

Comments Sheet 【PR】

February 26, 2015

Title of the Project	Biodiversity-driven Nutrient Cycling and Human Well-being in Social-Ecological Systems		
Research Term	PR	Project Leader	OKUDA Noboru
<p>General advice and comments of the PEC:</p> <p>The members of the PEC were generally satisfied with the report, presentation and progress of the project. Clearly, considerable work has been undertaken during the short pre-research phase and the contours of the project are taking concrete shape. The addition of a field site in the Philippines has strengthened the international character, although this will still need to be taken further and the rationale for the site selection can also be strengthened. Furthermore, the PEC wonders what framework will be used for the comparison between the cases and for generalizing the site-based findings. A key question is how to ultimately reach conclusions at the global level, which is a stated project objective.</p> <p>While increasing community participation was noted with approval, compared to the research on nutrients, the community research is still a weak area, in terms of conceptualization, its relation with the nutrients work, and of economic tradeoffs and institutions. In order to enhance the community research, the social science side of the research will need even more attention. Society needs to be placed at the center of the problem conceptualization and this requires a very clear research methodology to collect original data regarding society at different levels. Some strengthening of the team and if possible external advice is probably needed. Please keep in mind the RIHN philosophy of environmental problems as being rooted in human culture.</p>			
<p>Reply</p> <p>C1: Weakness in governance and community researches</p> <p>A1: We have made great efforts for designing our governance research since the pre-research phase. Through Full Research Year 1, we will launch the field survey for some of the local communities (defined as a term similar to ‘hamlet’ in other countries) in the Lake Biwa Watershed to understand how different types of commons have been governed by different local communities from upstream through downstream to coastal areas across a longitudinal gradient of the watershed and describe how their governance is altered through interactions among a variety of stakeholders including our scientists,</p>			

according to Advocacy Coalition Framework (ACF) as well as to Institutional Analysis and Development (IAD) Framework. We will also use Social-Ecological System (SES) Framework to analyse cross-scale linkages of the governance within and between watershed systems. We regard the Lake Biwa Watershed and the Laguna de Bay Watershed as two extremes across a variety of watershed systems in Asia: in the former, the society prefers to solve eutrophication with the most advanced technology and environmental policy, whereas the latter suffers from the most serious pollution and environmental degradation due to nutrient loadings under poverty and overpopulation. Using these three frameworks, we will generalize our findings from case studies on the watershed governance to feedback to the solution of nutrient-derived environmental issues specific to each watershed system in different regions of Asia. We hope to show the preliminary results from our community researches in the next presentation.

C2: Research design for evaluation of human well-being

A2: We will take mainly two approaches: one is the qualitative analysis to identify critical natural capital (CNC) for each community through semi-structured interviews with the community members and text coding based on the grounded theory approach, and the other is quantitative analysis to elucidate relationships between the CNC and human well-being, applying methods as such developed in environmental/ecological economics. We will examine how individual well-being (or happiness) would be enhanced not only by sharing knowledge on biodiversity and its critical values (i.e., CNC) among a member of local community but also by involving a variety of stakeholders in the community-based governance of CNC. More important is to monitor temporal changes in individual happiness in the context of local communities rather than by the use of its universal measure. We will also examine if the individual happiness at the local level is reconciled with collective happiness, which is scored by a representative sample of citizens at the watershed level, through our multi-level governance.

C3: Top-down and bottom-up approaches

A3: Although we stressed the importance of bottom-up approaches in our watershed governance, i.e., community-based governance, in the previous presentation, this does not always mean that we take only a bottom-up approach or a local level approach. We are collaborating with many administrators from a variety of municipal and prefectural sectors as a project member or a key stakeholder of the watershed governance. On the one hand, we try to empower citizens in the community-based governance on the local scale. On the other hand, we try to discuss institutional designs with policy-makers at the watershed level. One of our roles is to facilitate cross-linkages of the multi-level governance to enhance biodiversity-driven nutrient recycling and human well-being through dialogue among a variety of stakeholders. Our trivial but steady progress is that some of administrators have recognized the

importance of community-based approaches through their learning and involvement, which may be fed back to the governmental institutions in the future. The ultimate goal of our transdisciplinary science is to integrate new environmental knowledge toward recycle-oriented society for our sustainability through a combination of top-down and bottom-up approaches of the watershed governance.

C4: Linking between nutrient research and community research

A4: Human-kind perceives environmental changes through alteration of natural objects (defined as biodiversity in our project), which are closely related to their lives and livelihood, but not through changes in invisible elemental composition and cycling. On one hand, biodiversity is important as a criterion for the community-based governance of CNC, which might enhance the individual happiness. On the other hand, nutrient recycling on the watershed scale is essential to sustainability of our society, which might enhance the collective happiness or the public good. The community-based governance can enhance the collective happiness as well as the individual happiness if local and scientific knowledge are integrated to show that biodiversity creates cultural values while it drives nutrient recycling as an important component of ecosystem services for the watershed society. We will facilitate dialogue and social learning among a variety of stakeholders in order to increase three indices, i.e., biodiversity, nutrient recycling and human well-being.

C5: A roadmap to the research goal on the global scale

A5: We can practice our multi-level governance only in a limited number of watershed systems, because of logistic constraints in our project. However, our method will be applied to other watershed systems if we can demonstrate that our governance approach is useful and feasible for every society and country. In practice, some research groups have already got interested in our governance approach and joined us to apply it to their focal watershed systems. The most important is to practice the governance in the way adaptive to each watershed system because solution strategy is quite different from place to place. The promotion of the adaptive watershed governance and its international networking is the only way to solve nutrient-derived environmental issues on the global scale. We cannot believe that the top-down oriented intergovernmental approach is effective in the global solution exclusively, as suggested by stagnation of the IPCC.