

3rd ESP Asia Conference

14-17 December 2021 | Nagasaki, Japan

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

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BOOK OF ABSTRACTS

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I. SESSION DESCRIPTION

ID: T16

Policies and practices in payments for ecosystem services in Asia – key challenges and opportunities

Hosts:

	Title	Name	Organisation	E-mail
Host:(1	Dr.	Tan Nguyen	CIFOR-ICRAF	n.quangtan@cgiar.org
Co-host(s): (2	Dr.	Hilly Ann Roa-Quiaoit	CDO Riverbasin Management Council	hquiaoit@gmail.com
Co-host(s): (3	Dr.	Thuy Pham	CIFOR-ICRAF	T.Pham@cgiar.org

Abstract:

Payment for ecosystem services (PES) is a voluntary transaction with a well-defined ecosystem service (ES) with an ES buyer from an ES provider. PES schemes are being piloted/ implemented across Asia with the aim to create financial incentives for ecosystem services. PES programs often integrate sustainable management with the bundling of the ecosystem services of carbon stocks or sequestration, biodiversity protection or enhancement, watershed protection or enhancement, and landscape management for ecotourism. Many of the Asian countries like Thailand and the Philippines have experiences with voluntary PES scheme whereas PES in Viet Nam is mandatory to actors and runs based on government policy framework. The success of these countries in their respective PES is interesting to learn from, especially on the contribution of PES program to both development of forest resources and enhancement of income of forest dependent communities in Asia. The experiences of both voluntary and non-voluntary PES scheme in these Asian countries will be useful in designing future PES programs. This session is important for PES providers, beneficiaries and government officials in Asian countries to exchange knowledge, to update the current policy and practices in PES and to discuss challenges and opportunities for PES to move forward.

Goals and objectives of the session:

This session aims to create a platform for various stakeholders to exchange experiences and lessons learned. Through the session, regional-level network on PES will be established to generate further collaboration and continued exchange in the future. It is understood that the effectiveness of PES is strongly influenced by specific political, social, and economic contexts in each country and there is no

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“one-size fits all” formula for PES. With this in mind, this session does not aim to highlight best practices or suggest a model of PES, but rather to provide a platform to exchange lessons learned among participants. Furthermore, through the session, it is expected that gaps in policy, implementation, or monitoring can be identified and the way to address these gaps discussed together. Last but not least, the session will also identify enabling conditions for PES to contribute to the conservation of ecosystem services and poverty alleviation while maintaining social inclusion.

Planned output / Deliverables:

Asian Regional-Level Network of PES practitioners established for further collaboration and continued exchanges in the future.

Learnings on PES pilot and implementation in the Asian context facilitated to guide future PES programs in the region.

Related to ESP Working Group/National Network:

TWG 16 – ES Financing mechanisms (incl. PES)

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II. SESSION PROGRAM

Date of session: Friday, 17 December 2021

Time of session: 10:00 – 13:00

List of abstracts and speakers

Activity	Responsible	Allocated time
Sub-session 1: 90'		
Introduction of the session	Session chair / co-chair	5'
Payment for Environmental Services- From Policy to Practice	Pham Thu Thuy	12 presentation + 5' Q&A
Conceptualization and practice of PES and eco-compensation: expansion or alternative?	Cheng Chen	12 presentation + 5' Q&A
Effect on surface water quality from proximity of markets for water pollution allowances in China	Hao Wang	12 presentation + 5' Q&A
Social and Economic Impacts of the Payment for Forest Environmental Services (PFES) Policy on Local Stakeholders: A Case Study in Quangtri Province, Central Vietnam	Hanh Hoang Thi My	12 presentation + 5' Q&A
A Case Study on Flood Control Methods by Introducing Green Infrastructure in Omuta City	Oome Masaki	12 presentation + 5' Q&A
Sub-session 2: 90'		
Opening and summary of previous sub-session	Chair / co-chair	5'
Constraints and opportunities in mobilizing policy support for protection of ecological services in the Philippines.	Hilly Ann Roa-Quiaoit	12 presentation + 5' Q&A
Optimization of an ecological network of Ecological Spaces Integrated Multivariate Analysis based on circuit theory: A case study of Xiangyang City, China	HAN Yiwen	12 presentation + 5' Q&A
The role of hybrid governance modes and collaboration in water and fisheries conservation: case study of Fish Cradle Rice project in Lake Biwa	Linh Nguyen	12 presentation + 5' Q&A
Discussion	All	20'
Wrap up	Session chair/ co-chair	5'

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III. ABSTRACTS

Payment for Environmental Services- From Policy to Practice

Presenting author: Pham Thu Thuy

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To be updated

Conceptualization and practice of PES and eco-compensation: expansion or alternative?

Presenting author: Cheng Chen

Contact: chenchengvip@gmail.com

Ecosystem service is an emerging scientific field that includes a variety of tools and involves a range of scientific disciplines. Internationally, market-based approaches for internalization of negative externalities of ecosystem services, particular the payments for ecosystem services (PES), have been considered new and innovative management instrument over the past decades. Corresponding to this international trend, PES schemes in China are mostly described by the domestic term eco-compensation or value realization of eco-products. Both PES and eco-compensation in China face many similar challenges (e.g. insufficient funding, environmental effectiveness and social equity) in creating management mechanism for behavioral change. In both EU and China, the market-based approaches are still under development, sharing the same constrains of over-relying on governmental payments. In the EU, many attentions have been paid to the management of human behaviour through “soft” incentive-based measures combining with participatory management and collaborative decision making. In China, while the eco-compensation is predominantly relying on governmental financing and hierarchy structure, some recent pioneering projects showed the promising potentials of alternative fund generating and wide participation. However, how the PES was adopted and transformed in the formation of conservation programs combining market-oriented elements within a command-and-control system in China has not been well answered. Furthermore, it is not clear whether eco-compensation is a conceptual extension or paradigm shift from PES due to their evolutions over time. Against this backdrop, this study investigated the conceptualization and implementation of PES and eco-compensation considering the political, social, and economic contexts in the EU and China. Particularly, by taking a comparative perspective, this study provided experiences and lessons learnt from the two regions, contributing to enhance the concept of PES from theory to practice.

Effect on surface water quality from proximity of markets for water pollution allowances in China

Presenting author: Hao Wang

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Market for water pollution allowances has been implemented in China as one of the policy instruments to combat water pollution. After years of implementation, it is time to evaluate how this instrument has been performing. This paper gives empirical evidence on the environmental effectiveness of this type of market, by assessing its impact on surface water quality. A difference-in-difference (DID) method was conducted to analyse the impact of the closest market upstream on water quality downstream, which was recorded by the monitoring stations in major river basins from 2007 to 2018. The result implies that there exists effect from the proximity to the closest market upstream on water quality. Further analysis was conducted on the range of distance at which the distance to the closest market upstream had a significantly negative impact on the water quality downstream.

Social and Economic Impacts of the Payment for Forest Environmental Services (PFES) Policy on Local Stakeholders: A Case Study in Quangtri Province, Central Vietnam

Presenting author: Hanh Hoang Thi My

Contact: hanh.qbvptr@gmail.com

Payment for Forest Environmental Services (PFES) is a successful policy for sustainable forest management in Vietnam. However, there is still a lack of examination about the socioeconomic and environmental outcomes of PFES, especially in rural areas in the country. This study aimed to evaluate the social and economic impacts of the PFES policy on local service providers in Quangtri province, Central Vietnam with hypotheses that PFES policy would benefit them in social (e.g., education and training) and economic (e.g., income increase) opportunities, which would enhance engagement in PFES. A questionnaire survey was conducted to collect responses from 101 forest owners and 100 subcontractors enrolled in the PFES policy (total 201) to understand their socioeconomic and environmental perceptions, and forest protection activities frequency. The average age of respondents was 39.96 years old. The average annual household income in 2020 was 23.54 million VND (approximately USD1,038), while the average PFES income in 2020 was 11.55 million VND (approximately USD507), which accounts for as high as 49.07% of the overall household income. 78.11% and 88.06% of respondents increased their forest and overall income respectively after enrolling in the PFES policy. Similarly, respondents perceived water quality (83.08%) and forest environmental quality (85.06%) improved after participating in the PFES policy. As to the social impacts, on the other hand, 70.65% of the respondents had joined no training or workshop about the PFES policy. Regression analysis results show PFES amount received ($\beta = 0.03$, $p < 0.001$), forest income change ($\beta = 0.44$, $p < 0.05$), and water quality change ($\beta = 0.25$, $p < 0.05$) are positively associated with frequency of forest protection activities. In conclusion, the present study suggests PFES policy could improve forest and water quality and the livelihoods of enrolled service providers and could enhance their engagement in forest protection.

A Case Study on Flood Control Methods by Introducing Green Infrastructure in Omuta City

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In recent years, urban flooding due to heavy rainfall has become an issue in Japan. In particular, there is an increasing number of cases of damages where the existing conventional gray infrastructure is unable to cope with heavy rainfall that exceeds the design scale. In addition, issues in urban areas such as heat islands and improvement of the urban environment are becoming increasingly complicated. As a solution to these problems, Green infrastructure is gaining attention. In this study, we conducted a case study on the effectiveness of green infrastructure in preventing urban flooding in Omuta City, Fukuoka Prefecture. In Omuta City, Fukuoka Prefecture, heavy rains in July 2020 caused serious urban flooding. Therefore, a model was constructed for the drainage area of the Mikawa pumping station in Omuta City, and the runoff control effect of green infrastructure was verified by 2D hydrological simulation. The purpose of this verification is to obtain knowledge on future land use and urban flood management methods. 2D hydrological simulations were performed by InfoworksICM, which has modules for rainfall-runoff, pipe flow, and 2D overland flow. The land use, drainage system, and pumping stations were modeled to reenact the flooding of that time. The study rainfall is the maximum rainfall of 74 mm/hr on July 6, 2020. Through simulations, the peak flow, the flood prone area, the volume reduction and the hydrograph delay before and after the installation of green infrastructure were calculated, and the runoff control effect was verified. As component technologies of green infrastructure, we introduced permeable pavement and rain gardens that are suitable for each public facility. As a result of the verification, it was found that the introduction of green infrastructure can reduce the burden on storm drains and pumping stations and control flooding.

Constraints and opportunities in mobilizing policy support for protection of ecological services in the Philippines

Presenting author: Hilly Ann Roa-Quiaoit

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Economic growth and government agendas can be a double-edged sword towards environmental efforts. Thus, Multi-Stakeholder initiatives can complement but not assume the role of government. The Cagayan de Oro River Basin Management Council (CDORBMC), a 90-member multi-sectoral platform, sponsored the protection for ecological services to protect and rehabilitate watersheds in the Cagayan de Oro River Basin (CDORB).

The Local Government Units (LGUs) spanning CDORB have enacted ecosystem service ordinances within the last six years with intensive lobby and advocacy support from CDORBMC. Each ordinance is characterized by its unique and novel approach in mobilizing policy support for the protection of ecosystem services within its jurisdiction, contributing to the bigger landscape of the CDORB.

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In 2018, the downstream area of Cagayan de Oro City passed its Payments for Ecosystem Services (PES) ordinance, allocating 200,000 USD annually for urban greening and restoration activities in the critical watersheds of the City. In the same year, the municipality of Libona implemented its PES ordinance, which imposed water levy to commercial and residential users to fund watershed restoration and lend support to Mt. Kitanglad Range Natural Park (MKRNP). In 2015, the municipality of Talakag enacted its PES ordinance, taxing prorated water charges to their users under its municipal water system. The funds collected aim to support the existing PES in the ancestral domains of Miarayon Lapok Lirongan Tinaytayan Talaandig Tribal Association (MILALITTRA) in Mt Kalatungan. In contrast, the municipality of Baungon is still in a predicament as to how and what it will be its PES.

With success in enacting these ordinances, each presented a common denominator in challenges and opportunities, such as — the declining state of water system facilities, bureaucratic inter-government fund management, legal and scientific instruments, lack of implementation plan, political climate, charging of fair rates, and deep-seated trust issues on government-led programs.

Optimization of an ecological network of Ecological Spaces Integrated Multivariate Analysis based on circuit theory: A case study of Xiangyang City, China

Presenting author: HAN Yiwen

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China's national territory spatial planning system since the 2019 is a key measure to promote the construction of ecological civilization and an important way to achieve high-quality development and high-quality life. Ecological space in the new planning system is the basis of maintaining urban sustainable development. This study aims to explore a scientific research framework for the construction and optimization of ecological network in the urban ecological spaces, taking Xiangyang City as an example. We firstly identified the ecological source areas integrating the morphological spatial pattern analysis, ecosystem services assessment, and ecological sensitive analysis. Then Link Mapper model and circuitscape 4.0 software were approached to identify the current and potential ecological corridors. The results shows that 35 ecological source areas, 73 ecological corridors, and 16 obstacle points were identified in current ecological network. Then three restoration strategies were introduced to optimize it, including expansion of green spaces, protection of key ecological steppingstones, and expansion of potential-ecological source areas. After the optimization, the value of cumulative current increased significantly, indicating that the connectivity of the ecological network was improved. This study provides a method for the selection of source areas and give a valuable reference for the strategy-making of ecological spaces planning in the future.

The role of hybrid governance modes and collaboration in water and fisheries conservation: case study of Fish Cradle Rice project in Lake Biwa

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Lake Biwa in Shiga Prefecture, Japan is home to important and unique freshwater ecosystem. Fish Cradle Rice project is a bottom-up initiative that help conserve endemic fisheries, water environment and rice paddies' ecosystem in harmony with culture and livelihood of local community. Starting from a pilot project to a direct payment for ecosystem services program, Fish Cradle Rice has now been integrated in legal framework of Lake Biwa water conservation and agriculture regulations. However, few study has focused on governance aspects of this initiate, especially the role of hybrid policy instruments and collaboration mechanism. Furthermore, comparative analysis between different project areas for learning purpose have not been explored given the fact that not all communities can sustain this model. This research aims to address these gaps through analyzing empirical knowledge of policy development and practices of collaboration mechanism in Fish Cradle Rice project. Two different communities were studied to identify the drivers for the success of the projects. The research used the combination of desk review, qualitative coding and key informant interviews with farmers, government agencies and civil society from field trips in Shiga. Key results highlight that although hybrid policy instrument of direct payment for ecosystem services provides important motivation to initiate conservation projects, it needs to be combined with local community's intrinsic motivation and strong collaboration mechanism. Secondly, bringing institutions is important in creating synergies and avoid conflicts among different governance modes. Thirdly, community participation can be strongly driven and sustained by appreciation of local ecological knowledge and right recognition from wider public. Finally, creative mechanism to engage a broad range of environmental conscious citizens for sustainable financing of ecosystem services is necessary. The findings can be beneficial to improve our understanding on the dynamics of water governance and sustainability of conservation projects in other areas in Japan and globally.