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Evaluating Barriers to Implementing Joint Crediting Mechanism in Indonesia

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Jun ICHIHARA and Toshihiro UCHIDA

Criticisms raised against the Clean Development Mechanism (CDM) have placed the development of alternative market mechanisms on the official agenda of international climate change negotiations for the past few years. The Joint Crediting Mechanism (JCM), initiated by the Japanese government, intends to offer a simpler and more flexible crediting scheme. However, various context-specific barriers have to be identified and removed for the mechanism to function effectively. For this purpose, this study evaluates factors that are perceived as large barriers by stakeholders in implementing JCM projects. By applying the analytic hierarchy process (AHP) to stakeholders in Indonesia, we found that finance comprises the largest barrier, followed by domestic policies not specifically related to the JCM and insufficient knowledge and capacity. Results indicate that further measures are needed to address these barriers, such as introducing new loan schemes, organizing seminars targeted at local financial institutions, and streamlining domestic policies.

A Model for Estimating Values of Recreational Activity Time in Multi-Sites

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Tadahiro OKUYAMA

A value of time for recreational activity (VOTA) is an important welfare-based index for evaluating recreational site management projects. Empirical studies on environmental economics calculate VOTAs on a site-by-site basis, thus taking much time and money to implement multi-site valuation research in a region. This paper examined the capacity of the Kuhn-Tucker model (KT) and the repeated discrete choice model (RDC) to value VOTAs at multi-sites. A dataset of recreational activities at 26 beaches in Miyagi prefecture, Japan, was employed for estimation. The results indicated that the models examined in this paper would be able to value VOTAs and that those calculated by the KT and RDC ranged from JPY 0.3861 (USD 0.0033) per minute to JPY 13.5995 (USD 0.1179) per minute and from JPY -0.3057 (-0.0027) per minute to JPY 10.4397 (USD 0.0906) per minute, respectively.

Trade-offs Between Household and Transportation Energy Consumption in Residential Relocation

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Shogo SAKAMOTO

The aim of this study is to show the importance of the trade-off relationship between household and transportation energy consumption in the evaluation of residential relocation as a measure to reduce energy consumption. The typical scenario of residential relocation that includes moving a household living in detached houses in the suburbs to collective housing in the city center is evaluated using a simulation model with non-elderly and elderly single households in the Sendai metropolitan area. As a result, even if transportation energy consumption is reduced, there is a possibility that household energy consumption after residential relocation will increase, especially in the elderly households.

Environmental Load Reduction Effects of Changed Bicycle User Attitudes

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Nariaki WADA

Questionnaire survey results indicate that the high cognizance of bicycle users for electricity conservation is not reflected in their actual behaviors. A path-analysis model was prepared to assess bicycle user consciousness of electricity conservation and bicycle use. Results of covariance structure analysis revealed these two factors' mutual correlation. Our investigation demonstrated quantitatively that the environmental load reduction was achieved by the shift of transportation mode by motorists to mass transit (train, bus) users or bicycle users. Moreover, results demonstrate that if one who is not engaging in any environmental behavior does any familiar environmental activity, the greatest environmental load reduction can be attained through LED bulb use.

Prestudy on River Environmental Improvement Based on Human Water Harmony: PEST Analysis of Flood Control Situation in Mainland China 39

Yuanyuan YANG, Akio KUROYANAGI, and Ryo SUGAHARA

River environment improvement activities have commonly been unfolded in Japan during its nature-oriented river management for decades. To evaluate their prospects in mainland China, grasping the current situation of flood control should always be the first place. We achieved by a comprehensive overview survey based on past detailed data and research findings of related domains, within the framework of Political, Economic, Social and Technological dimensions (PEST Analysis). Our results showed that evolutionary progression had continued obviously in every dimension during the period of 2004 to 2013. However, flood control expenditure's proportion to the whole water conservancy investment showed a downward trend despite both amounts kept increasing, since a focus shifting to water resource projects. It suggests that not until accomplishing those water resources projects in next dozen years will the river environment improvement activities be virtually promoted under the conception of human water harmony.

Content Analysis of National EIA Reports in China 45

Jiaying XU, Takehiko MURAYAMA, and Shigeo NISHIKIZAWA

Environmental impact assessment (EIA) is globally considered an effective environmental management tool for supporting the sustainable development. It has been widely used worldwide. While there are few studies which analyze the contents of EIA reports due to lack of the information, Chinese government has started to disclose national level EIA reports since 2014. It would be effective to make clear the characteristics of Chinese EIA with the disclosed information. The objective of this research is to study the characteristics of EIA reports in China by analyzing the tendency on EIA applications from 1999 to 2014 as well as EIA reports in 2014. Two kinds of methodologies have been applied, document survey and statistical analysis. For statistical analysis, two kinds of analysis were conducted in this part, which are trend analysis and content analysis. Trend analysis would suggest that EIA system has been well set up in China but the quality of the whole review process itself still needs to be questioned. From statistical analysis, we found in some cases lower levels of estimation methods were applied for environmental items with higher assessment magnitudes.

Exploring Efficient Buffer Placement for Mitigating Crop Damage by Wild Boars with an Agent - based Spatial Modeling of Foraging Behavior 51

Yasuyuki NISHIMORI, and Masashi KONOSHIMA

Crop damage caused by wildlife, such as wild boars, has increased throughout Japan and poses a serious threat to agricultural sustainability and the local economy in many rural areas. We employed an agent - based spatial modeling approach to examine the efficiency of buffer placement for mitigating crop damage by wild boars. The model simulates the behavior of wild boars that forage and compete with each other for space. Although the movement of wild boars is governed by simple rules that mimic competition for food resources, our model exhibits complex behaviors affecting the spread of boar - inflicted damage. The optimal thickness of a buffer zone depends on a balance between losses from crop damage and management costs. In addition, a gap of unmanaged cells in the buffer zone significantly weakens the effect of damage mitigation by the buffer zone.

Possibility that biodiversity conservation will lead to improvements in the unit sales price of agricultural products - Analysis of a questionnaire survey of farmers carrying out Ikimono Mark practices 63

Takafumi OISHI

This paper analyzed the possibility that biodiversity conservation will lead to improvements in the unit sales price of agricultural products, in particular those resulting from "Ikimono Mark" practices. Results of a postal questionnaire survey of farmers groups around Japan were used for analysis. Multiple species were often indicated as the target for conservation, and in many cases, a combination of conservation measures was also implied. The total value of the sales amount of Ikimono Mark products was relatively low; however, products were often sold at a higher unit price compared to those of farmers in the region not carrying out Ikimono Mark practices. Among farmers selling at a higher unit price, there was a tendency towards the conservation of target birds as well as implementation of particular conservation measures (for example, flooding of rice fields in winter) and direct marketing to consumers. Setting of a conservation target and conservation measures is unique to Ikimono Mark practices, and should be taken advantage of when promoting resulting products. For this purpose, targeting of an attractive species for conservation and communication with multiple stakeholders are important.

The Use of Edible Wild Plants and Fungi in Korean-Chinese Villages 71

Lei FAN, Junichi IMANISHI, Katsue FUKAMACHI and Shozo SHIBATA

Korean-Chinese have a thorough knowledge of using edible wild plants and fungi (EWPF) as food. However, human population decreases and destruction of habitats of EWPF are leading to the fast disappearing of the traditional knowledge of EWPF use. This study aimed to discuss the sustainable use of EWPF based on traditional knowledge and habitat protection. We analyzed the traditional knowledge of EWPF use through the Participatory Rural Appraisal (Luoga et al., 2000). Further, we analyzed the EWPF collection locations by observing participant field collection. The results indicated that 15 wild fungus species and 41 wild plant species were used as ingredients in dishes and drinks; however, habitat destruction and limited collection range caused a shortage of EWPF resources. In an effort to protect the sustainable use of EWPF, we suggest that forestry and nature reserve policies should be improved by referring to the traditional knowledge of forest resource use, regulating EWPF collection to prevent overexploitation, and protecting the collection locations during new construction in villages.

Connections, Trust and Social Capital in Disaster: A study on the 2013 Typhoon Haiyan affected residents in Leyte, Philippines 79

Lisette R. ROBLES and Tomohiro ICHINOSE

Based on the survey data from 190 affected residents from Typhoon Haiyan in Tacloban, Leyte, Philippines, we explored (1) how the disaster changed the people's social connections, and (2) how their trusts in various social actors contribute to their response to the disaster. Comparing the identified engagements before, during and after the disaster, we found (1) contact with their family, neighbor and relatives, are consistently present throughout the three phases of the disaster; (2) these changes were possible due to fatality and disappearances, the presence of emergent groups, change of residence, and perception of the disaster as a shared experience; and (3) there is stronger trust in their connections with relatives after the disaster. We concluded that the disaster impacts the interactions and contact with the different social actors in their network.

The Effects of Social Ties and Local Environment on Appropriate Waste Station Maintenance of Household Waste: A Case Study in Sapporo 87

Yasuhiro MORI, Susumu OHNUMA, Christian KLÖCKNER

"Waste stations", where residents dispose of household waste, are usually maintained by the residents themselves; however, not all stations are well maintained. It was hypothesized that the level of waste station maintenance would correlate with the degree of social ties in the community, and would be influenced by local environment in the area around the waste station. A combination of observational and survey research methods were employed to test these hypotheses. Self-reported inappropriate disposal behavior and social ties were measured using a questionnaire survey, while the level of maintenance of waste stations and local surrounding environment were recorded using observational methods. Data from 508 residents, assigned to 102 waste stations in 23 local areas of Sapporo, Japan, were analyzed. Sequential regression analysis indicated that social ties in the community was the stronger predictor of the management level of waste station than the self-report disposal behavior. Furthermore, multi-level model tests revealed that the level of management of waste stations was predicted by the local surrounding environment, which provided spatial reminders of community interactions. This indicates that managing the local surrounding environment is an important intervention to encourage appropriate waste station management.

The Conditions of Forestry Management in Depopulated Areas of Japan: Forest Management Behaviors of Non-Resident Owners Using a Qualitative Comparative Analysis 99

Yohei KATANO

This study aims to explain the forest management of non-resident forest owners in depopulated areas by conjunctural factors using qualitative comparative analysis (QCA). Data from interviews with 20 non-resident owners of forests in the depopulated areas of Japan were analyzed using a QCA and additional testing. This study found that many regional ties with people in depopulated areas, close-distance residence, and strong feelings toward the region can induce forestry management behavior among non-resident owners of small-scale forests (1 ha or less). However, it was found that large plots of forest (over 1 ha), even with distant residence and few regional ties with people in the depopulated area, can prompt the same behavior. The results contribute to the research in several ways. First, the QCA clarified that multiple factors may affect forestry management. Second, this study once again confirmed the importance of social factors in forestry policy research.

Value Chain Analysis of Park Volunteers between Their Assessment to the Activity and Consciousness to the Region 111

Akiko KOMATSU, Koji ICHIMURA and Shogo KANAOKA

This paper argues that park volunteer activities affect a sense of community of volunteers, based on covariance structure analysis. The adopted model shows that “scheme for interaction between volunteers” positively affects “overall satisfaction of volunteer activities” and “human interaction” of a sense of community. Because variables of volunteer activities (“Scheme for contact with plants” “scheme for obtaining the skill and knowledge” and “scheme for social contribution”) have a chain reaction, volunteer activities improve social-capital consciousness of volunteers. This result indicates that park volunteer activities have ripple effects of both the expansion of human interaction with peers and the expansion of contribution to society, and have a potential to be a mean to trigger regional revitalization.

Study on Methodology of Watershed Planning under a Master Plan for Parks and Open Spaces in Urban Areas 123

Hideya YAMASHITA and Mikiko ISHIKAWA

This study aims to compare and discuss methodologies on watershed planning in the “Top 40” master plans for parks and open spaces, selected by the Evaluation Committee in 2013, led by Ministry of Land, Infrastructure, Transport and Tourism (MLIT). The following four points were clarified. The first is the most cities adopted the concept of watershed management as a basic policy of planning. The second is there is pioneering cities which have developed innovative methodologies of watershed planning, Yokohama, Kamakura, Kakamigahara. The third is the characteristic of the methodology differs depends on the requirement of each city and the purpose of plan. In Yokohama, they developed the environmental management system through the designation of watershed division. In Kamakura, the analysis of bio-diversity in small watershed units provided the rational reason for the preservation of green spaces. In Kakamigahara, the preservation of Satoyama led the most important policies for protecting drinking water resources. The forth is that the watershed planning had a lot of varieties reflected each city's condition. However, the methodology is effective for evaluating complex environment, such as forest, agricultural land, water system and wetland. Also, it is not limited to green spaces but could be applied to the whole environment, including urban areas.

Investigating Climbers' Awareness and Willingness to Pay a Donation: A Comparative Survey of Domestic and International Climber Segments at Mount Fuji 131

Thomas Edward JONES, Kiyotatsu YAMAMOTO and Akihiro KOBAYASHI

UNESCO's World Heritage Site (WHS) list aims to mobilize resources for conservation. After inscription in 2013, a new pilot system was introduced at Mount Fuji encouraging climbers to donate ¥ 1000 towards improved environmental conservation. This paper reports the results of a questionnaire survey conducted in the summer 2013 season. Fuji climber segments were investigated to compare their socio - economic characteristics, level of awareness and willingness to pay (WTP) the new donation. Results of an a priori segment analysis revealed broad differences between Japanese and international climbers, with 71% of the latter unaware about the new fee prior to climbing Fuji, compared to only 8% of Japanese. At ¥ 1000, WTP among Japanese (88%) was much higher than among international (50%) climbers, but of the latter, those with prior awareness (72%) showed significantly greater WTP than those without (43%). These findings suggest that priming climbers to increase levels of prior awareness is vital for compliance. As the new trial donation was duly extended for the 2014 - 15 seasons on a 24 hour basis, these findings have applied implications for improving management through a better understanding of visitor segments, along with more targeted multi lingual messaging to raise awareness and WTP among international climbers.

<REVIEW ARTICLE>

Reviews of Landscape Appreciation Studies published in English Journals until 2014 137

Yoji AOKI

Study of the psychological evaluation of the landscapes began in the 1960s. It has become popular in many countries and is currently progressing. In this study, I examine research that has been published in major English journals, such as Landscape and Urban Planning, Landscape Research, Journal of Environmental Management, Environment and Behavior, Journal of Environmental Psychology and others until 2014. Based on the process of the phenomenon of landscape experiences and appreciation, this historical review is divided into the following five parts: (1) understandings of landscape appreciation; (2) attributes of respondents, i. e. the observers; (3) appreciations of landscape, i.e. the items of psychological evaluation; (4) focal objects in the landscape and their observation methods; and (5) analytical methods and

their results for planning proposals. This paper, discusses parts (4) and (5), while parts of (1) to (3) were discussed in previous paper (Aoki, 2015).

<RESEARCH REPORT>

Community-Based Ecotourism as a Tool for Conservation: a Case from Cambodia

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Ayako TOKO

Arguments on the best scheme of conservation and natural resource management (NRM) have been developed for more than half a century. Each period had its own challenges, which were recognized later, and decentralized approaches incorporating the concerns of local communities gained attention since the eighties as a consequence of past failures. However, community-based approaches also have challenges, especially lacking of financial and human resources in local communities. On the other hand, ecotourism emerged in the early eighties as an effective tool to provide financial resources for conservation and for local communities as well as to improve environmental awareness of local people. Summarizing the theories of these two approaches, community-based ecotourism (CBET) is supposed to be a good tool for NRM by contributing toward meeting the challenge of community-based approaches. Therefore, in order to examine the hypothesis, this study focuses on CBET in Cambodia where 73% of people still live in rural areas and are directly dependent on natural resources. The result from a model case indicates that CBET has a potential for support sustainable NRM; on the other hand, it is revealed that most of CBET sites in Cambodia are poorly assessed and still under development. Further research on CBET is urgently needed in Cambodia for the nation's sustainable NRM.

<RESEARCH REPORT>

Feasibility Study for Underground Environment Exploration by GPR

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Masayoshi MATSUMOTO, Mao INAMI and Mitsunori YOSHIMURA

The exploration of underground environments is important especially in urban areas due to the presence of cavities or utilities under road infrastructure. Ground penetrating radar (GPR) is a suitable tool to carry out subsurface underground environment exploration with high resolution thanks to the properties of electromagnetic waves. Since the application of GPR has increased and many GPR products now exist, users have to consider appropriate GPR instruments and consider whether GPR can be applied to their field or not. This paper describes the idea of a standard evaluation method aiming to evaluate GPR instruments and applicability to various fields for GPR objectively. After the definition of standard anomaly model, we define an evaluation process which reveals how much information can be correctly estimated by GPR exploration. This evaluation method was demonstrated by using a real GPR dataset. And as a result, we concluded the method is reasonable and valuable to the evaluation of GPR instruments and the investigation of GPR applications.

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