1) Research Objectives and Content

The "Environmental Culture Creation Program" uses interdisciplinary and transdisciplinary methods to uncover the complex processes of interactions and combinations of forces at work in the field of global environmental problems. In particular, the program aims to explore the role of culture in this process and to envision a new relationship between humans and nature in a sustainable society of the future.

If one asks how we can face the serious challenges facing modern society in terms of global environmental problems and how we can take steps to solve these problems, one would assume that the answer would be to provide scientific evidence based on accurate and rigorous measurement and analysis of the environmental crises facing the Earth (global warming, deforestation, air pollution, etc.). We can correct the way people think and lead to behavioral change. However, while the acquisition of scientifically accurate knowledge is a very important element, it alone does not automatically change people's values and behaviors. This is because there are cultural factors at work that shape people's lifestyles in both positive and negative ways. Therefore, in order to solve global environmental problems, it is necessary to address the issue of culture head on. The essence of this program is to rethink the creative power of culture from this perspective and to create an environmental culture that is linked to the solution of global environmental problems. This perspective can be described as an "equal dialog between science and culture". In the past, research on global environmental issues has been dominated by a discourse that unconsciously assumes the ultimate absoluteness (superiority) of scientific knowledge, even though it advocates interdisciplinary and transdisciplinary approaches. In this discourse, conventional and traditional knowledge that conforms to scientific knowledge is "re-evaluated", while those that do not are considered "unscientific" and "superstitious" and evaluated negatively. Under these circumstances, what is needed is neither a scientific supremacism that absolutizes science, nor a traditionalism (anti-science) that places cultural values above all else, but a relation in which both sides can engage in dialogue on an equal footing and both sides can transform themselves together. The environmental culture that this program seeks to create is the result of such a relationship.

Mission Statement

To create a comprehensive environmental culture to conserve the environment and halt its degradation through dialogue, collaboration and mutual transformation with the "indigenous knowledge" generated by each society, based on the recognition and analysis of scientific knowledge, targeting the complex interconnections and conflicts among diverse and heterogeneous elements that appear in local sites of global environmental problems. The vision is to create a comprehensive environmental culture to preserve the environment and

stop its degradation. We will clarify how different actors (local residents, scientists, government officers, NPO activists, international organizations, etc.) can face conflicts, build self-reliant and symbiotic relationships, and cooperate with each other to create a new mutual relationship between people and nature.

To achieve this mission, this program will explore how to bring a "cultural" perspective to the discussion of global environmental issues and the building of a sustainable society. A cultural perspective means focusing not only on the global or national dimension, but also on the more familiar and intimate group of people living together, and emphasizing the value (way of life) of how people can live better there. This includes values that are naturally alien to scientific knowledge. It is necessary to create a mutually transformative, convivial and creative perspective that neither corrects nor endorses such values that are in conflict with scientific knowledge. This program will contribute to the creation of a new culture (we call it "environmental culture") that deals with the environment and environmental issues by focusing on and utilizing such convivial relationships among diverse knowledge about the environment.

2) Issues and Results of This Year

In this fiscal year of the Environmental Culture Creation Program, the two Full Research (FR) programs that are entering their final year, the two Pre-Research (PR) programs that are scheduled to begin FR in the following fiscal year, and the four Feasibility Study (FS) programs that are scheduled to begin PR in the following fiscal year, each produced unique research results and continued their activities to contribute to the mission of the program. The two FS continued their activities to contribute to the program's mission. The outstanding results achieved by the two FRs over the past five years are described in the respective project accomplishment sections.

First, his contribution to the Supply Chain Project (a study on the environmental impact assessment of cities, businesses, and households through global supply chains) was as follows; the critical importance of reducing carbon dioxide emissions for the global environment is a premise of today's politics and lifestyle. However, sounding scientifically correct alarm bells about carbon emissions does not immediately lead to changes in people's behavior or values. This project uses big data from different regions of the world to analyze and visualize the vast accumulation of the act of purchasing and using a wide variety of products and services in our daily urban consumption, and to make it easily accessible on a map. In this process, corporations and local governments intervene between scientific evidence and individual consumer behavior, playing the role of translating scientific evidence into behavioral change based on their own agendas, interests, and philosophies. The project's main contribution to the program was to focus on the middle ground of the "science-culture dialogue" and to explore the creation of an environmental culture.

The contribution of the next SRIREP project (Co-creation of Sustainable Regional Innovations for High Burden Environmental Pollution Problems) is as follows. It is well known that small-scale gold mining using mercury is extremely harmful to the environment and health. In reality, however, there are many areas around the world where small-scale gold mining remains one of the few valuable sources of cash income and continues to evade regulation. In this project, we are not simply "providing correct knowledge and education" or "providing alternative means with top-down support", but rather we are working to create many TDCOPs (communities of practice for social implementation) at various levels where we can work together to find ways to realize the underlying values of their societies. The work of creating a number of TDCOPs (social implementation communities of practice) at various levels, where they work together to find measures to realize the underlying values of their society, has been built with the active participation of local community members, and many of them have been successful. This direction shows the potential of the program to explore the "dialogue between science and culture".

Two PRs also made significant contributions to the program.

First, the research project "Conversion from traditional knowledge to future collective impact with the fusion of science and arts: a lesson from resilient communities with global environmental changes" is highly interdisciplinary and longitudinal. Not only natural scientists, who are internationally at the forefront of rigorous time-measurement research using ancient corals, but also humanities and social scientists, who have studied the culture, memory, and identity of local communities, play an important role in this project. In addition, performers and artists who express their sensibility and intellect through their bodies, as well as members of the local community, are active participants. As these members work together as a whole, they transform the foundations on which they stand, realize a dialogue between science and culture on a common ground, and achieve a challenging attempt to integrate science and art. As a result, this project has greatly inspired the program by showing the difficulties of the dialogue between science and culture and the possibilities of overcoming them. Until now, the two have been fixed in an asymmetrical relationship, with one as the main actor and the other as the means to an end. In the field of environmental issues, science has been the protagonist, and theater and art have been used as tools to disseminate the results. In this project, however, we are constantly experimenting to create a relationship in which both parties assert and transform themselves together. The results are promising.

The other PR, "Building up biomass circulation system among city and rural area: Improving urban sanitation and restoring rural livelihood base", focuses on the circulation of garbage (waste). Especially today, when global urbanization is progressing and consumer culture is polarizing, the disposal of urban household waste is one of the most important global environmental problems. In this study, we approach this problem by rethinking garbage not as waste, but as a circulating material. To this end, for example, we are continuing experiments to compost food waste generated in large cities in Japan using dry composting instead of throwing it away, and we are also starting experimental trials to apply the results to Uganda and other countries. This is also a shift from the concept of "incineration" of unwanted materials to the concept of "fermentation" to convert them into useful materials. At the same time, the project has a long history in West Africa, where urban waste is dumped in suburbs to create green spaces that prevent cattle from encroaching on farmland. The project also attempts to extract the basic ideas of the practice of creating an environment for symbiosis by breaking the chain of conflict between urban dwellers, farmers, and pastoralists through the introduction of a waste recycling system and apply it to other regions. As described above, he has made a significant contribution to this program by attempting to recreate local cultures (values) through the use of scientific knowledge.

Four other FS have also contributed to the development of the program through their unique achievements.

The Ote FS, "The Value of Forests: A vision of the future for people and society living in harmony with forests", focuses on the value of forests. In modern society, forests have become disconnected from the world in which people live, and as a result, people are no longer aware of forest loss and degradation. Therefore, it is important to have practices and ideas to reconnect the disconnected relationship between forests and people. In order to realize this, this FS aimed to create a new relationship, in other words, a new environmental culture. The theme of the Kubota FS "Creation of passive architectural culture among urban houses in the Monsoon Asia" is a focus on passive architecture for Indian cities. In order to promote a decarbonized way of life in the modern world, it is important to transform the consumption lifestyles of the rising Asian urban middle class, and to do so it is necessary not only to promote the development and diffusion of urban low-carbon housing from above, but also to promote low/decarbonized ways of living and living in existing housing, which is the quintessential

perspective of this FS, and it has made a significant contribution to the creation of an environmental culture.

The Yamada FS "Grasping the base values of "sustainability" and cross-cultural comparison of cognitions and practices on global sustainability concerns" focuses on the concept of "sustainability," which has been unconditionally accepted by governments and corporations alike as a theme to be promoted in recent years, including the SDGs. This project focuses on the concept of "sustainability," which has been unconditionally accepted by governments and businesses alike as a goal to be promoted in recent years, including the SDGs. The project to explore the concept of "sustainability" rooted in the fundamental values of society is based on the awareness that this concept has been disseminated as a dogma of absolute justice from the context of the values underlying each society, and that this may hinder the recognition of environmental problems. It is also important as a sociological study of knowledge about global environmental issues. The last project, the Hongo FS "Coproduction Research with Local Practice and Science for Sustainable and Fair Hunting of Forest Wildlife", is an interdisciplinary and transdisciplinary research project on how fair and sustainable hunting of wildlife in tropical forests can be made possible through collaboration between scientific knowledge and indigenous knowledge. In the modern world, the destruction of tropical forests and the decline of wildlife are remarkable, and this calls for the conservation of forests and wildlife, but it is also important to ensure the livelihoods of people living in forests, who are increasingly marginalized in society. To resolve this aporia, this project seeks to answer the core question of the program, which is to explore the creation of knowledge based on a true and equal relationship between scientific knowledge and indigenous knowledge.

Three roundtables were held this year to discuss each project with experts, and three roundtables were held with Prof. Bin Wong, Distinguished Research Professor at the University of California, Berkeley, and project representatives and directors.

3) Future Issues

Based on the results of the FY2023 program, the following three issues can be raised as future challenges for this program.

1) Establishing a theoretical perspective that comprehensively understands the relationship between two heterogeneous types of knowledge (scientific knowledge and conventional knowledge). The foundation of a new "environmental culture" is the establishment of a dialogue between "scientific knowledge" and "indigenous/local knowledge", but it tends to be focused on, evaluated, and praised only when the two are smoothly connected in a complementary manner. In particular, the ideal relationship between the two is often focused on the case where the efficacy of indigenous knowledge is verified by scientific knowledge. In reality, however, there are many cases where the two are seemingly irreconcilable opposites. In such cases, it is usually either scientific knowledge or conventional knowledge that makes the final judgment. It is important to explore a third possibility theoretically. Preliminary work on this through analysis of each case will be the subject of next year's project.

(2) Establish organic links between FRs and PRs associated with the program.

The coming year will be the first year in which all three FRs of the program (PRs before the FR transition) will be in place. Therefore, it will be necessary to define how the three will work together and what each can contribute to the program, and to try to collaborate on projects to that end. The challenge will be to create a forum for the three projects to discuss how they will carry out the program's mission and how their perspectives will be transformed in the process.

(3) Pursuing cross-program dialogue and coalition building

With the new second program "Combining Knowledge for a Fundamental Innovation of Land Use Program" launched this year and the preparation of the third program underway, it is necessary to establish a mechanism for FR, PR, FS, and IS, which belong to different programs, to realize the mission of the entire Institute of Earth Sciences through collaboration among various research organizations without closing research within a single program.