

英文誌「Journal of Environmental Information Science, Vol.2019」
抄録集(審査付き論文等)

Vol.2019, No.1 (2019年9月発行)

収録数 6編

<Original article>

Multilevel stakeholder relationship analysis in co-managed protected forests: Case of Aberdare forest, Kenya 1

Francisca Mutwa KILONZI*, Takahiro OTA*

*Graduate School of Fisheries and Environmental Science, Nagasaki University

Multilevel stakeholder relationship analysis in co-management has not been comprehensively documented. Most studies focus on one actor level such as the micro or mesostate actors. Using social network analysis, we examined co-managers relationships at all levels of co-management including macro, meso and micro actors. We focused on communication/information exchange, consultations, collaborations and conflicts encountered in the co-management. Fifteen organizations identified as central to the research and involved in co-management of the Aberdare forest participated in this study. Data were analysed by use of UCINET 6.4 software. Our results indicated that the most popular and influential organizations in the co-management were mainly the meso and micro actors. 10 out of 14 organizations had strong communication ties for both indegree and outdegree. Successful collaborations among comanagers such as the annual Ndakaini half marathon on catchment conservation were identified. However, decision-making collaborations were the least yet crucial in co-management. Conflict on resource sharing and minimal consultations across organizations on co-management issues were also identified. In analyzing stakeholder relationships, this study contributed to the assessment of the progress and applicability of co-management in protected forests.

<Original article>

Composition of small Thalassiosirales under highly diluted conditions in a eutrophic lake 13

Masato CHUJO*, Luxi PANG*, Yoko FUJIMURA**, Yoshimasa AMANO***, Motoi MACHIDA***

*Graduate School of Science and Engineering, **Chiba University, Graduate School of Engineering, Chiba University
***Safety and Health Organization, Chiba University

Dominant algae have been changed from cyanobacteria to diatoms since 2000, as a consequence of the massive discharge of Tone River water, and the dominant diatom has been reported as *Skeletonema potamos* and small *Thalassiosirales*, although the species of the latter have not been identified. In this study, the dominant species of the small *Thalassiosirales* in the Lake Tega water from spring (April) to autumn (November) in 2017 were identified in detail by scanning electron microscopy (SEM). The results indicated that small *Thalassiosirales* were mainly composed of five genera, such as *Cyclotellina*, *Discostella*, *Stephanodiscus*, and *Thalassiosira*. The seasonal trend showed that the most abundant species in April, May, June, and November were *Stephanodiscus binderanus*, *Cyclotella atomus*, *Discostella pseudostelligera*, and *C. atomus*, respectively. Although *Cyclotella meneghiniana* occupied a small portion in April, it highly increased and became dominant from July to October.

<Original article>

A Comparative Study of the Garden Spatial Features in Chinese and Vietnamese Imperial Villas from the Aspect of Horizontal Tablet 22

Jiacheng HU*, Yaping ZHANG**, Junhua ZHANG*

* Graduate School of Horticulture, Chiba University, ** School of Landscape Architecture, Zhejiang A&F University

This study interpreted and classified the meanings of the horizontal tablets in Chinese and Vietnamese imperial villas. At the same time, the spatial features of gardens at these villas were compared and analysed on the basis of the building functions. The following conclusions were drawn. The meanings of the horizontal tablets in Changchun Garden provided comprehensive description of the emperor's daily life and personal preferences. The horizontal tablets of the Vietnamese imperial villas expressed the solemn royal atmosphere and the emperor's exhortations to his descendants. The Vietnamese imperial villas were influenced by Chinese Confucianism, but also reflected characteristic Vietnamese thought and

culture, in a very different manner to the Chinese imperial villas. This study presented a comprehensive overview of the spatial features of Chinese and Vietnamese imperial villas against a background of cultural exchange between the two countries.

<Original article>

Characteristics of Rice Stores with High Sales of Biodiversity-Friendly Agricultural Products

34

Takafumi OISHI*

* Faculty of Agriculture, Kindai University

This paper analyzed the characteristics of rice stores with high sales of biodiversity-friendly agricultural products. Results of a postal questionnaire survey of Japanese rice stores selling biodiversity-friendly agricultural products (one or more of three rice brands) were used for analysis. Rice stores with high sales of biodiversity-friendly agricultural products were characterized by the following. They (1) started selling biodiversity-friendly agricultural products early on, (2) implemented various sales methods and sales channels aimed specifically at these products, and (3) cooperated in various ways with farmers engaged in biodiversity-friendly agricultural practices. Cooperation with farmers is important for successful sales of biodiversity-friendly agricultural products. Such cooperation includes efforts aimed at deepening a mutual understanding between farmers and rice stores (for example, inspections of production areas and the regular exchange of views), and the promotion of products (for example, signing transaction agreements, collaborative events, and joint development of products and brands). Through these diverse methods of cooperation, rice stores have established sales methods and sales channels aimed specifically at biodiversity-friendly agricultural products, thereby increasing their sales amount.

<Original article>

**An Evaluation of a Direct Payment Policy for Community-based Environmental Conservation
Agricultural Practices: A case of Shiga prefecture in Japan**

43

Shinichi KITANO*

* Division of Natural Resource Economics, Graduate School of Agriculture, Kyoto University

The aim of this research is to verify the effect of a direct payment program for farmers practicing environmental conservation agriculture on the spread of this type of agriculture. This program was a community-based scheme and participation was voluntary. Since voluntary participation is fundamental, there is a selection bias in the policy effect. Therefore, in order to estimate the policy impact, it is necessary to estimate the causal effect by complementing counterfactuals and comparing them with actual data. So we use propensity score matching method to estimate the policy impact. The results of the investigation indicate that even if the selection bias is removed, the program has a positive influence on the spread of environmental conservation agriculture. In addition, past efforts, existence of leaders, and local social capital were identified as factors that promoted participation in the program. This result suggests that the formation of steady human capital is necessary to promote the program.

<Technical Report>

**A Century of Land-use Changes and Economic Damage in Kesennuma City Caused by the 2011
Tohoku Earthquake and Tsunami**

53

Tomohiro ICHINOSE*, Satoru ITAGAWA**, Yumi YAMADA***

* Faculty of Environment and Information Studies, Keio University, **Keio Research Institute at SFC, Keio University,

***Graduate School of Media and Governance, Keio University

A magnitude 9.0 earthquake struck off northeastern Japan on 11 March 2011. The subsequent tsunami wrought destruction on a massive scale. Kesennuma City was one of the most heavily damaged regions in Miyagi Prefecture, where more than 1000 people were killed by the tsunami and resulting fire; 215 people are still missing. Here we analyzed historical landuse changes in the tsunami-affected area of Kesennuma city center, Miyagi Prefecture, using topographic maps from 1913 and 1952 and vegetation maps from 1979 and 2011. The area consisted of 7.3% urban land use, 10.5% dry field, 55.5% rice paddy field, 4.7% wetland, 0.3% grassland, 5.3% forest, and 16.3% water body in 1913 and 76.1% urban land use, 1.7% dry field, 17.9% rice paddy field, 0.9% wetland, 1.6% forest, and 1.6% water body in 2011. During the period, the area of urban land use increased more than 10-fold, while that of rice paddy field sharply decreased from 55.5% to 17.9%. The 77 Bank estimated that the total economic damage in Kesennuma City was 232.4 billion yen, representing annual production value of all companies located in the damaged area. Our calculations for

urban land use, dry field, and rice paddy field showed losses of 112.7 billion yen and 69 million yen due to the tsunami in the areas of urban and agricultural land use, respectively.

Vol.2019, No.2 (2020年4月発行)

収録数 3編

<Original article>

Functions of Public-Private Partnerships in Climate Change Adaptation

1

Yumiko TAKEMAE*

* Graduate School of Global Environmental Studies, Kyoto University

Adaptation to climate change is essential, particularly in countries that are vulnerable to climate change. However, it is suggested that adaptation by public actors and adaptation by private companies may be limited and there may be disregarded regions and sectors. This is because there appear to be some barriers that limit their participation. Public Private Partnership (PPP) seems to be a promising scheme to overcome the above barriers and solve the disregard of specific regions and sectors in adaptation. Although case studies are often carried out in adaptation PPP research, it is difficult to grasp the whole picture and to make general suggestions in terms of the distribution of adaptation projects. In this context, to investigate whether the degree of disregard of regions and sectors by adaptation PPP is not remarkable, this paper sought to create a database based on 361 cases of adaptation and analyze it, comparing to what degree of regions and sectors have been disregarded across four project categories: public, private, PPP, and others. The findings showed that adaptation by PPP did not have strong standard deviation in either target regions or target sectors when compared with those of other project categories. The small standard deviation in PPP suggests that regions and sectors that are concentrated are relatively few, and regions and sectors where public and private projects are not prioritized are also included as options.

<Original article>

Household-Level Recovery after Volcanic Eruptions in Indonesia: Empirical Evidence Based on an Asset-based Approach

13

Heri ISTANTO*

* Department of International Studies, Graduate School of Asia-Pacific Studies, Waseda University

Employing the asset-based approach, this paper examines the household-level recovery of three household groups in the aftermath of the 2010 Mt. Merapi volcanic eruptions in Indonesia and the role of social protection programs. Based on a panel survey conducted in 2012, a total of 651 rural households were classified based on their different levels of disaster risk. Ordinary Least Square (OLS) was used to estimate recovery parameters. The study revealed that in regard to pre-eruptions productive assets, it is not only the extent of damage caused by the eruptions that determines a household's recovery but also the household's initial asset level. Households living in low risk areas that had the lowest level of productive assets experienced slower recovery even though they sustained only a modest level of damage. Raskin social protection program accelerated recovery for households in high risk areas. On the contrary, it decelerated recovery for households in medium risk areas. The findings of the study suggest that apart from the extent of eruptions damage, government must also consider the household's initial asset level when allocated aid for disaster affected households. Lowest assets households are more sensitive to shocks and experience slower recovery after hit by volcanic eruptions.

<Original article>

Inquiry into the Activity Time and Job-residence Location of Urban Park Visitors at a Block Scale with a Comparison of Spatial and Temporal Difference

25

Jiayi JIANG*, Chang SU**, Jiacheng HU*, Junhua ZHANG*

* Graduate School of Horticulture, Chiba University,

**School of Architecture and Urban Planning, Huazhong University of Science and Technology

In a hope to supplement park usage researches based on big data at a block scale, this study taking Shanghai Lujiazui Central Park as an object, conducted a survey on workdays on job-residence location of park visitors to find out differences between daytime and nighttime. The results shown that the number of visitors at night was much smaller than that of the day, and nighttime visitors were more likely to be active

for a shorter period of time. Meanwhile, the number of visitors to the park was related to the commute time (9:00-18:00), thereby, there were more visitors from 10:00 to 17:00. The impacts of visitor's job-residence location on park usage was defined by the direct-line distance to the park. Both direct-line distances of workplace-park and residence-park have a positive impact on the activity time and number of visitors. However, the workplace-park distance during the day has less positive impact on the activity time and the number of visitors than at night. Besides, residence-park distance has a more significant positive impact on the number of visitors to the park at night. The study park mainly served the office crowd during day time. The nighttime visitors are mainly nearby residents, with a much lower number of visitors than daytime. It is appropriate to use the block scale to study and analyze the status quo of one or more parks in Shanghai.

本英文誌はオンラインジャーナルとして科学技術振興機構の J-STAGE 上で公開しており、どなたでも自由に閲覧できます。