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Special Session "Citizen Science Meets Informatics"

Citizen science and science-policy interface: Towards sustainable forest managements

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Contents

- Background
- Citizen science in Japan: Historical background
- Characteristics of citizen science in Japan: International comparative analysis
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Background

Extinction of experience

- Connection with Nature
  - Provides good effects for the physical and mental health and well-being
  - Encourages the deeper understanding on biodiversity and pro-environmental behavior

- A Growing Disconnection from Nature
  - This is observed especially in developed countries

(Kals et al., 1999; Miller, James R., 2005; Cheng and Monroe, 2010)

UNITED NATIONS UNEP UNESCO Food and Agriculture Organization of the United Nations UNDP BES

IPBES/5/L.4

Catalogue of policy tools and methodologies

(Omnibus decision on the implementation of the first work programme of the Platform: section VII)

1. *Welcomes* the progress made and next steps planned in the work of the expert group on policy support tools and methodologies;[1]

2. *Takes note* of the development of the online catalogue of policy support tools and methodologies and the support provided for ongoing Platform assessments;[2]

3. *Requests* the Multidisciplinary Expert Panel, in consultation with the Bureau and supported by a reconstituted task-specific expert group on policy support tools and methodologies and the secretariat, to continue, subject to the availability of resources, to address the requests made in decision IPBES-4/1, and, in addition,

(a) To submit the prototype online catalogue of policy support tools and methodologies for review by member States, observers and stakeholders;

(b) To further develop the catalogue in cooperation with relevant international processes and interested partners;

(c) To work with the task force on capacity-building to explore ways to more effectively promote and facilitate the future use of policy support tools and methodologies at appropriate scales that meet the needs of policymakers;

(d) To undertake an evaluation of the use and effectiveness of the online prototype of the catalogue in the context of the review to inform the future development of the Platform (deliverable 4 (e)), and to report to the Plenary at its sixth session.

Science-policy interface

"as social processes which encompass relations between scientists and other actors in the policy process, and which allow for exchanges, co-evolution, and joint construction of knowledge with the aim of enriching decision-making"

Koetz, T., Bridgewater, P., van den Hove, S., Siebenhüner, B. (2008) The role of the Subsidiary Body on Scientific, Technical and Technological Advice to the Convention on Biological Diversity as science-policy interface. Environmental Science and Policy 2: 505-516

Citizen science in Japan: Historical background

Data collection by citizens in ancient era

- In 9th century, data of cherry blossom was collected to make poems, *Waka* (timing of bloom, color, location, etc).

  （Aono and Kazui, 2008）

- Historical records of nature in Japan can be utilized to understand the status of nature in ancient era.

  （Primack et al., 2009）

History of citizen science in Japan:

Data collection of environmental pollution

- In early 20th century, survey on environmental pollution was conducted by citizens
- Surveys was conducted to identify the health damage of Minamata disease （Yoshimoto, 2001; Yuki, 2001）
- Citizens tried to find countermeasures against environmental pollution, considering the collected data

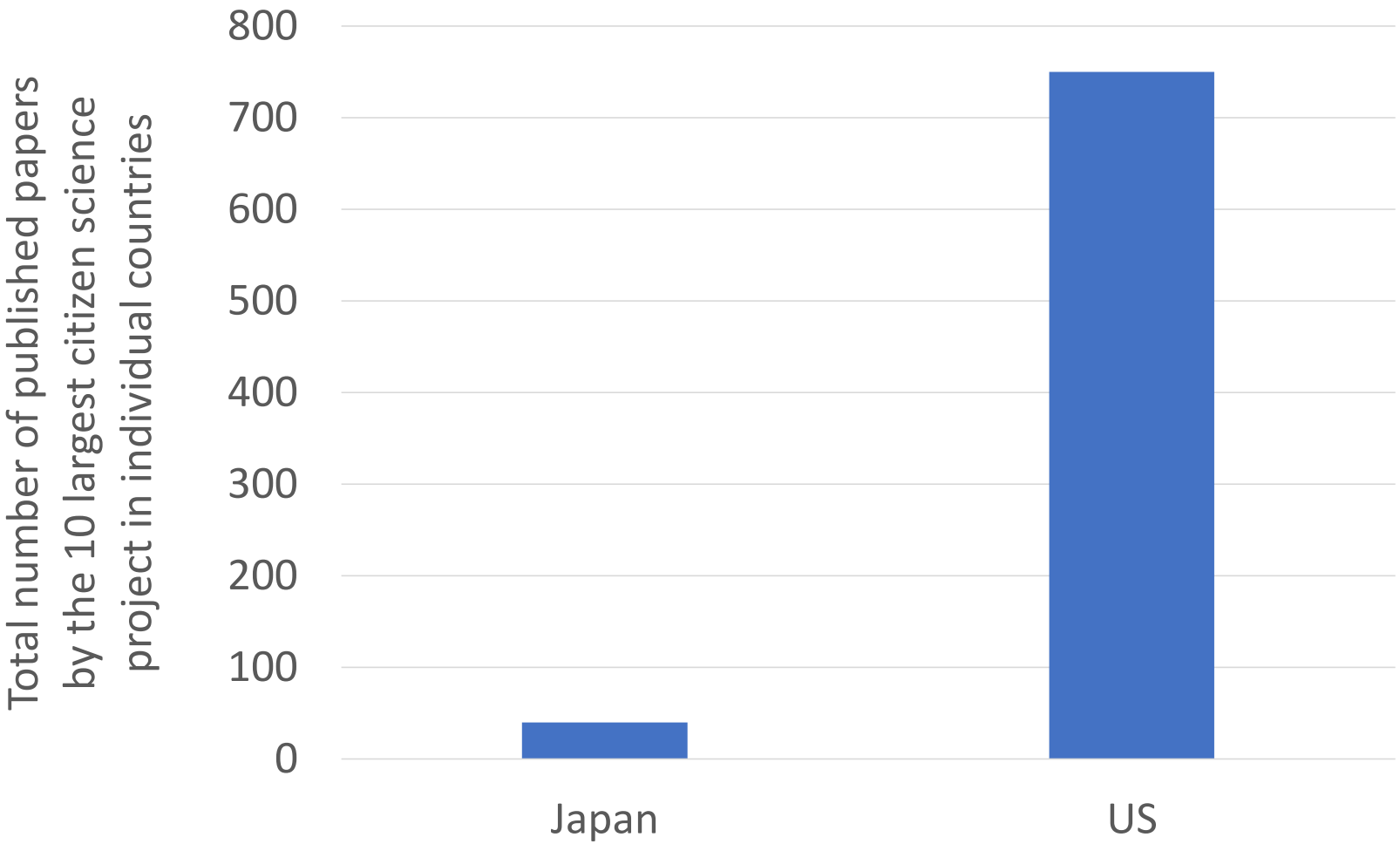
Current citizen science in Japan: Biodiversity monitoring

- The first monitoring of biodiversity focused on oviposition of sea turtle （Kamezaki and Matsui, 1997）
- In recent years, educational activities are paid attention by general public
- Citizens' activities started in regional scale are often expanding to nationwide scale. (ex monitoring of bee honey, flog, butterfly, bird etc.)

Examples of activities:

- Data collected by citizens has been used to investigate the impact of global warming on ecosystem systems （Kobori et al., 2011）
- Observation of Japanese native dandelion has been carried out as long-term citizen participation project

Number of publication by citizen science projects



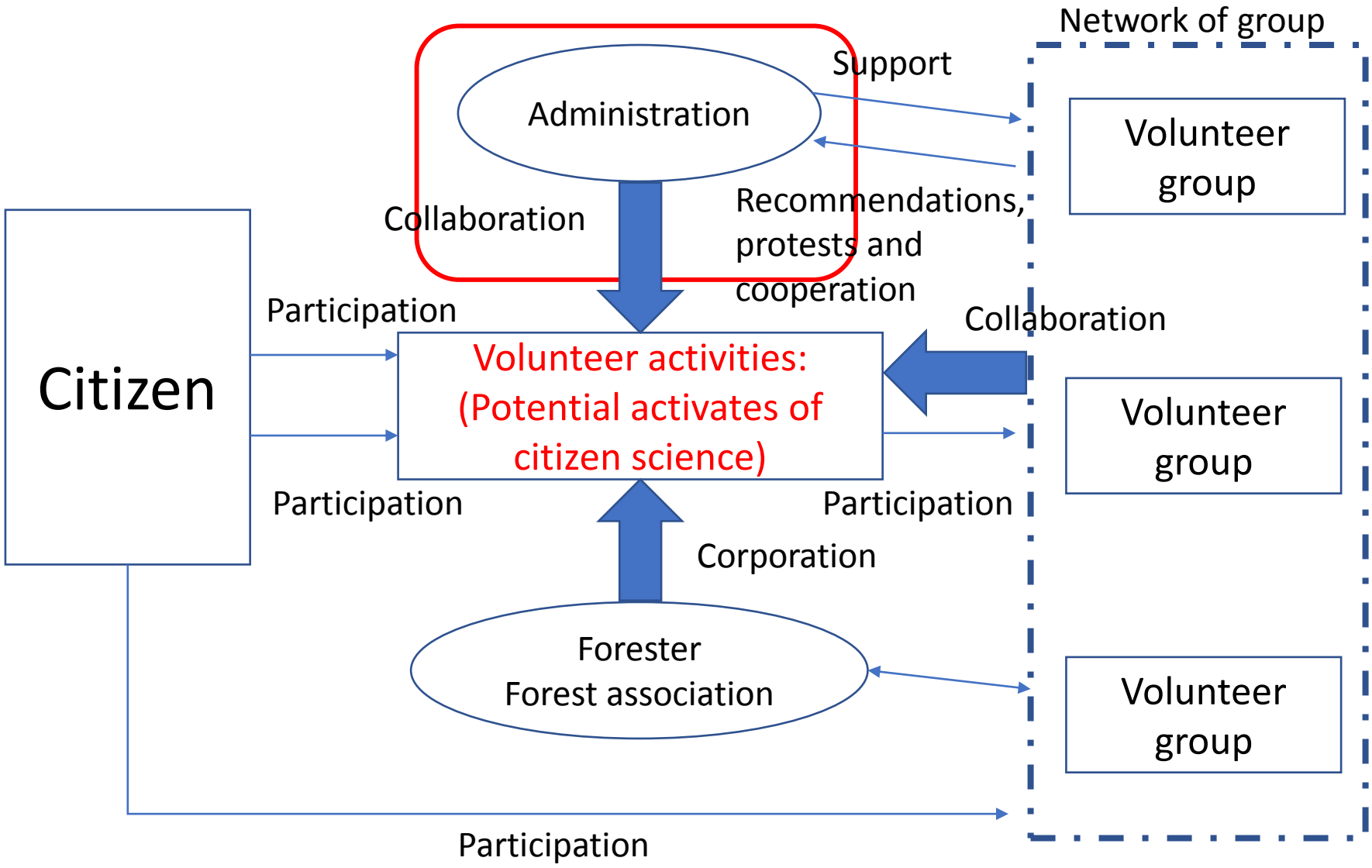
Data source: Komatsu (2016)

Kohsaka, Kajima, Uchiyama (2018)(submitted)

Volunteer activity in Forest and forest policy in Japan: Potential of citizen science

Volunteer activity in Forest in Japan

Several pass ways to participate in the activities of forest managements



Source: Yamamoto (2000)

Volunteer activity in national forest

- The partnership agreements between governments and local stakeholders can be established to facilitate citizens' participation in forest managements
- There are 6 types volunteer activity in national forest by purposes listed below
  1. Communication
  2. Disaster risk reduction
  3. Cultural conservation
  4. Environmental education
  5. Forest conservation
  6. Other

Historical change of national forest policy in Japan

Before 2001

Forestry Basic Act

Development of forestry
Production expansion
Status improvement of forestry worker

After 2001

Forest and Forestry Basic Act

Utilization of Multifunctionality of forest

↕

Sustainable development of forestry

↕

Creation of demand of timber

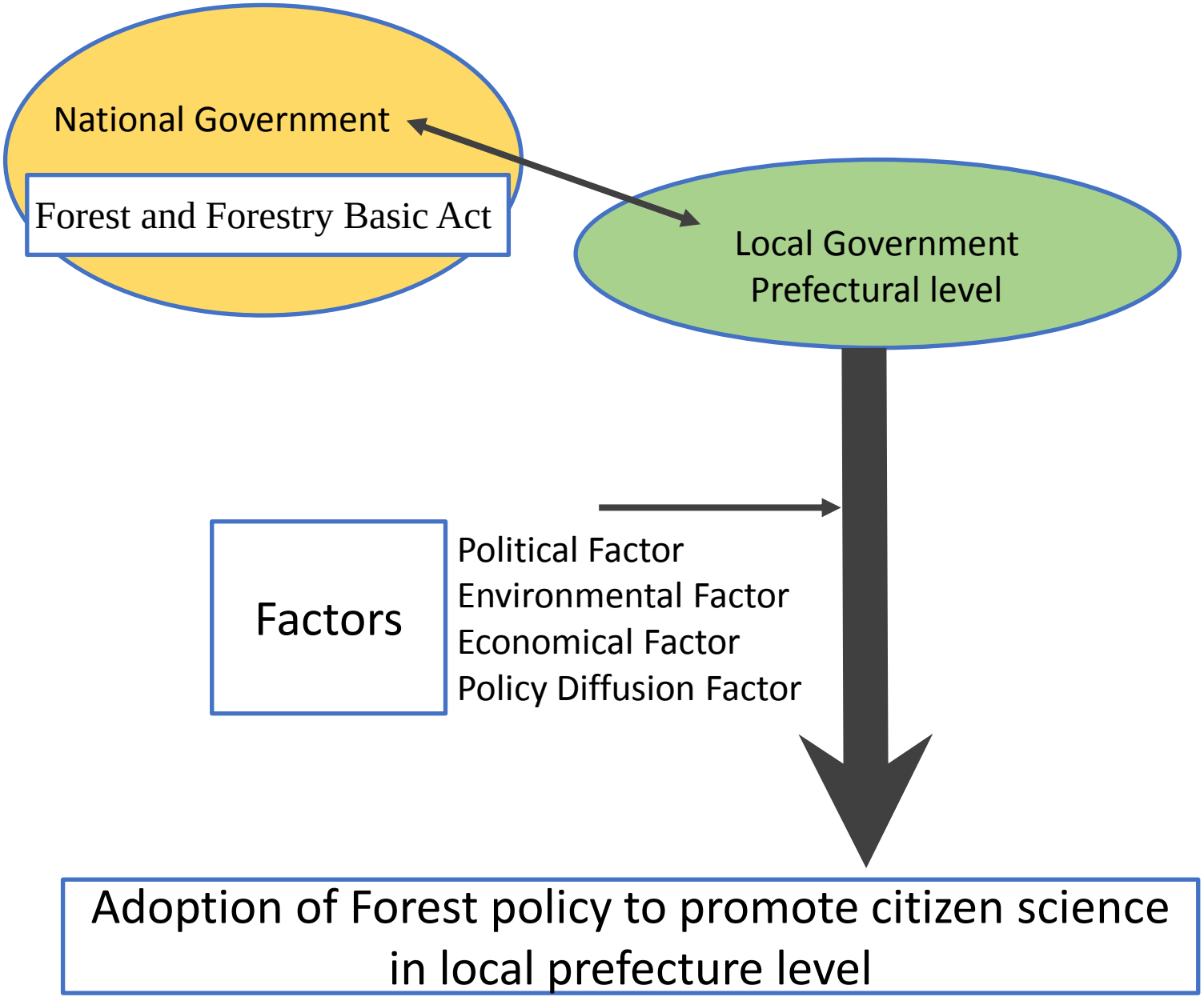
Policy direction

- ✓ Basic plan of forest resource use
- ✓ Development of forestry
- ✓ Expansion afforestation
- ✓ Modernization of forest management

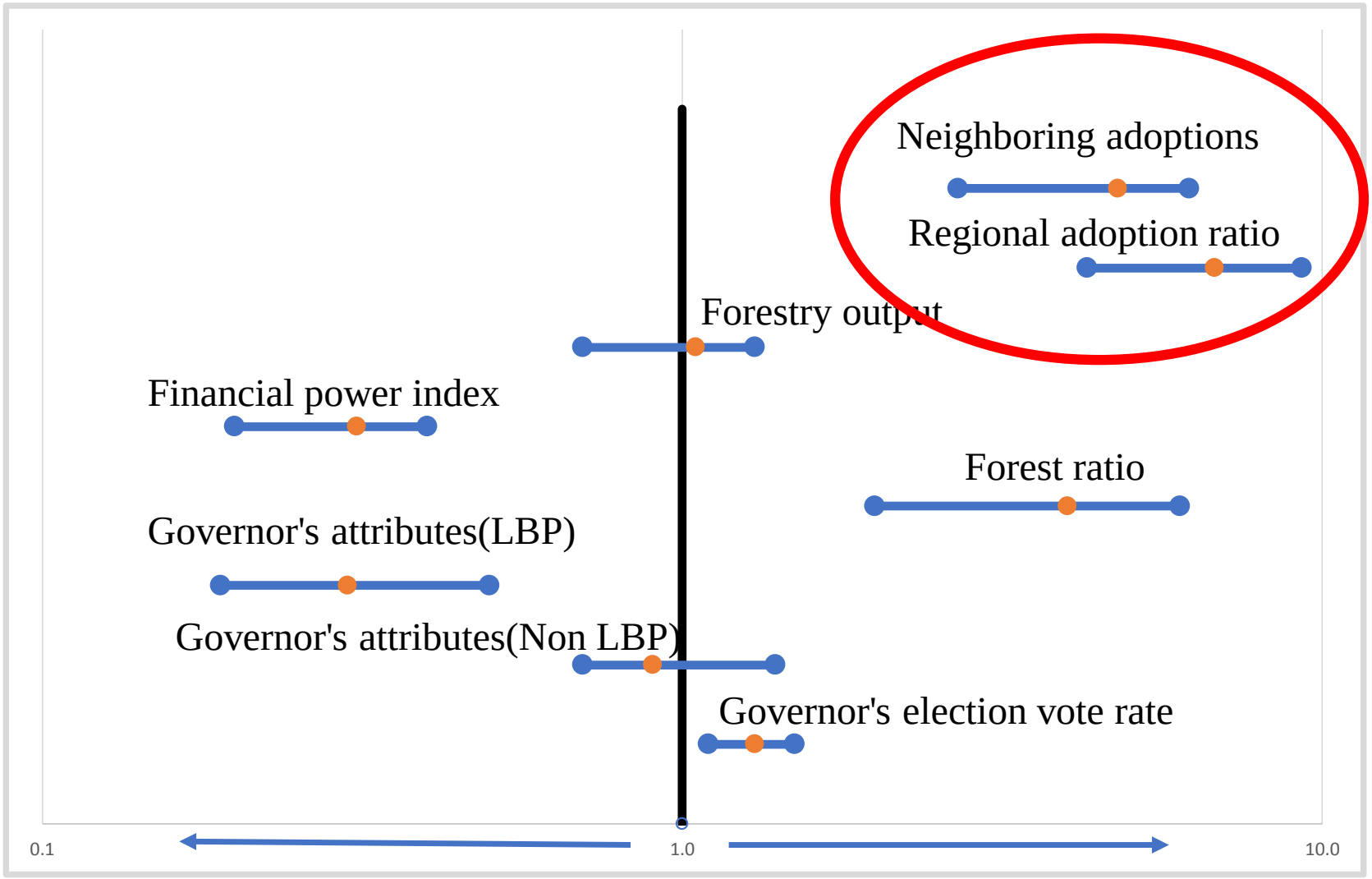
Policy direction

- ✓ Maintenance of functions of forest
- ✓ Promotion of wood use
- ✓ Promotion of citizen volunteers
- ✓ Promotion of the timber industry
- ✓ Promotion of settlement in mountainous village area

Forest policy to promote citizen science in local level



Factors of policy adoption



Factors which can Decease probability of adoption new policy

Factors which can increase probability of adoption new policy

Kajima, Kohsaka et al (2018)(submitted)

Citizen Science and citizen participation: Conclusion

1. Potential of citizen science in Japan is not utilized because of the lack of supports from society
2. Human resources to conduct analysis of collected data are needed
3. Recent forest policy tries to facilitate citizen science and their participation
4. Collaboration between neighboring prefectures can be effective to adoption of relevant local policies

Thank you !

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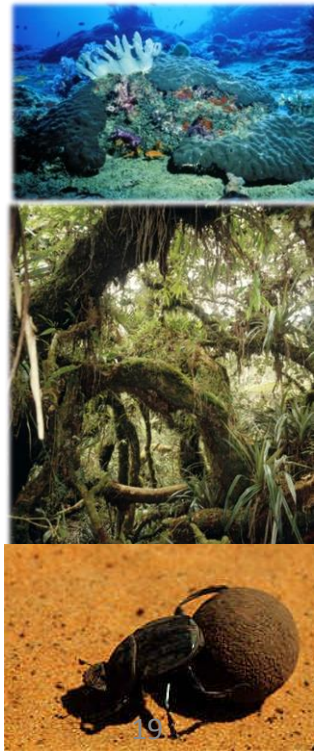
Facebook

https://www.facebook.com/kohsaka.jp



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ARTICLE

An analysis of 15 years of trends in children's connection with nature and its relationship with residential environment

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ABSTRACT

Intruduction: We assessed recent trends in children's connection with nature over the period of 2000–2015, using indices of wildlife awareness that focus on changes in wildlife abundance and the level of apathy among children. We used data from a survey conducted in 63 junior high school districts in the city of Sendai in Japan. In these surveys, children were asked whether they had seen 12 species groups within the past year. To examine changes in children's connection with nature, we used observed frequencies as an indicator of both the abundance of the species and children's apathy toward it.

Results and Discussions: Results indicated an increase in children's apathy toward species that had low popularity regardless of residential environment. Our results suggest that regular exposure to wildlife would be effective in preventing the loss of children's connection with nature, particularly by reducing children's apathy toward less-popular species.

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KEYWORDS
Connection with nature; apathy toward nature; abundance of species; long-term change; questionnairesurvey to citizens; residential environment

Introduction

Connecting with nature is extremely important for our physical and mental well-being (Chawla et al. 2014; Mustapa, Maliki, and Hamzah 2015; Sandifer, Sutton-

affect human–nature interactions (Ministry of the Environment 2018; Miller 2005; Soga and Gaston 2016). Moreover, the pressure of development and the change in forestry and agriculture in to modern

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Urban Transitions Conference, Shanghai, September 2016

Motivation, strategy and challenges of conserving urban biodiversity in local contexts: Cases of 12 municipalities in Ishikawa, Japan

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Abstract

Capturing the status, trends, and relationships in biodiversity and urbanization is a multi-dimensional challenge for scientists and policy-makers alike. An indicator, the City Biodiversity Index (CBI), was developed as a self-assessment tool to measure trends in urban contexts in three spheres: biodiversity, ecosystems, and governance. Its primary focus is "green," but it further encompasses social and economic aspects to measure the sustainability of a city. The indicators can be used to visualize trends and translate scientific assessments into policy. Since 2008, 25 cities voluntarily applied the CBI. In Asia, Japan applied certain components of the CBI to 665 municipalities in 2016 in one of the first large-scale applications at national level. Regarding data visualization methods, the city of Helsinki, for example, has a website to visualize environmental information on biodiversity. The aim of this paper is to identify the practical and scientific challenges in conservation of biodiversity in medium to small cities based on a questionnaire survey. The research site is Ishikawa prefecture, which comprises municipalities in the target sizes. The survey shows that certain terms were difficult to understand conceptually, particularly "ecosystem services." The lack of monitoring and available datasets posed a number of difficulties for applying the index to the majority of cities. A method to evaluate biodiversity and ecosystem services has not yet been established. These technical difficulties are complicated with administrative and financial issues as well as human resources, issues shared by the municipalities. Based on our survey results, recommended activities are discussed.

Peer-review under responsibility of the organizing committee of the Urban Transitions Conference

Keywords: Urban biodiversity; City Biodiversity Index; ecosystem service; participatory approach; municipality.

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Urban Transitions Conference, Shanghai, September 2016

Spatio-temporal analysis of biodiversity, land-use mix and human population in a socio-ecological production landscape: A case study in the Hokuriku region, Japan

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Abstract

In the development of City Biodiversity Index (CBI) database, it was necessary to overcome technical challenges, including the collection of information for biological indicators. To overcome the lack of data, methods to utilize land-use data have been developed. For example, distribution and abundance of species correlate with the degree of land-use mix. The research site, the Hokuriku region of Japan, has a developed Satoyama, a socio-ecological production landscape based on mixed land use. A part of the region, Noto, has been designated as a Globally Important Agricultural Heritage Systems (GIAHS) site in 2011 by the Food and Agriculture Organization of the United Nations (FAO). We found it is necessary to consider the biological type in order to refer to land-use mix as an indicator of biodiversity because the diversity of some species had a negative correlation with degree of land-use mix. We also determined that some species were correlated with land use changes over time. By applying the methods developed in this study to other Monsoon Asian regions with rapid population increases, it might be possible to develop a database as a platform for sharing the findings and knowledge to implement the conservation of biodiversity under changing conditions of land use and human population size.

Peer-review under responsibility of the organizing committee of the Urban Transitions Conference

Keywords: Land-use mix; biodiversity; population; City Biodiversity Index; Satoyama.

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Original article

Capturing the relationships between local foods and residents: A case in the Noto region, Japan

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ABSTRACT

Background: Under the influence of global trends, most regions are at risk of losing their local-food knowledge. In this context, analyzing the transmission of the knowledge, understanding the context of transmission, and implementing precise activities and policies are required. Noto is known for its unique ethnic fermented food products.
Methods: Through our questionnaire survey and analysis of the Noto peninsula, we explore the relationships between the attributes of local food producers and the variety of foods they produce, attempting to identify the key attributes related to making diverse local foods and the transmission of local food knowledge.
Results: Our analysis showed a correlation between the diversity of local foods made by residents and the number of years they had lived in the municipality.
Conclusion: The results implied that adequate management of social networks by local residents, who depend on the local environment, is required in transmitting the knowledge of local foods.

https://www.sciencedirect.com/science/article/pii/S2352618116300361

Kohsaka, R., Matsuoka, H., & Uchiyama, Y. (2016). Capturing the relationships between local foods and residents: a case in the Noto region, Japan. *Journal of Ethnic Foods*, *3*(2), 86-92.