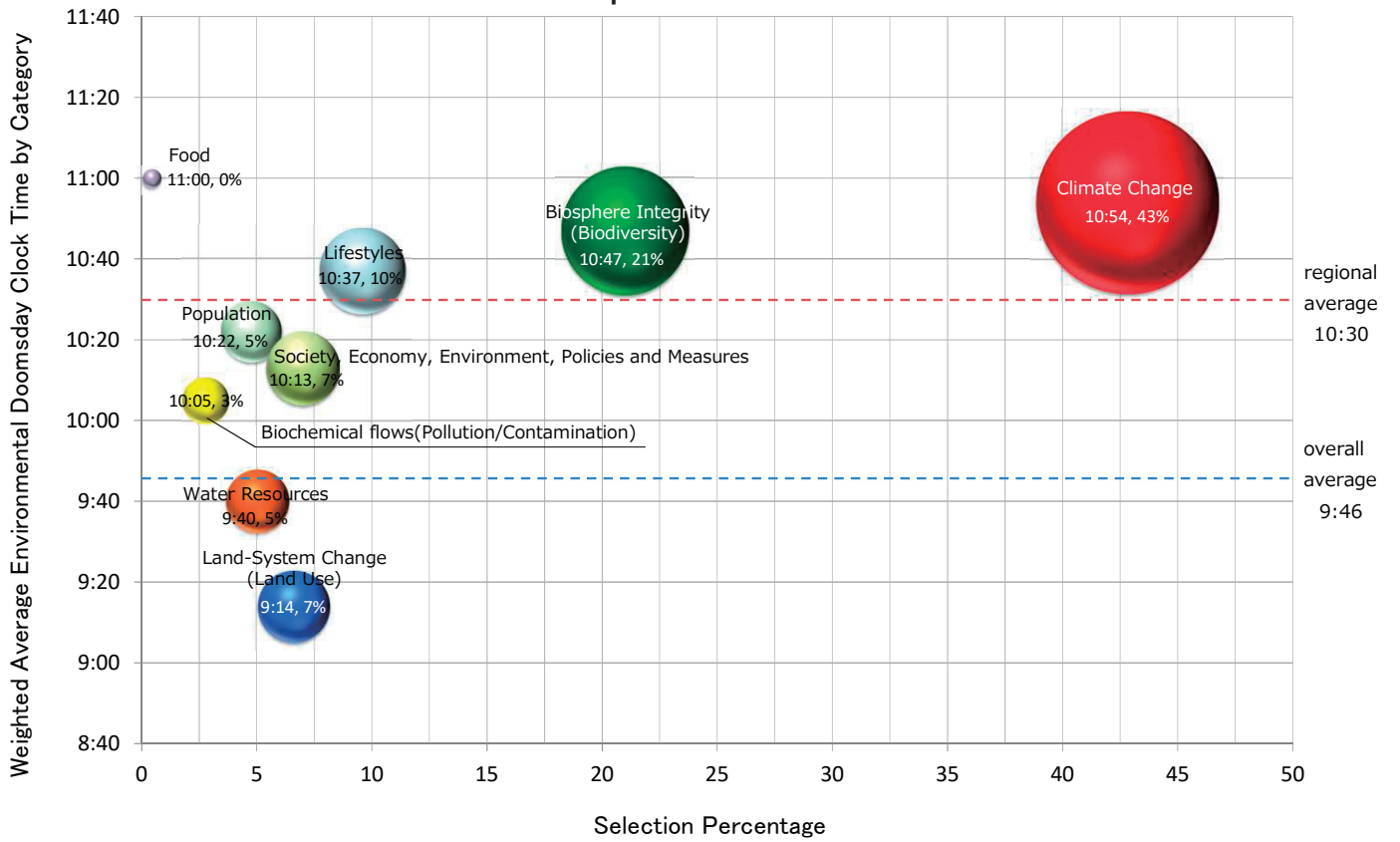
**Graph 1-2-3. Oceania (Except Australia)**



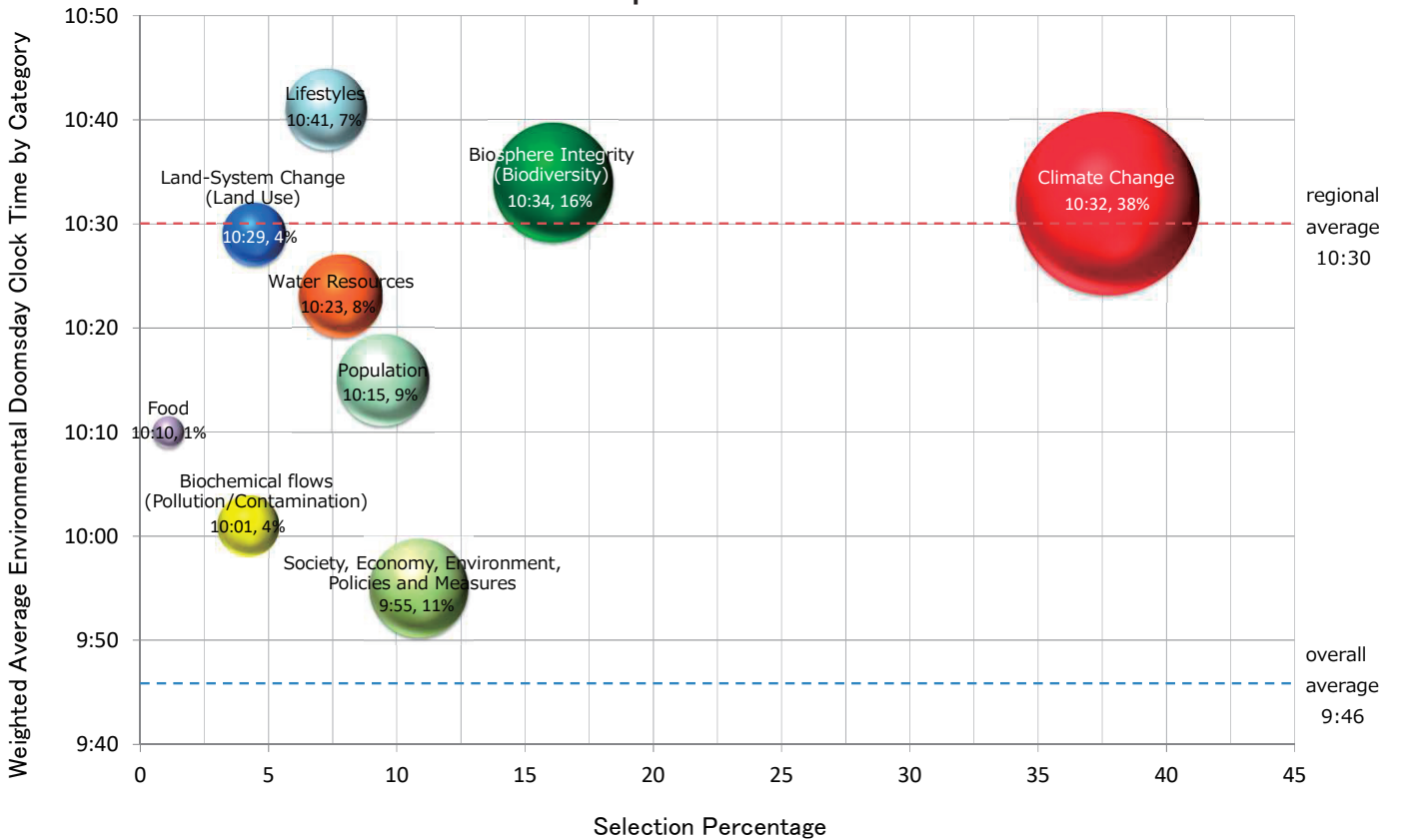
**Graph 1-3-1. USA & Canada**



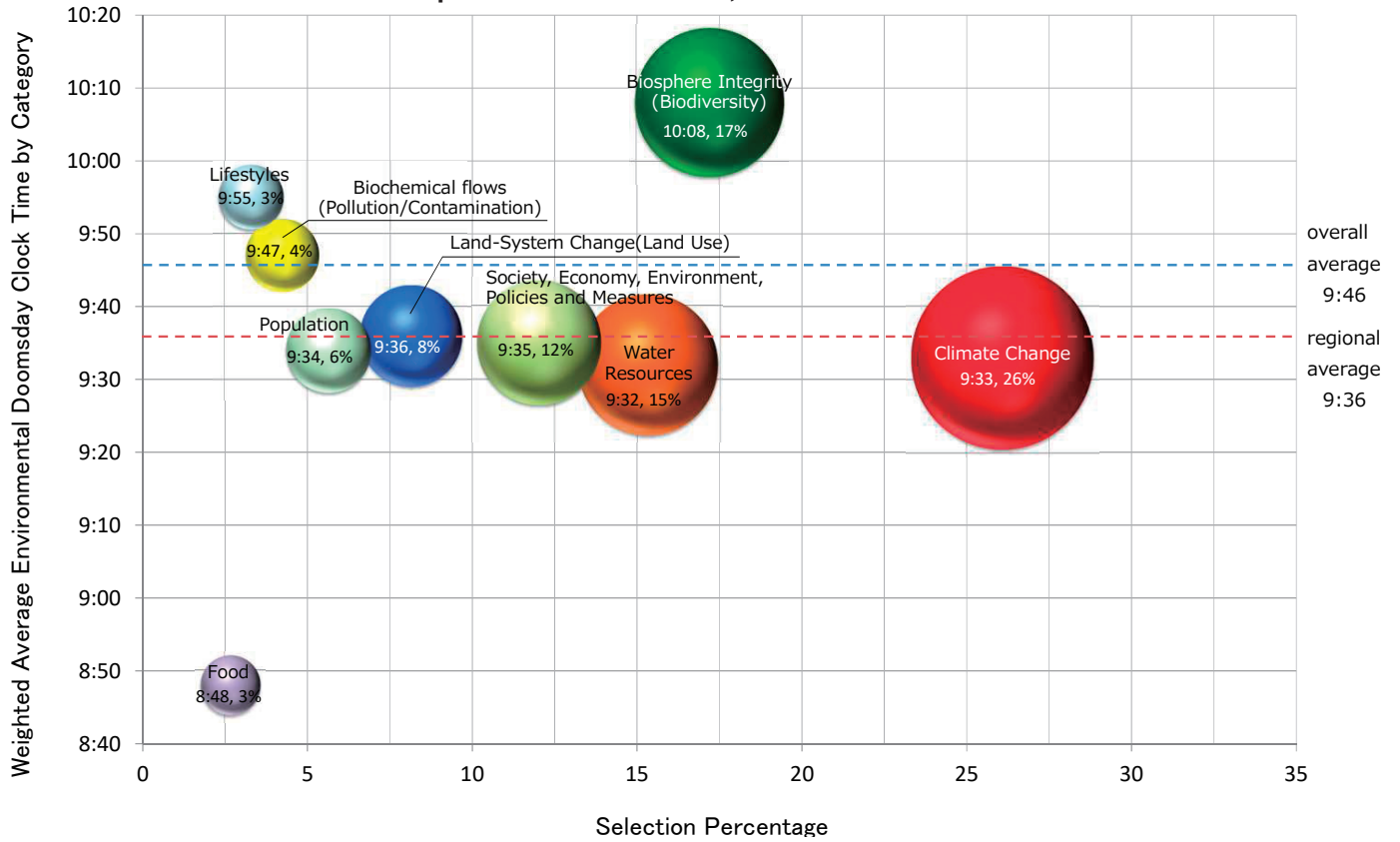
Graph 1-3-2. Canada



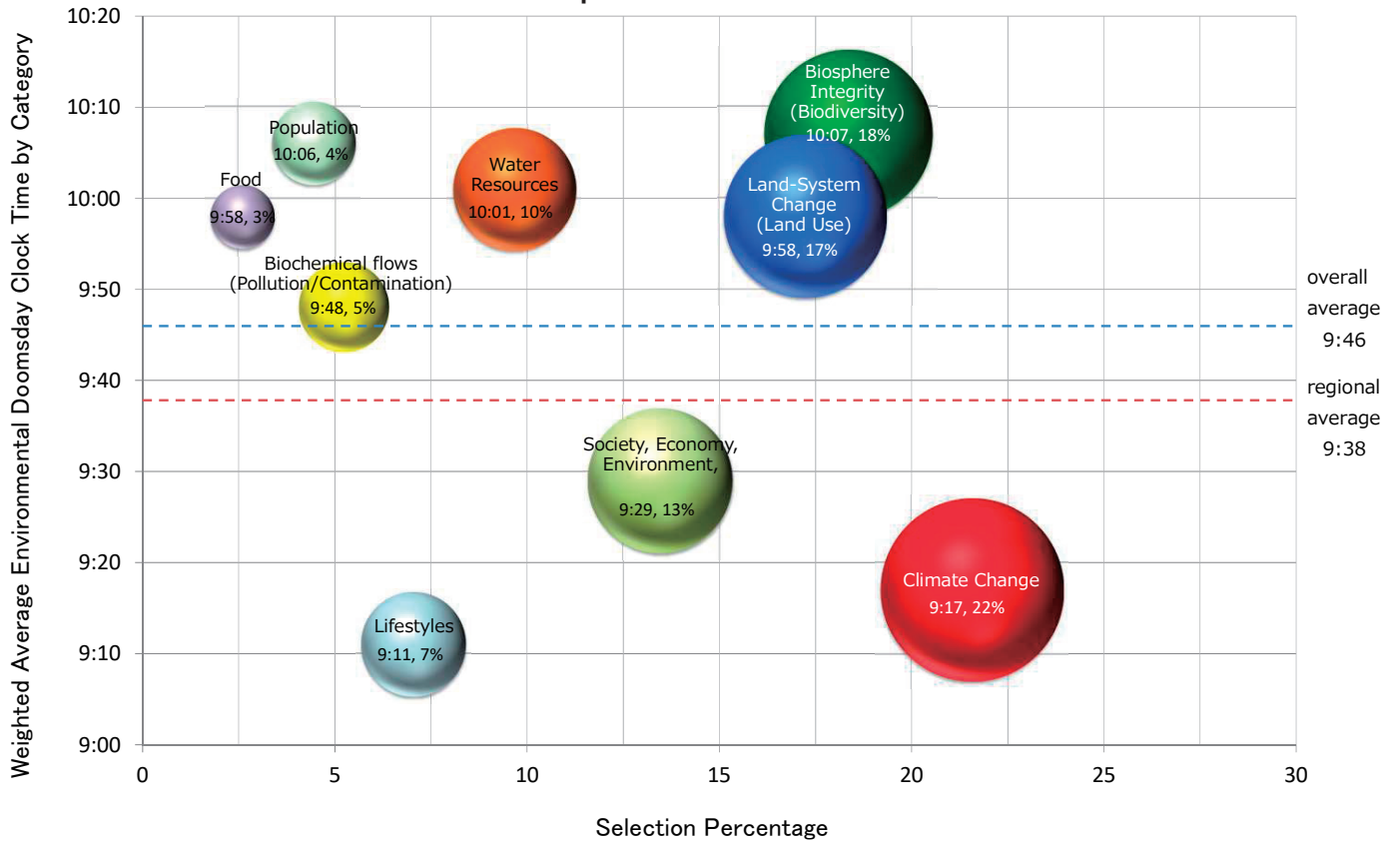
Graph 1-3-3. USA



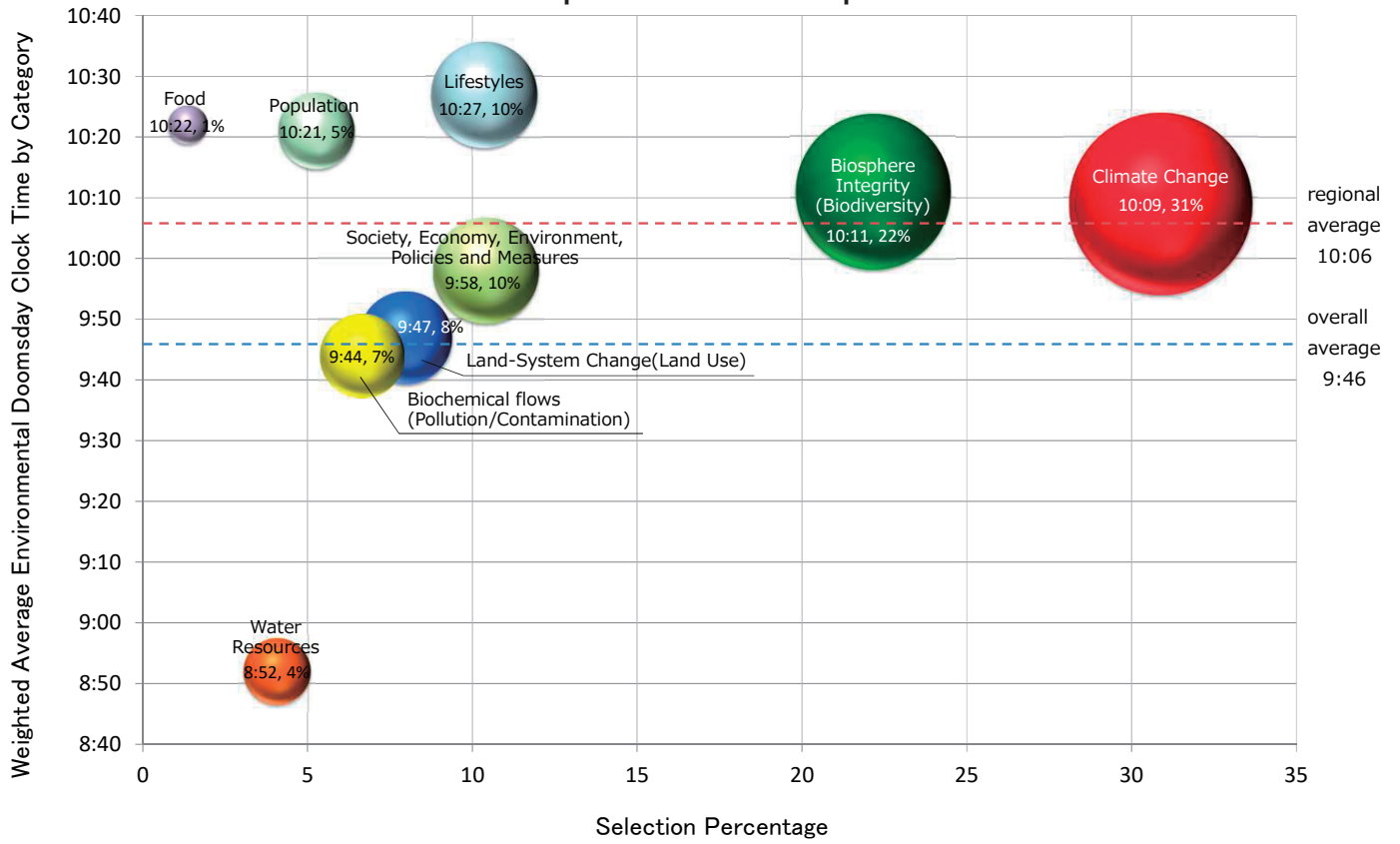
**Graph 1-4. Central America, Caribbean countries**



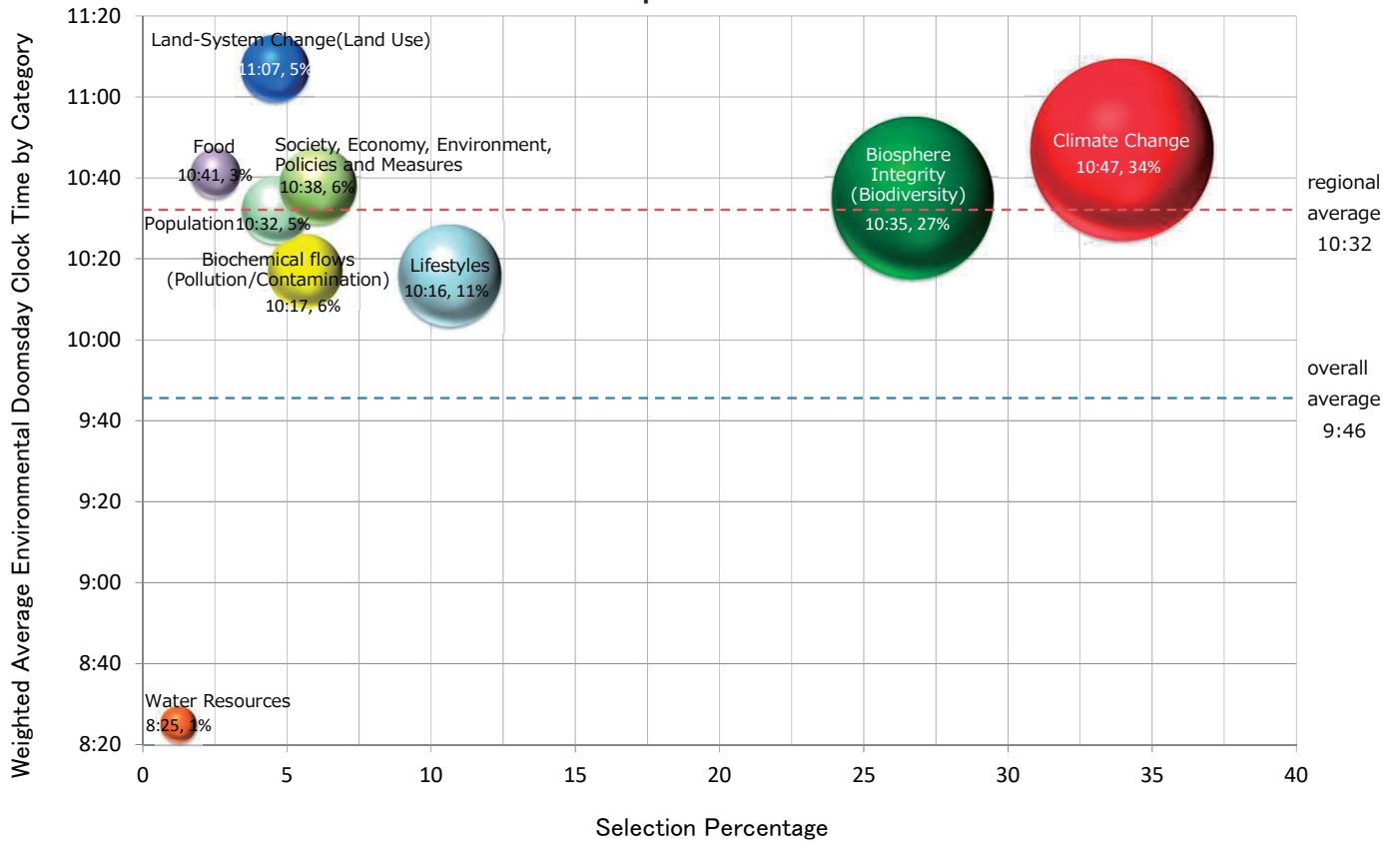
**Graph 1-5. South America**



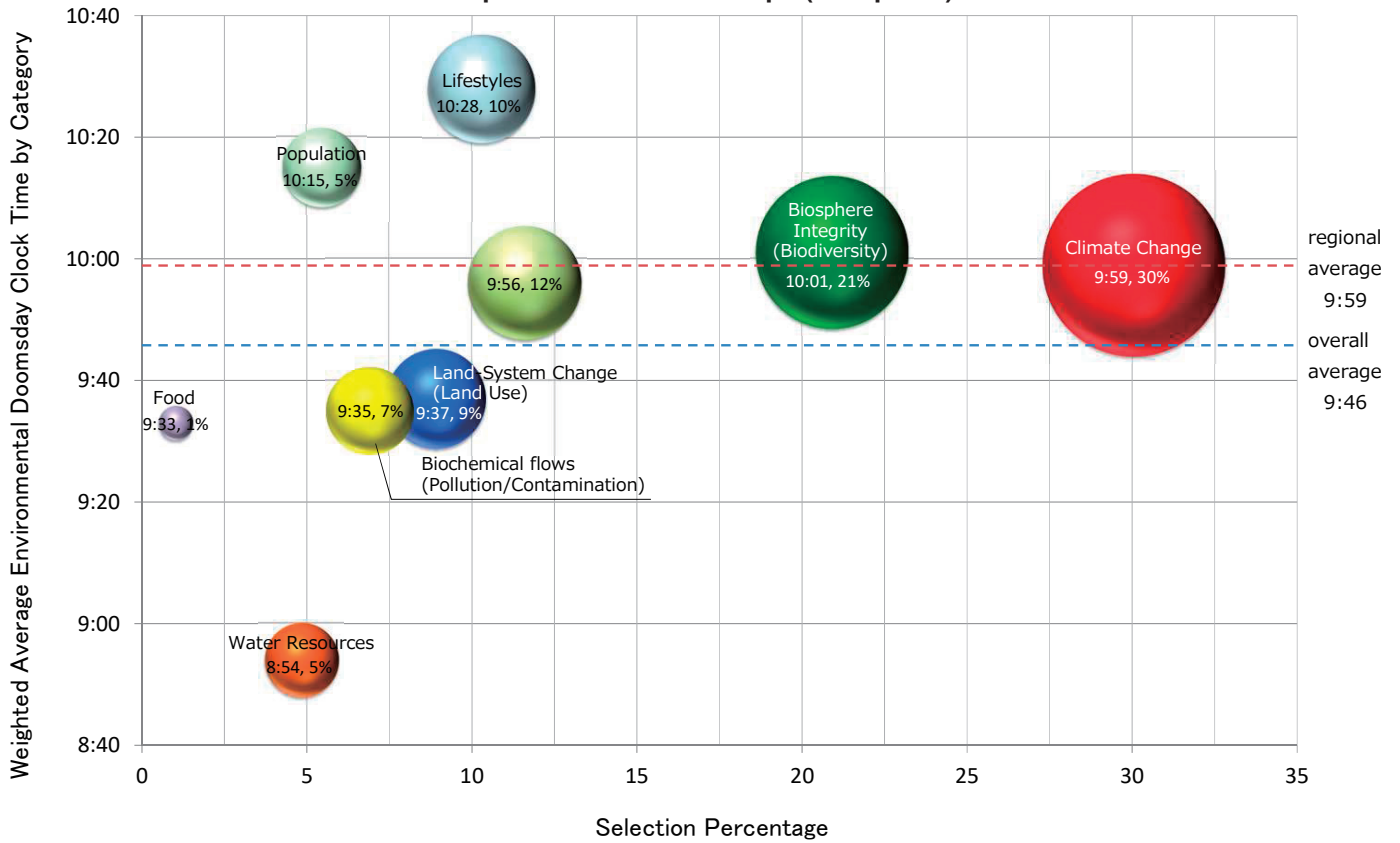
**Graph 1-6-1. Western Europe**



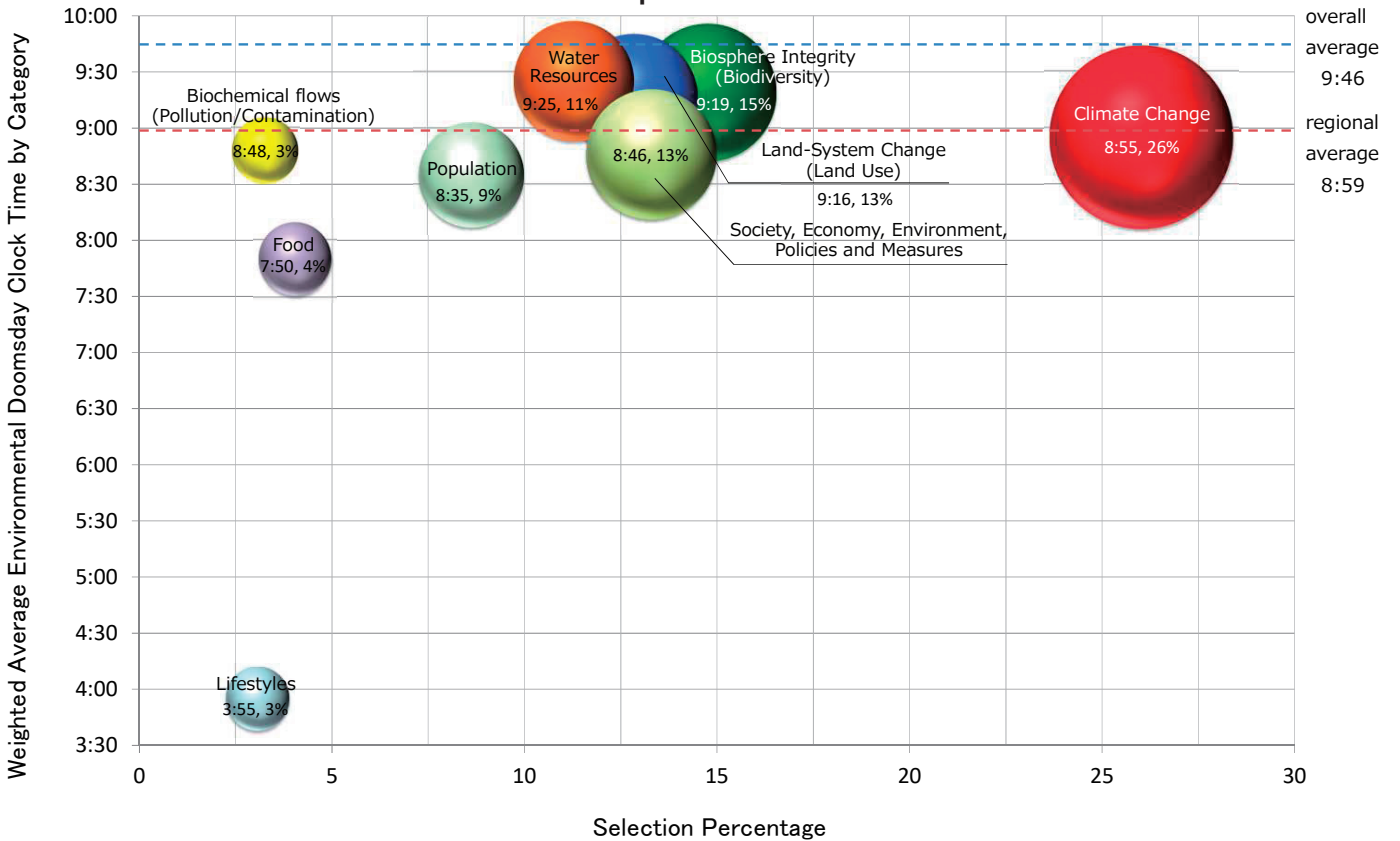
**Graph 1-6-2. UK**



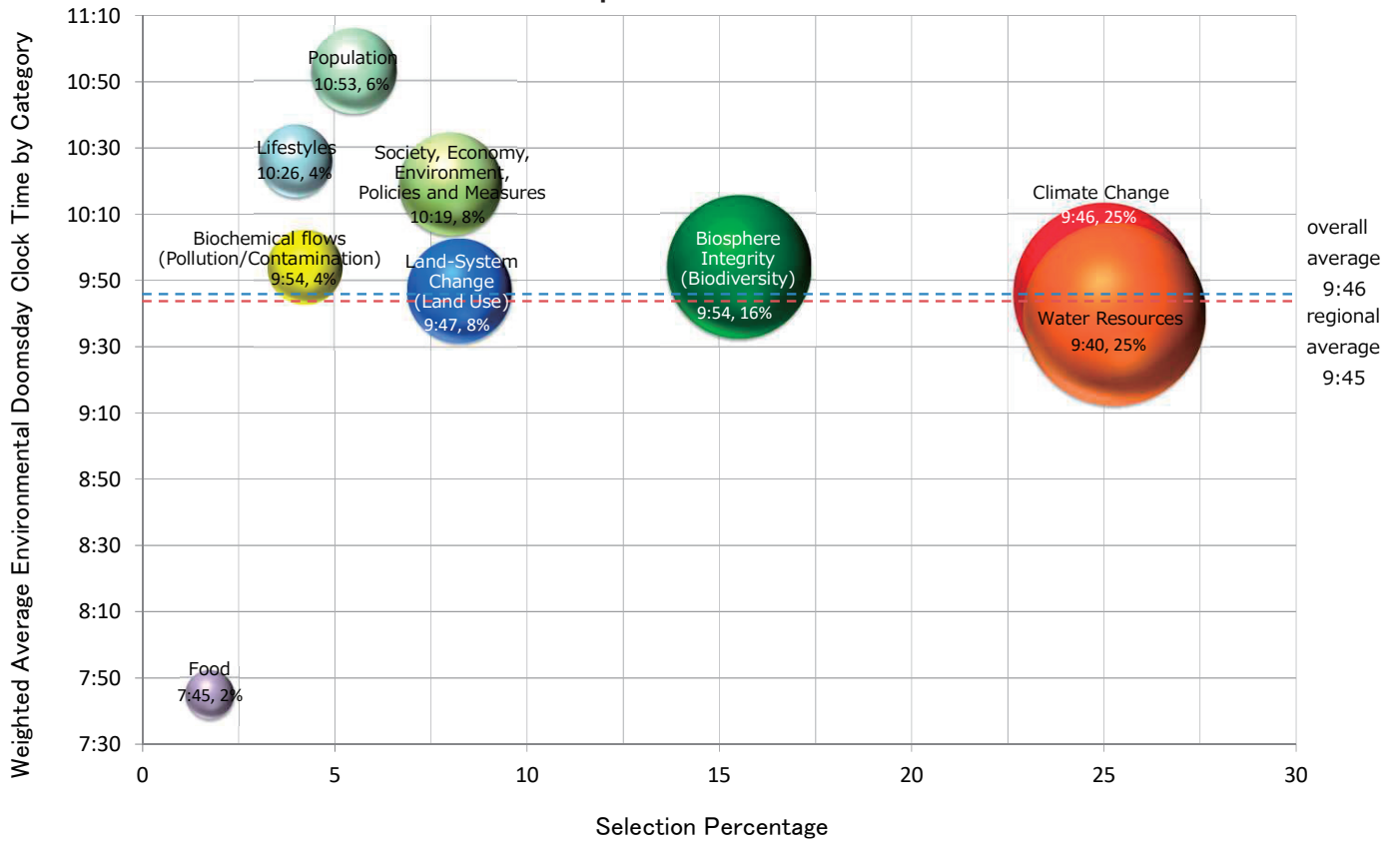
**Graph 1-6-3. Western Europe (Except UK)**



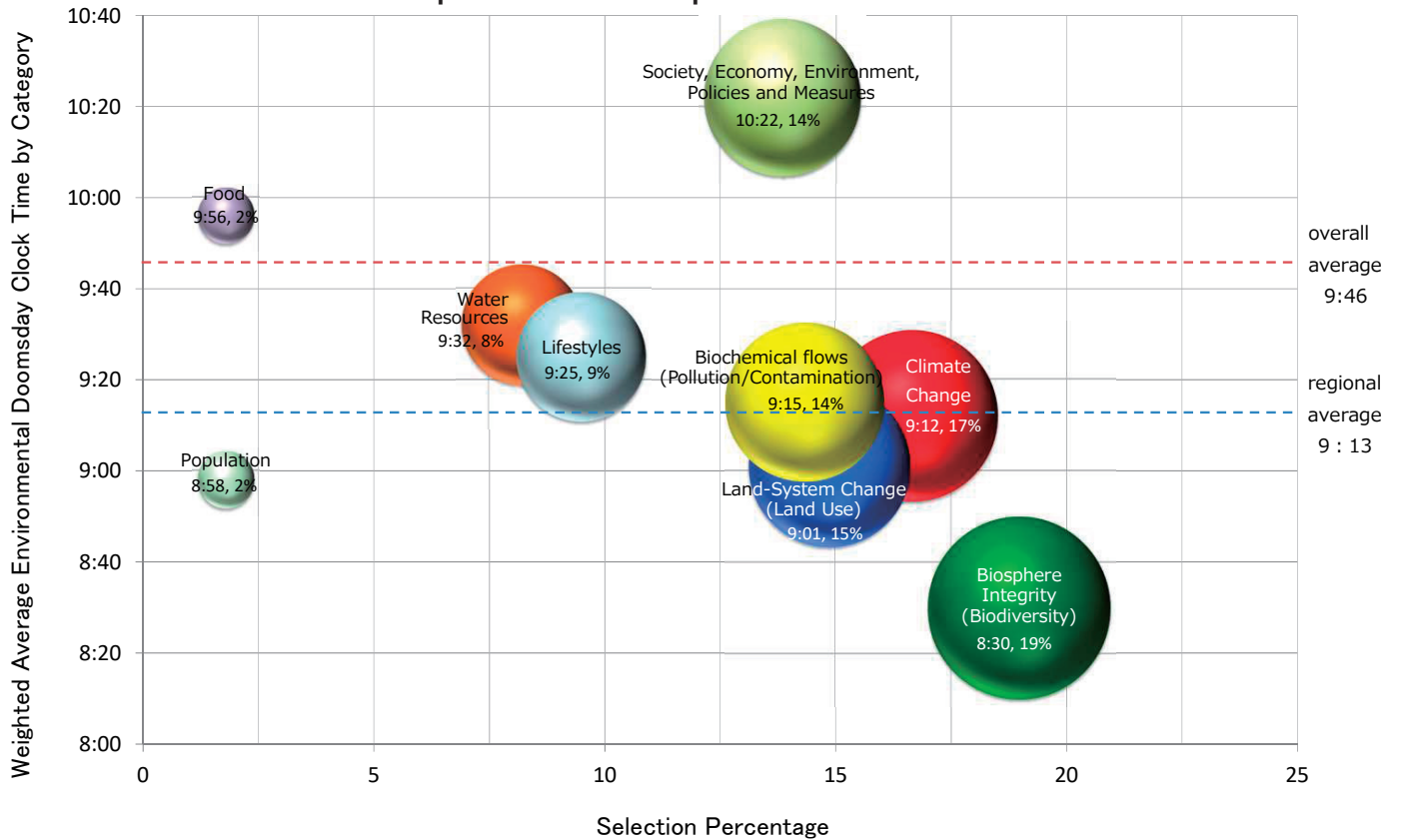
**Graph 1-7. Africa**



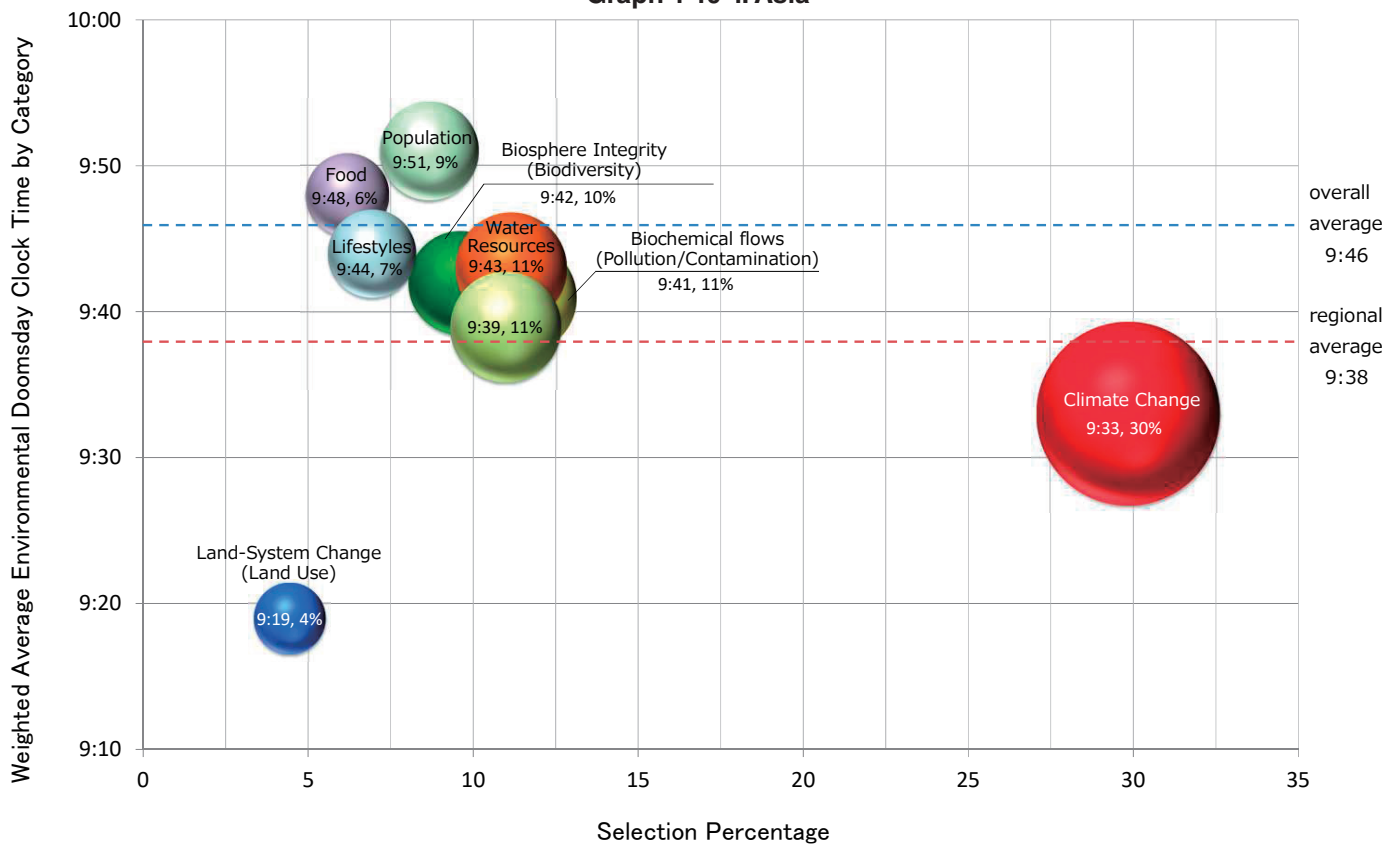
**Graph 1-8. Middle East**



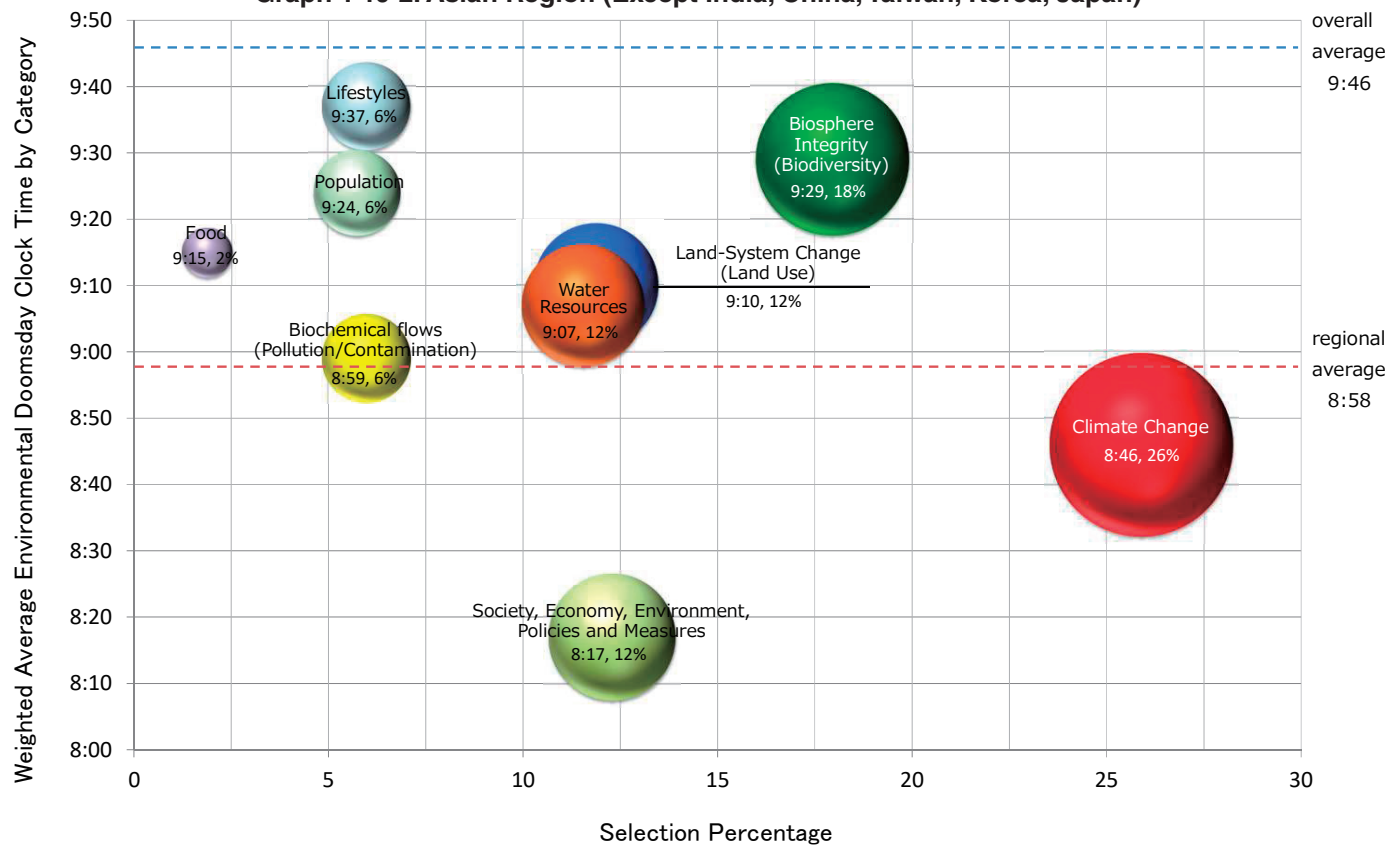
**Graph 1-9. Eastern Europe & former Soviet Union**



**Graph 1-10-1. Asia**

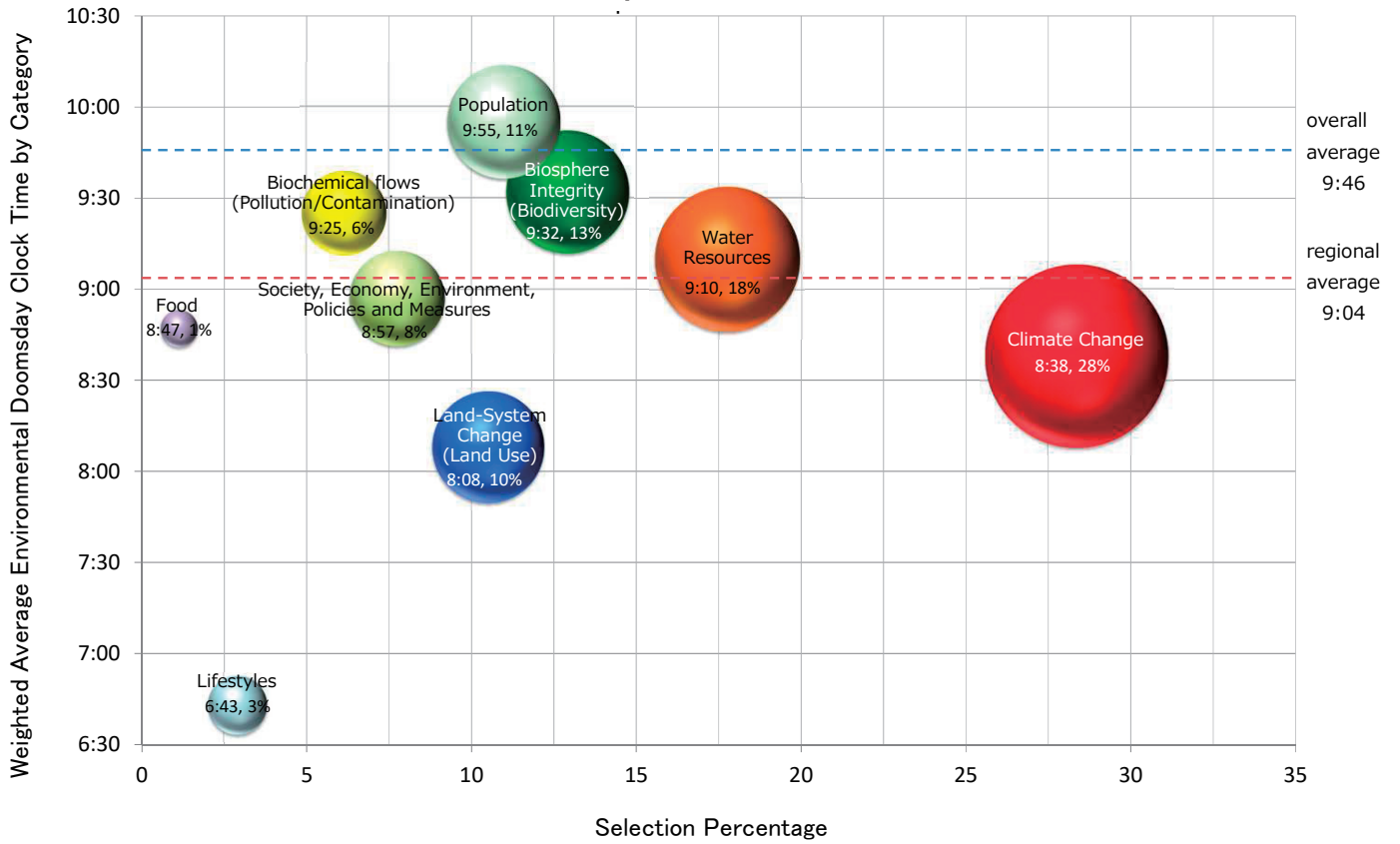


**Graph 1-10-2. Asian Region (Except India, China, Taiwan, Korea, Japan)**

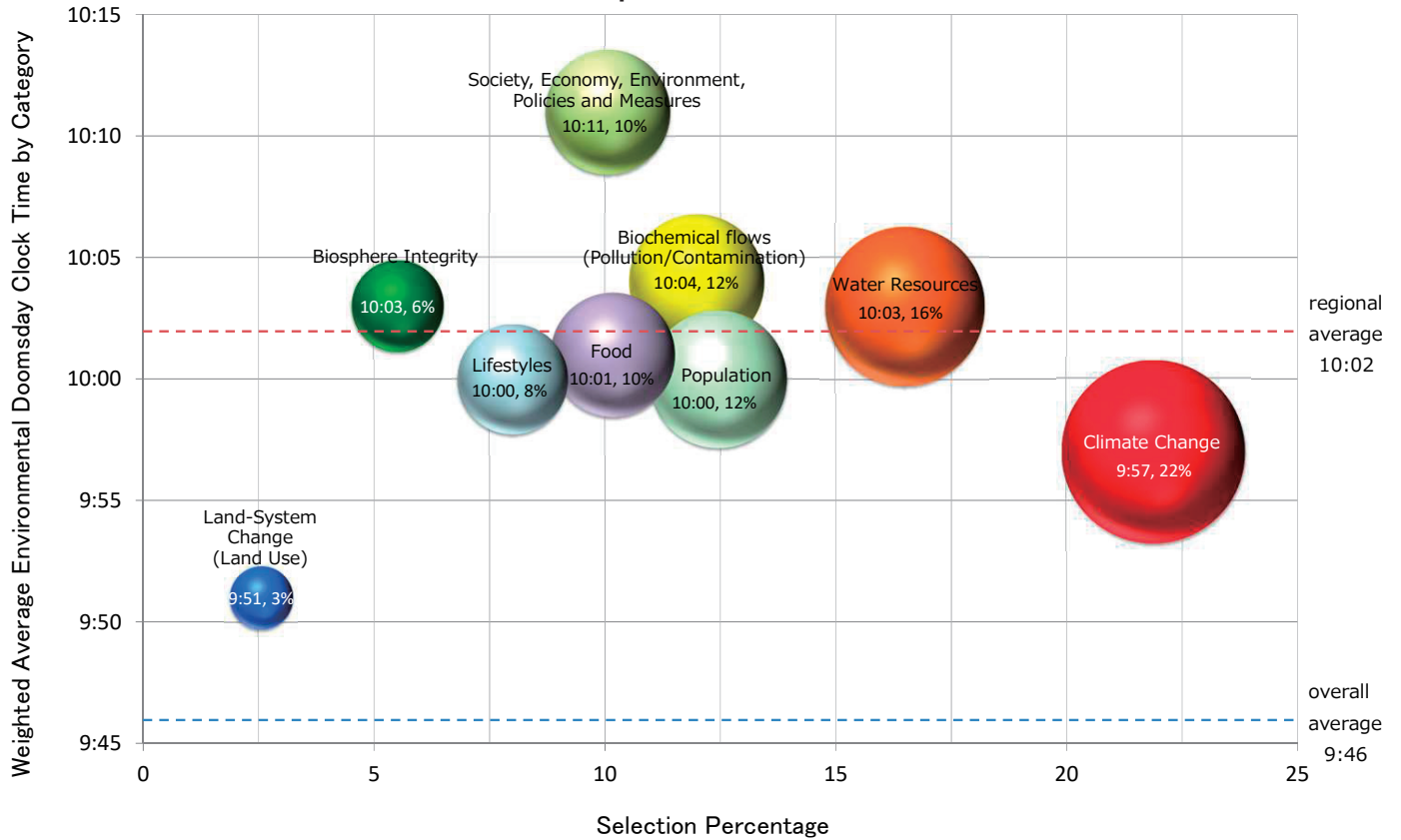




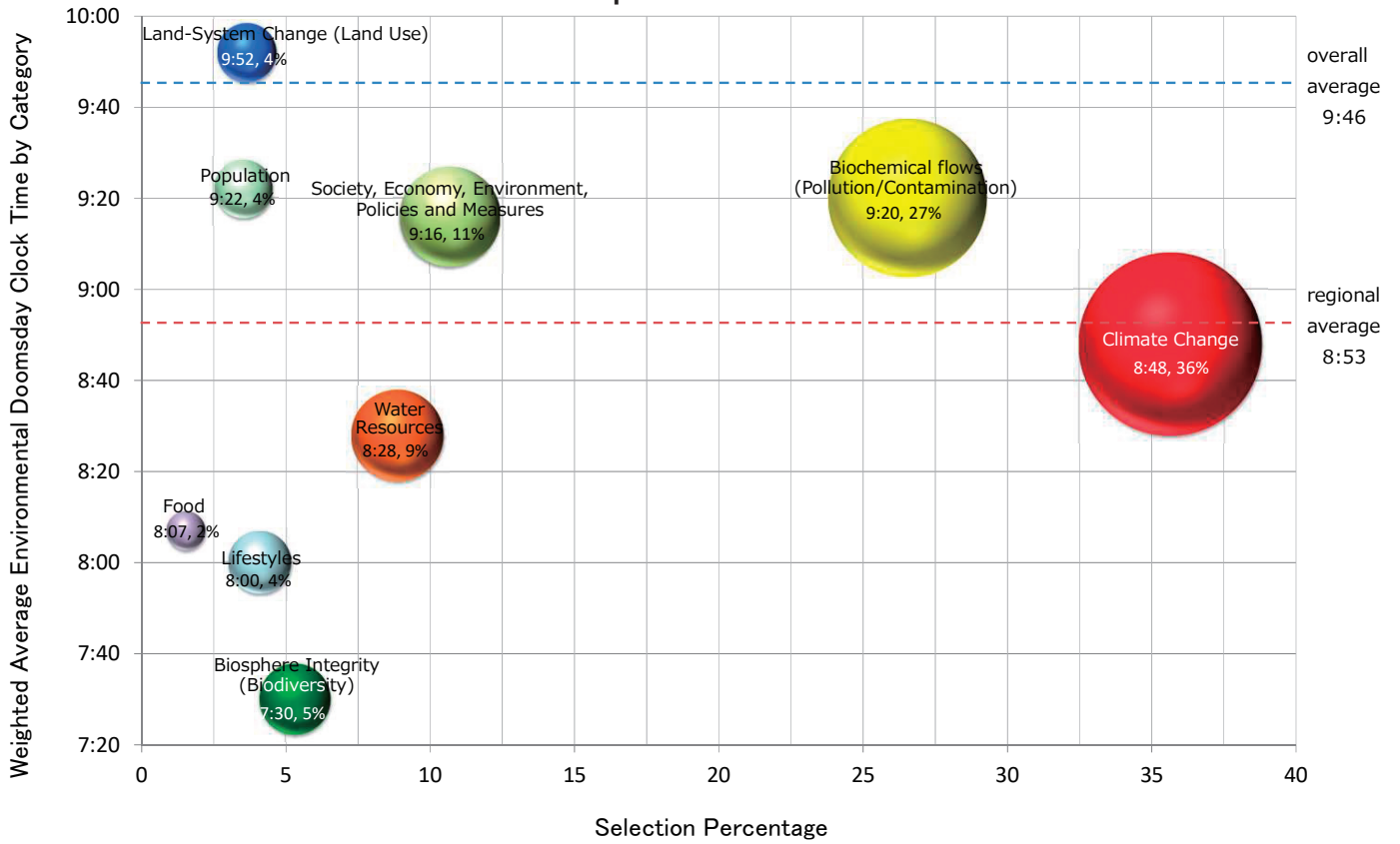
**Graph 1-10-3. India**



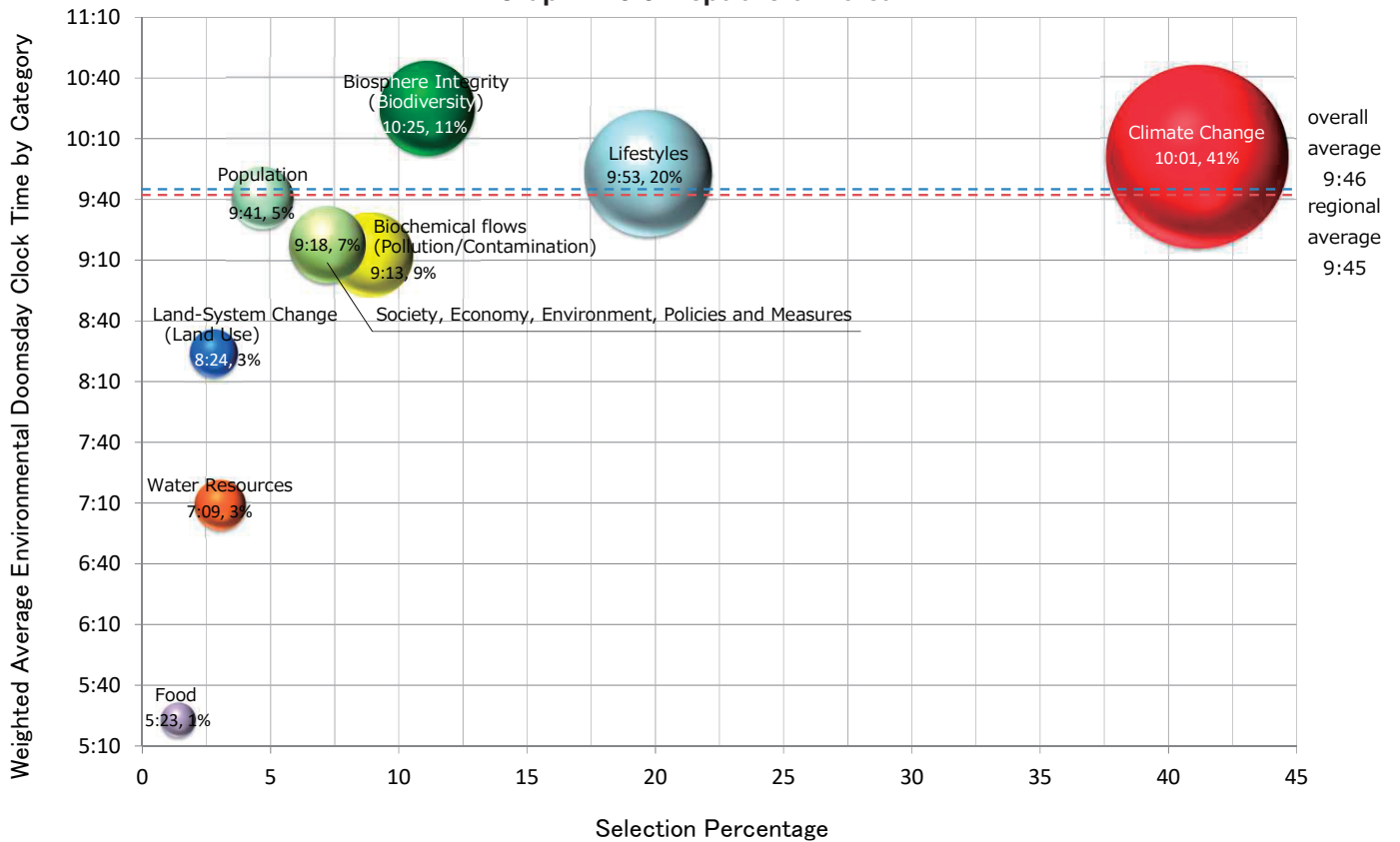
**Graph 1-10-4. China**



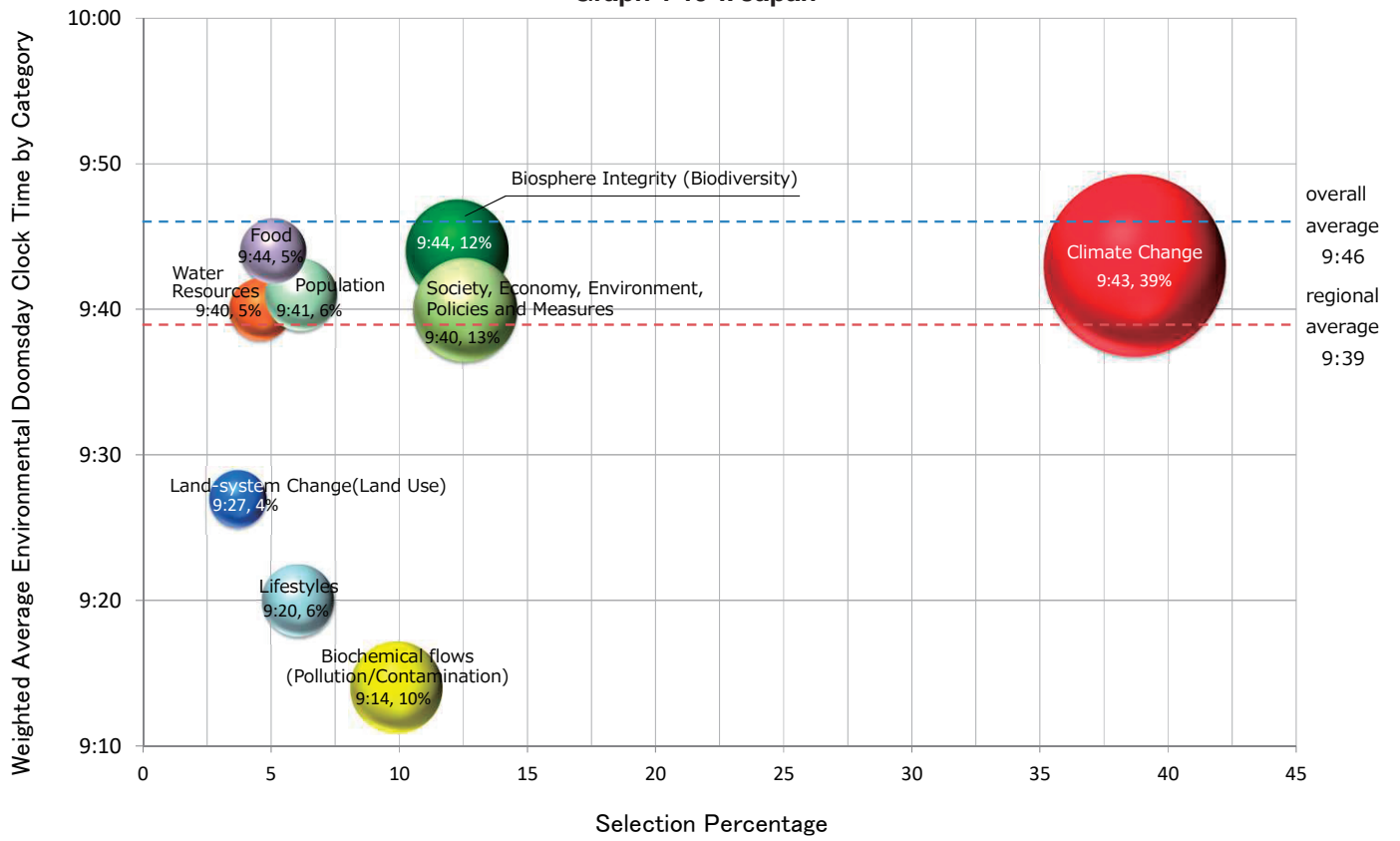
Graph 1-10-5. Taiwan



Graph 1-10-6. Republic of Korea



Graph 1-10-7. Japan



## 2. Awareness of Sign of Improvements in the Approach to Environmental Issues

Do you see any signs of improvement in the approach to global environmental issues? Please answer these questions from the following three viewpoints in comparison with before 2015 when the Paris Agreement and SDGs were adopted.

With signs of improvement in the approach to environmental issues being seen in the context of the three elements “Public Awareness,” “Policies, Legal System,” and social infrastructure “Funds, Human Resources, Technologies, and Facilities,” we asked questions by category indicating the transition to a decarbonized society and each environmental issue.

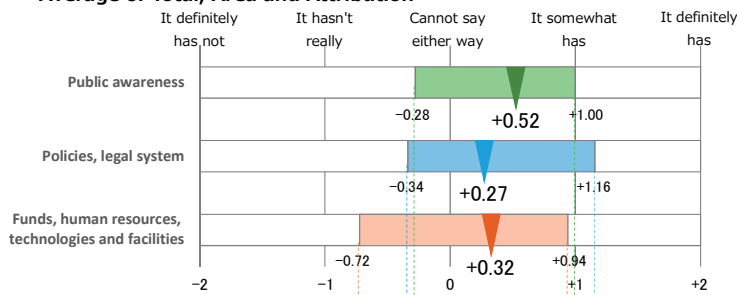
We calculated averages by quantifying the replies as follows: -2 for “It definitely has not,” -1 for “It hasn’t really,” 0 for “Cannot say either way,” +1 for “It somewhat has,” and +2 for “It definitely has.”

We used samples of 30 or higher when calculating averages for regions and countries.

### 2-1 Do you think the society has been heading to decarbonized?

Graph 2-1-1 shows the averages for the whole world and for regions and countries.

**Graph2-1-1. Decarbonized Society, Average of Total, Area and Attribution**



The world averages were as follows.

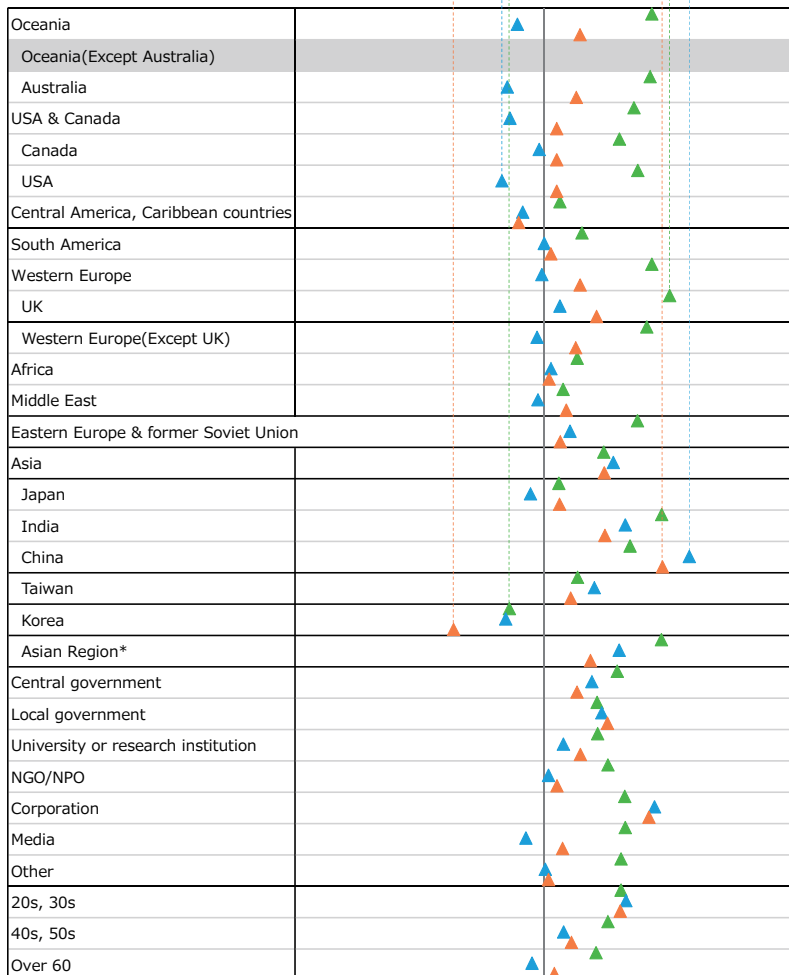
- Public Awareness +0.52
- Policies, Legal Systems +0.27
- Funds, Human Resources, Technologies, and Facilities +0.32

Overall, there were some signs of improvements in the approach to the transition to a decarbonized society, but “Policies, Legal System” and social infrastructure “Funds, Human Resources, Technologies, and Facilities” had not advanced as much as “Public Awareness.”

The only places where the value for “Policies, Legal System” was negative were Japan, Australia, USA, Canada, Middle East Central America, and Western Europe (except UK), showing no improvements.

By contrast, the responses from China and Taiwan showed that rather than “Public Awareness,” “Policies, Legal System” had advanced. The same trends could be seen in responses from business people by occupation type.

What stood out is that “Public Awareness” yielded a positive value only in Central America and that “Cannot say either way” was the most frequent reply for all elements in Japan, while “There are no sign of improvements” was the most frequent in Korea.



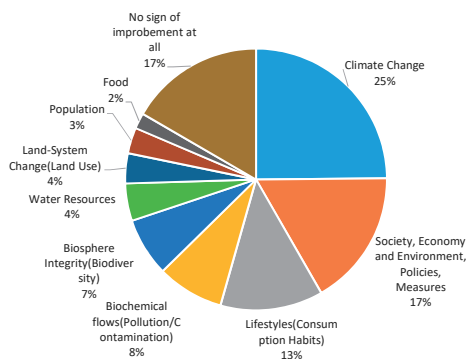
\*with the exception of India, China, Taiwan, Korea and Japan

2-2 Where do you see signs of improvement? Please choose one category from the table 2(page7) that shows a list “Environmental issues to be taken into account.”

The item most frequently selected for having signs of improvement was “Climate Change” at 25%, followed by “Society, Economy and Environment, Policies, Measures” at 17%, and “Lifestyles” at 13%. 17% responded “There are no improvements at all.”

Table 5 shows the quantified results just like Q2-1.

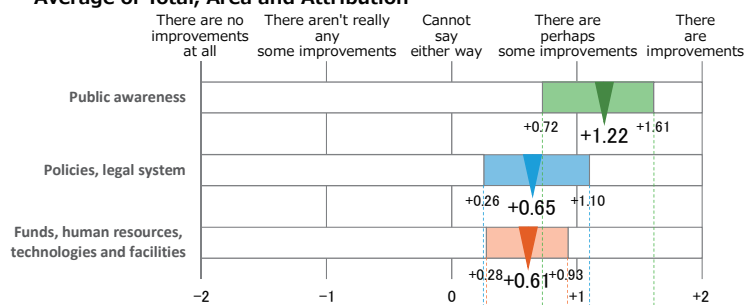
**Graph2-2-1. Signs of Improvement, Chosen Environmental Issues**



**Table 5. World averages by item**

	Public awareness	Policies, legal system	Funds, human resources, technologies and facilities
<b>Climate Change</b>	1.22	0.65	0.61
<b>Society, Economy and Environment, Policies, Measures</b>	0.99	0.91	0.86
<b>Lifestyles (Consumption Habits)</b>	1.07	0.43	0.62
<b>Biochemical flows (Pollution/Contamination)</b>	1.04	0.95	0.90
<b>Biosphere Integrity (Biodiversity)</b>	1.03	0.63	0.49
<b>Water Resources</b>	0.96	1.03	1.01
<b>Land-System Change (Land Use)</b>	0.81	0.57	0.56
<b>Population</b>	0.80	0.52	0.59
<b>Food</b>	0.88	0.73	0.85

**Graph2-2-2. Signs of Improvement, Environmental Issues, Average of Total, Area and Attribution**



Graph 2-2-2 shows the averages for all responses and the averages for countries and regions with samples of 30 or more with regard to “Climate Change,” which was selected most frequently.

The world averages were as follows.

- Public Awareness +1.22
- Policies, Legal Systems +0.65
- Funds, Human Resources, Technologies, and Facilities +0.61

For “Public Awareness,” the world average exceeded the value for “There are perhaps some improvements.”

Although a relative comparison, it was especially high in Oceania, Western Europe, and then North America.

The responses from Japan had the lowest average.

For “Policies, Legal Systems,” all of Asia and especially China score higher than the world average, and it was relatively low in Oceania and USA&Canada despite the high “Public Awareness.”

For “Funds, Human Resources, Technologies, and Facilities” as social infrastructure, it was high for China and Western Europe, but low for South and Central America.

Region/Country/Group	Public awareness	Policies, legal system	Funds, human resources, technologies and facilities
Oceania			
Oceania(Except Australia)			
Australia			
USA & Canada			
Canada			
USA			
South and Central America			
Western Europe			
UK			
Western Europe(Except UK)			
Africa			
Middle East			
Eastern Europe & former Soviet Union			
Asia			
Japan			
India			
China			
Taiwan			
Korea			
Asian Region*			
Central government			
Local government			
University or research institution			
NGO/NPO			
Corporation			
Media			
Other			
20s, 30s			
40s, 50s			
Over 60			

\*with the exception of India, China, Taiwan, Korea and Japan

No graphs were made for the other items as there were too few samples per country and region.

## Comment

As shown by the recent late time of the Environmental Doomsday Clock, environmental crisis awareness has reached its highest level since the start of this survey. Despite the critical situation, we conducted a survey involved environmental experts all over the world to gauge if there has been any improvements or if things are only getting worse. As a standard, we make a comparison with prior to the adoption of the International Framework Convention on Climate Change (Paris Agreement) and the UN's Sustainable Development Goals (SDGs) in 2015.

"Policies, Legal System" and social infrastructure "Funds, Human Resources, Technologies, and Facilities" differ depending on the circumstances in countries or regions, so we show the variance between the total and the local by including world averages and averages for countries or regions in one graph.

Looking at the advance of the transition to a decarbonized society in Q2-1, many results for so-called advanced countries were negative in that "Policies, Legal System" had not advanced as much as "Public Awareness," but interestingly, in China and Taiwan, it seemed that "Policies, Legal System" has advanced more than "Public Awareness."

For the items about signs of improvements in Q2-2, the order was "Climate Change," "Society, Economy and Environment, Policies, Measures," and "Lifestyles." Likewise, "Climate Change" was also the item selected most frequently as important when thinking about environmental issues in Q1, so we can see a strong interest in the severity of the situation and the approach to make improvements.

Even so, "Biosphere Integrity (Biodiversity)," which was picked second most frequently in Q1 and is a primary factor in the advance of the Doomsday Clock, was only picked fifth in terms of whether signs of improvement can be seen, so we worry that there are few signs of improvement and that the situation has become more serious.

For the future, we will continue using these same questions for a while, and continue conducting this survey while paying attention to variance between world averages and those of countries and regions.

You might have found the questionnaire difficult to fill out, but we want to thank all responders for your help in providing comments and good answers.

**Results of the 28th Annual  
“Questionnaire on Environmental Problems and the Survival of Humankind”**

**REPORT**

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