

博士論文 (要約)

Dissertation abstract

Revisiting local human-nature relationships to enhance inclusive wellbeing

(包括的福利の構築に向けた地域レベルの自然と人間の関係の再考)

吉田有紀

## 論文の内容の要旨

論文題目

Revisiting local human-nature relationships to enhance inclusive wellbeing  
(包括的福利の構築に向けた地域レベルの自然と人間の関係の再考)

氏 名 吉田 有紀

“Revisiting local human-nature relationships to enhance inclusive wellbeing” consists of six chapters that together examine human-nature relationships within the framework of wealth and wellbeing. The overarching hypothesis is that human-nature relationships are important to human wellbeing, and that these relationships are largely missed by current approaches for capturing wealth. This hypothesis is examined through the two objectives of the dissertation: 1) to examine how current indicators of sustainable development capture human-nature relationships; and 2) to assess whether and how additional aspects of human-nature relationships contribute to inclusive wellbeing. Chapter 1 reviews the state of the art with emphasis on how human-nature relationships contribute to wellbeing. Chapter 2 justifies the local scale focus and selection of the study site. Chapters 3 to 5 empirically address the two objectives introduced above. Chapter 6 reviews the findings and limitations, discusses the future development of wealth assessments, and concludes with policy implications of the research.

From utility in economics to happiness in Buddhism, human wellbeing has long been a central, societal interest. Chapter 1 reviews literature on the pertinence of human-nature relationships to wellbeing. While nature’s contributions to human wellbeing is widely accepted and increasingly acknowledged in intergovernmental platforms, discussions of the relationship between humans and nature remain scarce. Further, nature itself has rarely been integrated in wellbeing assessments that successfully inform development. Representatively, the concept of sustainable development combines nature and wellbeing in its ultimate objective of intergenerational wellbeing. However, the means of achieving such development has remained unclear. General consensus that the Gross

Domestic Product (GDP) is an ill-fitting indicator of such progress has brought about various “beyond-GDP” indicators. Yet, few have gained traction for implementation. The Inclusive Wealth Index (IWI) was developed in this context, and is unparalleled in its combined comprehensiveness, theoretical robustness, and cross-temporal relevance. However, its young methodology and simplistic proposition that societal welfare is a sum of natural, human, and manufactured capitals neglects the complexity of human-nature relationships and may benefit from further refinement.

Chapter 2 suggests that the pertinence of human-nature relationships to wellbeing is best seen at the local-scale. It then goes onto introduce the study area, Sado. Sado is an island city in Niigata, north-western Japan. In addition to the convenience of a jurisdictional boundary with a clear geographical border that concretizes the material cycle, Sado was chosen for its archetypical socio-ecological production landscapes and seascapes. These cultural landscapes and seascapes are also known as SATOYAMA with intimate and multifaceted human-nature relationships. In Sado’s case, the harmonious co-existence of humans and nature led to the city’s designation as a Globally Important Agricultural Heritage Site (GIAHS). At the same time, the island’s rapid depopulation and aging has been threatening its continued existence as with many other towns and cities across rural areas of Japan and other developed countries. These aspects—rich, multifaceted human-nature relationships, the geographical boundary, and challenges projected across society—were taken together and resulted in the selection of Sado Island for this empirical investigation.

Chapter 3 addresses the first objective of the dissertation through the hypothesis that current approaches to assessing wealth does not aptly capture human-nature relationships at the local-scale. The inclusive wealth of Sado and Japan between 1990 and 2014 was calculated approximating the methodology used by developers of the IWI. Most of the data used were publicly available, secondary data, and additional data were acquired from various organizations and institutions where local-level data were otherwise unavailable. Minor methodological modifications were made to improve the accuracy of human capital estimations and according to data availability. Results confirmed the expectations that natural capital is undervalued, and further depicted the capital’s prominence in Sado’s rural landscape. Natural capital was disproportionately small, comprising on average 2% of Sado’s inclusive wealth and 0.6% of Japan’s inclusive wealth across the study period. Sado’s per capita wealth was about 10% lower than the national average, but its natural capital was about threefold the national average. Supplementary wealth estimations of fisheries and cultivated forests indicate that inclusion of additional factors in the evaluation would further increase the relative wealth valuation of rural regions. Results aptly reflected the relative sizes of economic activity and shrinking demographic, confirming the anticipated weakness of the conventional IWI methodology in capturing human-nature relationships.

Chapter 4 assesses the linkage between objective natural capital and residents' perception of nature. The IWI assessment of natural capital is based on land cover; a dollar-value of wealth-per-hectare is computed for each land cover type. Accordingly, objective natural capital is operationalized as natural land cover. Meanwhile, an island-wide questionnaire was conducted to assess individual residents' perceptions of their physical environment. Woodlands, farmlands, and coastal areas were hypothesized to be associated with increases in perceived nature. Regression analysis of land cover in questionnaire respondents' district of residence and their responses on perceived nature affirmed the linkage between objective measures of agricultural land and forestland and resident perceptions of nature.

Chapter 5 addresses the second objective, to examine whether and how aspects of wealth missed by the IWI's conventional wealth assessment contribute to subjective wellbeing. The chapter focuses on the subjective realities of Sado's residents with the aim of uncovering how their perceptions mediate the relationship between nature and wellbeing. The underlying hypothesis is that intangible aspects of natural capital contribute significantly to residents' wellbeing. The questionnaire included Likert-scale items from preexisting assessments of concepts including subjective wellbeing, place attachment, perceived ecosystem services, conceptual relationships with nature, and social capital. A hypothetical model of how perceived nature, conceptual relationships with nature, place attachment, and social relationships contribute to subjective wellbeing is constructed based on a literature review and field observations. Structural equation modeling statistically assesses and affirms the hypothesized linkages between perceived nature and subjective wellbeing. Finally, responses to open-ended questionnaire items are drawn upon to verify and qualify results of the statistical analysis. Results confirm the hypothesis that intangible aspects of the human-nature relationship play a significant role in determining the subjective wellbeing of Sado's residents.

Chapter 6 revisits the IWI with empirical results from the studies described above, summarizes, and concludes the dissertation. Particularly for rural regions such as Sado, regional development should place more emphasis on the human and natural capitals comprising human-nature relationships. Findings from literature and empirical studies on Sado island confirm the dissertation's overarching hypothesis that the conventional IWI methodology does not aptly capture the multifaceted ways in which human-nature relationships contribute to human wellbeing. As such, the dissertation affirms that while the IWI improves upon GDP's focus on transitory, economic performance, it continues to grossly undervalue nature's importance to sustainable development. Regional development should place greater weight on the benefits of human-nature relationships.