

## Report on Field Study in Iinan Town, Shimane Prefecture

In the last month of 2021, as one of students in Graduate School of Global Environmental Studies, Sophia University, I was very appreciated for the chance to join the field trip of Asian Environmental Studies. The field study at this time was so challenging due to Covid-19; here, it's my great honor to express gratitude on behalf of total 21 students to Prof. Huang, from Sophia University and Prof. Toyota, from Tokyo University of Agriculture and Technology, and local government officials, farmers, and residents.

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Fig.1 Group photo of local officials and managers & professors and students



Fig.2 Local Landscape

From Dec.9th to 12th, 2021, guided by two professors, students, from Sophia University and Tokyo University of Agriculture and Technology, had a joint field trip in Iinan Town, Shimane Prefecture- a mountainous region in the western part of Honshu. To facilitate the trip, three groups (social, soil, and water team) did research work beforehand, including the design of questionnaire (social group) and the application of experimental instruments (soil and water team), with an emphasis on the development of local agriculture. The four-day study is both informative and inspiring mainly in the following aspects: the approaches to alleviate labor shortage, the realization of sustainable agriculture, on-site social survey and water and soil sampling, and enjoyable experience in natural landscape.

Iinan Town has been confronted with the problem of aging population, causing great pressures on agriculture. High technologies, introduced by local officials and managers, have relieved part of pressure. Besides the application of modernized harvester, spray irrigation is one of the optimized cultivation methods to enhance the effectiveness of farming activities, and special sensors on supervision of water temperature and fertilizer concentration have also been employed. Meanwhile, during the interaction with secondary senior school students (Fig.3 ), the answer -on whether they'd like to stay in Iinan Town after graduation-from a girl surprised us a lot. She said it was an attractive spot for her and her family since it boasts beautiful scenery and they've had a sense of achievement through farming practice. Although like other rural areas in Japan, the loss of labor force is a critical issue, it's still promising for regional development owing to hi-tech and change of mind in next generations.

Another inspiring finding is that agriculture in Iinan Town has been already on the way to sustainable development. Two characteristics of local agriculture are extremely eye-catching. One is the decrease in usage of pesticides and fertilizers since the stereotyped concern on yields has been shifted. The other is to reduce the impact of labor shortage, the innovative village farming has been formed and good agricultural practice (GAP) has been widely applied. Local officials and managers in the exchange meeting (Fig.4) made detailed explanations. Subsidies are paid for income loss due to reduced crops yields; compared with previous years, the amount of fertilizers and pesticides has decreased by 60% and 70% respectively. Likewise, GAP is effective in soil improvement by proper guidance on usage of fertilizers, and inspection on pesticide residue and water pollution. To further improve agricultural activities, individual farmers and households have worked together and joined the corporation; thus, agriculture becomes more resilient against labor shortage and natural disasters.

For us students, on-site activities were quite exciting. It was so kind of local people to patiently answer the questionnaire (Fig.5), and through interviews, students from social team collected the data on usage of fertilizers and pesticide, the shift of labor force and crop yields in each household and also their concerns. Water group conducted the sampling (Fig.6) and testing (Fig.7) along Kando River; at the same

time, Prof. Huang led us reflect and have a deep understanding regarding the impact of human activities on river course. Prof. Toyota and students in soil group shouldered the strenuous work to investigate the soil quality (Fig.8). Later, each group will present the results on the meeting arranged at the end of January, 2022.

Additionally, the trip to Akana Swamp and cultural visit on Izumo Taisha both motivated student in further research on protection and promotion of natural and historical sites in Shimane Prefecture. This semester, Prof. Huang has lectured on the impact of Climate Change, and as a part of it, the significance of wetlands, as a huge sink of carbon dioxide, has been stressed; the Akana Wetland Plant Community impressed us and efforts to safeguard those wetlands need continuously exploring. Izumo Taisha, the oldest shrine in Japan, is believed to be the gathering land for other deities in Japan, and attracts many visitors every year. We were lucky to come there and made wishes for the coming year.

Obviously, it was a great reward for us to join those trips. Instead of having lectures on campus, on-site observation, sampling, and analysis are rather interesting, a very special and precious experience in graduate school.



Fig.3 Interaction with local students





Fig.4 Introduction of local agricultural activities done by government officials and managers



Fig.5 Interview with local farmer





Fig.6 Water Sampling



Fig.7 Water Testing



Fig.8 Soil Sampling