

3rd ESP Asia Conference

14-17 December 2021 | Nagasaki, Japan

Eco-health and ecosystem services in Asia:
Bottom-up aspects for planetary health

ONLINE

BOOK OF ABSTRACTS

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- I. SESSION DESCRIPTION

ID: O2

Young Ecosystem Services Specialists (YESS) in Asia: Early-career researchers' perspectives on the assessment of Ecosystem Services

Hosts:

	Name	Organisation	E-mail
Hosts:	Nita Shashidharan	Ashoka Trust for Research in Ecology and the Environment	nita.shashidharan@atree.org
	Niklas Weins	University of Campinas / Wageningen University and Research	weinsniklas@gmail.com
Co-hosts:	Jingxia Wang	Ruhr University Bochum, Chair for Environmental Analysis and Planning in Metropolitan Regions	jingxia.wang@rub.de
	Kien Pham	National Central University	kien.env@g.ncu.edu.tw
	Shivani Srivastava	TERI-SAS New Delhi / ISB Hyderabad	shivani141296@gmail.com
	Sakshi Rana	Wildlife Institute of India	sakshi@wii.gov.in

Abstract:

We welcome submissions and voluntary contributions from **all early career researchers** for this session, being explicitly open for the submission of **ongoing research**!

The inter- and transdisciplinary ecosystem services research landscape has been growing over the years and has links to many different fields. This complex, socio-ecological field of science with a clear reference to policy and practice attracts early career researchers (ECR) with numerous specializations from various disciplines with fresh ideas, methodological approaches and viewpoints. Our session, run by ECRs for ECRs, aims to bring together, empower and connect members and those interested in joining the work of the Young Ecosystem Services Specialists network (YESS) and take part in this lively youth community of ESP.

For many ECRs all over the world, the year 2020 was associated with difficulties when it came to presenting their own research ideas to peers. In order to better network, exchange ideas and put our own research into a larger context, we offer ECRs who are from/in Asia or working about the region the opportunity to present themselves and their research in our session. As the [3rd ESP Asia Conference in Nagasaki](#) will be held fully online, ECRs who are normally not able to attend the conference personally due to financial or health restrictions will be able to present and discuss their

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research with a broader audience and get to know others who are initiating their career in the ES field.

Goals and objectives of the session:

The overall objective is to give ECRs from all relevant research areas the opportunity to participate in the scientific discourse, which has been difficult since the start of the pandemic. Especially for ECRs, the opportunity of peer exchange is crucial, as we have to find our way into the scientific community.

As a common thread across all presentations, we ask presenters to point out in their abstracts: (1) the challenges they see in (their) ES research in Asia and (2) starting points to address them (3) how/if their research is related to eco-health. Questions to the talks will be coordinated by the host team and moderated by interactive participation techniques (e.g. Mentimeter).

The session will be structured as follows:

- 1) The Executive Team members will first give a brief introduction about the YESS network to familiarize everyone about its work and the most recent developments.
- 2) There will be space for 5-10 minute presentations of all the submitted abstracts (exact times will be communicated once submissions are in), presenting methodology, research questions, hypotheses and findings. However, this YESS session is also explicitly open as a space for sharing ongoing research!
- 3) The presentations are followed by a discussion, which is usually a great space for sharing questions and knowledge on similar approaches, methodologies or experience sharing.

Following the conference's theme "Eco-health and ecosystem services in Asia: Bottom-up aspects for planetary health", we encourage a discussion on how our ES research might relate to health.

Planned output / Deliverables:

The session will provide an overview of the latest research on ecosystem services carried out by ECRs while focussing on the challenges of (their) ES research in the region and ways to address these challenges, to allow for shared learning from experiences. It also has the potential to highlight common challenges that ECRs face in ES research in Asia, while underlining the role of YESS as a peer network in which they are supported in their activities by low-threshold exchange opportunities.

Related to ESP Working Group/National Network:

Open Sessions

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II. SESSION PROGRAM

Date of session: Thursday, 16 December 2021

Time of session: 15:30 – 17:00

List of abstracts and speakers

Time	Name	Affiliation	Title of presentation
15:30-15:40	Short introduction of YESS & Guiding questions		
15:40-15:50	Current challenges for ECRs and ES research in Asia (Mentimeter poll)		
15:50-16:00	Kien Pham; Tang-Huang Lin	National Central University, Taoyuan, Taiwan	Estimating ecosystem service values in the Asia region based on the updated ESVD repository
16:10-16:20	Suvendu Das; Prosenjit Saha	Visva-Bharati University, Bolpur, India	Scenarios of Changing Land Use Pattern by Ever Expansion of Shrimp Farming from the Perspective of Traditional Agroecosystem
16:20-16:30	Bo Han	Ruhr University, Bochum, Germany	Nature-Based Solution to the Conflict between Cultivated Land Protection and Ecological Security in Metropolitan Areas: A GIS-based Potential Mapping Method
16:30-16:40	Niklas Werner Weins	University of Campinas, Brazil / WUR, Netherlands	From Risk Society to Ecological Civilization: An Analysis of Ecosystem Services and Risk at the science-policy interface in Chongqing, China
16:40-17:00	Discussion		

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III. ABSTRACTS

Estimating ecosystem service values in the Asia region based on the updated ESVD repository

Presenting author: Kien Pham; Tang-Huang Lin

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The benefit transfer method together with land-use data is frequently employed to measure the values of ecosystem service (ES), which has become an important concept for ecosystem protection despite having limitations rooted in the divergence of socioeconomic of the study sites and policy sites. This study examines the newly updated Ecosystem Services Valuation Database (ESVD), the largest public repository of standardized monetary values of ESs, to demonstrate the application of ESVD in land-use change impact assessments and identify the data gaps in ES valuation research. Coefficients for the Asian region's ESVD and Costanza et al. (2014) were combined with the land-use data to estimate the directional changes of ES values in Nha Trang, Vietnam. A comparison of the outcomes shows that much higher importance of water bodies and cultivated land were reported in studies across Asia to the respective biomes of Costanza's team, resulting in a difference of approximately four times in the total ESV in the testing area. While the results suggest that the ESVD repository is a new tool that can support the regional decision-making process, it should be noted that there is a lack of ES valuation research in urban and aquaculture domains, particularly in the Asian region.

Scenarios of Changing Land Use Pattern by Ever Expansion of Shrimp Farming from the Perspective of Traditional Agroecosystem

Presenting author: Suwendu Das; Prosenjit Saha

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Shrimp culture has a significant contribution to the growth of the marginal economy. Conversion of cultivation lands into shallow water bodies is a trend in several shrimp culture regions. This study aims to assess the impact of the expansion of shrimp farms and the land conversion of the traditional agroecosystem system as well as entire ecosystem services. A Normalised Different Vegetation Index (NDVI) map for two specific periods was prepared to delineate the ground reality of land conversion in the study area. For comparison, a control site was selected to investigate economic assessment from paddy farmers' perspectives. For three distinct categories of lands (affected paddy cultivation lands, control paddy cultivation lands and leased lands for shrimp farming), the cost-benefit analysis was performed at different discount rates for twenty years' time horizon since the beginning of the leasing period for Vannamei shrimp culture; also, for the next twenty years, after the complete switch from leased shrimp farms land to paddy cultivating land. Vital soil components were analysed. From the result of the cost-benefit analysis, it was clear that switching from leasing for shrimp culture to re-cultivation has the lowest Net Present Value. Leasing the adjoining affected farming lands to shrimp culture is the non-ending cycle until complete land degradation. Significant differences were observed between soil components of control and leased land. Leasing agricultural land for shrimp culture

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causes to enforce to lease the neighbouring agricultural lands. Once fertile lands are converted into shrimp farms, the entire ecological nature of the lands gets altered. Ultimately it turns an irreversible non-sustainable change in the entire agricultural landscape. Some suitable policy measures were discussed to make a sustainable balance. This study is novel and pertinent with its result of different scenarios of alteration of farming lands conversion for all shrimp farming countries worldwide. Shrimp culture has a significant contribution to the growth of the marginal economy. Conversion of cultivation lands into shallow water bodies is a trend in several shrimp culture regions. This study aims to assess the impact of the expansion of shrimp farms and the land conversion of the traditional agroecosystem system as well as entire ecosystem services. A Normalised Different Vegetation Index (NDVI) map for two specific periods was prepared to delineate the ground reality of land conversion in the study area. For comparison, a control site was selected to investigate economic assessment from paddy farmers' perspectives. For three distinct categories of lands (affected paddy cultivation lands, control paddy cultivation lands and leased lands for shrimp farming), the cost-benefit analysis was performed at different discount rates for twenty years' time horizon since the beginning of the leasing period for Vannamei shrimp culture; also, for the next twenty years, after the complete switch from leased shrimp farms land to paddy cultivating land. Vital soil components were analysed. From the result of the cost-benefit analysis, it was clear that switching from leasing for shrimp culture to re-cultivation has the lowest Net Present Value. Leasing the adjoining affected farming lands to shrimp culture is the non-ending cycle until complete land degradation. Significant differences were observed between soil components of control and leased land. Leasing agricultural land for shrimp culture causes to enforce to lease the neighbouring agricultural lands. Once fertile lands are converted into shrimp farms, the entire ecological nature of the lands gets altered. Ultimately it turns an irreversible non-sustainable change in the entire agricultural landscape. Some suitable policy measures were discussed to make a sustainable balance. This study is novel and pertinent with its result of different scenarios of alteration of farming lands conversion for all shrimp farming countries worldwide.

Nature-Based Solution to the Conflict between Cultivated Land Protection and Ecological Security in Metropolitan Areas: A GIS-based Potential Mapping Method

Presenting author: Bo Han

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Nature-based solutions are considered the most potential path to meet social challenges in the context of sustainable development. The advantage of NBS is that it can improve certain ecosystem services without damaging or even gaining other ecosystem services. This is of great significance for solving the wide range of ecosystem service trade-offs under the influence of humans. Developing metropolitan areas usually face the problem of rapid urban expansion squeezing ecological space. In developing countries, the process of industrialization is often accompanied by the encroachment of a large number of high-quality arable land around cities. In order to feed the growing population, people have to reclaim coastal mudflats, lakeshores, wetlands, ponds, and gentle slopes into newly cultivated land, although these places are not usually suitable for intensive agriculture. As a result, the conflict between cultivated land and ecological land caused by urbanization has arisen. Undoubtedly, cultivated land and ecological land are both important sources of ecosystem services. The process of arable land

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protection and maintenance of ecological security is a process of weighing different ecosystem services. Is there an opportunity to transform the trade-off between the two into synergy? The purpose of this research is to provide a nature-based solution to the conflict between farmland protection and ecological security and to develop a GIS-based potential mapping model to support spatial decision-making. Seven types of natural-based solutions, including ecological reclamation, land consolidation, ecological conservation, ecological corridors, ecological nodes, delineation of protected areas, and semi-natural habitats, have been integrated into our system. This study will take Suzhou, China as a case and map the spatial potential of these schemes based on the identification of conflicts.

From Risk Society to Ecological Civilization: An Analysis of Ecosystem Services and Risk at the science-policy interface in Chongqing, China

Presenting author: Niklas Werner Weins

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Payments for Ecosystem Services (PES) and ecological compensations as tools for mitigation and finance of climate adaptation provide innovative approaches to integrating conservation and development. Under the umbrella of "Ecological Civilization," risk and adaptation have taken a more central role in science and policy in China, highlighting the importance of ES and building on a solid basis of data and literature on valuation. We use an environmental sociology approach through Beck's Risk Society and Metamorphosis theory, proposing a multi-level actors analysis on how risk and ES are scientifically framed and politically adapted in eco-compensation arrangements in the provincial-status municipality of Chongqing, Southwestern China. Empirically testing the theoretical frameworks, we aim to contribute to the ongoing debate about the applicability of this Western theory on China. Our hypothesis is that eco-compensations are increasingly justified as overly positive (both in policy and science) economic opportunities rather than a response to risk. Challenging Chongqing's need for industrial and urban growth, a uniform central government vision of Ecological Civilization may jeopardize local needs and consideration of risks. We collected policy documents from local and central ministries and departments, as well as theses and articles from Web of Science and China National Knowledge Infrastructure (CNKI). We use the qualitative analysis software Atlas.ti for linking the discursive elements and cross-referencing in public policy documents. In a second step, a Social Network Analysis based on the documents is planned to complement the discussion on the implications of the national policy guideline. Practical implications can be drawn from the exploration of the science-policy interface and the applicability to other cases in the Global South to improve communication and institutional arrangements and making suggestions to advance knowledge on sustainable practices in national and local public policies.