Japan Geoscience Union Meeting 2013
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Comparative study of the psychological evaluation for the sightseeing scenes by Japanese, Korean and Chinese subjects

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1 Introduction

Japan is faced with decline of population, because of low birthrate. Especially, in the many regions without active industries, aging is advancing. Under this condition, tourism is being paid attention, as newer industry, because the demand for travel increases in the countries around Japan. However, the needs of people in these countries have not been clarified in detail. In this study, the similarities and differences in the psychological evaluation for the sightseeing scenes in Hiroshima by Japanese, Korean and Chinese subjects are examined, to find the new attractive points felt by foreigners.

2 Outline of the experiment

Forty scenes as the stimuli in the psychological experiments were chosen from 778 scenes of the photo gallery in the homepages for sightseeing in Hiroshima prefecture. In the selection, all of the scenes were classified to 34 groups by KJ technique and one scene was extracted from each group as a representative. Then, the six scenes were added for comparison with other scenes.

The questionnaire consisted of two parts, a face sheet and a psychological evaluation sheet for each scene. The face sheet included the subjects' attributes and the consciousness of Japan and Hiroshima. The psychological evaluation sheet consisted of comprehensive evaluation items, Willingness to visit, Interest, Likeness of Japan, etc. and 13 image evaluation items based on the Semantic Differential technique.

The foreign students in Hiroshima University and Hiroshima Shudo University took part in the experiment, as the Chinese and Korean subjects. The students in Hiroshima University were used as the Japanese subjects. The number of the Chinese, Korean and Japanese subjects were 90, 26 and 127, respectively.

3 Comprehensive evaluations by the three subjects groups

In the evaluation of Willingness to visit, the scenes largely occupied by artificial elements were evaluated lower. On the other hand, the scenes including nature and the scenes of Japanese gardens were evaluated higher. These tendencies were almost similar among the three subjects groups. However, few natural scenes were evaluated higher by the foreign subjects and lower by the Japanese subjects.

In Likeness of Japan, the similarities among the three subjects groups were shown in the scenes with historical shrines or temples and the traditional streetscape scenes. However, the evaluation of the Japanese subjects differed from it of the foreign subjects in the scenes of ravines and the scenes of terraced paddy fields. These scenes were evaluated more Japanese by former subjects. It is supposed that the foreign subjects were used to see the natural scenes like them in their mother countries.

4 The relationships between the evaluation

The factor analysis of the principal factor method was applied to the data combined the image evaluation by three subjects groups. Based on the pairs of bipolar adjectives with high factor loadings, factor 1 to 4 extracted were interpreted as Inherency, Pleasantness, Traditionality and Openness.

According to the correlation coefficients between the comprehensive evaluation items and these four factors, Inherency had more influence on Willingness to visit in the foreign subjects compared with the Japanese subjects. In the results of the Chinese subjects, Likeness of Japan was related to Inherence. On the other hand, Pleasantness affected Likeness of Japan in the results of the Japanese subjects.

5 Conclusion

In the psychological evaluation for the forty sightseeing scenes in Hiroshima, the similarities and differences among three subjects groups were grasped. However, the foreign students were living in Japan and they might obtain the knowledge and the experiences concerned with Japan. Therefore, it will be required to compare the results with the evaluation by the people who have lived in their mother countries and have not been in other countries.

Keywords: sightseeing scene, foreign student, psychological evaluation

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A Comparative Study on Landscape Evaluation Between Japan and Korea

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Introduction

The objective of this study is to clarify differences of landscape recognition of both nationalities and also to uncover characteristics of landscape elements that are highly valued with university students in both countries were asked to distinguish and evaluate landscape photos which had been taken in Japan and Korea.

Methods

1) after collecting landscape photos of national parks from both countries, 37 photos of waterfall, forest, sea shore, river, building, swamp, mountain, and lake were selected from each country, which sum up to a total of 74 photos, 2) these photos were categorized in groups by 105 university students and each group was labeled with a name, 3) the same students evaluated these photos according to preference (5-scale) and exoticism (3-scale), and 4) they were asked to select three photos which they believe to represent the unique characteristics of the nation, so that landscape that exhibit the unique characteristics of each nation can be extracted. The subjects from Japan are 52 students who belong to Chiba University, and those from Korea are 53 students who are registered at Seoul National University. Cluster analysis (Ward's method, squared Euclidean distance, 3) was applied for the analysis of photo categories, and Mann-Whitney U Test was applied for the analysis of evaluation variances.

Results

With the photo grouping exercise, there were seven photos were categorized in different groups in Japan and in Korea. Three of them were categorized as RIVER by the Japanese but as LAKE by the Koreans. Also, a famous site in Japan which shows a set of a waterfall and a temple was categorized as WATERFALL among the Koreans, but was considered as CULTURAL LANDSCAPE by the Japanese. CULTURAL LANDSCAPE is a group name given to the landscape comprised with buildings. As for the results of preference analysis, statistically significant differences were detected with nine photos. On the other hand, exoticism evaluation did not detect statistically significant difference with 36 photos. Among these 36 photos, 15 were from Japan and 21 were from Korea. In addition, FOREST and COAST both scored low on exoticism evaluation in both nations. When the subjects were asked to select photos which show characteristics of the other nation, half the photos were cultural landscape (59% of Japan, and 49% of Korea). Contrarily, when the subjects were asked to select photos which show characteristics of his/her own nation, cultural landscape (25% of Japan, and 29% of Korea) and landscape of famous sites were selected. In particular, the selection among the Koreans exhibited disparity.

Considerations

With the photo grouping exercise, the Japanese and the Koreans both distinguished almost similar landscape groups. However, it was notable that the photos of RIVER which were categorized as LAKE by the Koreans did not contain rocks along the water. Therefore, it is possible that the Koreans recognize river and rocks together as a set. Neither the Japanese nor the Koreans recognize exoticism with landscape of FOREST and COAST. It is inferred that they can distinguish characteristics of each nation with cultural landscape which include buildings. These evaluation results indicate that landscape evaluations of the Japanese and those of the Koreans share commonalities. Photo selections of characteristics of the nation also indicated that cultural landscape are the distinguishing factor of unique characteristics. As photos of natural landscape alone were hardly selected as representation of the characteristics of a nation, it is possible that the Japanese and the Koreans do not have any distinct images of the other part's natural landscape. There is also a possibility, particularly with the Koreans, that there is no common recognition of nature landscape which represents Korean characteristics.

Both countries share commonality in landscape recognition and evaluations, but differences have been also uncovered.

Keywords: Landscape evaluation, Japan, Korea, International comparison

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HGG02-03 Room:202 Time:May 19 14:55-15:15

A Comparative Study on Landscape Evaluation Between Japan and Indonesia

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Introduction

The preference of natural landscapes is important for landscape planning from the view point of tourism. The purpose of this study is to clarify the differences of scenery recognition of Japan and Indonesia, and to find the characteristics of scenery elements that are highly valued.

Study Methods

The study was conducted with the following four steps: 1) after collecting the scenery photos of natural landscape from Indonesia (33 photos) and Japan (35 photos) of *waterfall*, *forest*, *seacoast*, *river*, *wetland*, *mountain*, and *lake* which the total of 68 photos, 2) these photos were categorized in groups by 105 university students and each group was labeled with a name, 3) the same students evaluated the photos according to favorability (5-scale) and exoticism (3-scale). The respondents from Japan were 55 students at Chiba University, and from Indonesia were 50 students at Bogor Agricultural University. Cluster analysis (Ward's method, squared Euclidean distance) was applied for the analysis of photo categories, and Mann-Whitney U Test was applied for the analysis of evaluation variances.

Results and Considerations

In the photo grouping, the Japanese and Indonesian distinguished almost similar scenery groups. There were seven photos which were categorized in different groups in Japan and Indonesia. It was notable that the photos of *forest* which were categorized as *wetland* by the Japanese because it consists of high grass. Therefore, it is possible that the Japanese recognize grass as a set in wetland. Two rivers in Japan and Indonesia were categorized as *river* among Indonesian, but Japanese categorized it as *forest and mountain in distant view*. The *lake* was categorized by Indonesian, but Japanese categorized it as *forest and mountain in distant view*. The *forest* was categorized by Indonesian, but Japanese categorized it as *forest and mountain in distant view*. Japanese saw the forest from the bottom, so they could see the shape of the mountain which consists of forest. Japanese also differs the wetland as *wetland in distant view* and *wetland in close up view*. From the distant view, Japanese only could see the grassland as main view, but from the close up view they could see the detail of landscape element such as forest nearby the wetland. As for the results of preferences evaluation, statistically significant differences were detected with 25 photos, 17 were from Japan and 8 were from Indonesia. On the other hand, exoticism evaluation detected statistically significant differences with 48 photos, 28 were from Japan and 20 were from Indonesia. Preferences evaluation between Japanese and Indonesian were also quite similar. Neither Japanese nor Indonesian recognized preferences with sceneries of *forest* and *wetland*. However, either the Japanese or Indonesian prefer *waterfall* and *seacoast* than others. Japanese and Indonesian like prefer natural landscape with water element than without it. While, based on exoticism evaluation, *river* and *wetland* were not recognized by both of countries, but *coast* and *waterfall* were recognized by both of countries. It is inferred that water element in landscape have an important role in scenic beauty. River and wetland in this photos have no landscape element diversity in it. Both of countries share commonality in scenery evaluations of preferences and exoticism, but differences have been also found in recognition based on the viewing point.

Keywords: landscape evaluation, grouping test, preference, exoticism, Cluster analysis, Mann-Whitney U Test

Japan Geoscience Union Meeting 2013
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HGG02-04 Room:202 Time:May 19 15:15-15:30

Forest Imagery in Japan and Russia

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This study investigated the ways of seeing the forest in Japan and Russia by using Landscape Image Sketching Technique (LIST). With the globalization of tourism, the recreation needs are diversifying on the one hand; local culture and customs can become a new tourist resource on the other. Understanding culturally different meanings of forests will give a new insight into tourism promotion as well as natural area management.

For cross-national research, Japan and Russia were selected. Japan and Russia are neighbouring countries, however, the mutual communication has been not enough. This report is an interim report of JAPAN-RUSSIA Joint Research Project since 2008 'Comparison of Natural Landscape Evaluation between Japan and Russia', which is financed by Japan Society for the Promotion of Science (JSPS) and Russian Foundation for Basic Research (RFBR).

Landscape Image Sketching Technique (LIST) is an empirical methodology to exteriorize an individual landscape image as a scene sketch by respondents. The 'landscape image' is defined as a medium between one's individual values and social construction as well as physical landscape and landscape representation. The visual data from one's perspective mirror the respondents' identification and symbolization of the landscape and then reconstruction of the meaning in its composition as a figure-ground relationship. In other words, the sketching procedure can coordinate the inconsistent verbal accounts in a symbolic picture, which is the advantage of the scene sketch. LIST reveals 'what' people are looking at as well as 'how' they are viewing their environment, thus giving us new insights into the understanding of the public image through landscape perception.

The empirical data were obtained with questionnaire in Japanese and Russian language. The respondents were students of Moscow University, Irkutsk University, Chiba University and Hokkaido University. The site selection intended to diversify the forest images considering geographic position as well as vegetation of each research site.

About 50 respondents in each research site were asked to make a landscape image sketch of their spontaneous imagination of a 'forest' with some keywords and text. The visual data were analyzed through three phases. Landscape elements were identified visually and linguistically and labeled first. View angle and distance were classified according to the visual appearance and combination of each landscape elements and viewpoint. Then, self-orientation in the represented landscape was classified in terms of the combination and structure of the elements and viewpoint. Finally, the meaning or motive of the landscape image sketches was interpreted comprehensively with relation to the labeled elements and verbal description.

As results, landscape image sketches showed diverse variety in each research site, but different characteristics between Japan and Russia suggested the fundamental difference in the ways of seeing the landscape through cultural framework. The preference for broadleaf wood forest in Japan and mixed forest in Russia was main difference concerning 'what' they are looking at as a forest. The result also showed a contrast between the wide ranges of categories in Japan and the certain distance in Russia, which represents 'how' they are viewing the forest.

The results implied locality-specific forest uses and accessibility of forests in each research site. In Japanese sample, the viewpoints were seen in the sketches representing scenes of their recreational uses in forest. In Russia, their romantic scenes were usually objectified describing the forests in detail. The results can suggest the different aesthetic norm in each cultural framework. In short, the research findings indicate different ways of seeing the landscape: a mere backdrop to one's experience in Japan and romantic and aesthetic harmony of forest landscape in Russia.

Keywords: landscape imagery, forest, Japan, Russia, sketch drawing

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HGG02-05 Room:202 Time:May 19 15:30-15:45

Differences in and causes of Environmental Attitudes between Russia and Japan

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Attitudes toward the natural environment, such as perception of color and susceptibility to temperature, may be of genetic origin due to different physical characteristics. However, to adapt to the natural environment and establish a rich lifestyle, it is essential to gather people's views and values, analyze them, and identify the characteristics and constraints of the natural environment in which people live, since these strongly influence the environmental values and experience of each individual.

We conducted some experiments to investigate Japanese and Russian attitudes toward the natural environment. In this study to compare both countries, we did the following: 1) clarified the differences and common points in environmental attitude between the two countries and among research sites, and 2) discussed their causes.

First, we surveyed the attributes of respondents at each research site (4-site in Japan; 3-site in Russia). Subsequently, to examine the environmental attitudes between the two countries, the Thompson and Barton Scale Test (TBS) and New Environmental Paradigm (NEP) were used for the investigations.

The analysis clarified that 1) Russia is more ecocentric than Japan, 2) Russia is less anthropocentric than Japan, and 3) Russia has lower environmental apathy than Japan. These results suggest that Russian respondents are highly interested in the natural environment and take the ecosystem into consideration, and attempt to adjust their own lives to the natural environment more than Japanese respondents. Thus, Russians are more highly orientated toward human and environmental symbiosis than Japanese. The lack of any statistically significant difference in any indicator of environmental attitudes in a domestic comparison such as Moscow - Irkutsk and Hokkaido - Chiba was also interesting. In other words, certain common factors surrounding the respondents of each country led to this result, whereupon the reasons for the causes were discussed.

Keywords: Cross-Cultural Comparison, Environmental Attitude, Environmental apathy, Anthropocentrism, Ecocentrism

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HGG02-06 Room:202 Time:May 19 15:45-16:00

Which does affect the natural landscape appreciation strongly, cultural or geological difference?

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Many cross-cultural researches pointed out the difference of landscape appreciation by countries. But the causes of these differences were not cleared still now.

Our research group conducted the cross-cultural research about landscape appreciation between Japan (Sapporo, Chiba, Kyoto and Miyazaki) and Russia (Moscow, Irkutsk and Kamchatka). This project was consisted by three main investigation, 1) comparison of natural landscape appreciation and their impression using photos, 2) comparison of environmental attitude, and 3) comparison of forest images by literal analysis and landscape image sketch analysis. The purpose of this paper is to discuss the cause of differences of landscape appreciation through the review of these results.

The photo based study showed that there were international differences about natural landscape appreciation between Russian and Japanese respondents, as well as national difference between groups of Russian respondents from different regions (Moscow, Irkutsk and Kamchatka). For the grouping of landscapes the most important feature appeared to be the presence/absence of water and type of water basin. Topography is also important for the Russians, while both visual and seasonal characteristics are significant for the Japanese.

The comparison of environmental attitude using the Thompson and Barton Scale Test (TBS) and New Environmental Paradigm (NEP) showed Russian respondents were highly orientated toward human and environmental symbiosis than Japanese. It was also interesting that there was no statistically significant difference in any indicator of environmental attitudes in the national comparison such as Moscow ? Irkutsk, or Hokkaido ? Chiba.

The analysis of landscape image sketches revealed differences between respondents in Japan and Russia. The typical landscape images of a forest were represented objectively, as aesthetic scenery in Russia and subjectively, as a practical place in Japan. The results suggested a fundamental difference in ways of seeing the landscape through individual perceptions rather than normative views on forests.

These three results indicated the differences of landscape appreciation between Japanese and Russian respondents. And such differences were also found between Russian respondents. Russia is one of the biggest countries in the world, so their landscapes were really diverse. Moscow region is flat and covered by forest. Irkutsk region is surrounding by mountainous landscapes, and close to Baikal lake. Kamchatka region is along with coast and has volcano. Because there were no difference about environmental attitude between Russian respondents, the natural settings of surrounding area would influent their landscape appreciation.

Keywords: natural landscape, landscape appreciation, Japan, Russia, cross-cultural research

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Effect of cultural cognition and symbolic imagery of landscape elements on the impression of naturalness

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Landscape that is visually recognized is an efficient measure for evaluating the environment. The quantity of landscape elements in the field of view is used to evaluate landscapes. For example, the urban landscape has a high percentage of artificial elements. Therefore, natural elements such as water surface, vegetation, and mountains add to the evaluation.

Greenery represents the natural elements in an urban setting, and in the field of vision, it is associated with the psychological process of evaluation. This index has been long available for evaluating landscapes and the environment. However, a landscape consists of multiple elements, and in landscape evaluation, impressions weigh more for comprehensive evaluation. Therefore, each locality or culture perceives landscapes differently.

This study aims to clarify the impression of natural landscapes and to investigate the influence of elements and symbolic figures on the impression of naturalness.

Man-made involvement: There are various criteria for evaluating naturalness using the vegetation index. For example, the natural grade of vegetation, or potential natural vegetation, is such an index. The richness of species and differences in composition are also potential criteria. Furthermore, differences in the conditions cause visual changes if the vegetation is the same species and object. Conditions have an influence on the impression of naturalness. Specifically, the trimming of greenery produces visual changes and creates man-made artificial forms. People's impression of greenery is based on the constituents of the impression structure, which are the artificial form, quantity, and variety. It is shown that the artificial conditions are correlated with trimming and have a strong influence on the impression of naturalness.

Cultural beliefs: If mountains are located outside a city, the view of mountains from the city is small. However, cultures consider mountains as part of the natural landscape, which has important implications. Accordingly, mountains have positive recognition. This section measured the viewing of mountains and investigated the report of mountains in the literature. It was shown that mountains are symbols of nature and religious sites since early times. Even though the view of mountains from a city has low ratings, it makes a strong impression on people.

Symbolic imagery: The impression a landscape leaves on humans is affected not only by direct perceptual information but also analogical imagery. The artificial karesansui garden symbolizes the great wilderness. However the great wilder nature doesn't exist in the garden. The landscape technique used does not include vegetation or water. Nevertheless, mountains and water are suggested. This section analyzed the impression of naturalness that people perceive from images of the karesansui garden. The karesansui garden has a simple architecture; however, the results show that people see variety in the garden. Even though the garden does not have a water area, people image water, either sea or river. Clearly, the symbolic image affects impression.

Even if landscapes consist of the same types of elements, differences in the conditions will create different impressions. Furthermore, despite the small viewing amount of elements, the cultural symbolism of the elements strongly affects impression. The indirect impression of the landscape on people's imagination has a powerful effect on the final impression. Therefore, it is important to measure people's impression of landscapes with multiple compositions and to discover the common ground of cultural awareness and symbolism.

Keywords: landscape perception, state variation, symbolic, analogy, imagery

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Some aspects of questionnaire creation for researches of landscapes esthetic quality

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It is known that the polling method by the majority of researchers is considered as subjective. On the other hand, now it is necessary for relying on public opinion and it can be used as a base for comparison with the new developed techniques of estimation of landscape esthetic quality. For this reason questioning is an important stage of carrying out of the landscape esthetic estimates of the studied area. The first challenge faced by the researchers is the complexity of the questioning on the place within the research area.

Advantage of using pictures is a possibility to take them printed to make questioning in any territory. In this case special technical equipment is not required. However not every picture can be used for this task.

For receiving the qualitative and representative pictures suitable for making questioning the researcher needs to know and consider the features of visual system of the person and optical system: 1) rules of landscape photography, 2) the principles of visual perception, 3) features of display of object by camera (a color rendition and distortion of forms with distance from the focusing center). Besides, pictures have to comply with some technical requirements: 1) to display the prevailing landscapes, 2) the horizontal corner of the review is 100-120 degrees, 3) pictures must be accurate both on the near plan, and on average and distant plans.

In the researched area the most characteristic landscape types are determined by using the features of human visual perception then these landscapes are pictured implementing the methods of landscape photography, and considering the features of the filming system.

The area of the research was the northeastern part of the coastal zone of the Lake Khubsugul, Mongolia. More than 100 photos were taken, 23 of them are chosen for the questionnaire.

The questionnaire is created on the web-site http://www.jotform.com and placed on the web-site http://estetland.ucoz.org. Questions in the questionnaire are divided into 2 blocks: data of the respondents and esthetic assessment of landscapes. For determination of quality of basic data in the questionnaire the following techniques were implemented: 1) there were two pictures of the same landscape used, 2) similar indicators ”beauty” and ”esthetics” were considered, 3) correlation coefficients between various characteristics of landscapes and their ”esthetic” quality were calculated.

According to the questionnaire results an influence of some integrated properties of landscapes to their esthetic estimations for respondents is defined. The chosen landscape properties are ranged based on the importance of the esthetic assessment as follows: transformation, harmony, beauty, unicity, variety. It is shown that for the receiving authentic data on esthetic preferences of respondents it is necessary to use the principles of representative photographing of landscapes. These results supplement previous results achieved by a method of the structural analysis of esthetic qualities of landscapes. It allowed ranging the landscapes on an esthetic quality and creating the map of esthetic resources of landscapes on the basis of the landscape-typological map of the studied area.

Keywords: Representative photographing, indicators of data reliability, esthetic qualitiy

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Appreciation of informal urban greenspace by Japanese and Australian residents

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As more people live and grow up in cities, we need a better understanding of our everyday urban environment and how we interact with the natural urban landscape. Prominent examples of this landscape like gardens and parks have been widely studied. However, just as we tend to overlook the grass growing out of a crack in the pavement, **informal urban greenspaces (IGS)** such as vacant lots, street or railway verges and river banks have not been comprehensively examined in terms of its quantity and distribution in cities, its characteristics, its biodiversity value, levels of use, and the benefits it provides to urban residents.

IGS is characterized by dominant spontaneous vegetation (often called weeds) and by not being formally recognized or managed for recreation, agriculture or conservation. As a result, it looks very different from designed, formal, intended greenspace. IGS exists in our everyday environment and may therefore challenge our aesthetic norms as well as our sense of order or may be interpreted as a lack of maintenance. But because it has no clear rules, no right way to use it or an intended form of design, this freedom from purpose creates the potential for a great variety of informal use: unstructured child play, casual exploring, guerilla gardening or quiet dog walks.

This study examines and compares informal urban greenspace in **Brisbane (Australia) and Sapporo (Japan)** to understand how it is related to appreciation of urban nature by residents. For this purpose a mail-back survey of residents in both cities was conducted, asking for knowledge and perception of IGS, use in the present or during childhood and general attitude towards urban nature. Additionally, the quantity, distribution and some ecological characteristics such as the IGS vegetation structure and bird diversity in the sample sites was examined. IGS in both cities was extensively documented using photography.

The results show that most respondents used IGS as a child or teenager and know about IGS in their neighborhoods. Residents see both positive and negative aspects of IGS; they praise its potential use and contribution to a greener urban landscape but sometimes deprecate its aesthetic value and associate IGS with low environmental quality. Most respondents regard urban nature as something intrinsically valuable independent from human evaluation. IGS also provides interesting examples of how private space can be reclaimed as public space, and vice versa (e.g. informal gardening on private parking lots and publicly owned river banks). This has implications for how we protect and manage greenspace in cities and how we provide for recreational opportunities as well as opportunities to encounter nature. Planners and ecologists need to account for these spaces in the future.

Keywords: urban nature, urban green space, landscape appreciation, child outdoor play, urban geography, cross-cultural comparison

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Sense of globe: Environmental profiling through real-time live monitoring and archiving experiences

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Introduction

The landscape that is closest to people, the one they are in touch with in their everyday lives, is called the 'surrounding landscape'. Among the elements in the surrounding landscape, changes in nature, such as the repetitions of day and night caused by the sun and moon, changes in weather, and the phenology of plants and animals, form the primal inner landscape of an individual. Through experiencing changes in nature and living through seasons and years, many scenes from the surrounding landscape accumulate in the mind's memory; this becomes the foundation for sensuously sharing an environmental experience.

With the internet, it is now possible to webcast in real time the sensuous information of distant natural scenery as images and sound. I think, when viewing distant natural landscapes in real time, changes in distant natural scenes can be perceived as if they are a part of the surrounding landscape. And if natural scenery around the world can be felt as if it were close-by, it could lead to the construction of a new landscape in the global environment era.

Live monitoring and archiving

I discuss 'Hyotan-Jima Live Monitoring', which is begun after the Great Tohoku Earthquake of March 11, 2011.

System overview: International Coastal Research Center (Iwate Prefecture) of Univ. of Tokyo was flooded up to the third floor, when the tsunami struck. After the disaster, ground and underwater microphones, a compound weather sensor, and webcams were set up. Information from these devices is transmitted via internet to our laboratory in Tokyo. In turn, the laboratory broadcasts it online in real time. Transmitted images, sounds, and data from the sensors are recorded on the server, creating an archive. This archive was made publicly available on internet.

The live monitoring webpage displays the following.

a. The newest still images and a time-lapse film displaying the last 15 minutes in a 4-second frame rate obtained from image data of the coast and ocean surface, and of the sky over Otsuchi Bay.

b. Data on temperature, humidity, precipitation, wind direction, and wind velocity .

c. Seawater temperature data at depths of 1, 5, 10, 15, 20, and 25 m off the east coast of Hyotan-Jima in Otsuchi Bay

d. Ground and Underwater microphones live sound URL, listener counts.

e. Image and sound archives URL.

Observations

It has been about one and a half years since the Live Monitoring started. The implementation of the continual online public broadcasting of environmental information consisting of sensuous information, such as sound and images, and information from the sensors has only just begun. However, I will discuss some observations made so far.

a. Progress in restoration: In the midnight recordings of June 2011, the croaking of Schlegel's green tree frogs can be heard. During the day, activities of the Self-Defense Force can be heard; at night, from the coastal sensors where there is almost no sign of people, the sound of waves and croaking of frogs were the most memorable.

b. The image from on October 7, 2011, is a fantasy-like scene of moonlight illuminating the island of Hyotan-Jima in the surrounding darkness.

c. The image from on May 19, 2012, shows Hyotan-Jima being showered by sunlight, as the morning mist rose from the surface of Otsuchi Bay; picturesque scenery.

Environmental profiling

When one watches and listens to distant natural scenery through live images and sound, while also interacting with close-by natural scenery from everyday life, the distant scenery starts to merge with the familiar and close-by surrounding landscape. This means that a spatial expansion is occurring in people's sensuous environment. Expansion also occurs temporally.

I believe that environmental profiling is a global environmental sense that accumulates in people's memories as they interact with live monitoring of natural environmental information online and as this information merges with the real environment.

http://cyberforest.nenv.k.u-tokyo.ac.jp/

Keywords: landscape, soundscape, live monitoring, archive, environmental profiling, internet